
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 20-F

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2020

OR

TRANSITION REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report

For the transition period from to

Commission file number 001-15264

中国铝业股份有限公司

(Exact name of Registrant as specified in its charter)

ALUMINUM CORPORATION OF CHINA LIMITED

(Translation of Registrant's name into English)

People's Republic of China

(Jurisdiction of incorporation or organization)

No. 62 North Xizhimen Street, Haidian District, Beijing
People's Republic of China (100082)

(Address of principal executive offices)

Zhu Runzhou

No. 62 North Xizhimen Street, Haidian District, Beijing
People's Republic of China (100082)

(86) 10 8229 8322

ir@chalco.com.cn

(Name, Telephone, Email and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act.

Title of each class	Trading Symbol	Name of each exchange on which registered
American Depositary Shares*	ACH	New York Stock Exchange, Inc.
Class H Ordinary Shares**		

* Evidenced by American Depositary Receipts. Each American Depositary Share represents 25 H Shares.

** Not for trading, but only in connection with the listing of American Depositary Shares, pursuant to the requirements of the Securities and Exchange Commission.

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Securities registered or to be registered pursuant to Section 12(g) of the Act.

None

(Title of Class)

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.

None

(Title of Class)

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report.

As of December 31, 2020:

Domestic shares, par value RMB1.00 per share	13,078,706,983
H Shares, par value RMB1.00 per share	3,943,965,968

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes No

Note — Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards[†] provided pursuant to Section 13(a) of the Exchange Act.

[†] The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes No

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP International Financial Reporting Standards as issued by the International Accounting Standards Board Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

Yes No

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Forward-Looking Statements

Certain information contained in this annual report, which does not relate to historical information, may be deemed to constitute forward-looking statements. The words or phrases “will likely result,” “are expected to,” “will continue,” “is anticipated,” “estimate,” “project,” “believe” or similar expressions are intended to identify “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Such statements are subject to certain risks and uncertainties that could cause actual results to differ materially from historical results and those presently anticipated or projected. You should not place undue reliance on any such forward-looking statements, which speak only as of the date made. These forward-looking statements include, without limitation, statements relating to:

- future general economic conditions;
- future conditions in the international and China capital markets;
- future conditions in the financial and credit markets;
- future prices and demand for our products;
- future PRC tariff levels for alumina and primary aluminum;
- sales of our products;
- the extent and nature of, and potential for, future developments;
- production, consumption and demand forecasts of bauxite, coal, alumina and primary aluminum;
- expansion, consolidation or other trends in the primary aluminum industry;
- the effectiveness of our cost-saving measures;
- future expansion, investment and acquisition plans and capital expenditures;
- the severity, duration and spread of the COVID-19 pandemic, as well as the direct and indirect impacts of COVID-19 pandemic (as well as the efforts to contain it) on our operations and financial performance, the industry we are in, our suppliers and customers, the PRC economy and global economy;
- competition;
- changes in legislation, regulations and policies;
- the impact of the Holding Foreign Companies Accountable Act and any rules or regulations adopted by U.S. regulators to implement such legislation;
- estimates of proven and probable bauxite reserves;
- our research and development plans; and
- our dividend policy.

These statements are based on assumptions and analyses made by us in light of our experience and our perception of historical trends, current conditions and future developments, as well as other factors we believe are appropriate in particular circumstances. However, whether actual results and developments will meet our expectations and predictions depends on a number of risks and uncertainties, which could cause actual results to differ materially from our expectations. These risks are more fully described in the section headed “Item 3. Key Information - D. Risk Factors.”

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Consequently, all of the forward-looking statements made in this annual report are qualified by these cautionary statements. We cannot assure you that the actual results or developments anticipated by us will be realized or, even if substantially realized, that they will have the expected effect on us or our business or operations.

Certain Terms and Conventions

“**Chalco**,” “**the Company**,” “**the Group**,” “**our Company**,” “**our Group**,” “**we**,” “**our**” and “**us**” refer to Aluminum Corporation of China Limited and its subsidiaries and, where appropriate, to its predecessors;

“**A Share(s)**” and “**domestic share(s)**” refer to our domestic ordinary share(s), with a par value of RMB1.00 each, which are listed on the Shanghai Stock Exchange;

“**ADR(s)**” refers to the American Depositary Receipt(s);

“**ADS(s)**” refers to the American Depositary Share(s);

“**alumina-to-silica ratio**” refers to the ratio of alumina to silica in bauxite by weight;

“**aluminum fabrication**” refers to the process of converting primary aluminum or recycled aluminum materials into plates, strips, bars, tubes and other fabricated products;

“**Baotou Aluminum**” refers to Baotou Aluminum Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Baotou Aluminum Group**” refers to Baotou Aluminum (Group) Co., Ltd., a subsidiary of Chinalco;

“**bauxite**” refers to a mineral ore that is principally composed of aluminum;

“**Bayer process**” refers to a refining process that employs a strong solution of caustic soda at an elevated temperature to extract alumina from ground bauxite;

“**Bayer-sintering combined process**” and “**Bayer-sintering series process**” refer to the two methods of refining process developed in China which involve the combined application of the Bayer process and the sintering process to extract alumina from bauxite;

“**Board**” refers to our board of directors;

“**Boffa Project**” refers to the project to develop and operate a bauxite mine located in Boffa, Guinea, in accordance with a mining convention entered into by Chalco Hong Kong, Chalco Guinea Company S.A. and the Guinean government on June 8, 2018;

“**CBEX**” refers to China Beijing Equity Exchange, an approved equity exchange for the transfer of state-owned assets;

“**Chinalco Assets**” refers to Chinalco Assets Operation and Management Co., Ltd., a wholly-owned subsidiary of Chinalco;

“**Chalco Energy**” refers to Chalco Energy Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Hong Kong**” refers to Chalco Hong Kong Ltd., our wholly-owned subsidiary established under Hong Kong Law;

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“**Chalco Liupanshui**” refers to Chalco Liupanshui Hengtaihe Mining Co., Ltd., 49% of the equity interest of which is owned by us;

“**Chalco Logistics**” refers to Chalco Logistics Group Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Materials**” refers to Chalco Materials Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Mining**” refers to Chalco Mining Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Ruimin**” refers to Chalco Ruimin Company Limited, our subsidiary until June 2013 when we disposed of 93.30% of its equity interest to Chinalco;

“**Chalco Shandong**” refers to Chalco Shandong Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Shanghai**” refers to Chalco Shanghai Company Limited, our wholly-owned subsidiary established under the PRC law;

“**Chalco Southwest Aluminum**” refers to Chalco Southwest Aluminum Company Limited, our subsidiary until June 2013 when we disposed of 60% of its equity interest to Chinalco;

“**Chalco Southwest Aluminum Cold Rolling**” refers to Chalco Southwest Aluminum Cold Rolling Company Limited, our wholly-owned subsidiary until June 2013 when we disposed of its entire equity interest to Chinalco;

“**Chalco Trading**” refers to China Aluminum International Trading Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Trading Group**” refers to China Aluminum International Trading Group Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Chalco Xing County Alumina Project**” refers to the Bayer process production system and ancillary facilities at Xing County, Lvliang City of Shanxi Province with production capacity of 800,000 tonnes of metallurgical grade alumina per year;

“**China**” and the “**PRC**” refer to the People’s Republic of China, excluding, for purposes of this annual report only, Hong Kong Special Administrative Region, Macao Special Administrative Region and Taiwan;

“**China Copper**” refers to China Copper Co., Ltd., a wholly-owned subsidiary of Chinalco;

“**China United Assets Appraisal**” refers to China United Assets Appraisal Group Co., Ltd., a PRC qualified valuer;

“**Chinalco**” refers to our controlling shareholder, Aluminum Corporation of China and its subsidiaries (other than Chalco and its subsidiaries) and, where appropriate, to its predecessors;

“**Chinalco Finance**” refers to Chinalco Finance Co., Ltd.;

“**CSRC**” refers to China Securities Regulatory Commission;

“**Dongdong Coal**” refers to Shaanxi Chengcheng Dongdong Coal Co., Ltd., 45% of the equity interest of which is owned by us;

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“**Exchange Act**” refers to the U.S. Securities Exchange Act of 1934, as amended;

“**Euro**” refers to the lawful currency of the Eurozone;

“**Fushun Aluminum**” refers to Fushun Aluminum Company Limited, our wholly-owned subsidiary established under the PRC law;

“**Gansu Hualu**” refers to Gansu Hualu Aluminum Company Limited, 51% of the equity interest of which is owned by us;

“**Gansu Huayang**” refers to Gansu Huayang Mining Development Company Limited, 70% of the equity interest of which is owned by us;

“**GNF**” refers to Guinea franc, the lawful currency of the Republic of Guinea;

“**Guangxi Investment**” refers to Guangxi Investment (Group) Co., Ltd., formerly known as Guangxi Development and Investment Co., Ltd., a PRC state-owned enterprise;

“**Guizhou Development**” refers to Guizhou Provincial Materials Development and Investment Corporation, a PRC state-owned enterprise and one of our promoters and shareholders;

“**Guizhou Huajin**” refers to Guizhou Huajin Aluminum Co., Ltd., 60% of the equity interest of which is owned by us;

“**Guizhou Huaren**” refers to Guizhou Huaren New Material Co., Ltd., 40% of the equity interest of which is owned by us;

“**Guangxi Huasheng**” refers to Guangxi Huasheng New Material Co., Ltd., 51% of the equity interest of which is owned by us;

“**Guizhou Yuneng**” refers to Guizhou Yuneng Mining Co., Ltd., 25% of the equity interest of which is owned by us;

“**H Share(s)**” refers to overseas listed foreign share(s) with a par value of RMB1.00 each, which are listed on the Hong Kong Stock Exchange;

“**Henan Aluminum**” refers to Chalco Henan Aluminum Company Limited, our subsidiary until June 2013 when we disposed of 90.03% of its equity interest to Chinalco;

“**HK\$**” and “**HK dollars**” refer to Hong Kong dollars, the lawful currency of the Hong Kong Special Administrative Region of the PRC;

“**Hong Kong Stock Exchange**” refers to The Stock Exchange of Hong Kong Limited;

“**Huaxi Aluminum**” refers to Huaxi Aluminum Company Limited, our subsidiary until June 2013 when we disposed of 56.86% of its equity interest to Chinalco;

“**Inner Mongolia Huayun**” refers to Inner Mongolia Huayun New Materials Co., Ltd., 50% of the equity interest of which is owned by Baotou Aluminum;

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“**IRS**” refers to Internal Revenue Service of the United States federal government;

“**Japanese Yen**” refers to the lawful currency of Japan;

“**Jiaozuo Wanfang**” refers to Jiaozuo Wanfang Aluminum Manufacturing Co., Ltd.;

“**Ka**” refers to kiloamperes, a unit for measuring the strength of an electric current, with one kiloampere equaling 1,000 amperes;

“**kWh**” refers to kilowatt-hours, a unit of electrical power, meaning one kilowatt of power for one hour;

“**Lanzhou Aluminum**” refers to Lanzhou Aluminum Co., Ltd., our wholly-owned subsidiary since January 2019, which was previously our wholly-owned branch, Lanzhou branch;

“**Listing Rules**” and “**Hong Kong Listing Rules**” refer to the Rules Governing the Listing of Securities on the Hong Kong Stock Exchange, as amended;

“**LME**” refers to the London Metal Exchange Limited;

“**Logistics Zhongzhou**” refers to China Aluminum Logistics Group Zhongzhou Co., Ltd., our indirect subsidiary;

“**MIIT**” refers to Ministry of Industry and Information Technology of the PRC;

“**MOF**” refers to Ministry of Finance of the PRC;

“**mu**” refers to a unit of area commonly used in the PRC. 1 mu equals approximately 666.67 square meters;

“**MW**” refers to megawatt, a unit of electrical power;

“**Nanchu**” refers to ENanchu (<http://www.enanchu.com/>), a nonferrous metal-related portal site in PRC;

“**NDRC**” refers to China National Development and Reform Commission;

“**Ningxia Energy**” refers to China Aluminum Ningxia Energy Group Co., Ltd., formerly known as Ningxia Electric Power Group Co., Ltd., before we acquired 70.82% of its equity interest in January 2013;

“**Northwest Aluminum**” refers to Northwest Aluminum Fabrication Branch, our wholly-owned branch until June 2013 when we disposed of all its assets to a subsidiary of Chinalco;

“**NYSE**” and “**New York Stock Exchange**” refer to the New York Stock Exchange Inc.;

“**ore-dressing Bayer process**” refers to a refining process we developed to increase the alumina-to-silica ratio of bauxite;

“**PBOC**” refers to People’s Bank of China;

“**Qingdao Light Metal**” refers to Chalco Qingdao Light Metal Company Limited, our wholly-owned subsidiary until June 2013 when we disposed of its entire equity interest to Chinalco. In December 2017, we acquired 100% of the equity interest in Qingdao Light Metal through Chalco Shandong at a consideration of RMB300.4 million to further our prospective strategic layout on secondary aluminum;

“**Qinghai Energy**” refers to Qinghai Province Energy Development (Group) Co., Ltd., 21% of the equity interest of which is owned by us;

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“**refining**” refers to the chemical process used to produce alumina from bauxite;

“**RMB**” and “**Renminbi**” refer to the lawful currency of the PRC;

“**SAT**” refers State Administration of Taxation of the PRC;

“**SAFE**” refers to State Administration of Foreign Exchange of the PRC;

“**SASAC**” refers to State-owned Assets Supervision and Administration Commission of the State Council of China;

“**SEC**” refers to the U.S. Securities and Exchange Commission;

“**Securities Act**” refers to the U.S. Securities Act of 1933, as amended;

“**Shandong Huayu**” refers to Shandong Huayu Alloy Material Co., Ltd., 55% of the equity interest of which is owned by us;

“**Shanxi Jiexiu**” refers to Shanxi Jiexiu Xinyugou Coal Industry Co., Ltd., 34% of the equity interest of which is owned by us;

“**Shanxi Huasheng**” refers to Shanxi Huasheng Aluminum Company Limited, 51% of the equity interest of which is owned by us;

“**Shanxi Huaxing**” refers to Shanxi Huaxing Aluminum Co., Ltd., a wholly-owned subsidiary established under the PRC law.

“**Shanxi New Material**” or “**Shanxi Huaze**” refers to Chalco Shanxi New Material Co., Ltd., formerly known as Shanxi Huaze Aluminum and Power Co., Limited, 85.98% of the equity interest of which is owned by us;

“**Shanxi Other Mines**” refers to the nine mines to which we entrusted another party to conduct mining activities, including Changjialing mine, Guxian mine, Loufan mine, Nanpo mine, Xishan mine, Yangjiashan mine, Niucaogou mine, Xiwupu mine and Jiaokou Xisongzhuang mine in Shanxi Province;

“**Shanxi Zhongrun**” refers to Shanxi China Huarun Co., Ltd., 40% of the equity interest of which is owned by us;

“**SHFE**” refers to the Shanghai Futures Exchange;

“**sintering process**” refers to a refining process employed to extract alumina from bauxite by mixing ground bauxite with supplemental materials and burning the mixture in a coal-fired kiln;

“**smelting**” refers to the electrolytic process used to produce molten aluminum from alumina;

“**tonne**” refers to the metric ton, a unit of weight, that is equivalent to 1,000 kilograms or 2,204.6 pounds;

“**US\$**,” “**dollars**” and “**U.S. dollars**” refer to the lawful currency of the United States;

“**Xinghua Technology**” refers to Chinalco Shanxi Jiaokou Xinghua Technology Ltd., 66% of the equity interest of which is owned by us;

“**Yangtze**” refers to the Shanghai Changjiang Nonferrous Metals Spot Market;

“**Yixin Aluminum**” refers to Heqing Yixin Aluminum Co., Ltd., an indirect subsidiary of Chinalco;

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“**Yunnan Aluminum**” refers to Yunnan Aluminum Co., Ltd., an indirect subsidiary of Chinalco;

“**Yunnan SASAC**” refers to the State-owned Assets Supervision and Administration Commission of Yunnan Provincial People’s Government;

“**Zhangze Electric Power**” refers to Shanxi Zhangze Electric Power Co., Ltd., which owns 14.02% of equity interest in Shanxi New Material;

“**Zhengzhou Institute**” refers to Chalco Zhengzhou Research Institute of Non-ferrous Metal Co., Ltd., our wholly-owned subsidiary, which primarily provides research and development services;

“**Zhongzhou Aluminum**” refers to Chalco Zhongzhou Aluminum Co., Ltd., our wholly-owned subsidiary established under the PRC law;

“**Zhongzhou Aluminum Plant**” refers to Henan Zhongzhou Aluminum Plant Co., Ltd., a wholly-owned subsidiary of Chinalco;

“**Zhongzhou Logistics**” refers to Henan Zhongzhou Logistics Co., Ltd., which had been a wholly-owned subsidiary of Chinalco and was dissolved in September 2020;

“**Zunyi Alumina**” refers to Chalco Zunyi Alumina Co., Ltd., which was merged into Zunyi Aluminum in June 2018; and

“**Zunyi Aluminum**” refers to Zunyi Aluminum Co., Ltd., 67.45% of the equity interest of which is owned by us.

Translations of amounts in this annual report from Renminbi to U.S. dollars and vice versa have been made at the rate of RMB6.5250 to US\$1.00, the exchange rate as set forth in the H.10 statistical release of the Federal Reserve Board for December 31, 2020. We make no representation that any Renminbi or U.S. dollar amounts could have been, or could be, converted into U.S. dollars or Renminbi, as the case may be, at any particular rate, the rates stated below, or at all.

Any discrepancies in any table between the amounts identified as total amounts and the sum of the amounts listed therein are due to rounding.

PART I

Item 1. Identity of Directors, Senior Management and Advisors

Not applicable.

Item 2. Offer Statistics and Expected Timetable

Not applicable.

Item 3. Key Information

A. Selected Financial Data

Reserved.

B. Capitalization and Indebtedness

Not applicable.

C. Reasons for the Offer and Use of Proceeds

Not applicable.

D. Risk Factors

Our business and financial condition and results of operations are subject to various changing business, competitive, economic, political and social conditions in China and worldwide. In addition to the factors discussed elsewhere in this annual report, the following are some of the important factors that could cause our actual results to differ materially from those projected in any forward-looking statements.

Our business may be materially and adversely affected by the COVID-19 pandemic.

Since the end of 2019, COVID-19, a disease caused by a novel strain of coronavirus, has spread in China and globally, and the World Health Organization declared the COVID-19 outbreak a pandemic in March 2020. The COVID-19 pandemic has led the governments and other authorities around the world, including China, to impose measures intended to control its spread, including quarantines, restrictions on travel and public gatherings, temporary closure of certain businesses and facilities. While still continuing, the COVID-19 pandemic, as well as efforts to contain it, has caused significant economic and financial disruptions around the world, including disruption on manufacturing operations, logistics and global supply chains and significant volatility and disruption of financial markets. While the government continues to take stringent measures to prevent any potential resurgence of new COVID-19 cases, since the second quarter of 2020, many restrictions in China have been lifted and the level of business activities have been restoring in response to the significant decrease of new reported cases. As a result, Chinese economy has been recovering rapidly. In addition, vaccinations are gradually expected to become more widely available worldwide. However, the above mentioned prevention and control measures may continue globally in the near or longer term. The COVID-19 pandemic could materially and adversely affect our business, financial condition and results of operations.

Due to the outbreak and governmental control measures imposed to contain virus spread, we experienced temporary restrains on our operations, such as temporary interruptions on transportation in certain areas in February 2020 and some employees' temporary delay in their returning to work after the Chinese New Year holiday in 2020. We have been proactively taking measures to respond to these restrains, including measures to protect the health and safety of our employees, and by far such measures have helped in maintaining our steady production. However, if the virus further spreads worldwide, including China or other jurisdictions in which we, our suppliers or customers operate or have property or projects, or further control measures are adopted and continue to stay in place in these or other regions, we may face further disruptions on our normal operation, sales, project construction, supply chain and transportation channel, labor shortage and other limitations on our business activities due to restrictions on our employees' ability to travel, infection of management and employees, suspension or closure of facilities, additional costs arising from precautionary infection control and hygienic measures, and other impacts, which could be material and adverse to our business, financial condition and results of operations.

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In addition, the market prices of primary aluminum and alumina have been volatile since the COVID-19 outbreak. Due to weak demand for aluminum and reduction of aluminum production globally resulting from the COVID-19 pandemic, in April 2020, the Australian FOB spot price for alumina and the international cash price for primary aluminum on the LME reached a low of US\$225 per tonne and a low of US\$1,437 per tonne, respectively. See “- Volatility in the prices of alumina, primary aluminum, other non-ferrous metal and other commodities may adversely affect our business, financial condition and results of operations” and “Item 5. Operating and Financial Review and Prospects - A. Operating Results - Factors Affecting Our Results of Operations - Mix and Pricing of Our Products” for information of the historical prices of 2020 and prior years. Although because of the recovery of the downstream business activities in China and globally, the market prices of primary aluminum and alumina have increased in the second half of 2020, there is no assurance that the demand for primary aluminum and alumina will not be weakened by the COVID-19 pandemic any more, and any volatility or decreases of the market prices of primary aluminum and alumina may result in reduction of our revenue and profit, increase of our inventory amount and other material and adverse impacts on our financial condition and results of operations. We have been closely monitoring the development of the COVID-19 pandemic and evaluating market changes and impact of the COVID-19 pandemic on our businesses, operations and financial performances, as well as actively responding to the possible impact on us. For example, in response to the price volatility of primary aluminum and alumina, we adjusted, and may further adjust, the structure of our product portfolio, the amount of inventories and our marketing strategies, and we utilized, and may further utilize futures transactions to hedge against price fluctuations. However, there is no assurance that our efforts would continue to be successful, and given that the COVID-19 pandemic is still ongoing around the world and despite people in some regions have been vaccinated, its full impact on us may still be difficult to predict.

If the global public health crisis caused by COVID-19 pandemic continues, it may have an adverse impact on the global and China’s economies, which may, among other things, exacerbate turbulence in commodity market, discourage or disrupt investment and production, increase total inventories of primary aluminum or other products in the industry, bring more uncertainty to the consumption of aluminum-made products and the prices of primary aluminum and alumina, and cause other adverse impacts on the industry we are in. An economic downturn including financial market disruption, or a market perception that this situation may occur or develop, may also cause increase of financing costs, or reduce or even diminish available sources of financing for operation or expansion. In addition, significant financial market volatility and uncertainty may adversely affect the market prices of our ordinary shares and ADSs. Credit risks of customers and suppliers and other counterparty risks may also increase. These factors may materially and adversely affect our business, financial condition and results of operations. Furthermore, there is uncertainty relating to future developments of the COVID-19 pandemic and its impact on us. Our business, financial condition and results of operations could be materially and adversely affected by it. We may also experience negative effects from other future health epidemics or outbreaks beyond our control. These events are impossible to forecast and difficult to prevent. Any of these events could have a material adverse effect on our results of operations and financial condition.

Our business is vulnerable to downturns in the general economy and industries in which we operate or which we serve. A significant reduction in demand could materially and adversely affect our business, financial condition and results of operations.

Demand for our products depends on the general economy and level of activity and growth in the industries where we operate or serve. Adverse development in economic and market conditions, such as a significant economic downturn or a downturn in the commodity sector or the financial markets, could have a material adverse effect on our business, financial condition, results of operations and the price of our ordinary shares or ADSs. Development of the relevant industries is subject to various factors, including but not limited to market fluctuations of prices of commodities, general political or economic conditions, technology development, government regulations and investment plans and changes in domestic and global production capacity, many of which are beyond our control.

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We are unable to predict cycles of the global and domestic economies. Concerns over inflation, energy costs, geopolitical issues, trade tensions, the availability and cost of credit, unemployment, consumer confidence, declining asset values, capital market volatility and liquidity issues have created difficult operating conditions for us in the past and may continue to do so in the future. For example, since 2018, there were continuing trade tensions between the U.S. and China, resulting in increased tariffs and escalating tensions between the two countries. On January 15, 2020, the two parties signed the China-U.S. phase-one economic and trade agreement. Since then, the PRC government and the U.S. government have granted tariff exemptions on certain goods. However, it is still unclear when future phase negotiations between the two countries will begin and whether there will be further trade agreements following such negotiations. It is also unclear if future disputes will occur or the two countries will be able to negotiate the issues to restore a mutually beneficial economic and trade cooperation. Future actions or escalations by either the U.S. government or the PRC government could have a material adverse effect on the business environment in general, global, Chinese and/or U.S. economic conditions and the stability of global, Chinese and/or U.S. financial markets, which in turn, may adversely affect our business, financial condition and results of operations. In addition, on November 12, 2020, the President of the United States signed Executive Order 13959 (as subsequently amended on January 13, 2021, the “Executive Order”), which prohibits certain transactions in securities of certain entities listed in the annex to the Executive Order (each, a “Restricted Entity”). Currently, neither we or Chinalco are on the list of Restricted Entities. However, if the Executive Order is further amended to include us or Chinalco as a Restricted Entity in the future, U.S. persons as defined under the Executive Order may be prohibited from purchasing our securities. As a result, the value and liquidity of our ADSs may be materially and adversely affected, which may lead to significant volatility in our ADS trading price. Furthermore, the PRC government has, from time to time, adjusted its monetary, fiscal and other policies and measures to manage the rate of growth of the economy or the overheating and overcapacity in certain industries or markets. In addition, the global outbreak of COVID-19 and the efforts to contain it have negatively impacted the global economy and financial markets, causing a global recession in 2020. For further details of the impact of outbreak of COVID-19 on the general economy, please refer to “- Our business may be materially and adversely affected by the COVID-19 pandemic.” As a result, the global and domestic economic conditions or any particular industry in which we operate or which we serve may grow at a lower-than-expected rate or even experience a downturn. Uncertainty about future economic conditions makes it challenging for us to forecast our results of operations, make business decisions and identify risks that may affect our business. If we are not able to timely and appropriately adapt to changes resulting from the difficult macroeconomic environment, our business, financial condition and results of operations may be materially and adversely affected.

Volatility in the prices of alumina, primary aluminum, other non-ferrous metal and other commodities may adversely affect our business, financial condition and results of operations.

The prices of the products we produce and trade, including alumina, primary aluminum, other non-ferrous metal and coal products, have experienced significant fluctuation historically and are expected to continually fluctuate in response to general economic conditions, supply and demand, the level of inventories, interruption caused by unforeseen international or domestic events such as global outbreak of COVID-19, uncertainty of or changes in domestic or foreign laws or policies and many other factors, which are beyond our control.

We price our alumina and primary aluminum products by reference to international and domestic market prices, and domestic supply and demand, each of which may fluctuate beyond our control. We may not be able to effectively respond to a sudden fluctuation in alumina or primary aluminum prices. For example, due to weak demand for aluminum globally resulting from the COVID-19 pandemic, in 2020, the average spot price of alumina on the Australian FOB decreased by 18.6% to US\$271 per tonne and the average international cash price for primary aluminum on the LME decreased by 5.0% to US\$1,701 per tonne. During the same period, the average spot price of alumina in the domestic market decreased to RMB2,335 per tonne, representing a decrease of 13.4% compared to 2019, and the average spot prices of primary aluminum at SHFE slightly increased by 1.4% to RMB14,112 per tonne. In 2020, the average external selling prices for our self-produced alumina and primary aluminum were RMB2,456 per tonne and RMB14,169 per tonne respectively, representing a decrease by 10.2% and an increase by 2.2%, respectively, as compared to the prices in 2019. Please refer to “- Our business may be materially and adversely affected by the COVID-19 pandemic” for the impact of COVID-19 pandemic on the prices of alumina and primary aluminum. Furthermore, the prices of alumina and primary aluminum may also decline due to, among other things, decrease in market demand of those products and any slowdown of economic growth in China. Because our prices are affected by a variety of factors, most of which are beyond our control, we may not be able to respond promptly to the fluctuation in alumina or primary aluminum prices in international market or domestic market. There is no assurance that there will not be any further and significant fluctuations in prices of our key products, including alumina and primary aluminum, which may materially and adversely affect our business, financial condition and results of operations. In addition, since our profit margin for trading non-ferrous metal products and coal products is based on price fluctuations in the short term, we need to make the correct prediction of the price fluctuations of these commodities on the markets to maintain our profit margin. If market price fluctuations on the market do not match our prediction, we may incur substantial losses.

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In addition, as we generate profit from the differences between the purchase and sales prices of the non-ferrous metal products and the coal products we deal in, significant fluctuations in these prices may cause the value of the outsourced products in transit or in inventory to decline, and if the carrying value of our existing inventories exceeds the market price in the future periods, we may need to make additional provisions for our inventories' value, which may have a material and adverse effect on our profit level and other financial performance. See Note 13 to our audited consolidated financial statements for information about our inventories. As a result, any significant fluctuation in market prices for these commodities could materially and adversely affect our business, financial condition and results of operations.

Our business requires substantial capital expenditures that we may not always be able to obtain at reasonable costs and on acceptable terms.

Our plans to upgrade and expand our production capacity will require substantial capital expenditures. For the years ended December 31, 2018, 2019 and 2020, our total capital expenditures were approximately RMB9.1 billion, RMB13.0 billion and RMB4.7 billion, respectively. We expect our estimated capital expenditures in 2021 to be a total of approximately RMB4.1 billion. See “Item 4. Information on the Company - D. Property, Plants and Equipment - Our Expansion” and “Item 5. Operating and Financial Review and Prospects - B. Liquidity and Capital Resources - Capital Expenditures and Capital Commitments” for details of our expansion and capital expenditures. We may also need additional funding for debt servicing, working capital, other investments, potential acquisitions and joint ventures and other corporate requirements.

We may need to seek external financing, such as bank and other loans as well as bond offerings, to satisfy our capital needs if cash generated from our operations is insufficient to fund our capital expenditures or if our actual capital expenditures and investments exceed our plans. Our ability to obtain external financing at reasonable costs and on acceptable terms is subject to a variety of factors, such as our credit ratings, financial market conditions and our past or projected financial performance. Rating agencies may downgrade or withdraw our ratings or place us on “credit watch” based on their assessment of a wide range of factors. For example, records of net losses may result in a deterioration of our credit ratings. Although we were profitable in the recent period from 2015 through 2020, we recorded a net loss of approximately RMB17.1 billion in 2014 and have been recording accumulated losses since 2014. Our accumulated losses were approximately RMB1,741.6 million as of December 31, 2020. We could incur losses in the future, which may adversely affect our corporate ratings and increase our borrowing costs and limit our access to capital markets. Other factors that may be viewed as negative by the rating agencies may also adversely affect our corporate ratings, such as any significant decrease of market price of our products, any significant increase in our level of debt, any negative development in our ongoing or planned projects and so on. In addition, if financial markets experience significant volatility and disruption, it may result in a decrease in the availability of liquidity and credit for borrowers and increase in interest rate or other financing cost. Failure to obtain sufficient funding at reasonable costs and on acceptable terms for our development plans could delay, reduce the scope of, or eliminate future activities or growth initiatives and adversely affect our business and prospects.

Our previous adjustments of our business segments and historical results may not be indicative of our future prospects.

In 2013, we entered into a new business segment, the energy segment, through acquisition of Ningxia Energy. In the past few years, we have streamlined our existing business to focus on the productions of alumina and primary aluminum. For instance, in December 2018, we acquired 50% equity interests in Shanxi Huaxing through the Shanghai United Assets and Equity Exchange at a price of approximately RMB2,665.2 million from Baotou Transportation Investment Group Co., Ltd. Upon completion of the acquisition, Shanxi Huaxing became a wholly-owned subsidiary of the Company. The acquisition is conducted for purposes of enhancing our profitability and is in line with our strategic layout of alumina and aluminum business, as the increase of our shareholding in Shanxi Huaxing, an alumina plant, is expected to enhance the synergy with our primary aluminum production in Shanxi, where we have newly added production capacity of primary aluminum. In addition, in August 2019, we made a capital contribution of RMB352.85 million to China Rare Metals and Rare Earths Company Ltd., a subsidiary of Chinalco, with our gallium assets. We expect this transaction to help us revitalize gallium assets irrelevant to our principal businesses and increase investment returns by leveraging on China Rare Metals and Rare Earths Company Ltd.'s industrial advantages. For further details of the acquisition, please see “Item 4. Information on the Company - A. History and Development of the Company.”

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There is no assurance that we will enter into a new business segment or continue to streamline our existing business as we have done so in the past. Moreover, we cannot assure you that the benefit of entering into a new business segment or streamlining our existing business will be fully realized as expected or at all.

While we had experienced growth in recent years, our revenue decreased by 2.2% from RMB190,215.4 million in 2019 to RMB185,994.3 million in 2020, primarily due to the decrease in our trading business. The financial performance was driven by a wide range of factors, many of which are out of our control or may not be sustainable or indicative of future growth or performance, such as the prices of coal, electricity and other raw materials. No assurance can be given that our financial conditions or results of operations will be maintained at any level, especially due to impact of the outbreak of COVID-19. For further details, please refer to “- Our business may be materially and adversely affected by the recent outbreak of COVID-19.” As a result, our historical results may not be indicative of our future prospects and results of operations.

Our failure to successfully manage our business expansion, including our expansion into new areas of business, would have a material adverse effect on our results of operations and prospects.

We have made investments in business expansion in line with our development strategy through organic growth, acquisitions and joint ventures. In addition, we may, from time to time and when we deem appropriate, expand into new industries which we believe have synergies with our existing operations.

Our expansion has created, and will continue to place, substantial demand on our resources. Managing our growth and integrating the acquired businesses will require us to, among other things:

- comply with the laws, regulations and policies applicable to the acquired businesses, including obtaining timely approval for the construction or expansion of production and mining facilities as required under the relevant laws of PRC and foreign jurisdictions;
- maintain adequate control on our business expansion to prevent, among other things, project delays or cost overruns;
- accumulate expertise and experience in managing the new businesses;
- gain market acceptance for new products and services and establish relationships with new customers and suppliers;
- achieve sufficient utilization of new production facilities to recover costs;
- manage relationships with employees, customers and business partners during the course of our business expansion and integration of new businesses;
- attract, train and motivate members of our management and qualified workforce to support successful business expansion;

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- access debt, equity or other capital resources to fund our business expansion, which may divert financial resources otherwise available for other purposes;
- divert significant management attention and resources from our other businesses; and
- strengthen our operational, financial and management controls, particularly those of our newly acquired subsidiaries, to maintain the reliability of our reporting processes.

Any significant difficulty in meeting the foregoing or similar requirements could delay or otherwise constrain our ability to implement our expansion plans, or result in failure to achieve the expected benefits of the combination or acquisition or write-offs of acquired assets or investments, which in turn would limit our ability to increase operational efficiency, reduce marginal manufacturing costs or otherwise strengthen our market position. Failure to obtain the intended economic benefits from the business expansion could adversely affect our business, financial condition, results of operations and prospects. In addition, we may also experience mixed results from our expansion plans in the short term.

Furthermore, there is no assurance that we will be able to identify attractive acquisition targets, obtain favorable deal terms in any acquisition, secure applicable governmental approvals for any proposed investments, accurately estimate the mineral resources and reserves of these acquisition targets or obtain the necessary funding to complete such acquisitions on commercially acceptable terms or at all. Acquisitions may result in the incurrence and inheritance of debts and other liabilities, assumption of potential legal liabilities in respect of the acquired businesses, and incurrence of impairment charges related to goodwill and other intangible assets, any of which could harm our business, financial condition and results of operations. In particular, if any of the acquired businesses fail to perform as we expect, we may be required to recognize a significant impairment charge, which may materially and adversely affect our business, financial condition and results of operations. As a result, there can be no assurance that we will be able to achieve the strategic purpose of any acquisition, the desired level of operational integration or our investment return target.

Our joint ventures and strategic investments may not be successful.

We may from time to time enter into joint ventures or make strategic investments to grow our business and operations. For example, since 2010, we have participated in joint ventures and strategic investments in coal mining, in line with our development strategy to diversify our product offering and partially offset our future energy costs. In addition, we have acted as joint venture partner or strategic investor in certain projects which engage in primary aluminum and aluminum alloy manufacturing to diversify our product offering, strategically position ourselves along the industrial chain and facilitate our enterprise transformation and upgrade. If our joint ventures, strategic investments or other investments experiences fluctuation in performance or incur losses, our business, financial condition and results of operations may be adversely affected. For further details of certain of our joint ventures and strategic investments, please see “Item 4. Information on the Company - A. History and Development of the Company” and “Item 4. Information on the Company - D. Property, Plants and Equipment — Our Expansion.”

We have non-controlling interests in a number of joint ventures. Although we have not been materially constrained by the nature of our ownership interests, no assurance can be given that our joint venture partners will not exercise their power of veto or their controlling influence in any of our joint ventures in a way that will hinder our corporate objectives and reduce any anticipated cost savings or revenue enhancement resulting from these joint ventures. In addition, whether or not we hold majority interests or maintain operational control in such joint ventures, such arrangements necessarily involve special risks and our joint venture partners may:

- have economic or business interests or goals that are inconsistent with or opposed to ours;
- exercise veto rights so as to block actions that we believe to be in our or the joint venture’s best interests;
- take action contrary to our policies or objectives with respect to the investments; or

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- as a result of financial or other difficulties, be unable or unwilling to fulfill their obligations under the joint venture, other agreements, such as contributing capital to expansion or maintenance projects.

In addition, our joint ventures and subsidiaries which operate coal mines were facing increasing risks in recent years. Due to the COVID-19 pandemic and affected by domestic and global economies, the coal prices in the domestic market first declined and then rose during 2020 and the fluctuation was relatively large. From January 2020 to April 2020, as the demand was weakened by the COVID-19 pandemic, the coal prices declined rapidly; due to the resumption of work and production, the coal prices became stable and increased gradually from May 2020 to September 2020; the coal prices rose rapidly from October 2020 to December 2020 due to the accelerated economic recovery and the increase of coal consumption caused by cold winter. If coal prices decrease in the future, the business, financial condition and results of operations of these joint ventures which operate coal mines may be adversely affected.

Failure to maintain optimal utilization of our production facilities will adversely affect our gross and operating margins.

During the past few years, we expanded the production capacity by completing our construction, upgrading or remodeling of some of our alumina and primary aluminum production facilities. If we are able to maintain satisfactory facility utilization rates and increase our production output, this increase in our production capacity would enable us to reduce our unit costs through economies of scale, as fixed costs will be spread over a higher volume of output units. Conversely, underutilization of our existing and newly acquired or constructed production facilities may increase our marginal production costs and prevent us from realizing the intended economic benefits of our expansion.

Since 2013, we have implemented flexible production arrangements from time to time for certain alumina and primary aluminum production facilities in response to prevailing market conditions and government policies. For example, as affected by the market environment, Shanxi New Material and Shanxi Huaxing started to implement flexible production arrangements for alumina production in July 2020, which involves production capacity of approximately 0.8 million tonnes of alumina in Shanxi New Materials and approximately 1.0 million tonnes of alumina in Shanxi Huaxing. Since November 2020, part of the capacity on which flexible production was implemented has gradually resumed production. We may also increase our external purchases of alumina and primary aluminum for trading purposes to capitalize on fluctuating market prices and to enhance resource planning to achieve cost savings in our production. The increase in our external purchases will reduce our utilization of certain production facilities, but may not result in a proportionate decrease in fixed costs such as leases and depreciation of plant, property and equipment.

If we fail to maintain optimal utilization rates and spread fixed costs over a high volume of output units, our gross and operating margins may be adversely affected.

We may be required to record impairment charges in the future.

If business conditions deteriorate, long lived assets need to be reviewed for possible impairment. Impairment loss needs to be recognized to the extent that the carrying amount exceeds the recoverable amount. In 2018, 2019 and 2020, we recorded impairment loss of property, plant and equipment of RMB46.5 million, RMB259.4 million and RMB416.8 million, respectively. In addition, we made (net) credit impairment of receivables of RMB 979 million in 2020. As affected by the asset impairment, the net profit attributable to the shareholders of the Company in the consolidated financial statement of the Company for 2020 decreased by RMB1,225 million. We cannot guarantee that we will not incur any impairment loss or our impairment loss will not increase in the future due to various reasons including, but are not limited to, strategic decisions made in response to changes in economic and competitive conditions, the impact of the economic environment on our customer base and material adverse changes in our relationship with significant customers. If we record significant impairment charges, our results of operations may be materially and adversely affected.

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Our operations consume substantial amounts of electricity, and our profitability may decline if electricity costs rise or if our electricity supplies are interrupted.

Our operations consume substantial amounts of electricity. Although we generally expect to meet the electricity consumption requirements for our alumina refineries and primary aluminum smelters from a combination of internal and external sources, our results of operations may be materially and adversely affected by any significant increase in electricity costs or interruptions in electricity supply.

Cost of electricity is the principal production cost in our primary aluminum operations. Our average electricity cost per kWh (including tax) of our primary aluminum smelters remained relatively stable from 2019 to 2020. However, there is no assurance that the electricity costs will not increase in the future. If we are unable to pass on increases in energy costs to our customers, our operating margin, financial condition and results of operations could be materially and adversely affected.

In addition, interruptions in the supply of electricity can result in costly production shutdowns, increased costs associated with restarting production and the waste of production in progress. A sudden loss of electricity, if prolonged, can cause damage to or the destruction of production equipment and facilities. In such an event, we may need to expend significant capital and resources to repair or replace the affected production equipment to restore our production capacity. In the past, various regions across China experienced shortages and disruptions in electricity supply, especially during peak demand summer season or under severe weather conditions. We cannot assure you that our operations will not suffer from shortages or disruptions in electricity supply, the occurrence of which could have a material adverse impact on our business, financial condition and results of operations.

Our operations consume substantial amounts of coal, and our operations may be adversely affected if we are not able to procure sufficient coal or if coal prices rise significantly.

We rely heavily on coal as our energy and fuel source in our operations. As we increase our alumina refining capacity, our consumption of coal will increase accordingly. If we are not able to obtain the amount of coal needed for our production due to a shortage of coal, constraints on coal transportation or any other reason, we may be forced to reduce our production output or suspend our alumina refining operations, which could materially and adversely affect our financial condition and results of operations. Although we have acquired equity interest in a number of coal mines, we expect to continue to rely substantially on third-party coal suppliers for the supply of coal. Our average purchase price per unit tonne of thermal coal decreased by approximately 7.3% in 2020 from the level in 2019. However, there is no assurance that the coal prices will not increase or further fluctuate. If we are unable to pass on increases or otherwise significant fluctuations in coal prices to our customers or offset price increases through productivity improvements, our operating margin, financial condition and results of operations could be adversely affected.

Our business and industry may be affected by the development of alternative energy sources and climate change.

Our operations consume substantial amounts of coal. Coal combustion generates significant greenhouse gas and other pollutants, and the effects of climate change resulting from global warming and increased pollution levels may provide incentives for governments to promote or invest in “green” energy technologies such as wind, solar, nuclear and biomass power plants, or to reduce their consumption of conventional energy sources such as coal. A number of governments or governmental bodies have introduced or are contemplating legislative and regulatory changes in response to the potential impacts of climate change. These regulatory mechanisms may impact our operations directly or indirectly through our customers or supply chain. We may have to increase our capital expenditures in order to comply with such revised or new legislation or regulations, and changes to our profit or loss may occur due to increased or decreased demand for our products and indirectly due to changes in costs of goods sold, which may adversely affect our results of operations and financial condition.

In addition, we have invested in coal mining operations. Although revenues attributable to our energy segment accounted for only approximately 3.7% of our total revenues in 2020 (after elimination of inter-segment sales), we might still be affected by any change on the PRC thermal power industry, which have relied on coal as main source of fuel. The PRC thermal power industry may be affected by the development of alternative energy sources, climate change and global environmental factors. In particular, pursuant to the environmental protection goal set in China’s 14th Five-Year Plan, the PRC government plans to continue to encourage the development of new energy sources from 2021 to 2025. As such, alternative energy industries may rapidly develop and gradually gain mainstream acceptance in the PRC and the rest of the world. If alternative energy technologies continue to develop and prove suitable for wide commercial application in the PRC and overseas, demand for conventional energy sources, such as coal, could be reduced. Such reduction in demand for coal could have a material adverse effect on the coal mining industry and, consequently, negatively affect our business, results of operations and financial condition.

We may not be able to continue competing successfully in the markets in which we operate.

In 2020, we supplied approximately 46.7% of our total production of alumina to our own smelters and sold substantially all of the remaining self-produced alumina and all of our self-produced primary aluminum to our domestic customers. Our alumina (with chemical alumina products included) and primary aluminum production represented approximately 23.1% and 9.9%, respectively, of total domestic production in China in 2020. We face competition from both domestic and international alumina and primary aluminum producers. Our principal competitors are major domestic refineries and smelters. These producers compete with our alumina and primary aluminum operations on the basis of product cost, quality and pricing. In addition, we face increasing competition from international alumina and primary aluminum suppliers as a result of the elimination of tariffs on imports of primary aluminum and alumina into China. See “Item 4. Information on the Company - B. Business Overview - Competition” for further details.

Increasing competition in our product markets may reduce our selling prices or sales volumes, which will have a material adverse effect on our financial condition and results of operations. If we are unable to price our products competitively, maintain or increase our current share of China’s alumina and primary aluminum markets or otherwise maintain our competitiveness, our financial condition, results of operations and profitability could be materially and adversely affected.

Our overseas expansion exposes us to political and economic risks, commercial instability and events beyond our control in the countries in which we plan to operate.

We have overseas projects from time to time. For example, in 2020, we completed the construction of the Boffa Project, a project for the construction and development of a bauxite mine located in Boffa, Guinea. Although the Boffa Project has been completed and put into production, due to uncertainties involved in the overseas projects, we cannot assure you that all of our overseas expansion or investments will be successful or that we will not suffer foreign exchange losses in connection with our overseas investment. For example, in April 2019, the Laos government cancelled the exploration rights of the bauxite mines held by Lao Service Mining Co., Ltd., in which we held 60% of the equity interest, as it had not continuously carried out related activities in the past years.

In addition, operations in the overseas markets may also expose us to a number of risks including expropriation and nationalization of our assets in foreign countries, civil unrest, acts of terrorism, war, or other armed conflict; shortages of construction equipment and materials; severe weather conditions; social security, public health and safety, labors and construction safety and similar issues; epidemic diseases and infectious diseases; natural disasters; inflation; currency fluctuations, devaluations and conversion restrictions; confiscatory taxation or other adverse tax policies, governmental activities that limit or disrupt markets, restrict payments or limit the movement of funds, governmental activities that may result in the deprivation of contractual rights; lack of a well-developed legal system that makes it difficult to enforce our contractual rights; uncertainties in laws and policies; and governmental activities that may result in the inability to obtain or retain licenses required for operations.

Our profitability and operations could be adversely affected if we are unable to obtain a steady supply of raw materials at competitive prices.

Historically, the price for bauxite, our most important raw material for alumina production, has been volatile. We obtain bauxite for our operations from our mines and external suppliers. See “Item 4. Information on the Company - B. Business Overview - Raw Materials - Alumina - Supply.” The extents to which we procure bauxite from each of these sources affect the security of our supply or cost of bauxite. The supply of bauxite could be affected by various factors, including geographic conditions of bauxite mines, government policies, market prices and competition, many of which are beyond our control. We rely on overseas suppliers to obtain a portion of bauxite we use for production. Indonesia used to be a major source of our imported bauxite. As a result of the ban imposed by the Indonesia Government on the exportation of unprocessed bauxite and nickel, since January 2014, we have not been able to export the bauxite produced by our bauxite mines in Indonesia for the use of our alumina refineries in China, and our operation of bauxite mining in Indonesia has been suspended since September 2014. See “Item 4. Information on the Company - B. Business Overview - Raw Materials - Alumina — Own Mines” for more details of our bauxite mines in Indonesia. If we exhaust our stockpiles or our procurement of bauxite from external suppliers are interrupted for any reasons, and cannot find an alternative source of bauxite at competitive prices, our financial condition, results of operations and profitability could be adversely affected.

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In addition, our results of operations can be affected by increases in the cost of other raw materials and other key inputs such as energy. If we cannot obtain a steady supply of key raw materials at competitive prices, our financial condition and results of operations could be materially and adversely affected.

Any transportation interruption or any material increase in our transportation costs could have a material adverse effect on our business, financial condition and results of operations.

Our operations require the reliable transportation of raw materials and supplies to our refining and smelting sites and finished products to our customers. Our alumina and primary aluminum products are mainly transported by rail and trucks. There is no assurance that we can always enjoy sufficient transportation capacity or we will not experience transportation interruption in the future. Furthermore, natural disasters, severe weather conditions and outbreak of epidemic diseases and infectious diseases may cause interruption to the transportation system, which could in turn affect the transportation of our products. Please refer to “- Our business may be materially and adversely affected by the COVID-19 pandemic” for further details of the impact of outbreak of COVID-19 on the transportation system. In addition, any changes in fuel prices or fuel supply may be unpredictable and beyond our control. There is no assurance that shortage of fuel will not occur in the future. Any surge in fuel prices or shortage of fuel supply may lead to increases in our operation and transportation costs. If we are unable to make timely deliveries due to logistical and transportation disruptions, or transfer the increased costs to our customers, our production, reputation and results of operations may be adversely affected.

The bauxite reserve data in this annual report are only estimates, which may prove to be inaccurate.

The bauxite reserve data based on which we prepare our production and expenditure plans are only estimates that we have developed internally and may prove to be inaccurate. There are numerous uncertainties inherent in estimating quantities and qualities of reserves, including many factors beyond our control. If these estimates are inaccurate or the indicated tonnages are not recovered, our business, financial condition, and results of operations may be materially and adversely affected.

Our mining operations have limited mine lives and eventual closure of these operations will entail costs and risks regarding ongoing monitoring, rehabilitation and compliance with environmental standards.

Our existing mining operations in the PRC and overseas have limited mine lives and will eventually be depleted. We need to perform certain procedures to remedy and rehabilitate the environmental and social impact that our mining operations have had on local communities and the environment. Remediation, rehabilitation, closure and removal of our facilities will incur various costs and are subject to various risks. The key costs and risks for mine closures include, among others, (i) long-term management of permanent engineered structures and acid rock drainage; (ii) closure in accordance with local or international environmental standards; (iii) orderly retrenchment of employees and third-party contractors; and (iv) orderly transfer of the site, its associated permanent structures and community development infrastructure and programs to new owners. There is no assurance that such closure of mines will be successful and without delays or additional costs, in which case we may be subject to increased costs, penalties or other legal or administrative actions, damages to reputation, or even suspension and cancellation of mining permits, the occurrence of which would cause a material adverse effect on our business, financial condition and results of operations.

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Failure to discover new reserves or resources, maintain or enhance existing reserves or resources, develop new mining operations or expand our current mining operations could negatively affect our business, financial condition and results of operations.

Mining exploration is unpredictable in nature. The success of any mining exploration program depends on various factors, many of which are beyond our control. Due to the unpredictable and speculative nature of the mining industry, there is no assurance that any exploration program that we are currently undertaking or may undertake in the future will result in the discovery of valuable reserves or resources. There is no assurance that reported resources can be converted into reserves. Furthermore, actual results upon production may differ from those anticipated at the time of discovery. To access additional reserves in explored areas, we will need to successfully complete development projects, including but not limited to extending existing mines and developing new mines. There are a number of uncertainties inherent in the development and construction of any new mine or an extension of an existing mine, including but not limited to (i) the availability and timing of necessary governmental approvals; (ii) the timing and cost necessary to construct mining and processing facilities; (iii) the availability and cost of labor, utilities, auxiliary materials and other supplies and the accessibility of transportation and other infrastructure; and (iv) the availability of funds to finance construction and production activities. There is no assurance that any future exploration activities or development projects will extend the life of our existing mining operations or result in any new economic mining operations and such failure may have a material adverse effect on our business, financial condition and results of operations.

Newly adopted rules regarding mining property disclosure may result in increased compliance costs for the Company and failure to fully comply with such rules may expose us to potential enforcement actions by the SEC.

On October 31, 2018, the SEC adopted amendments to its disclosure rules to modernize the mineral property disclosure requirements for issuers whose securities are registered with the SEC (the “New Mining Disclosure Rules”). These amendments became effective on February 25, 2019 and, following a two-year transition period, will replace the historical property disclosure requirements for mining registrants that are included in SEC Industry Guide 7. We are not required to provide disclosure on our mineral properties under the New Mining Disclosure Rules until the fiscal year beginning on January 1, 2021.

Compliance with the New Mining Disclosure Rules may create uncertainties for companies such as ours. The new disclosure rules may be subject to varying interpretations in some cases due to their lack of specificity, which could result in continuing uncertainty regarding compliance matters and substantial costs associated with compliance. The Company cannot predict the nature of any future enforcement, interpretation, or application of the New Mining Disclosure Rules. Any further revisions to, or interpretations of, the New Mining Disclosure Rules could result in the Company incurring unforeseen costs associated with compliance. If we fail to comply with the New Mining Disclosure Rules, our reputation may be harmed, and we might be subject to investigation or penalties by the SEC. Any such enforcement action could adversely affect our financial results and the market price of our ADSs.

Our indebtedness could adversely affect our business, financial condition and results of operations.

We have relied, and expect to continue to rely, on both short-term and long-term borrowings to fund a significant portion of our capital requirements. As of December 31, 2020, we had approximately RMB34,707.3 million in outstanding short-term bonds and short-term bank borrowings (including the current portion of long-term bank and other borrowings) and RMB57,518.1 million in outstanding long and medium-term bonds and long-term bank and other borrowings (excluding the current portion of these borrowings). On March 23, 2021, subject to approval at our 2020 annual general meeting that is expected to be held in 2021, our Board approved to authorize (i) the issuance of debt financing instruments and bonds in the PRC with an aggregate outstanding balance of all bonds not exceeding RMB50 billion (including various issued domestic bonds), and (ii) the issuance of overseas bonds with an aggregate amount of not more than USD1 billion (or in other currencies with the equivalent amount), the term of which authorizations will commence on the date of approval at our 2020 annual general meeting and close upon the conclusion of our 2021 annual general meeting. Although we have been managing our debt and assets with the goal of maintaining our debt at an appropriate level, there is no assurance that such efforts would be successful or the level of our debt will be further decreased. Please see Note 19 and Note 44 to our audited consolidated financial statements for more detailed information about our borrowings and recent issuance of bonds and notes in 2021. This level of debt could have significant consequences on our operations, including:

- making it more difficult for us to fulfill payment and other obligations under our outstanding debt, including repayment of our debt and credit facilities should we be unable to obtain extensions for any such debt or credit facilities before they mature. Please see “Item 5 - Operating and Financial Review and Prospects - B. Liquidity and Capital Resources” for maturities of our outstanding long-term borrowings;
- reducing the availability of cash flows to fund working capital, capital expenditures, acquisitions and other general corporate purposes;
- exposing us to interest rates fluctuations on our borrowings and the risk of being unable to rollover, extend or refinance our borrowings as necessary;
- potentially increasing the cost of additional financing and making it more difficult for us to conduct equity financings in the capital markets or obtain government approvals to seek additional financing; and
- putting pressure on our ADS price due to concerns of our ability to repay our debt.

Our ability to meet our payment and other obligations under our outstanding debt depends on our ability to generate cash flows in the future or to refinance such debt. In 2020, we carried out capital preservation and appreciation businesses by using daily reserve fund for investments such as structural deposits. However, we cannot assure you that such capital preservation and appreciation businesses will be successful or profitable, or our business in general will generate sufficient cash flows from operations, to satisfy our obligations under our outstanding debt and to fund other liquidity needs. If we are not able to generate sufficient cash flows to meet such obligations, we may need to refinance or restructure our debt, reduce or delay capital investments, or seek additional equity or debt financing. The sale of additional equity securities could result in dilution to our ADS holders. A shortage of financing could in turn impose limitations on our ability to plan for, or react effectively to, changing market conditions or to expand through organic and acquisitive growth, thereby reducing our competitiveness. We cannot assure you that future financing will be available in amounts or on terms acceptable to us, if at all.

The instruments governing our senior debt contain a number of significant financial and other covenants that restrict our ability to raise further debt, take certain corporate actions and pay dividends.

We issued US\$500 million senior perpetual securities at a rate of 4.25% (the “Securities”) in October 2016, through Chalco Hong Kong Investment Company Limited (the “Bond Issuer”) with guarantees to the repayment obligations of the Securities provided by Chalco Hong Kong (the “Subsidiary Guarantor”). Please refer to “Item 4. Information on the Company - A. History and Development of the Company - Senior Perpetual Capital Securities Offering” for further details.

The indentures governing the Securities contain a number of significant financial and other covenants. Such covenants restrict, subject to certain exceptions, among other things, our and our subsidiaries’ ability to create, or have outstanding, any security interest upon our or our subsidiaries’ present or future undertaking, assets or revenues to secure any indebtedness which is in the form of bonds, notes, debentures, loan stock or other securities which for the time being are, or are intended to be or capable of being, quoted, listed or dealt in or traded on any stock exchange or over-the-counter or other securities market (“Relevant Indebtedness”) which is issued outside the PRC, our ability to create or have any Relevant Indebtedness which is issued outside the PRC, our ability to create or have outstanding any guarantee or indemnity in respect of any Relevant Indebtedness which is issued outside the PRC and the Bond Issuer’s, Subsidiary Guarantor’s and their respective subsidiaries’ ability to create, or have outstanding, any security interest upon their present or future undertaking, assets or revenues to secure any Relevant Indebtedness or any guarantee or indemnity in respect of any Relevant Indebtedness or to sell or otherwise dispose of capital stock held or controlled by it in any direct or indirect subsidiary of Chalco Hong Kong which is not a Subsidiary Guarantor. These covenants restrict our ability to raise additional funds in the future through issuing Relevant Indebtedness which is issued outside the PRC or creating or having any guarantee or indemnity in respect of any Relevant Indebtedness which is issued outside the PRC and may restrict our ability to engage in some transactions that we expect to be of benefit to us.

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The Securities are guaranteed by Chalco Hong Kong. A breach of any of the covenants in the indenture governing the Securities could result in redemption of the Securities at our discretion or an increase of coupon rate if we do not redeem the Securities upon a breach of such covenants. If we default under the Securities in the future, the holders may enforce their claims against the guarantors to satisfy our obligations to them. In addition, such default may result in a default and acceleration of our senior debt and the holders of our senior debt could gain ownership of the capital stock of certain of our wholly-owned subsidiaries (if such capital stock is pledged for such senior debt) and/or enforce their claims against the assets of the guarantors (if guarantee is provided for such senior debt). Consequently, we could lose control or ownership of certain of our assets and operations of the Subsidiary Guarantor or pledgers.

In addition to the Securities, in October 2018, November 2019 and December 2020, we issued RMB2,000 million perpetual medium-term notes with an initial distribution rate at 5.10% (the “2018 Perpetual Medium-term Notes”), RMB1,500 million perpetual medium-term notes with an initial distribution rate at 4.20% (the “2019 Perpetual Medium-term Notes”) and RMB1,000 million perpetual medium-term notes with an initial distribution rate at 4.45% (the “2020 Perpetual Medium-term Notes”), respectively, in China. Pursuant to the terms of the 2018 Perpetual Medium-term Notes, the 2019 Perpetual Medium-term Notes and the 2020 Perpetual Medium-term Notes, while any coupon distribution payments are unpaid or deferred, our Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments of our headquarters. Therefore, our ability to pay dividends in respect of our ordinary shares and the ADSs may be limited under certain circumstances.

In addition, if these perpetual securities are categorized as debt due to changes of accounting standard or other reasons, or if we choose to redeem these perpetual securities, our total equity may be reduced, which may be adverse to our financial condition or the price of our ordinary shares or ADSs.

The interests of our controlling shareholder who exerts significant influence over us may conflict with ours.

As of December 31, 2020, our largest shareholder, Chinalco, directly owned 29.67% of our issued share capital and indirectly owned an additional 2.49% of our issued share capital through its controlled entities. The interests of Chinalco may conflict or even compete with our interests and those of our public shareholders. Chinalco may take actions that are in the interest of its subsidiaries, associates and other related entities to our detriment. For example, Chinalco may seek to influence our decision as to the amount of dividends we declare and distribute. Any increase in our dividend payout would reduce funds otherwise available for reinvestment in our businesses and thus may adversely affect our future prospects and financial condition.

In addition, we enter into transactions with related parties, including Chinalco and its subsidiaries and associates, which provide a range of services to us, including engineering and construction services, social services, land and property leasing as well as the supply of raw and supplemental materials. See “Item 7. Major Shareholders and Related Party Transactions - B. Related Party Transactions” for detailed information. It would be difficult to find an alternative source for some services that we receive from Chinalco. Our cost of operations may increase if Chinalco, its subsidiaries and associates are unable to continue providing such services to us.

In January 2019, Yunnan SASAC transferred its 51% equity interest in Yunnan Metallurgical Group Co., Ltd. to China Copper, a wholly-owned subsidiary of Chinalco, with no consideration. As Yunnan Aluminum, an affiliated company of Yunnan Metallurgical Group Co., Ltd., competes with us in the business segments of alumina and primary aluminum, Chinalco, as the indirect controlling shareholder of Yunnan Aluminum and our direct controlling shareholder, issued a letter of undertakings on non-competition to us, according to which Chinalco undertook to start in 2019 planning the integration of the businesses in which Yunnan Aluminum and we compete with each other, and address such business competition within five years. For further details, please see “Item 4. Information on the Company - A. History and Development of the Company.” While we intend to closely monitor Chinalco’s planning and implementation of such business integration and make timely public disclosure about significant progress made, due to the uncertainties involved in such business integration, however, we cannot assure you that business competition between Yunnan Aluminum and us would be addressed without undue delays or at all, or the plan of such business integration or the implementation thereof would be viewed by you or other investors as most favorable to us or our shareholders.

We are subject to, and incur costs to comply with, environmental laws and regulations.

As we produce air emissions, discharge waste water, and handle hazardous substances at our bauxite mines, alumina refineries and primary aluminum smelters, we are subject to, and incur costs to comply with, environmental laws and regulations.

Given the magnitude, complexity and continuous amendments to these laws and regulations, compliance therewith may be onerous or may involve substantial financial and other resources to establish efficient compliance and monitoring systems. The liabilities, costs, obligations and requirements associated with these laws and regulations may therefore be substantial and may delay the commencement of, or cause interruptions to, our operations. Non-compliance with the relevant laws and regulations applicable to our operations may even result in substantial penalties or fines, suspension or revocation of our relevant licenses or permits, termination of government contracts or suspension of our operations. For example, relevant supervision authorities released a public notification of the dust, noise, relocation and other issues of Baotou Aluminum in 2020. In response to this notification, the Company and Baotou Aluminum attached great importance to the issues involved, analyzed the issues, and communicated with local governments and local residents proactively. As of the end of 2020, a majority of the issues involved have been rectified, dust and noise pollution have been effectively controlled, and the relocation of residents has been progressing smoothly under the organization of the local government. However, as the environmental protection standards and requirements may be further enhanced, we cannot assure you that the similar events would not occur in the future, if such incidents were to occur, it could impact our operating results, financial condition and reputation, all of which could adversely affect our profitability and ability to retain existing customers and to attract new customers.

In addition, the environmental laws and regulations in the PRC and other jurisdictions in which we operate continue to evolve. As a result, we may incur significant additional costs if relevant laws and regulations change or enforcement of existing laws and regulations becomes more rigorous. For instance, in April 2020, the Law on Prevention and Control of Environmental Pollution Caused by Solid Waste was amended to impose stricter liabilities on enterprises that produce solid waste. As we generate solid waste during our production process, we may incur higher costs to comply with the requirements under the amended law. Since 2017, the PRC government has carried out regulations and comprehensive campaigns to control air pollution in response to the poor air quality in autumn and winter in Beijing, Tianjin, Hebei and their surrounding areas and the Fenhe and Weihe plain, pursuant to which we may reduce output of our relevant plants from time to time. Further, our overseas expansion projects are subject to foreign environmental laws and regulations. Failure to comply with environmental laws and regulations may trigger a variety of administrative, civil and criminal enforcement measures, including the assessment of monetary penalties, the imposition of remedial requirements and the issuance of orders enjoining future operations, all of which may materially and adversely affect our business operations.

We are subject to administrative policies and orders relating to China's energy-saving and emission reduction requirements that could adversely affect our production.

We are subject to administrative energy-saving and emission reduction policies and orders carried out by the central and provincial governments. The MIIT issued the Standard Conditions for Aluminum Industry on July 18, 2013 and updated it on February 28, 2020, which set forth various standards for existing enterprises, including but not limited to standards for environmental protection, energy consumption, and utilization of resources. We cannot assure you that the relevant government authorities will not issue more stringent standards or rules, which may require us to incur additional costs or expenses to comply with these standards or rules, and our existing production may be delayed for facility upgrading or suspended before full compliance with these standards or rules. The occurrence of any of the foregoing could have an adverse effect on our business, results of operations and financial condition.

We are subject to accidents and natural disasters that may adversely affect our performance.

We may experience accidents and natural disasters in the course of our operations, which may cause significant property damage and personal injuries. Significant accidents and natural disasters may cause interruptions to our operations or result in property or environmental damage, increase in operating expenses or loss of revenues. The occurrence of accidents, natural disasters and the resulting consequences may not be covered adequately, or at all, by the insurance policies we carry. Losses or payments incurred by us as a result of major accidents or natural disasters may have a material adverse effect on our results of operations.

We have not obtained valid titles or land use rights to certain properties or land parcels that we occupy.

We have not obtained valid ownership certificates to certain properties that we occupy. These properties are used primarily for production plants and daily operations management. As of December 31, 2020, the book value of our properties with defective titles is RMB7,616 million, which represents approximately 3.65% of our total asset value. In addition, we had not obtained land use rights to certain land parcels, which we use primarily for our production plants. As of December 31, 2020, the book value of these land parcels is RMB1,109 million, representing approximately 0.57% of our total asset value. We have applied to the appropriate authorities to obtain the relevant ownership certificates. We cannot give any assurance that ownership dispute will not occur or that third parties will not assert any claims against us for compensation in respect of any use of these properties or land parcels.

Our business involves inherent risks and occupational hazards, which could damage our reputation, subject us to liability claims and cause substantial costs to us.

Our business involves inherent risks and occupational hazards. Under our mining operations, we engage or may engage in certain inherently risky and hazardous activities, including, among others, operations at height or on dangerous terrains, underground excavation and construction, use of heavy machinery, mining and handling of flammable and explosive materials, and we are therefore subject to risks associated with these activities, including, among others, geological catastrophes, toxic gas and liquid leakages, equipment failures, industrial accidents, fire, explosions and underground water leakages. Although we conduct geological assessments on mining conditions and adapt our mining plans to the mining conditions at each mine, we cannot assure you that adverse mining conditions will not endanger our workforce, increase our production costs, reduce our bauxite or coal output or temporarily suspend our operations. The occurrence of any of the foregoing events or conditions could have a material adverse impact on our business and results of operations. Additionally, we are exposed to operational risks associated with industrial or engineering activities, such as maintenance problems or equipment failures. These risks and hazards may result in personal injury and fatal casualties, damage to or destruction of properties or production facilities, and pollution and other environmental damage. Any of these consequences, to the extent they are significant, could result in business interruption, possible legal liability and damage to our business reputation and corporate image.

Our mines and operating facilities may be damaged by water, gas, fire or cave-ins due to unstable geological structures. Any significant accident, business disruption or safety incident could result in substantial uninsured costs and the diversion of our resources, which could materially and adversely affect our business operations and financial condition.

We may be subject to product liability claims.

Some of the products we sell or manufacture may expose us to product liability claims relating to property damage or personal injury. The successful assertion of product liability claims against us could result in significant damage payments and harm to our reputation, which in turn could have a material adverse effect on our business, financial condition and results of operations.

We are subject to litigation risks.

In the ordinary course of business, claims involving project owners, customers, suppliers and subcontractors may be brought against us and by us in connection with our operations. If we were found to be liable on any of the claims, we would have to incur a charge against earnings to the extent a reserve had not been established for the matter in our accounts, or to the extent the claims were not sufficiently covered by our insurance coverage. Both claims brought against us and by us, if not resolved through negotiations, are often subject to lengthy and expensive litigation or arbitration proceedings, and claims against us may also result in freeze of or restrictions on our bank deposits or other assets during such lengthy legal proceedings. Charges associated with claims brought against us and write-downs associated with claims brought by us could have a material adverse impact on our business, financial condition, results of operations and cash flow. Moreover, legal proceedings resulting in judgments or findings against us may harm our reputation and damage our prospects for future contract or business awards.

We face counterparty risks.

While we generally sell goods and provide services to reputable customers and evaluate the customers' credit in accordance with our internal risk management criteria, such as their credit history and likelihood of default, we have limited access to information about our customers, and we may encounter difficulties in the collection of receivables in certain countries that we have less experience in our dealings. Therefore, we cannot guarantee that all of our customers will fully perform their obligations under their respective contracts with us, and the deterioration of any customers' credit or payment conditions may result in those customers defaulting on their contractual obligations, which could materially and adversely affect our business, financial condition and results of operations. In addition, disputes with governmental entities and other public organizations could potentially lead to contract termination if these remain unresolved or it may take a considerably longer period of time to resolve the disputes with counterparties in the private sector, and payments from these entities and organizations may be delayed as a result.

We face risks related to our derivative instruments.

From time to time, we may utilize derivative instruments to minimize our exposure to fluctuations in the price of primary aluminum and other products. We primarily use futures contracts and option contracts traded on the SHFE and LME to hedge against fluctuations in the price of primary aluminum. All of our future contracts and option contracts are held for hedging purpose. As of December 31, 2020, the fair value of the outstanding futures contracts recognized in financial assets and financial liabilities amounted to RMB17 million and RMB27 million, respectively. We did not have any option contracts as of the same date. In the process of hedging with futures and options, we cannot assure you that we will not incur any loss, which may have an adverse effect on our financial condition and results of operations.

We may face challenges to our intellectual property rights which could adversely affect our reputation, business and financial position.

We own important intellectual property, including patents and trademarks. Our intellectual property plays an important role in maintaining our competitive position in a number of the markets that we serve. Our competitors may develop technologies that are similar or superior to our proprietary technologies or design around the patents we own or license. Developments or assertions by or against us relating to intellectual property rights, and any inability to protect or enforce these rights, could adversely affect our business and competitive position.

We may be exposed to claims in relation to the unsatisfactory performance of third-party service providers, and disputes with business partners may also adversely affect our business.

We rely on third-party service providers for certain services, including but not limited to mining infrastructure construction, logistics services or warehouse management. Therefore, we are exposed to the risk that our third-party service providers may fail to perform their obligations, which may adversely affect our business operations. In addition, from time to time, we co-operate with business partners to develop our business, including acquiring strategic mining resources or businesses that complement our own business line. Furthermore, we operate certain projects through joint venture arrangements and may enter into further joint ventures in the future along with the expansion of our operations. We may have disputes with these business partners or joint venture partners over various aspects, such as performance of each party's obligations, scope of each party's responsibilities, product quality and logistics services. If such disputes cannot be settled in a timely manner, our financial condition and business may be adversely affected.

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Failure to hire and retain management executives and other qualified personnel could adversely affect our business and prospects.

The growth of our business operations depends on the continued services of our senior management team. The industry experience, expertise and contributions of our executives and other members of our senior management are essential to our continued success. We will require an increasing number of experienced and competent executives in the future to implement our growth plans. If we were to lose the services of any of our key management members and were unable to recruit and retain personnel with equivalent qualifications at any time, the management and growth of our business could be adversely affected.

Competition for qualified personnel in general is intense in the PRC and other markets where we operate. We cannot guarantee that we will be able to maintain an adequately skilled labor force necessary for us to execute our projects or to perform other corporate activities, nor can we guarantee that staff costs will not increase as a result of a shortage in the supply of skilled personnel. If we fail to attract and retain personnel with suitable managerial, technical or marketing expertise or maintain an adequate labor force on a continuous basis, our business operations could be adversely affected and our future growth and expansions may be inhibited.

We may not be able to detect and prevent fraud or other misconduct committed by our employees, representatives, agents, customers, affiliates or other third parties.

We may be exposed to fraud or other misconduct committed by our employees, representatives, agents, customers, affiliates or other third parties that could subject us to litigation, financial losses and sanctions imposed by governmental authorities, as well as adversely affect our reputation, business, financial condition, results of operations and ADS trading prices. Such misconduct may include, among others:

- hiding unauthorized or unsuccessful activities, resulting in unknown and unmanaged risks or losses;
- intentionally concealing material facts, or failing to adequately perform necessary due diligence or risk analysis procedures designed to identify potential risks;
- improperly using or disclosing confidential information;
- engaging in improper activities or activities that might be subject to penalties, fines or sanctions;
- misappropriation of funds;
- conducting transactions that exceed authorized limits;
- engaging in misrepresentation or fraudulent, deceptive or otherwise improper or illegal activities;
- engaging in unauthorized or excessive transactions to the detriment of our customers; or
- otherwise not complying with applicable laws or our internal policies and procedures.

Our internal control procedures are designed to monitor our operations and ensure overall compliance. However, such internal control procedures may be unable to identify, detect or prevent all incidents of non-compliance or suspicious transactions in a timely manner, if at all. In addition, we do not have control over the activities conducted on their own by those of our customers, affiliates or other third parties.

There is no assurance that fraud or other misconduct by our employees, representatives, agents, customers, affiliates or other third parties will not occur in the future. If such fraud or other misconduct does occur and to the extent that our employees, representatives, agents, customers, affiliates or other third parties are penalized for any of their non-compliance activities or are otherwise subject to any sanctions laws of foreign jurisdictions, it may cause negative publicity of us as a result, and could have a material adverse effect on our business, financial condition, results of operations and our ADS trading prices.

Cyber attacks and security breaches may threaten the integrity of our intellectual property and other sensitive information and disrupt our business operations, which could adversely affect our reputation, business and financial position.

We face global cybersecurity threats, which may range from uncoordinated individual attempts to sophisticated and targeted measures directed at us. Cyber attacks and security breaches may include, but are not limited to, attempts to access information, computer viruses, denial of service and other electronic security breaches. Cyber attacks and security breaches may cause equipment failures, loss of information and limited access to systems. For manufacturing companies, cyber attacks and security breaches may result in the theft of sensitive data, including valuable technical and marketing information, disruptions to operations and breakdown of industrial control system. The economic costs to us to eliminate or alleviate cyber attacks and security breaches could be significant and may be difficult to estimate or calculate because the loss may differ based on the identity and motive of the programmer or hacker, which are often difficult to identify. Further, the perpetrators of cyber attacks and security breaches are not restricted to specific groups or persons. These attacks may be committed by company employees or external actors operating in any geography, including jurisdictions where law enforcement measures to address such attacks are unavailable or ineffective, and may even be launched by or at the behest of nation states. In addition, new and amended PRC regulatory requirements regarding network security and information protection have been adopted in recent years to further strengthen the regulation in those areas, which may require us to devote significant resources to establishing and maintaining our compliance with such new or amended legislation or regulations.

Although we have not experienced any material cybersecurity incidents in the past, we cannot assure you that we will not experience them in the future. Due to the evolving nature of cybersecurity threats, the scope and impact of any future incident cannot be predicted. While we devote significant resources to security measures to safeguard our systems and mitigate potential risks, such as deploying network protection devices and performing regular security assessment, there is no assurance that such actions will be sufficient to prevent cyber attacks or security breaches that manipulate or improperly use our systems or networks, compromise confidential or otherwise protected information, destroy or corrupt data, or otherwise disrupt our operations. The occurrence of such events could negatively impact our reputation and our competitive position and could result in litigation with third parties, regulatory action, loss of business, potential liability and increased remediation costs, any of which could have an adverse effect on our financial condition and results of operations.

We are subject to risks normally associated with cross-border transactions, and our export products may become subject to anti-dumping or countervailing duty proceedings.

During the past few years, we generated marginal revenue from exports of certain chemical alumina products and aluminum fabrication products and also from time to time from exports of certain non-ferrous metals and minerals products to foreign jurisdictions. In 2020, we only engaged in the export of certain chemical alumina products and aluminum fabrication products to foreign countries including, among others, South Korea, Japan, countries in Southeast Asia, Mexico and Germany and revenue generated from such export accounted for less than 1% of our total revenues in 2020. Such foreign jurisdictions and other countries may take restrictive measures, including, among others, imposition of tariffs, anti-dumping duties and other non-tariff barriers, to protect their own markets. The sales of our product in overseas markets may be adversely affected by increases in or new impositions of anti-dumping duties, countervailing duties, quotas or tariffs imposed on our exports. Further increases in or new imposition of anti-dumping duties, countervailing duties, quotas or tariffs on our sales in these markets could adversely affect the exports to these regions in the future. For example, since 2018, the U.S. government has imposed tariffs and other trade barriers on products imported from China, which elicited retaliatory tariff increases by the PRC government on the U.S. products. Since October 1, 2018, the U.S. government had imposed a 10% tariff on various aluminum products imported from China, including chemical alumina products. Starting from May 2019, this tariff rate was increased to 25%. In 2020, we exported approximately 10,000 tonnes of chemical alumina products to the United States, the revenue generated from which represented less than 0.1% of our total revenues in 2020. Other than exports of chemical alumina products, we did not have any other exports to the United States in 2020. There is no assurance that such export volume of chemical alumina products will not further decrease in the future. In addition, such trade frictions and tariffs involved, as well as the sluggish global economy in 2020 and early 2021 in general, may decrease China's aluminum export to the United States and other countries and reduce global aluminum consumption, which could in turn has a material adverse effect on the demand of our products as well as our business, financial condition and results of operations. On January 15, 2020, the PRC government and the U.S. government entered into the U.S.-China Phase One trade deal agreement. Since then, the PRC government and the U.S. government have granted tariff exemptions on certain goods. However, it is not yet clear what further actions the U.S. government and the PRC government may take. There is no assurance that a broader trade agreement would be successfully negotiated between the U.S. and China, or no additional tariffs or other trade barriers would be imposed. If there is any escalation in trade frictions, we cannot assure you whether such development would not have a material adverse effect on the business environment in general, global economic conditions and the stability of global financial markets. Any of these factors affected by the developments in trade barriers could in turn have a material adverse effect on our business, financial condition and results of operations.

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By virtue of our transactions with parties outside the PRC, we will be subject to the risks normally associated with cross-border business transactions and activities. We will also be exposed to the risk of changes in social, legal, political and economic conditions in the foreign jurisdictions. In particular, unexpected changes in regulatory requirements, tariffs and other trade barriers and price or exchange controls could limit our operations and make the repatriation of profits difficult.

Our operations are affected by a number of risks relating to conducting business in the PRC.

As most of our assets and operations are located in the PRC, we are subject to a number of risks relating to conducting business in the PRC, including the following:

- The PRC government continues to shape the structure and development of the aluminum industry through industry guidelines for energy conservation, safety, environmental protection and quality. The central and local PRC government will give more support to entities that meet the standards in such industry guidelines. If the PRC government changes its current industry guidelines or the interpretation of those industry guidelines, we may face pressure on profit margins and constraints on our ability to expand our business operations.
- Although the PRC has been one of the world's fastest growing economies in terms of GDP growth in the past 30 years, the global financial crisis that unfolded in 2008, coupled with the on-going structural adjustment of the PRC economy in the past few years, has led to a marked slowdown in the economic growth of the PRC. For example, the GDP growth rate of the PRC decreased from 11.4% in 2007 to 6.1% in 2019. Furthermore, the outbreak and global spread of the COVID-19 in 2020 adversely affect global and China's economy and financial market in general. As a result, the GDP growth rate of China was 2.3% in 2020 as compared to 2019. Please refer to “- Our business may be materially and adversely affected by the COVID-19 pandemic” for further details of the impact of the outbreak of COVID-19. A slowdown or decline in the PRC economy could reduce business activities and demand for our products. In addition, the PRC government exercises control over China's economic growth through the allocation of resources, control of payments of obligations denominated in foreign currencies and monetary and tax policies. Some of these measures benefit the overall economy of China, but may have a materially adverse impact on us.
- We are subject to reviews and inspections by various governmental authorities and regulatory agencies. These reviews and inspections could cover a broad range of aspects in relation to our business and operations, including financial reporting, tax reporting, internal control and compliance with applicable laws, rules and regulations. We cannot predict the impact of any findings of these reviews and inspections to be carried out by governmental authorities and regulatory agencies in the future, and we cannot assure you that the outcome of any such reviews and inspections would not have a material adverse effect on our business, financial condition, results of operations and prospects.
- In 2005, China adopted a managed floating exchange rate system to allow the value of the Renminbi to fluctuate within a regulated band based on supply and demand with reference to a basket of currencies. Since then the exchange rate between the U.S. dollar and Renminbi has fluctuated and become increasingly unpredictable following the global financial crisis in 2008. In April 2012, the PRC government took a milestone step in turning the Renminbi into a global currency by doubling the size of its trading band against the U.S. dollar to 1%, pushing through a crucial reform that further liberalizes its financial markets. The PBOC further allows the Renminbi trading band against the U.S. dollar to rise or fall 2% from a mid-point every day, effective on March 17, 2014, compared with its previous 1% limit. In August 2015, the PBOC announced that the daily central parity quotes the market-makers reported to the China Foreign Exchange Trade System operated by the PBOC before the market opens should be based on the closing rate of the inter-bank foreign exchange rate market on the previous day, supply and demand in the market, and price movement of major currencies, effective on August 11, 2015. In recent years, the Renminbi has fluctuated against the U.S. dollar, at times significantly. It is difficult to predict how market forces or PRC or U.S. government policy may impact the exchange rate between the Renminbi and the U.S. dollar in the future. Any appreciation or depreciation of the Renminbi will affect the value of our U.S. dollar-denominated borrowings and overseas investments, the prices of our export sales denominated in foreign currencies and the Renminbi equivalent value of our trade and notes receivable denominated in foreign currencies, which may affect our financial condition and results of operations. Our financial condition and operating performance may also be affected by changes in the value of currencies other than Renminbi in which our earnings and obligations are denominated.

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- There might be uncertainties regarding the interpretation and enforcement of PRC laws, rules and regulations. The Chinese legal system is a civil law system based on written statutes. Unlike common law systems, it is a system in which decided legal cases may be cited for reference but have limited precedential value. Over the past decades, the PRC government has promulgated a comprehensive system of laws, rules and regulations governing economic matters. However, because these laws, rules and regulations are relatively new, and because of the relatively limited volume of published cases and their non-binding nature, and because the laws, rules and regulations often give the relevant administrative and court authorities certain discretion in how to interpret and enforce them, uncertainties regarding the interpretation and enforcement of these laws, rules and regulations may adversely affect our operations.

You may experience difficulties in effecting service of legal process and enforcing judgments against us and our management, and the ability of U.S. authorities to bring actions in the PRC may also be limited.

Most of our assets and our subsidiaries are located in the PRC. In addition, most of our directors and officers reside within the PRC, and most of the assets of our directors and officers are located within the PRC. As a result, it may not be possible to effect service of process within the United States or elsewhere outside the PRC upon most of our directors or officers, including with respect to matters arising under applicable laws and regulations. Moreover, the PRC does not have treaties providing for the reciprocal recognition and enforcement of judgments of courts with the United States, the United Kingdom or most other Western countries, and Hong Kong has no arrangement for the reciprocal enforcement of judgments with the United States.

As a result, recognition and enforcement in the PRC or Hong Kong of judgments of a court in the United States and any of the other jurisdictions mentioned above in relation to any matter not subject to a binding arbitration provision may be difficult or impossible. Even if you sue successfully in a U.S. court or any of the other jurisdictions mentioned above, you may not be able to collect on such judgment against us or our directors and officers. In addition, the SEC, the U.S. Department of Justice and other U.S. authorities may also have difficulties in bringing and enforcing actions against us or our directors or officers in the PRC. Furthermore, class action lawsuits, which are available in the United States for investors to seek remedies, are generally uncommon in the PRC.

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The audit reports included in this annual report are prepared by auditors who are not inspected fully by the Public Company Accounting Oversight Board and, as such, you may be deprived of the benefits of such inspection. Our ADSs may be delisted under the Holding Foreign Companies Accountable Act if the Public Company Accounting Oversight Board is unable to inspect auditors who are located in China. In addition, legislative and regulatory developments related to U.S.-listed China-based companies due to lack of PCAOB inspection and other developments may have a material adverse impact on our listing and trading in the United States and the trading prices of our ADSs. The potential delisting of our ADSs, or the threat of their being delisted, may materially and adversely affect the value of your investment.

Auditors of companies that are registered with the SEC and traded publicly in the United States, including our independent registered public accounting firms, must be registered with the U.S. Public Company Accounting Oversight Board (United States) (the “PCAOB”) and are required by the laws of the United States to undergo regular inspections by the PCAOB to assess their compliance with the laws of the United States and professional standards. Because we have substantial operations within the PRC and the PCAOB is currently unable to conduct full inspections of the work of our auditors as they relate to those operations without the approval of the Chinese authorities, our auditors’ work related to our operations in China is not currently inspected by the PCAOB.

This lack of PCAOB inspections of audit work performed in China prevents the PCAOB from regularly evaluating audit work of any auditor that was performed in China including that performed by our auditors. As a result, investors may be deprived of the full benefits of PCAOB inspections.

On December 7, 2018, the SEC and the PCAOB issued a joint statement highlighting continued challenges faced by the U.S. regulators in their oversight of financial statement audits of U.S.-listed companies with significant operations in China. On November 4, 2019, the SEC announced that SEC and PCAOB had dialogue with the “Big Four” accounting firms, which emphasized the need for effective and consistent global firm oversight of member firms, including those operating in China. On February 19, 2020, the SEC and the PCAOB further issued a joint statement on continued dialogue with “Big Four” accounting firms on audit quality in China, highlighting that PCAOB continues to be prevented from inspecting the audit work and practices of PCAOB-registered audit firms in China on a comparable basis to other non-U.S. jurisdictions. On April 21, 2020, the SEC and the PCAOB issued another joint statement reiterating the greater risks of insufficient disclosures from companies in many emerging markets, including China, compared to those from U.S. domestic companies. In discussing the specific issues related to these risks, the statement again highlighted the PCAOB’s inability to inspect audit work and practices of accounting firms in China with respect to U.S. reporting companies. The inability of the PCAOB to conduct inspections of audit work performed in China makes it more difficult to evaluate the effectiveness of our auditors’ audit procedures as compared to auditors in other jurisdictions that are subject to PCAOB inspections on all of their work. As a result, investors may be deprived of the benefits of PCAOB’s inspections.

As part of a continued regulatory focus in the United States on access to audit and other information currently protected by national laws, in particular PRC laws, on June 4, 2020, the President of the United States issued a memorandum ordering the President’s Working Group on Financial Markets, or the President’s Working Group, to submit a report to the President within 60 days of the memorandum that includes recommendations for actions that can be taken by the executive branch, the SEC, the PCAOB or other federal agencies and departments with respect to Chinese companies listed on U.S. stock exchanges and their audit firms, in an effort to protect investors in the United States. On August 6, 2020, the President’s Working Group released a report recommending that the SEC take steps to implement the five recommendations outlined in the report. In particular, with respect to companies from jurisdictions that do not provide the PCAOB with sufficient access to fulfill its statutory mandate, the President’s Working Group recommended enhanced listing standards on U.S. stock exchanges. This would require, as a condition to initial and continued exchange listing, giving the PCAOB access to work papers of the principal audit firm for the audit of the listed company. Companies unable to satisfy this standard as a result of governmental restrictions on access to audit work papers and practices in their jurisdiction may satisfy this standard by providing a co-audit from an audit firm with comparable resources and experience where the PCAOB determines it has sufficient access to audit work papers and practices to conduct an appropriate inspection of the co-audit firm. The report permits the new listing standards to provide for a transition period until January 1, 2022 for listed companies. On August 10, 2020, the SEC announced that the SEC chairman had directed the SEC staff to prepare proposals in response to the report of the President’s Working Group, and that the SEC was soliciting public comment and information with respect to the development of these proposals. Any resulting actions, proceedings or new rules from these recommendations could adversely affect the listing and compliance status of China-based issuers listed in the United States, such as our Company, and may have a material and adverse impact on the trading of the securities of such issuers, including our ADSs.

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Furthermore, on December 18, 2020, the United States enacted the Holding Foreign Companies Accountable Act, or the HFCA Act. The HFCA Act includes requirements for the SEC to identify issuers whose audit reports are prepared by auditors that the PCAOB is unable to inspect or investigate completely because of a restriction imposed by a non-U.S. authority in the auditor's local jurisdiction. The HFCA Act also requires public companies on this SEC list to certify that they are not owned or controlled by a foreign government and make certain additional disclosure in their SEC filings that cover a "non-inspection" year after the HFCA Act becomes effective. In addition, if the auditor of a U.S.-listed company is not subject to PCAOB inspections for three consecutive "non-inspection" years after the law becomes effective, the SEC is required to prohibit the securities of these issuers from being traded on a U.S. national securities exchange, such as the New York Stock Exchange, on OTC markets in the United States or through any other method within the SEC's jurisdiction to regulate. While we understand that there has been dialogue among the China Securities Regulatory Commission, or the CSRC, the SEC and the PCAOB regarding the inspection of PCAOB-registered accounting firms in China, there can be no assurance that our auditor or we will be able to comply with requirements imposed by U.S. regulators. The HFCA Act requires the SEC to issue implementation rules with regard to these requirements within 90 days after the enactment of the HFCA Act. On March 24, 2021, the SEC issued the Interim Final Rule on HFCA Act Disclosure dated March 18, 2021 and requested for comments until May 5, 2021. The Interim Final Rule would add Item 16I (Disclosure Regarding Foreign Jurisdictions that Prevent Inspections) in Form 20-F, which requires disclosure in a foreign issuer's annual report regarding the audit arrangements of, and governmental influence on, such foreign issuer. A foreign issuer will not be required to comply with Item 16I in Form 20-F until the SEC has identified it as having a non-inspection year under a process to be subsequently established by the SEC with appropriate notice. Once identified, a foreign issuer will be required to comply with Item 16I in Form 20-F in its annual report for each fiscal year in which it is identified. The SEC plans to separately address implementation of the trading prohibitions in the HFCA Act in a future notice and comment process. As of the date of this annual report, we have not been identified by the SEC as having a non-inspection year. However, we cannot assure you that we will not be identified as such in the future.

As a result of the enactment of the HFCA Act, our ADSs may be prohibited from being traded on the NYSE, other U.S. national securities exchanges or U.S. OTC markets or through any other method within the SEC's jurisdiction to regulate if our auditor is not inspected by the PCAOB for any three consecutive years from 2021, which would effectively terminate the trading of our ADSs in the United States. This could result in our ADSs being delisted from the NYSE. Holders of our ADSs may convert the ADSs into our ordinary shares listed on the Hong Kong Stock Exchange but will incur costs in order to do so. See "Item 12. Description of Securities Other than Equity Securities." for further information. The value and liquidity of our ADSs may therefore be materially and adversely affected.

Proceedings instituted by the SEC against five PRC-based accounting firms could result in our financial statements being determined to not be in compliance with the requirements of the Exchange Act.

In December 2012, the SEC brought administrative proceedings against five accounting firms in China, alleging that they had refused to produce audit work papers and other documents related to certain other China-based companies under investigation by the SEC for potential accounting fraud. On January 22, 2014, an initial administrative law decision was issued, censuring these accounting firms and suspending four of the five firms from practicing before the SEC for a period of six months. The four firms appealed to the SEC against this decision and, on February 6, 2015, each of the four accounting firms agreed to a censure and to pay a fine to the SEC to settle the dispute and avoid suspension of their ability to practice before the SEC. The firms' ability to continue to serve all their respective clients is not affected by the settlement. The settlement requires the firms to follow detailed procedures to seek to provide the SEC with access to Chinese firms' audit documents via the CSRC. If the firms do not follow these procedures, the SEC could impose penalties such as suspensions, or it could restart the administrative proceedings. The settlement did not require the firms to admit to any violation of law and preserves the firms' legal defenses in the event the administrative proceeding is restarted.

We were not and are not subject to any SEC investigations, nor are we involved in the proceedings brought by the SEC against the accounting firms. However, the independent registered public accounting firms that issue the audit reports included in our annual reports filed with the SEC is affiliated to one of the four accounting firms above.

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In the event that the SEC restarts the administrative proceedings, depending upon the final outcome, listed companies in the United States with major PRC operations may find it difficult or impossible to retain auditors in respect of their operations in the PRC, which could result in financial statements being determined to not be in compliance with the requirements of the Exchange Act, including possible delisting. Moreover, any negative news about the proceedings against these audit firms may cause investor uncertainty regarding China-based, United States-listed companies and the market price of our ADSs may be adversely affected.

If our independent registered public accounting firms were denied, temporarily, the ability to practice before the SEC and we were unable to timely find another registered public accounting firm to audit and issue an opinion on our financial statements, our financial statements could be determined to not be in compliance with the requirements of the Exchange Act. Such a determination could ultimately lead to the delisting from the NYSE or deregistration from the SEC, or both, which would substantially reduce or effectively terminate the trading of our ADSs in the United States.

Item 4. Information on the Company

A. History and Development of the Company

We were incorporated as a joint stock limited company under the Company Law of the PRC on September 10, 2001 under the corporate name Aluminum Corporation of China Limited. Our principal executive and registered office is located in the People's Republic of China at No. 62 North Xizhimen Street, Haidian District, Beijing, China 100082, and our telephone number is (86) 10 8229 8322. Our website address is www.chalco.com.cn. The information on our website does not constitute a part of this annual report. Our U.S. public filings are available at the website maintained by the SEC at www.sec.gov, which contains reports, proxies and information statements, and other information regarding issuers that file electronically with the SEC.

Pursuant to a reorganization agreement entered into among Chinalco, Guangxi Investment and Guizhou Development in 2001, substantially all of Chinalco's alumina and primary aluminum production operations, as well as a research institute and other related assets and liabilities, were transferred to us upon our formation. We acquired our bauxite mining operations and associated mining rights from Chinalco in a separate mining rights agreement.

Our A Shares have been listed on the Shanghai Stock Exchange since April 2007. Our H Shares and our ADSs, currently each representing 25 H Shares, have been listed on the Hong Kong Stock Exchange and New York Stock Exchange, respectively, since December 2001.

We are a vertically integrated aluminum producer with operations in bauxite and coal mining, alumina refining and primary aluminum smelting. We also produce ancillary products and services derived from or related to our aluminum operations. In addition, we are engaged in trading and logistics of alumina, primary aluminum, other non-ferrous metal products, coal products and raw and ancillary materials in bulk domestically and internationally. Since 2013, we have expanded our operations into power generation. See “— B. Business Overview” for more details.

We have substantially increased the size and scope of our operations through organic growth as well as selective acquisitions and joint ventures. Our key operating assets currently include six subsidiaries mainly engaged in bauxite mining; two integrated alumina and primary aluminum production plant; nine stand-alone alumina refineries; seven stand-alone primary aluminum smelters; one stand-alone secondary aluminum producer; four stand-alone carbon production plants; one integrated power generation company with coal mining operations and one institute providing research and development services. All of our principal alumina and primary aluminum production facilities are operated in accordance with ISO14001 standards.

Private Placement of A Shares

On March 8, 2012, our Board resolved to issue up to 1.25 billion A Shares in the PRC. The A Share issue plans previously proposed by our Board on June 30, 2009 and January 30, 2011 and approved by our shareholders at the extraordinary general meeting, A Share class meeting and H Share class meeting held on August 24, 2009 and on April 14, 2011, respectively, ceased. Pursuant to the new issue plan approved by our Board on March 8, 2012, we planned to issue up to 1.25 billion A Shares, with a nominal value of RMB1.00 each, by way of private placement for expected proceeds not exceeding RMB8 billion. We intended to issue the A Shares to no more than ten specific target subscribers within six months of obtaining the approval of the CSRC. The issue price of A Shares to be offered shall be not less than 90% of the average trading price of our A Shares in twenty trading days immediately preceding the pricing determination date. We intended to apply proceeds from this private placement to finance Chalco Xing County Alumina Project, Zhongzhou branch Ore-dressing Bayer Process expansion construction project and to supplement working capital. The issue plan was approved by the SASAC on April 5, 2012 and by our shareholders at the extraordinary general meeting, A Share class meeting and H Share class meeting held on May 4, 2012. On August 24, 2012, our Board resolved to adjust the issue plan by proposing, among others, to increase the number of A Shares to be issued to up to 1.45 billion A Shares. The adjusted issue plan was approved by the SASAC and our shareholders at an extraordinary general meeting, A Share class meeting and the H Share class meeting on October 12, 2012 and by the CSRC on December 7, 2012. On March 14, 2013, we obtained the approval from the CSRC on our proposed private placement of A Shares under such adjusted issue plan, with effective period of six months after the approval date. However, the CSRC temporarily retrieved its approval in July 2013 due to its on-going investigation of the sponsor of our proposed private placement of A Shares. The period of authorization to the Board relating to the adjusted issue plan was extended by our shareholders at the 2013 annual general meeting, A Share class meeting held on June 27, 2014 and H Share class meeting held on June 27, 2014, with an effective period of 12 months after the approval date. On January 4, 2015, we submitted the “Report regarding the resumption of the approval of non-public offering of shares of Aluminum Corporation of China Limited” to the CSRC. On April 24, 2015, we received the Approval in Relation to the Non-public Issuance of Shares by Aluminum Corporation of China Limited issued by the CSRC, pursuant to which we were approved to issue no more than 1,450,000,000 new shares. We completed the non-public issuance of A Shares on June 15, 2015 and issued an additional 1,379,310,344 A Shares pursuant to the specific mandate as approved at the annual general meeting of the Company on June 27, 2014. Upon completion, the total number of A Shares of the Company was increased from 13,524,487,892 to 14,903,798,236. Please refer to “- Subscription of Equity Interest of Certain Subsidiaries and Subsequent Issuance of Additional A Shares” for further changes of our issuance of A Shares.

Disposal of Aluminum Fabrication Business

We disposed of substantially all of our aluminum fabrication operations to Chinalco pursuant to the approval of shareholders at the 2012 annual general meeting on June 27, 2013.

On May 13, 2013, we submitted the tender notice to CBEX to dispose of the equity interest we held in eight aluminum fabrication enterprises, including Henan Aluminum, Chalco Southwest Aluminum, Chalco Southwest Aluminum Cold Rolling, Huaxi Aluminum, Qingdao Light Metal, Chalco Ruimin, Chalco Sapa Aluminum Products (Chongqing) Co., Ltd. and Guizhou Chalco Aluminum Co., Ltd. (collectively, “Aluminum Fabrication Interests”) through open tender. Chinalco participated in and won the bid for the Aluminum Fabrication Interests on June 7, 2013. We entered into an agreement (the “Aluminum Fabrication Interests Transfer Agreement”) with Chinalco on June 9, 2013 for the disposal of Aluminum Fabrication Interests for a consideration of RMB3,242.2 million. Such consideration was the initial bidding price, which was determined with reference to the appraised value of the Aluminum Fabrication Interests. Pursuant to the Aluminum Fabrication Interests Transfer Agreement, Chinalco agreed to pay the consideration in cash in two installments, namely, 30% of the consideration to be paid within five business days after the effective date of the agreement and 70% of the consideration to be paid by June 30, 2014. Chinalco must pay interest for the second installment for the period starting from the date immediately after the effective date until the payment date at the one-year lending rate set by the PBOC. The disposal was approved at the 2012 annual general meeting held on June 27, 2013 and we completed the disposal on June 27, 2013. Chinalco paid the consideration in full by June 2014.

As a condition of the disposal of the Aluminum Fabrication Interests, on June 9, 2013, we entered into an agreement with Chinalco to transfer the outstanding entrusted loans we provided to Henan Aluminum and Qingdao Light Metal as of December 31, 2012 to Chinalco for a consideration of RMB1,756.0 million. Such consideration was determined based on negotiations between the parties, with reference to the appraised total value of the loans. Pursuant to the agreement, Chinalco agreed to pay the consideration in cash in five equal installments of RMB351.2 million, with the last installment, together with the relevant interests at the one-year lending rate set by the PBOC, to be paid by June 30, 2017. The transfer was approved at the 2012 annual general meeting held on June 27, 2013 and we completed the transfer on June 27, 2013. The payment was fully settled by Chinalco in accordance with the agreement.

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In addition, we entered into an agreement with Northwest Aluminum Fabrication Plant, a subsidiary of Chinalco, on June 6, 2013 to dispose of all the assets of Northwest Aluminum for RMB1,659.6 million. Such consideration was determined based on negotiations between the parties, with reference to the appraised net asset value of Northwest Aluminum. Pursuant to the agreement, Northwest Aluminum Fabrication Plant agreed to pay the consideration in cash in five equal installments of RMB331.9 million, with the last installment, together with the relevant interests at the one-year lending rate set by the PBOC, to be paid by June 30, 2017. The disposal was approved at the 2012 annual general meeting held on June 27, 2013 and we completed the disposal on June 27, 2013. The payment was fully settled by Northwest Aluminum Fabrication Plant in accordance with the agreement.

Disposal of Assets of Alumina Production Line of Guizhou Branch

On June 6, 2013, we entered into an agreement with Guizhou Aluminum Plant, a subsidiary of Chinalco, to dispose of the assets of the alumina production line of our Guizhou branch for a consideration of RMB4,429.0 million. Such consideration was determined based on negotiations between the parties, with reference to the appraised net asset value of such alumina assets of our Guizhou branch. Pursuant to the agreement, Guizhou Aluminum Plant agreed to pay the consideration in cash in five equal installments of RMB885.8 million, with the last installment, together with the relevant interests at the one-year lending rate set by the PBOC, to be paid by June 30, 2017. The disposal was approved at the 2012 annual general meeting held on June 27, 2013 and we completed the disposal on June 27, 2013. The payment was fully settled by Guizhou Aluminum Plant in accordance with the agreement.

We decided to dispose of the assets of the alumina production line of Guizhou branch because the district in which they were located had been changed from an industrial district to a commercial district based on the local urban plan, which would significantly increase Guizhou branch's environmental compliance costs. We built a new alumina refinery, Guizhou Huajin, in an area relatively close to major bauxite and coal mines in Guizhou Province, which commenced production with an annual capacity of 1.6 million tonnes of alumina in 2015.

Senior Perpetual Capital Securities Offering

In October 2013, we completed the issuance of US\$350 million in aggregate principal amount of 6.625% senior perpetual capital securities (the "2013 Senior Perpetual Securities") through Chalco Hong Kong Investment Company Limited (the "Bond Issuer"), our wholly-owned subsidiary, which was exempted from, and not subject to, registration under the Securities Act. The 2013 Senior Perpetual Securities are guaranteed by Chalco Hong Kong and its certain subsidiaries. The 2013 Senior Perpetual Securities also have the benefit of a keepwell deed dated October 29, 2013 entered into by the Issuer, the Company, Chalco Hong Kong and the trustee and a deed of equity interest purchase undertaking dated on October 29, 2013 entered into by the Company and the trustee, both deeds being executed in favor of the trustee. The 2013 Senior Perpetual Securities were listed on the Hong Kong Stock Exchange on October 30, 2013. The net proceeds from the issue of the 2013 Senior Perpetual Securities after deduction of issuance costs are RMB2,122.6 million and have been on-lent to the Company or any of its subsidiaries for general corporate use. Coupon payments of 6.625% per annum on the 2013 Senior Perpetual Securities are paid semi-annually in arrears from October 29, 2013, and may be deferred at our discretion unless, during the six-month period ending on the day before the relevant scheduled coupon payment date, we have, or the Bond Issuer or Chalco Hong Kong has, declared or paid a discretionary dividend, distribution or other discretionary payment on or in respect of, or have/has at its discretion repurchased, redeemed or otherwise acquired, any securities of lower or equal rank, subject to certain exceptions. The 2013 Senior Perpetual Securities have no fixed maturity and are callable only at our option on or after October 29, 2018, at their principal amounts together with any accrued, unpaid or deferred coupon interest payments. After October 29, 2018, the coupon rate would be reset every five calendar years to a rate of interest expressed as a percentage per annum equal to the sum of (a) the initial spread of 5.312 per cent, (b) the U.S. Treasury Rate, and (c) a margin of 5.00 per cent per annum. While any coupon interest payments are unpaid or deferred, we, Chalco Hong Kong, and the Bond Issuer shall not, subject to certain exceptions, declare or pay any discretionary dividends or make distributions or similar discretionary payments in respect of, or at its discretion repurchase, redeem or otherwise acquire for any consideration any securities of lower or equal rank. We redeemed the 2013 Senior Perpetual Securities in October 2018.

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On October 27, 2015, our Company issued RMB2,000 million perpetual medium-term notes at an initial distribution rate of 5.50% (the “2015 Perpetual Medium-term Notes”). The proceeds from the issuance were RMB2,000 million and were used for repayments of interest-bearing loans and borrowings. Coupon payments of 5.50% per annum on the 2015 Perpetual Medium-term Notes are paid annually in arrears from October 29, 2015 and may be deferred at the discretion of our Company. The 2015 Perpetual Medium-term Notes have no fixed maturity and are callable only at our option on October 29, 2020 or any coupon distribution date after October 29, 2020 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 2.61 per cent, (b) the China Treasury Rate, and (c) a margin of 300 Bps every five years after October 29, 2020. While any coupon distribution payments are unpaid or deferred, the headquarters of the Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments of the headquarters of the Company. We repaid the principal amounts together with any accrued, unpaid or deferred coupon distribution payments of the 2015 Perpetual Medium-term Notes on October 29, 2020.

On October 31, 2016, the Bond Issuer issued US\$500 million senior perpetual securities (the “2016 Senior Perpetual Securities”) at a rate of 4.25%. The 2016 Senior Perpetual Securities are guaranteed by one of our subsidiaries, Chalco Hong Kong. The 2016 Senior Perpetual Securities also have the benefit of a keepwell deed entered into by the Bond Issuer, the Company, Chalco Hong Kong and the trustee. The 2016 Senior Perpetual Securities were listed on the Hong Kong Stock Exchange on November 7, 2016. The net proceeds from the issue of the 2016 Senior Perpetual Securities were approximately RMB3,374 million and were on-lent to the Company or any of its subsidiaries for general corporate use. Coupon payments of 4.25% per annum on the 2016 Senior Perpetual Securities have been made semi-annually on April 29 and October 29 in arrears from November 7, 2016 and may be deferred at our discretion. The first coupon payment date was April 29, 2017. The 2016 Senior Perpetual Securities have no fixed maturity date and are callable only at our option on or after November 7, 2021 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. After November 7, 2021, the coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 2.931 per cent, (b) the U.S. Treasury Rate, and (c) a margin of 5.00 per cent per annum. While any coupon distribution payments are unpaid or deferred, we, the wholly-owned subsidiaries of Chalco Hong Kong as guarantors, and the Bond Issuer cannot declare or pay dividends or make distributions or similar discretionary payments in respect of, or repurchase, redeem or otherwise acquire any securities of lower or equal rank.

On October 19, 2018, we issued RMB2,000 million perpetual medium-term notes with an initial distribution rate at 5.10% (the “2018 Perpetual Medium-term Notes”). The proceeds from the issuance were RMB2,000 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 5.10% per annum on the 2018 Perpetual Medium-term Notes are made annually in arrears from October 19, 2018 and may be deferred at our discretion. The 2018 Perpetual Medium-term Notes have no fixed maturity date and are callable only at our option on October 23, 2021 or any coupon distribution date after October 23, 2021 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 2.61 per cent, (b) the China Treasury Rate, and (c) a margin of maximum 500 Bps every five years after October 23, 2021. While any coupon distribution payments are unpaid or deferred, we cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments.

On November 19, 2019, we issued RMB1,500 million perpetual medium-term notes with an initial distribution rate at 4.20% (the “2019 Perpetual Medium-term Notes”). The proceeds from the issuance were RMB1,499 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 4.20% per annum on the 2019 Perpetual Medium-term Notes have been made annually in arrears from November 19, 2019 and may be deferred at our discretion. The 2019 Perpetual Medium-term Notes have no fixed maturity date and are callable only at our option on November 20, 2022 or any coupon distribution date after November 20, 2022 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 1.31 per cent, (b) the China Treasury Rate, and (c) a margin of maximum 300 Bps every five years after November 20, 2022. While any coupon distribution payments are unpaid or deferred, the Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments.

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On December 2, 2020, the Company issued RMB1,000 million perpetual medium-term notes with an initial distribution rate at 4.45% (the “2020 Perpetual Medium-term Notes”). The proceeds from the issuance of the 2020 Perpetual Medium-term Notes were RMB1,000 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 4.45% per annum on the 2020 Perpetual Medium-term Notes have been made annually in arrears from December 2, 2020 and may be deferred at the discretion of the Company. The 2020 Perpetual Medium-term Notes have no fixed maturity date and are callable only at our option on December 3, 2022 or any coupon distribution date after December 3, 2022 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 1.42 percent, (b) the China Treasury Rate, and (c) a margin of maximum 300 Bps every two years after December 3, 2022. While any coupon distribution payments are unpaid or deferred, the Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments.

Transfer of Equity Interest in Shanxi Huaxing

The Chalco Xing County Alumina Project, which was carried out by Shanxi Huaxing, commenced construction in May 2011 and undertook full operation in 2014. After completion of private placement of A Shares in June 2015, the Board resolved to replace the funds which have been invested by us in advance with the proceeds raised from the private placement of A Shares. In light of our strategic blueprint for the development of Shanxi aluminum recycle industrial park, we planned to introduce strategic investors for joint investment and cooperation to develop a new model of integrated coal, electricity and aluminum operations. In December 2015, we entered into an equity transfer agreement with Shenzhen CR Yuanta Asset Management Co., Ltd., a state-owned entity, to transfer 50% equity interests in Shanxi Huaxing, a wholly-owned subsidiary, through the Shanghai United Assets and Equity Exchange at a price of RMB2,351 million (the “2015 Equity Transfer Agreement”). The price was determined based on the appraisal value provided by an independent qualified appraisal company. According to the 2015 Equity Transfer Agreement, 30% of the consideration amounting to RMB705 million has been received by us in December 2015. In December 2016, Shenzhen CR Yuanta Asset Management Co., Ltd. transferred the 50% of equity interest in Shanxi Huaxing to Baotou Transportation Investment Group Co., Ltd. As agreed among Shenzhen CR Yuanta Asset Management Co., Ltd., Baotou Transportation Investment Group Co., Ltd. and the Company, Baotou Transportation Investment Group Co., Ltd., shall assume the payment obligation on the outstanding consideration of RMB1,646,035,160 payable by Shenzhen CR Yuanta Asset Management Co., Ltd. to the Company under the 2015 Equity Transfer Agreement and settle the outstanding consideration in full together with interest accrued thereon from January 1, 2017 to the date of payment before March 31, 2017. The payment was fully settled by Baotou Transportation Investment Group Co., Ltd. in March 2017.

In December 2018, we entered into an equity transfer agreement with Baotou Transportation Investment Group Co., Ltd., pursuant to which we agreed to acquire 50% equity interest in Shanxi Huaxing through the Shanghai United Assets and Equity Exchange at a price of approximately RMB2,665.2 million, which we paid in full in December 2018. Upon completion of the acquisition, Shanxi Huaxing became a wholly-owned subsidiary of the Company. The acquisition is conducted for the purpose of enhancing our profitability and is in line with our strategic layout of alumina and aluminum business, as the increase of our shareholding in Shanxi Huaxing, an alumina plant, is expected to enhance the synergy with our primary aluminum production in Shanxi, where we have newly added production capacity of primary aluminum.

Transfer of Shares of Jiaozuo Wanfang

On January 22, 2015 and January 23, 2015, we decreased our shareholding in Jiaozuo Wanfang by 4,758,858 shares through the securities exchange system of the Shenzhen Stock Exchange. In March 2015, we transferred 100,000,000 shares of Jiaozuo Wanfang to Geo-Jade Petroleum Corporation by way of agreement after the public solicitation for potential transferees. On June 25, 2015, we further transferred 42,550,900 shares of Jiaozuo Wanfang by way of block trading through the securities exchange system of the Shenzhen Stock Exchange. On December 18, 21 and 22, 2015, we reduced our shareholding in Jiaozuo Wanfang by 16,695,100 shares through the centralized bidding trading system of the Shenzhen Stock Exchange. From December 23 to 25, 2015, we reduced our shareholding in Jiaozuo Wanfang by 13,865,000 shares through the centralized bidding trading system of the Shenzhen Stock Exchange and block trading. As a result, we held 29,582,057 shares of Jiaozuo Wanfang as of December 31, 2015, representing 2.46% of the total share capital of Jiaozuo Wanfang. During the period from July 8, 2016 to September 27, 2016, we reduced our shareholding of Jiaozuo Wanfang by an aggregate of 16,628,098 shares via the Shanghai Stock Exchange centralized bidding trading system, representing approximately 1.39% of the total share capital of Jiaozuo Wanfang. The average price of reduction was approximately RMB8.73 per share. After the reduction, the Company remained holding 12,953,959 shares of Jiaozuo Wanfang, representing approximately 1.09% of its total share capital. During the period from September 29, 2016 to January 26, 2017, we reduced our shareholding of Jiaozuo Wanfang by an aggregate of 12,953,959 shares via the Shanghai Stock Exchange centralized bidding trading system, representing approximately 1.09% of the total share capital of Jiaozuo Wanfang. The average price of reduction was approximately RMB10.19 per share. After such reduction in our shareholding, we no longer hold any shares of Jiaozuo Wanfang.

Disposal of Certain Assets of Guizhou Branch

Guizhou branch entered into a land reserve acquisition cooperation agreement with the People's Government of the Baiyun District of Guiyang, Guiyang Land Reserve Center, and Guizhou Aluminum Plant on November 13, 2015. As the land of Guizhou Aluminum Plant occupied by the primary aluminum plant of Guizhou branch shall be transferred to the respective land resources and reserve authorities, Guizhou branch sold the relevant assets, including buildings and structures located on the land occupied by the primary aluminum plant of Guizhou branch, to the Guiyang Land Reserve Center for a total consideration of RMB1.95 billion. The consideration was determined based on the asset appraisal conducted by an independent asset appraisal firm.

Disposal of the Environmental Protection Business

On May 30, 2016, the Board approved the transfer of the environmental protection assets in relation to the desulfurization, denitration and dedusting of the coal-fired generating units of five entities, namely Lanzhou branch, Baotou Aluminum, Shandong Huayu, Maliantai Power Station and Liupanshan Power Station of Ningxia Energy, by way of public bidding. On June 29, 2016, the assets transfer agreement in relation to disposal of the above environmental protection assets were entered into between Beijing Aluminum SPC Environment Protection Tech Co., Ltd., which had won the bid for the acquisition of the assets, and us. Pursuant to the asset transfer agreement, the aggregate consideration for the above environmental protection assets disposal was RMB1,754 million which was paid in two installments in June 2016 and December 2016, respectively.

We decided to dispose the environmental protection assets to reduce our capital investments and generate cash flows. We have been complying with the relevant standards of environmental protection through professional services rendered by specialized environmental protection companies.

Development of Gold Leasing Financing

On May 30, 2016, the Board resolved to develop gold leasing business to financing working capital. From 2016 to 2019, we have entered into several agreements with Bank of Communications Co., Ltd., China Everbright Bank and Agriculture Bank of China to finance working capital via gold leasing. We repaid the remaining gold leasing financing and did not enter into any new gold leasing agreement in 2020.

Establishment of Industry Investment Fund

On May 23, 2017, the Company, Bank of Communications International Trust Co., Ltd. ("BOCOMMTRUST") and Chinalco Jianxin Investment Fund Management (Beijing) Company Limited ("Chinalco Jianxin") entered into a partnership agreement in relation to the establishment of Beijing Chalco Bocom Size Industry Investment Fund Management Partnership (Limited Partnership) (the "Industry Fund"). On September 27, 2017, the Company, BOCOMMTRUST, Chinalco Jianxin and Bocommtrust Asset Management Co., Ltd. ("Bocommtrust Asset") entered into certain agreements with respect to Chinalco Jianxin's withdrawal from and Bocommtrust Asset's participation in the Industry Fund. On the same day, the Company, BOCOMMTRUST and Bocommtrust Asset entered into a capital contribution agreement and a new partnership agreement in relation to the Industry Fund. Pursuant to these agreements, the general partner of the Industry Fund changed from Chinalco Jianxin to Bocommtrust Asset while Chinalco Jianxin remained as the manager of the Industry Fund.

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The Industry Fund would provide funding for the construction of our major projects, replenish our working capital and support our structural adjustment, transformation and upgrade. As of December 31, 2020, the Industry Fund made debt investments in certain of our subsidiaries and joint ventures with a total amount of RMB2,880 million, of which we had contributed RMB950.4 million.

Merger and Reorganization of Shanxi Branch and Shanxi Huaze

On August 8, 2017, we entered into a reorganization agreement with Zhangze Electric Power, pursuant to which we contributed certain assets related to alumina production of our Shanxi branch, with an appraised net value of RMB3,425.7 million equaling the appraised net value of the assets and liabilities of Shanxi branch, to Shanxi Huaze. The assets injected into Shanxi Huaze included, among others, inventories, buildings, structures, machinery and equipment. Upon completion of our asset contribution in 2017, our shareholding in Shanxi Huaze increased from 60% to 85.98% and Shanxi Huaze was renamed to Shanxi New Material.

Subscription of Equity Interest of Certain Subsidiaries and Subsequent Issuance of Additional A Shares (“Asset Restructuring”)

On December 4, 2017, we entered into certain investment and debt conversion agreements (the “Initial Agreements”) with Huarong Ruitong Equity Investment Management Co., Ltd. (“Huarong Ruitong”), China Life Insurance Company Limited (“China Life”), Shenzhen Zhaoping Chalco Investment Center LLP (“Zhaoping Investment”), China Pacific Life Insurance Co., Ltd. (“CPIC Life”), China Cinda Asset Management Co., Ltd. (“China Cinda”), BOC Financial Asset Investment Co., Ltd. (“BOC Financial”), ICBC Financial Asset Investment Co., Ltd. (“ICBC Financial”) and ABC Financial Asset Investment Company Limited (“ABC Financial”) (collectively, the “Restructuring Investors”). Pursuant to the Initial Agreements, Huarong Ruitong, China Life, Zhaoping Investment, CPIC Life, BOC Financial, ICBC Financial and ABC Financial have agreed to make cash contributions to our wholly-owned subsidiaries, Chalco Shandong, Zhongzhou Aluminum, Baotou Aluminum and Chalco Mining (collectively, the “Target Subsidiaries”), while the principal of loans owed by Chalco Mining to Huarong Ruitong, Zhaoping Investment, China Cinda and BOC Financial prior to signing of the Initial Agreements would be treated as capital contribution to Chalco Mining and converted into equity interest in Chalco Mining held by Huarong Ruitong, Zhaoping Investment, China Cinda and BOC Financial. The Restructuring Investors have agreed to acquire 30.80%, 36.90%, 25.67% and 81.14% of equity interest of Chalco Shandong, Zhongzhou Aluminum, Baotou Aluminum and Chalco Mining, respectively, with an aggregate capital contribution of approximately RMB12.6 billion. Under the Initial Agreements, we have also agreed to acquire equity interest held by the Restructuring Investors in the Target Subsidiaries with consideration in the form of our A Shares to be issued to the Restructuring Investors. On December 20, 2017, the Initial Agreements and the transactions contemplated thereunder were approved at our 2017 second extraordinary general meeting. In December 2017, the capital contribution to the Target Subsidiaries by the Restructuring Investors was completed in accordance with the terms of the Initial Agreements.

Subsequently, on January 31, 2018, we entered into equity acquisition agreements (the “Further Agreements”) with the Restructuring Investors. Pursuant to the Further Agreements, we have agreed to acquire all the equity interest held by the Restructuring Investors in the Target Subsidiaries with consideration in the form of A Shares of the Company to be issued to the Restructuring Investors (the “Proposed Issuance”). The number of A Shares in issue pursuant to the Proposed Issuance would equal the appraised value of equity interest held by Restructuring Investors in Target Subsidiaries as of December 31, 2017 determined by China United Assets Appraisal divided by the issue price. The aforementioned appraised value might be subject to further adjustment by competent PRC authorities upon filing of the valuation report by China United Assets Appraisal. The issue price has been set at RMB6.00 per A Share with reference to 90% of the average trading price of our A Shares during the last 60 trading days prior to January 31, 2018 (i.e., the last 60 trading days prior to the suspension of trading of our A Shares) in accordance with rules and regulations of the PRC applicable to transaction of this kind. The appraised value, subject to further adjustment, was RMB12.7 billion and therefore we would issue to the Restructuring Investors approximately 2.1 billion A Shares in aggregate, representing approximately 14.2% of the total issued share capital of the Company as of January 31, 2018 and approximately 12.4% of the enlarged total issued share capital of the Company upon completion of the Proposed Issuance. On July 30, 2018, we entered supplemental equity acquisition agreements with the Restructuring Investors, amending, among others, the final consideration of the proposed acquisition and the number of the consideration shares to be issued from approximately RMB12,703.7 million and approximately 2,117,280,800 to approximately RMB12,713.2 million and 2,118,874,715, respectively. The Proposed Issuance was approved by our shareholders, the SASAC and the CSRC in 2018. In February 2019, all equity interests of Target Subsidiaries held by the Restructuring Investors were transferred to us, which resulted in us holding 100% equity interests of all Target Subsidiaries. On February 25, 2019, we issued an aggregate of 2,118,874,715 A Shares to the Restructuring Investors and our total share capital increased from 14,903,798,236 shares to 17,022,672,951 shares. The shares issued to the Restructuring Investors could be traded on the Shanghai Stock Exchange since February 26, 2020 after the expiry of the 12 month lock-up period.

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Cash contributions received from the Restructuring Investors have been used by us for the repayment of loans. The Asset Restructuring has helped to reduce the gearing ratios of these subsidiaries and us as a whole.

Boffa Project

On June 8, 2018, Chalco Hong Kong and Chalco Guinea Company S.A., a wholly-owned subsidiary of Chalco Hong Kong, entered into a mining convention (the “Mining Convention”) with the Guinean government, pursuant to which Chalco Hong Kong agreed to provide investment funds while the Guinean government agreed to provide mining licenses and rights to transport mining products for the development and operation of the Boffa Project, a project for the construction and development of a bauxite mine located in Boffa, Guinea.

Based on our preliminary research and analysis and after taking into account various factors, including but not limited to (i) the bauxite reserve and the minable quantity in the mining area of the Boffa Project; (ii) the advancement and effectiveness of the existing development technologies; (iii) labor cost, transportation expense and other development costs and other factors, the total investment of the Boffa Project is estimated to be approximately US\$706 million, subject to adjustment pursuant to the actual needs, which will be mainly allocated in the construction of mines, ports and lightering system and is expected to be funded through capital investment together with shareholders’ loans or bank loans. According to our preliminary design plan, the total investment for the construction of mines is estimated to be approximately RMB3,088 million. The Boffa Project was completed and put into operation in April 2020, by which an aggregate of RMB2,770 million of capital expenditure had been incurred for the Boffa Project.

In accordance with the Mining Convention, a mining company (the “Mining Company”) and a port company (the “Port Company”) are established to act as the main operating bodies for mines construction and ports construction, respectively. In accordance with the Mining Convention, we own 85% and 95% equity interests in the Mining Company and the Port Company, respectively, while the Guinean government and its wholly-owned companies collectively own 15% and 5% equity interests in the Mining Company and the Port Company, respectively. Pursuant to the Mining Convention, Chalco Hong Kong shall grant the Guinean government and/or its wholly-owned companies an option to obtain additional equity interests in the Mining Company and grant Societe Guineenne de Patrimoine Minier, a company wholly owned by the Guinean government, an option to obtain additional equity interests in the Port Company (together, the “Options”). If the Options are exercised in full, our equity interests in the Mining Company and Ports Company will reduce to 65% and 90%, respectively. As of December 31, 2020, the Options had not been exercised.

With a large reserve of resources, we believe the Boffa Project would provide sustainable bauxite resources for our alumina production and its high ore grades would help reduce alkali and energy consumption in our alumina production. In addition, as the mines are close to port, we are able to consolidate inland waterway transportation and maritime transportation, which benefits long-term development of the project and effectively controls investment risks at the early stage.

The Boffa Project commenced construction in September 2018 with an expected annual bauxite output capacity of 12 million tonnes. The project was completed and put into operation in April 2020. By the end of 2020, we extracted approximately 8.06 million tonnes of bauxite from the Boffa mine.

Merger and Reorganization of Zunyi Alumina and Zunyi Aluminum

On June 21, 2018, in order to streamline our production chains, enhance synergistic effects and control operating costs, we entered into a contribution agreement with other shareholders of Zunyi Aluminum, pursuant to which we contributed all assets in Zunyi Alumina to Zunyi Aluminum. The appraised net value of Zunyi Alumina, equaling the appraised net value of its assets and liabilities, was RMB2,311 million. Upon completion of the merger, our shareholding in Zunyi Aluminum increased from 62.1% to 67.445%.

Controlling Shareholder's Shareholding Increase in the Company

On June 24, 2018, Chinalco notified us of its plan to increase its shareholding in us via the trading system of the Shanghai Stock Exchange in an amount of not less than RMB400 million and not more than RMB1 billion in 12 months. Chinalco would, based on its reasonable judgment on our share price as well as the fluctuations of our share prices and the overall trend in the capital market, gradually implement the plan on increase in shareholding to the extent not exceeding 2% of our total share capital. The purpose of such increases in shareholding is to boost confidence of investors, protect the interests of minority shareholders and stabilize the capital market based on Chinalco's confidence in the future development of the company and the recognition of our value.

For the period from June 25, 2018 to June 24, 2019, as the result of the aforesaid plan, Chinalco increased its shareholding in us by 160,512,964 A shares (representing approximately 0.94% of our total issued share capital as of June 24, 2019) in the amount of RMB608 million on a cumulative basis via the trading system of the Shanghai Stock Exchange. In addition, during the same period of time, Chinalco also, through its subsidiaries, had increased its shareholding in us by 115,276,000 H shares (representing approximately 0.68% of our total issued share capital as of June 24, 2019) in the amount of HK\$365 million on a cumulative basis via the trading system of the Hong Kong Stock Exchange.

Acquisition of Carbon Assets and Equity Interests

On August 30, 2018, our Group and the affiliates of Chinalco Assets entered into a series of assets transfer agreements and equity transfer agreements for the acquisition of certain carbon assets and equity interests from the affiliates of Chinalco Assets, including: (i) the assets of the carbon plant under Shandong Aluminum Industry Co., Ltd; (ii) the assets of the carbon plant under Pingguo Aluminum Company Limited; (iii) 49% equity interests of Baotou Sendu Carbon Company Limited; and (iv) 57.69% and 19.96% equity interests of Chibi Great Wall Carbon Products Company Limited from two separate shareholders. Upon completion of the acquisition, we expect this acquisition would help us consummate our industrial chain, ensure our steady production, and improve our competitiveness and anti-risk capabilities, as carbon products are one of major raw materials for production of primary aluminum. As of December 2018, we had paid the total consideration of RMB735.6 million in full and the acquisition had been completed.

Transfer Between China Copper and Yunnan SASAC

On November 13, 2018, China Copper, a wholly-owned subsidiary of our controlling shareholder, entered into a transfer agreement with Yunnan SASAC, pursuant to which Yunnan SASAC shall transfer its 51% equity interest in Yunnan Metallurgical Group Co., Ltd. to China Copper with no consideration. The transfer was approved by the SASAC on December 19, 2018, by the State Administration for Market Regulation on December 20, 2018 and by the CSRC on December 29, 2018. Chinalco completed the transfer on January 8, 2019. As Yunnan Aluminum, an affiliated company of Yunnan Metallurgical Group Co., Ltd., competes with us in the business segments of alumina and primary aluminum, on January 2, 2019, Chinalco, as the indirect controlling shareholder of Yunnan Aluminum and our direct controlling shareholder, issued a letter of undertakings on non-competition to us in order to address business competition and safeguard the legitimate interests of the Company and our minority shareholders. According to the letter of undertakings, Chinalco undertook to start in 2019 planning the integration of the businesses in which Yunnan Aluminum and we compete with each other, and address business competition between Yunnan Aluminum and us within five years.

Transfer of Primary Aluminum Capacity Quota of Shanxi Huasheng

On May 28, 2019, Shanxi Huasheng and Yixin Aluminum entered into a transfer agreement, pursuant to which Shanxi Huasheng agreed to sell to Yixin Aluminum the primary aluminum capacity quota of 190,000 tonnes at a total transfer consideration of RMB950 million and a transfer price of RMB5,000 per tonne. With the adjusted number of annual capacity quota finally determined by relevant PRC authority, we completed the transfer of the primary aluminum capacity quota of 170,000 tonnes to Yixin Aluminum with the total transfer consideration of RMB850 million in June 2019. We expect this transfer would help to reverse Shanxi Huasheng's losses, achieve its transformation and upgrading, and optimize our industrial layout and asset structure.

Proposed Issuance of H Shares

On June 23, 2020, our shareholders at the 2019 annual general meeting passed a special resolution, which will remain valid until the earliest of (i) the conclusion of our next annual general meeting, (ii) the expiration of 12 months following the date of passing the resolution, or (iii) the date on which the authority set out in this resolution is revoked or varied by a special resolution at a general meeting. The resolution authorizes us to issue additional H Shares up to 20% of the number of H Shares in issue as of the resolution date. Our Board has been authorized to determine the use of the proceeds. The proposed issuance is subject to all the necessary approval by the CSRC and/or other relevant PRC government authorities.

Capital Contribution to China Rare Metals and Rare Earths Company Ltd. with Gallium Assets

On August 27, 2019, we entered into a capital contribution agreement with China Rare Metals and Rare Earths Company Ltd., a subsidiary of Chinalco, pursuant to which we agreed to make a capital contribution of RMB352,848,100 to China Rare Metals and Rare Earths Company Ltd. with our gallium assets, which contribution was made in full in August 2019. Upon completion of the transaction, the shareholding proportion we hold in China Rare Metals and Rare Earths Company Ltd. will be increased from 14.62% to 23.94%, and the registered capital of China Rare Metals and Rare Earths Company Ltd. will be increased from RMB1,360,000,000 to RMB1,526,750,900. We expect this transaction will help us revitalize gallium assets irrelevant to our principal businesses and increase investment returns by leveraging on China Rare Metals and Rare Earths Company Ltd.'s industrial advantages.

Capital Contribution to Yixin Aluminum

On December 10, 2019, we entered into a capital contribution agreement with Yixin Aluminum and its shareholders, pursuant to which we agreed to make a capital contribution of RMB850 million in cash to Yixin Aluminum, which we paid in full in December 2019. Upon completion of the transaction, we held 38.90% equity interests of Yixin Aluminum. We expect this capital contribution to facilitate us in participating in the green development layout on the integration of hydropower and aluminum in Yunnan Province and obtaining competitive assets for our principal business.

Subscription for A Shares of Yunnan Aluminum

On December 19, 2019, we entered into a shares subscription agreement with Yunnan Aluminum, pursuant to which we agreed to subscribe through non-public offering for 314,050,688 A shares of Yunnan Aluminum at a price of RMB4.10 per share with the total subscription amount of RMB1,287,607,820.80. The subscription price of RMB4.10 per A share was determined through bidding and based on the minimum issuance price of the non-public offering by Yunnan Aluminum, which represented 90% of the average trading price of the shares in the 20 trading days prior to the first day of the issuance period, namely December 13, 2019. We paid the consideration in full and 314,050,688 A shares of Yunnan Aluminum were registered under our name in December 2019, representing approximately 10.04% of the total share capital of Yunnan Aluminum. Pursuant to the shares subscription agreement, we shall not transfer the subscribed A shares thereto within 36 months from the listing date. We expect our subscription for A shares of Yunnan Aluminum will help resolve business competitions between Yunnan Aluminum and us and is in line with our development strategies and in our interests as a whole.

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On December 23, 2020 and March 16, 2021, we entered into a conditional shares subscription agreement and a supplemental agreement with Yunnan Aluminum, respectively, pursuant to which we agreed to subscribe for A shares of Yunnan Aluminum to be issued through non-public offering with the total subscription amount ranging from RMB200 million to RMB320 million. Upon completion of this subscription, Yunnan Aluminum will not become a subsidiary of the Company.

B. Business Overview

Our Principal Products

We are a leading enterprise in the non-ferrous metal industry in China. In terms of comprehensive scale, we ranked among the top enterprises in the global aluminum industry. We have benefited from the development of the PRC aluminum market, the world's largest aluminum market. We refine bauxite into alumina, which is then smelted into primary aluminum. In addition to alumina and primary aluminum, we also produce and sell chemical alumina products (alumina hydrate and alumina-based industrial chemical products) and carbon products (carbon anodes and cathodes). We are also engaged in the trading and logistics of alumina, primary aluminum, other non-ferrous metal products, coal products and raw and ancillary materials in bulk manufactured by us or sourced from external suppliers domestically and abroad. In addition, we are engaged in coal mining and power generation. The remainder of our revenues was derived from research and development activities and other products and services. Accordingly, we organize and manage our operations in five business segments: alumina segment, primary aluminum segment, trading segment, energy segment and corporate and other operating segment. After elimination of inter-segment sales, revenues attributable to our alumina segment, primary aluminum segment, trading segment, energy segment, and corporate and other operating segment accounted for approximately 7.0%, 21.7%, 67.4%, 3.7% and 0.2%, respectively, of our total revenues in 2020.

Our alumina segment includes the mining and purchasing of bauxite and other raw materials, and production and sale of alumina as well as chemical alumina. Alumina accounted for approximately 78.7% of our total production volume for this segment in 2020. Chemical alumina products are used in the production of chemical, pharmaceutical, ceramic and construction materials. In the process of refining bauxite into alumina, we used to produce gallium as a by-product, which is a rare, high value metal with applications in the electronics and telecommunication industries. In August 2019, we made a capital contribution with all of our gallium assets to China Rare Metals and Rare Earths Company Ltd. and are currently not engaged in any gallium production. See “- A. History and Development of the Company - Capital Contribution to China Rare Metals and Rare Earths Company Ltd. with Gallium Assets” for details.

Our primary aluminum segment includes the procurement of alumina, other raw materials, supplemental materials and electrical power, the production and sale of primary aluminum and aluminum-related products, such as carbon products, aluminum alloy products and other aluminum products. Our principal primary aluminum products are ingots, molten aluminum and aluminum alloys, which accounted for approximately 24.8%, 36.1% and 39.1%, respectively, of our total production volume of primary aluminum in 2020. Our standard 20 kilogram remelt ingots are used for general aluminum fabrication in the construction, electricity, electronics, transportation, packaging, machinery and durable goods industries. We internally produce substantially all the carbon products used at our smelters and sell our remaining carbon products to external customers.

Our trading segment is mainly engaged in the trading of alumina, primary aluminum, aluminum fabrication products, other non-ferrous metal products, and crude fuels such as coal products, as well as supplemental materials and logistics and transport services to our internal manufacturing plants and external customers. We established our trading business under Chalco Trading as a separate segment in July 2010 as a result of our operational structural adjustment. Since 2014, we have established Chalco Materials, Chalco Logistics and Chalco Trading Group to continuously promote and deepen development of our trading business, jointly constituting our trading segment. Established in 2018, Chalco Trading Group has undertaken the businesses that used to be operated by Chalco Trading.

Our energy segment includes the research and development, production and operation of energy products, including coal mining and conventional coal-fire power generation as well as renewable energy generation such as wind power and solar power. We are also engaged in new energy equipment production. We established our energy segment in January 2013 as a result of our acquisition of Ningxia Energy in line with our development strategy to partially offset our future energy costs. In 2020, we supplied the majority of the electricity we generated for our own production use, supplied a portion of the coal output to our own electric power plant and sold the remaining portion to external customers. Ningxia Energy supplied the electricity it generated mainly to the state grid in China.

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Our corporate and other operating segment mainly includes corporate and other aluminum-related research, development, and our other activities.

Our Production Capacity

As of December 31, 2020, our annual alumina production capacity and primary aluminum production capacity was approximately 20.86 million tonnes and 4.46 million tonnes, respectively. The following table sets forth the production capacity of each of our principal plants by business segment as of the indicated date:

Plant	As of December 31, 2020	
	Alumina	Primary Aluminum
	<i>(in thousand tonnes)⁽¹⁾</i>	
Guangxi branch	2,210	—
Zhongzhou Aluminum	3,050	—
Qinghai branch	—	420
Guangxi Huasheng	2,000	—
Chalco Mining	2,410	—
Chalco Shandong	2,270	—
Shanxi New Material	2,600	424
Chongqing branch	800	—
Lanzhou Aluminum	—	450
Zunyi Aluminum	1,000	375
Shandong Huayu	—	65
Baotou Aluminum ⁽²⁾	—	1,340
Zhengzhou Institute	20	—
Liancheng branch	—	550
Guizhou Huajin	1,600	—
Xinghua Technology	900	—
Shanxi Huaxing	2,000	—
Guizhou Huaren	—	400
Shanxi Zhongrun	—	432
Total	20,860	4,456

- (1) Production capacity is calculated based on designed capacity, which takes into account various assumptions including downtime for ordinary maintenance and repairs, the ore grade of bauxite feedstock and subsequent capacity modifications.
- (2) Including the primary aluminum production capacity of Inner Mongolia Huayun, a subsidiary of Baotou Aluminum.

In 2020, we produced approximately 14.53 million tonnes of alumina (excluding chemical alumina products), 3.94 million tonnes of chemical alumina products and 3.69 million tonnes of primary aluminum. Our production of alumina (with chemical alumina products included) and primary aluminum represented approximately 23.1% and 9.9%, respectively, of the total output of alumina (with chemical alumina products included) and primary aluminum in China in 2020.

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The following table sets forth a breakdown of our production volume by product segment for the periods indicated:

Production Volume by Product	Year Ended December 31,		
	2018	2019	2020
	<i>(in thousand tonnes, except Gallium)</i>		
Alumina segment			
Alumina	13,510	13,803	14,526
Chemical alumina products	3,240	3,802	3,942
Gallium (in tonnes) ⁽¹⁾	136	98	—
Primary aluminum segment			
Primary aluminum ⁽²⁾	4,166	3,788	3,695
Carbon	2,010	1,472	1,840

(1) In August 2019, the Company made a capital contribution with its gallium assets to China Rare Metals and Rare Earths Company Ltd. and is not engaged in gallium production in 2020.

(2) Including ingots, molten aluminum and aluminum alloys.

Production Process

Alumina

Alumina is refined from bauxite, an aluminum-bearing ore, through a chemical refining process. The refining process applied is determined by the mineral composition of the bauxite used in production. Our refineries may employ the Bayer process, the Bayer-sintering series process, the Bayer-sintering combined process or the ore-dressing Bayer process. Most of the bauxite reserves in China contain diasporic bauxite, which contains high alumina content but relatively high silica content, resulting in bauxite reserves with low alumina-to-silica ratio. The Bayer process cannot efficiently refine diasporic bauxite that has not undergone processing to increase its alumina-to-silica ratio. The Bayer-sintering process and the Bayer-sintering combined process are suitable for refining low alumina-to-silica ratio bauxite. We have developed and improved these processes to increase our refining yield. In addition, we also produce some chemical alumina products (alumina hydrate and alumina-based industrial chemical products).

Primary Aluminum

We smelt alumina into primary aluminum through electrolytic reduction. The electrolytic process takes place in a reduction cell, or pot, a steel shell lined with carbon cathodes and refractory materials. Powerful electric currents are passed through the pot to produce molten aluminum. The molten aluminum is transferred to holding furnaces and then poured directly into molds to produce foundry ingots, or further refined to form fabricating ingots, which may be used directly in the aluminum fabrication process. The primary aluminum we produce is in the form of ingots, molten aluminum and aluminum alloys.

All of our primary aluminum smelters use pre-bake anode reduction pot-lines. In the pre-bake reduction process, the anodes are pre-formed in a separate facility where pollutants can be contained. The cells themselves are enclosed with removable panels so that the waste gas produced during the process can be extracted using large exhaust fans. Our waste gas is treated and purified to reduce dust and fluoride emissions to acceptable levels set by state environmental protection agencies.

Production Facilities

Alumina

We currently operate eleven alumina refineries and one research institute with a total designed annual production capacity of approximately 20.86 million tonnes as of December 31, 2020. Two of our refineries are integrated with primary aluminum smelters. In 2020, we produced approximately 14.53 million tonnes of alumina and approximately 3.94 million tonnes of chemical alumina products. The overall utilization rate for our refineries was 86% as of December 31, 2020.

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In 2020, we supplied approximately 6.79 million tonnes, or 46.7%, of our total production of alumina to our own smelters and sold substantially all of the remaining alumina to other domestic customers. All of the chemical alumina products that we produced in 2020 were sold by alumina refineries directly to external customers or internally to Chalco Trading Group for subsequent external trading.

The following table sets forth the annual production capacity, output of alumina and chemical alumina products, utilization rate and production process applied in each of our alumina refineries and our Zhengzhou Institute:

	As of December 31, 2020		For the Year Ended December 31, 2020		
	Annual Production Capacity ⁽¹⁾	Utilization Rate ⁽²⁾	Alumina Production Output <i>(in thousand tonnes, except percentages)</i>	Chemical Alumina Products Output	Production Process
Shanxi New Material	2,600	100%	1,793	96	Bayer-sintering
Chalco Mining	2,410	74%	1,320	35	Bayer-sintering
Chalco Shandong	2,270	100%	1,648	2,594	Sintering and Bayer
Zhongzhou Aluminum	3,050	84%	2,081	940	Sintering and Bayer
Guangxi branch	2,210	100%	2,353	196	Bayer
Zunyi Aluminum	1,000	100%	1,143	9	Bayer
Chongqing branch ⁽³⁾	800	—	—	—	Bayer-sintering
Zhengzhou Institute ⁽⁴⁾	20	—	—	66	Bayer
Guizhou Huajin	1,600	100%	1,631	—	Bayer
Xinghua Technology	900	100%	864	7	Bayer
Shanxi Huaxing	2,000	50%	1,342	—	Bayer
Guangxi Huasheng	2,000	100%	352	—	Bayer
Total	20,860	86%	14,526	3,942.44	

- (1) Production capacity is calculated based on designed capacity, which takes into account various assumptions including downtime for ordinary maintenance and repairs, the ore grade of bauxite feedstock and subsequent capacity modifications.
- (2) Capacity utilization rate is calculated by dividing our utilized production capacity as of the date indicated by our total designed annual production capacity.
- (3) In 2018, we leased the alumina production facilities of our Chongqing branch to a third party.
- (4) The chemical alumina products produced at our Zhengzhou Institute are sold commercially and such sales are included in our total revenues.

Primary Aluminum

We operate nine primary aluminum smelters in China. Our smelters had an aggregate annual production capacity of approximately 4.46 million tonnes as of December 31, 2020.

In 2020, we produced approximately 3.69 million tonnes of primary aluminum and the average utilization rate for our smelters was 86% as of December 31, 2020. The following table sets forth the annual production capacity, aluminum output, utilization rate and smelting equipment used in each of our aluminum smelters:

Plant	As of December 31, 2020		For the Year Ended December 31, 2020	
	Annual Production Capacity ⁽¹⁾	Utilization Rate ⁽²⁾	Aluminum Output ⁽³⁾	Smelting Equipment
Baotou Aluminum ⁽⁴⁾	1,340	99%	1,249	200Ka, 240Ka, 400Ka and 500Ka pre-bake
Lanzhou Aluminum	450	99%	408	200Ka and 350Ka pre-bake
Qinghai branch	420	99%	403	180Ka and 210Ka pre-bake
Shandong Huayu ⁽⁵⁾	65	0%	—	240Ka pre-bake
Shanxi New Material	424	66%	308	300Ka pre-bake

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Plant	As of December 31, 2020		For the Year Ended December 31, 2020	
	Annual Production Capacity ⁽¹⁾	Utilization Rate ⁽²⁾	Aluminum Output ⁽³⁾	Smelting Equipment
			<i>(in thousand tonnes, except percentages)</i>	
Zunyi Aluminum	375	100%	402	200Ka and 400Ka pre-bake
Liancheng branch	550	28%	153	200Ka and 500Ka pre-bake
Guizhou Huaren	400	99%	486	500Ka
Shanxi Zhongrun	432	100%	285	500Ka
Total	4,456	86%	3,695	

- (1) Production capacity takes into account designed capacity, downtime for ordinary maintenance and repairs and subsequent capacity modifications.
- (2) Capacity utilization rate is calculated by dividing our utilized production capacity as of the date indicated by our total designed annual production capacity.
- (3) Includes ingots, molten aluminum and aluminum alloys.
- (4) Including the primary aluminum production facilities at Inner Mongolia Huayun, a subsidiary of Baotou Aluminum.
- (5) Shandong Huayu halted its primary aluminum production in 2019. See “- Principal Facilities — Shandong Huayu” for details.

Raw Materials

Alumina

Bauxite is the principal raw material in alumina production. Most of the bauxite in China is monohydrate, consisting mainly of Aluminosilicate compounds. Bauxite deposits have been discovered across a broad area of central China and are especially abundant in the southern and northern parts of central China. The largest bauxite deposit in China lies in the Shanxi Province.

Rock Formation and Mineralization. Except for our Guangxi Pingguo mine which is an accumulation deposit due to original erosion, the bauxite deposits of our mines in China usually have similar stratigraphic sequences. Primary bauxite deposit, as a type of sedimentary boehmite (Al₂O₃·H₂O) of the Carboniferous or Permian age, is contained in clay rock, limestone or coal seams. A zony red shale is usually located at the bottom of the bauxite and the red seam distributes over the irregular “karst-type” erosion face on the top of Ordovician limestone. Aluminum deposits in northern China are usually covered with a very thick Quaternary weathering.

The thickness and quality of deposits vary with our mine locations. Quality is usually consistent in smooth sections but changes sharply in karst “billabong” terrain. The level of hardness of minerals also varies. A sequence that includes a seam of hard bauxite of fine quality in the middle and soft bauxite of inferior quality on the bottom and top seams is common in deposits.

Generally, deposits are horizontal or with an obliquity of 0 to 8 degrees, but there are also steep deposits at an angle of 75 degrees, such as in our Guizhou mine. Most of the original mineralization is not influenced by folds and faults, and some fractures of a low obliquity and folds emerge in certain deposits, which is evident in the Guizhou mine area. In most of the Guizhou mine area, the underground mining method must be used due to the obliquity of its bauxite body reaching 70 degrees with the influence of folds and several meters of dislocation arising from partial faults.

Economic Significance. Our bauxite deposits in China are divided into three groups. They are primarily distinguished by drill hole spacing and the composition of the deposit, which can encompass rock formations such as intercalated clays, bauxite, footwall iron clay or Ordovician limestone. Bauxite deposit groups vary in the thickness and mineral quality of its reserves.

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We use the Chinese bauxite deposit estimation method, which is calculated using cut-off grades and thickness to outline continuous areas within the limits defined by samples of marginal grade. We utilize actual limiting sample points that are joined to create a polygonal outline, and grades are then calculated using a length weighted arithmetic average. We believe that the Chinese bauxite deposit estimation method of test boring, inspection pit, trial trench, density, tonnage analysis and calculation applied to the geological work of bauxite in China is an appropriate method to analyze these types of deposits.

Supply. To support the growth of our alumina production, we continuously seek opportunities to streamline and optimize our bauxite procurement. Except for Chalco Shandong, all of our refineries are located in the four provinces where over 90% of China's potentially mineable bauxite has been found. We generally source our domestic bauxite from mines close to our refineries to control transportation costs. Historically, we have procured our bauxite supply principally from three sources:

- our own bauxite mining operations, which include the mining operations of the Boffa mine in Guinea since 2020;
- jointly-operated mines; and
- other suppliers, which principally include small independent mines in China and international suppliers.

On average, our refineries consumed approximately 2.4 tonnes of bauxite to produce one tonne of alumina in 2020. Our mines supplied approximately 20.50 million tonnes of bauxite to our refineries in 2020. We purchase bauxite from a number of suppliers and do not depend on any supplier for our bauxite requirements. In 2020, bauxite secured from other suppliers accounted for approximately 53.6% of our total bauxite supply, primarily because our demand for bauxite exceeded the production of our mines.

The following table sets forth the volumes and percentages of bauxite supplied by our mines and other suppliers for the periods indicated:

	Year Ended December 31,					
	2018		2019		2020	
	Bauxite Supply	Percentage of Bauxite Supply %	Bauxite Supply	Percentage of Bauxite Supply %	Bauxite Supply	Percentage of Bauxite Supply %
	<i>(in thousand tonnes, except percentages)</i>					
Own mines ⁽¹⁾	15,498.0	43.6	14,791.2	37.6	20,498.3	46.4
Other suppliers	20,043.6	56.4	24,499.9	62.4	23,723.2	53.6
Total	35,541.6	100.0	39,291.1	100.0	44,221.5	100.0

(1) Including the bauxite supplied by the Boffa mine in Guinea since 2020.

Own Mines. As of December 31, 2020, we owned and operated 14 mines in China that had approximately 193 million tonnes of aggregate bauxite reserves and we continue to explore new bauxite reserves to replenish our reserves. We had exploration rights to the bauxite mines in Laos through Lao Service Mining Co., Ltd., in which we held 60% of the equity interest. In April 2019, the Laos government cancelled the exploration rights held by Lao Service Mining Co., Ltd. as it had not continuously carried out related activities in the past years. We also hold the requisite mining permit for all the three bauxite mines in West Kalimantan, Indonesia through our 96.28% owned subsidiary, PT Nusapati Prima. Our bauxite deposits in Indonesia are lateritic gibbsite and were formed by weathering and leaching of aluminum-rich silicate rock in tropical climates. We have suspended our bauxite mining in Indonesia since September 2014 due to restraints on export of bauxite imposed by the Indonesian government. Since 2017, the Indonesian government has issued, and amended from time to time, relevant rules pursuant to which export of bauxite may be allowed upon satisfaction of certain requirements. We have been actively exploring the possibility of meeting these requirements. In addition, we own a bauxite mine in Guinea, and have the mining permit, through Chalco Guinea Company S.A., in which we indirectly held 85% of the equity interest.

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For the years ended December 31, 2018, 2019 and 2020, we extracted approximately 17.3 million tonnes, 14.4 million tonnes and 17.2 million tonnes, respectively, of bauxite from our domestic mines. In addition, in 2020, we extracted approximately 8.06 million tonnes of bauxite from the Boffa mine. The increase in the volume of bauxite extracted from our domestic mines in 2020 was primarily because our Company continued to work on the restoration of the mine environment and the improvement of environmental protection facilities of the mines and the government encouraged the resumption of production, which led to the stable mine production in 2020. Our reported bauxite reserves for our mines in China do not exceed the quantities that we estimate could be extracted economically if future prices were at similar levels to average historical prices for bauxite or aluminum for the years ended December 31, 2018, 2019 and 2020, or the three year historical contracted prices for such commodities. However, we do not use the three year historical bauxite or aluminum price to determine bauxite reserves, nor did we utilize any currency conversion factors or pricing related mechanisms. Instead, the primary criteria are the specifications required by our alumina refineries, as well as certain modifying factors that are dependent on reserve quality.

The following table sets forth information for our mines as of December 31, 2020:

Mine	Location	Nature of ownership	Mining method	Permit Renewal ⁽¹⁾	Present Condition/ Current Stage of Exploration	Bauxite Production (in thousand tonnes)
Pingguo mine	Guangxi Zhuang Autonomous Region, China	100% owned and operated by Chalco	Open pit	March 2024 - April 2036	Partly developed and operational	5,807
Guizhou mine ⁽²⁾	Guizhou Province, China	100% owned and operated by Chalco	Open pit/underground	October 2024- December 2038	Partly developed and operational	2,001
Zunyi mine	Guizhou Province, China	100% owned and operated by Chalco	Open pit/underground	May 2021 - December 2030	Partly developed and operational	1,003
Xiaoyi mine	Shanxi Province, China	100% owned and operated by Chalco	Open pit	May 2023 - September 2031	Partly developed and operational	499
Shanxi Other Mines	Shanxi Province, China	100% owned and operated by Chalco	Open pit/underground	September 2017 ⁽³⁾ - July 2035	Partly developed and operational	1,523
Sanmengxia area business department ⁽⁴⁾	Henan Province, China	100% owned and operated by Chalco	Open pit/underground	December 2020 ⁽³⁾ - October 2031	Partly developed and operational	401
Luoyang area business department ⁽⁴⁾	Henan Province, China	100% owned and operated by Chalco	Open pit/underground	March 2021 ⁽³⁾ - October 2031	Partly developed and operational	754
Zhengzhou area business department ⁽⁴⁾	Henan Province, China	100% owned and operated by Chalco	Open pit/underground	April 2020 ⁽³⁾ - October 2031	Partly developed and operational	855
Sanmenxia mine	Henan Province, China	100% owned and operated by Chalco	Underground	November 2021 - April 2027	Fully developed and operational	507
Xuping mine ⁽⁴⁾	Henan Province, China	100% owned and operated by Chalco	Open pit/underground	May 2019 ⁽³⁾ - October 2024	Partly developed and operational	277
Jiaozuo mine	Henan Province, China	100% owned and operated by Chalco	Open pit/underground	September 2018 ⁽³⁾ - October 2024	Partly developed and operational	388
Yangquan mine	Shanxi Province, China	100% owned and operated by Chalco	Open pit	September 2031 - May 2036	Partly developed and operational	426
Nanchuan mine	Chongqing Municipality, China	100% owned and operated by Chalco	Underground	December 2022 - November 2026	Suspended production	—
Huaxing mine	Shanxi Province, China	100% owned and operated by Chalco	Underground	September 2020 ⁽³⁾ - August 2022	Fully developed and operational	2,768
Boffa bauxite mine	Boffa, Guinea	Owned and operated by Chalco Guinea Company S.A., an 85% subsidiary of Chalco	Open pit	July 2033	Operational	8,062
PT ALUSENTOSA	West Kalimantan, Indonesia	Owned and operated by PT Nusapati Prima, a 96.28% subsidiary of Chalco	Open pit	December 2027	Suspended production	—
PT KALMIN	West Kalimantan, Indonesia	Owned and operated by PT Nusapati Prima, a 96.28% subsidiary of Chalco	Open pit	December 2027	Suspended production	—
PT VISITAMA	West Kalimantan, Indonesia	Owned and operated by PT Nusapati Prima, a 96.28% subsidiary of Chalco	Open pit	November 2038	Pending production commencement	—

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- (1) All conditions to retain our properties or leases have been fulfilled as of December 31, 2020. Each mine may be covered by one or more mining permits or exploration permits and the range of permit renewal dates is set forth above.
- (2) Including both Guizhou No. 1 mine and Guizhou No. 2 mine.
- (3) We are in the process of renewing these permits.
- (4) To enhance our mine management system and improve management efficiency and coordination, in 2020, Mianchi mine was renamed as Sanmengxia area business department; Luoyang mine was renamed as Luoyang area business department; Xiaoguan mine, Gongyi mine, Dengfeng mine and Xinmi mine were integrated as Zhengzhou area business department; and Xuchang mine and Pingdingshan mine were integrated as Xuping mine.

We are required to obtain mining rights permits to conduct mining activities. Under PRC laws and regulations, a mining enterprise must prepare and submit exploration reports for a mine to the local government to obtain a mining rights permit for a mine. A mining right owner is also permitted to lease the mining right through a lease arrangement. The mining rights permit is subject to renewal on a regular basis.

Furthermore, the mining right owner is required to obtain land use rights on the land in order to operate the mines. We lease the land use rights relating to our mines in China from Chinalco pursuant to a land use rights lease agreement that became effective upon our formation. Chinalco's land use rights relating to over 90% of our mining properties in China are for 50-year terms beginning on July 1, 2001. The remaining land use rights relating to other mines in China are for shorter terms, some as short as one year. All of our land use rights lease agreements end on the expiry date of the mining rights or the end of the working life of the mine, whichever is earlier. Both the land use rights and land use rights lease agreements are renewable.

For our mines in Indonesia and Guinea, neither proven nor probable reserves have been established in accordance with United States Securities and Exchange Commission Industry Guide 7 as of the date of this annual report ("Industry Guide 7"). The following table sets forth certain estimated details of the reserves for our mines in China as of December 31, 2020:

Mine	Reserves ⁽¹⁾⁽²⁾ (million tonnes)	Al ₂ O ₃	SiO ₂	Ratio of Average A/S ⁽³⁾
Pingguo mine	51.78	52.54	4.77	11.01
Guizhou mine ⁽⁴⁾	38.15	64.48	9.06	7.12
Zunyi mine	9.63	59.50	10.66	5.58
Xiaoyi mine	9.99	65.73	12.21	5.38
Shanxi Other Mines	15.25	62.99	13.51	4.66
Sanmengxia area business department ⁽⁵⁾	4.73	62.01	14.32	4.33
Luoyang area business department ⁽⁵⁾	1.28	62.89	13.27	4.74
Zhengzhou area business department ⁽⁵⁾	12.64	63.22	13.90	4.55
Sanmenxia mine	24.19	62.99	12.68	4.97
Xuping mine ⁽⁵⁾	3.89	63.79	12.26	5.20
Jiaozuo mine	0.37	63.08	12.30	5.13
Yangquan mine	1.02	58.36	13.94	4.19
Nanchuan mine	17.82	58.50	15.67	3.73
Huaxing Mine	2.54	61.82	9.01	6.86
Total (average) reserves	193.28	60.01	10.13	5.92
By reserve type				
Proven reserve	67.12	60.01	10.26	5.85
Probable reserve	126.16	60.01	10.08	5.95
Total (average) reserves	193.28	60.01	10.13	5.92

- (1) Our reserves take into consideration mining dilution and loss factors, which generally vary from 5% to 10% and are based on the planned mining method and selected drill data for each site.

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- (2) Our metallurgical recovery factors are calculated in accordance with the relevant PRC mining standards and vary from mine to mine.
- (3) Refers to the ratio of average grade of Al_2O_3 to the average grade of SiO_2 of the reserves.
- (4) Including both Guizhou No. 1 mine and Guizhou No. 2 mine.
- (5) To enhance our mine management system and improve management efficiency and coordination, in 2020, Mianchi mine was renamed as Sanmengxia area business department; Luoyang mine was renamed as Luoyang area business department; Xiaoguan mine, Gongyi mine, Dengfeng mine and Xinmi mine were integrated as Zhengzhou area business department; and Xuchang mine and Pingdingshan mine were integrated as Xuping mine.

We have been in compliance with the National Mining Safety Law and related rules and regulations in China. We closely supervise and routinely inspect mining conditions with continual implementation of safety measures and procedures at our own bauxite mines and safety trainings for our mining personnel. For our Boffa mine, we strictly abide by the mining convention with the Guinean government and Guinean laws and regulations relating to mining. We continuously screen, identify and control safety hazards and regularly organize safety trainings for our personnel. In 2020, we extracted approximately 17.2 million tonnes of bauxite from our domestic mines and approximately 8.06 million tonnes of bauxite from the Boffa mine. We did not experience any mining operation related accidents that involved serious work injuries or death.

Other Suppliers. In addition to our mines, we also source bauxite from other suppliers. The majority of other domestic suppliers are small independent mines. Small independent mines are not affiliated with us and generally have annual bauxite production capacities not exceeding 200,000 tonnes. These mines have been an important source of bauxite for our operations. We purchase bauxite directly from small independent mines or through local distributors that procure bauxite from these mines. In addition, we also secure a portion of bauxite overseas. Bauxite secured from other suppliers accounted for 54% of our total bauxite supply in 2020.

Bauxite Procurement. The production and quality management department at our headquarters is responsible for the oversight and coordination of our supply of bauxite in general. The sales and marketing department is responsible for management and coordination of procurement of imported bauxite. To determine how our bauxite requirement will be allocated among our principal sources each year, we first estimate our total bauxite needs for the year. Based on market conditions, production costs and other factors, we determine the amount of bauxite that we wish to source from our mines, and the remaining requirements from other suppliers.

Alumina-to-Silica Ratio. The production method for alumina refining is determined by the mineral composition of the bauxite, in particular, its alumina-to-silica ratio. Most of the bauxite reserves in China are diasporic with low alumina-to-silica ratios. Based on our current technology and economic considerations, an efficient application of the Bayer process requires bauxite with an alumina-to-silica ratio of 4.5:1 or higher, while the Bayer-sintering process can refine bauxite with an alumina-to-silica ratio as low as 4:1. In 2020, the average alumina-to-silica ratio of the proven and probable reserves of our mines ranges from approximately 3.73:1 to 11.01:1.

Prices. There is neither governmental regulation on bauxite prices nor an official trading market for bauxite in China. We negotiate bauxite prices with our suppliers based on ore quality, mining costs, market conditions, transportation costs and various governmental taxes or levies, including a resource tax imposed by local governments. Our total bauxite cost is currently influenced by the following factors:

- the cost of our mining operations;
- the market conditions relating to purchases from small independent mines; and
- the market conditions relating to purchases from overseas.

Affected by market prices, the average purchase price of bauxite per tonne from our other suppliers in 2020 decreased by 4.1% compared to 2019. The average cost of bauxite per tonne from our own mines is mainly related to the cost of our bauxite mining operations and transportation costs. In 2020, the average cost of bauxite per tonne from our own mines increased by 15.5% compared to 2019, mainly due to increase of the supply of Boffa mine in 2020, the total costs of which are generally higher than those of our domestic mines.

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We purchase a substantial amount of bauxite to satisfy our alumina production needs. Additionally, to fully utilize the bauxite from our mines, we refine all bauxite that meets the minimum technical requirements for our production of alumina. We also purchase higher grade ore from other suppliers and blend the ore of various grades to meet the technical requirements for our alumina production. This practice allows for flexibility and the inclusion of lower grade bauxite to optimize the use of bauxite deposits available to us. We do not use our historical average purchase prices or any other historical index to estimate our bauxite reserves.

The following table sets forth our capital expenditures for our bauxite mines for the periods indicated:

	Year Ended December 31,		
	2018	2019	2020
		(RMB in thousands)	
Capital Expenditures			
Infrastructure construction	368,357.4	1,314,802.9 ⁽¹⁾	831,375.0 ⁽²⁾
Facility upgrade	74,632.7	6,079.8	— ⁽³⁾
Total	<u>442,990.1</u>	<u>1,320,882.7</u>	<u>831,375.0</u>

- (1) The increase in capital expenditures on infrastructure construction in 2019 was primarily attributable to the construction of the Boffa Project. See “— A. History and Development of the Company — Boffa Project” for more details.
- (2) The decrease in capital expenditures on infrastructure construction in 2020 was primarily attributable to the completion of construction of the Boffa Project in 2020. See “— A. History and Development of the Company — Boffa Project” for more details.
- (3) The decrease in capital expenditures on facility upgrade in 2020 was primarily because our technology transformation projects had been completed and we did not have any new technology transformation projects in 2020.

Primary Aluminum

An average of approximately 1.91 tonnes of alumina and 13,444 kWh of electricity was required to produce one tonne of primary aluminum ingots in 2020.

Alumina and electricity, the two principal components of costs in the smelting process, accounted for approximately 41% and 37%, respectively, of our unit primary aluminum production costs in 2020. Apart from alumina and electricity, we also require carbon anodes, carbon cathodes, fluoride salt and cryolite for our smelting operations.

Alumina is the main raw material used in the production of primary aluminum. Our primary aluminum plants that do not have integrated alumina refining operations onsite obtain alumina internally from our alumina refineries located elsewhere or externally on the market.

Supplemental Materials, Electricity and Fuel

The sales and marketing department at our headquarters coordinates and manages our supply chain for all our major raw materials in conjunction with the procurement center at each production facility, which manages the logistics and inventory of raw materials locally. We are able to purchase diesel, the main fuel used by our mining and manufacturing equipment, from the public markets, and we source our water from local rivers, lakes or underground sources.

Alumina

Electricity, coal, alkali (caustic soda or soda ash) and natural gas are the principal materials and energy used in our alumina production. Electricity is one of the principal cost components in our refining process. We generate electricity at a number of alumina refineries and purchase our remaining electric power requirements from regional power grids at government-mandated rates or directly from power generation enterprises. Most of our power supply agreements have a term of one year and are renewed by mutual agreement. Power prices in China can vary, sometimes substantially, from one region to another, based on demand and power production costs in the region. Power costs for our various alumina refineries vary accordingly.

Large quantities of coal are used as a reducing agent and fuel to produce steam and gas in the alumina refining process. As of December 31, 2020, we held minority interests in a number of coal mining enterprises, including Shanxi Jiexiu, Qinghai Energy, Xuehugou Coal Industry Co., Ltd., Huasheng Wanjie Coal Co., Ltd., Dongdong Coal, Chalco Liupanshui, Huozhou Coal Group Xingshengyuan Coal Co., Ltd., and Guizhou Yuneng. We hold 70% of the equity interest in Gansu Huayang, which holds exploration rights for certain portion of Luochuan mine in Gansu Province. We have also acquired 70.82% of the equity interest in the Ningxia Energy, which holds mining rights for coal deposits in Ningxia Autonomous Region.

Guizhou Yuneng, an associate company in which we hold 25% of the equity interest, has been under development. In 2019, one of the coal mines under its construction was put into production, and another coal mine under its construction is expected to be put into operation in 2021. The operation of Huozhou Coal Group Xingshengyuan Coal Co., Ltd. has been suspended for technological upgrade. Its mining permit was renewed in 2020. Chalco Liupanshui filed bankruptcy in 2019 as a result of the supply-side structural reform carried out by the PRC government in the coal industry and the bankruptcy has been accepted by the court. It has been under the liquidation process. The rest of the coal mining enterprises in which we directly or indirectly have minority equity interests are currently in the extraction or trial production stage. See “- D. Property, Plants and Equipment” for details of coal mines that we operate. By investing in coal mining enterprises and acquiring mining rights for coal deposits, we plan to partially offset our future energy costs.

Alkali is used as a supplemental material in alumina refining. The Bayer-sintering process and the Bayer-sintering combined process require soda ash while caustic soda is used in the Bayer process. Our alumina refineries use natural gas and coal gas as fuel to refine alumina. There is no governmental regulation of the prices of coal, alkali or fuel. We purchase these raw materials from external suppliers under negotiated supply contracts, which we believe are competitively priced. We have not experienced difficulty in obtaining these materials in sufficient quantity and at acceptable prices.

Primary Aluminum

Electricity, carbon anodes and cathodes are the principal materials and energy used in our smelting process. Smelting primary aluminum requires a substantial and continuous supply of electricity. The availability and price of electricity are key factors in our primary aluminum production. See “Item 5. Operating and Financial Review and Prospects - A. Operating Results - Overview - Factors Affecting Our Results of Operations - Manufacturing Costs.”

We generate electricity at four of our smelters to supply a portion of the electricity consumed by these smelters. We purchase our remaining electric power requirements directly from power generation enterprises. As of December 31, 2020, four of our smelters had direct purchase arrangement with power generation enterprises and the rest of our smelters were in negotiation process for the renewal of direct purchase arrangement. Direct purchase transactions are normally organized by the local government and the direct purchase agreements are entered into annually. Because power prices in China vary from one region to another, power costs for our various smelters could vary substantially. The average electricity cost (including tax) of our smelters in 2020 remained relatively stable compared to 2019.

Carbon anodes and cathodes are key raw materials in the smelting process. We are generally able to manufacture carbon anodes necessary for the operations of our smelters. In addition, our Qinghai branch possesses production capacity of carbon cathodes and is able to manufacture carbon cathodes products.

Sales and Marketing

We coordinate substantially all of our sales and marketing activities for our self-produced alumina products and some of our sales and marketing activities for our self-produced primary aluminum products through Chalco Trading Group. Our subsidiaries and branches sell some of our self-produced primary aluminum products directly to external customers. Our alumina refineries sell our self-produced chemical alumina products directly to external customers or indirectly through Chalco Trading Group for subsequent external trading. For all of our self-produced products that are sold either through Chalco Trading Group for subsequent external sale or directly to external customers, our subsidiaries and branches play an important role in providing after-sale services and strengthening our presence in the marketplace. Since late 2009, we also have been engaged substantially in the trading of non-ferrous metal products including alumina, primary aluminum, copper, zinc and lead as well as coal products that we source from third-party suppliers through Chalco Trading Group, or previously Chalco Trading.

Alumina

We sell our self-produced alumina to external customers primarily through Chalco Trading Group, giving priority to customers with whom we have long-standing relationships and who have established a strong credit history, after reserving sufficient alumina for our forecasted primary aluminum production. In 2020, we supplied approximately 6.79 million tonnes of alumina produced at our alumina refineries to our smelters, which represented approximately 46.7% of our total alumina production, and sold the remainder to our customers. In addition, we also procure and sell outsourced alumina under long-term agreements or on the spot market through Chalco Trading Group. We sold approximately 2.70 million tonnes of outsourced alumina in 2020.

The sales prices of alumina that our alumina refineries sell internally to Chalco Trading Group are determined based on our budgeted sale prices, spot market prices and the prices of primary aluminum on SHFE. Chalco Trading Group coordinates the external negotiation and execution of sales contracts of our alumina products. Chalco Trading Group sells our self-produced alumina and alumina sourced from third-party suppliers to customers throughout China. Most of our major customers in the past three years have been domestic smelters. We primarily sourced alumina from third-party suppliers on the spot market, and we are normally required to pay the full price of the outsourced alumina before each delivery.

Chalco Trading Group sells our self-produced alumina and outsourced alumina under spot sales agreements and long-term sales agreements with terms ranging from one year to three years. Our long-term sales agreement for alumina normally sets forth the quantity of alumina to be sold by us in each month and each year, the price determination mechanism, payment method, place of delivery and delivery method. Places of delivery under our sales agreements are arranged to be where we could efficiently manage the transportation of alumina and help reduce logistics cost. Our customers are normally required to pay for their procurement before each delivery. As a result, the spot price of alumina and fluctuations of primary aluminum prices on the SHFE affect the alumina prices at which we sell.

Chalco Trading Group sets the price for the external sales of alumina products after taking into account the following factors:

- international and domestic supply-demand situation;
- CIF Chinese ports prices for alumina imports into China and other relevant import expenses;
- international and domestic alumina transportation costs;
- effects of the PRC government's policies on raw materials required by our alumina refineries; and
- our short-term and mid-term projections for alumina prices.

Primary Aluminum

We sell all of our self-produced and outsourced primary aluminum to domestic customers. We expect China to remain our key market for primary aluminum for the foreseeable future. Customers of our primary aluminum products principally consist of aluminum fabricators and distributors that resell our primary aluminum products to aluminum fabricators or other purchasers.

To improve the efficiency of our distribution, we divide our China market into the following regions: southern China (including Guangdong and Fujian Provinces); eastern China (including Jiangsu and Zhejiang Provinces and Shanghai Municipality); southwestern China (including Sichuan Province and Chongqing Municipality); the Beijing-Tianjin-Tanggu area; and central China. In general, we satisfy each purchase order with products from our nearest smelter to minimize transportation costs.

Our primary aluminum smelting subsidiaries and branches sell a portion of our primary aluminum output directly to external customers. Each of our smelters is normally responsible for the sale of products to the customers from neighboring markets, negotiating the pricing and delivery terms based on market conditions.

Our primary aluminum smelting subsidiaries and branches also sell a portion of our primary aluminum output internally to Chalco Trading Group at prices based on the spot prices of primary aluminum on Yangtze or Nanchu. We establish pricing guidelines for Chalco Trading Group to conduct external domestic sales of our self-produced primary aluminum products, taking into account four main factors: the primary aluminum spot prices and futures price on the SHFE; spot prices in the regions of eastern China and southern China; our production costs and expected profit margins; and supply and demand. Chalco Trading Group then coordinates the external sales of primary aluminum. Chalco Trading Group sells our self-produced primary aluminum products to external customers through the following three channels:

- Contract sales. Most of our primary aluminum sales are made pursuant to contracts entered into directly with our long-standing customers. The terms for our sales contracts for primary aluminum are typically one year. We price our primary aluminum products based on the SHFE prices and spot market prices for primary aluminum.
- Sales on the SHFE. As part of our effort to manage market risk, we sell a portion of our primary aluminum products on the SHFE through futures contracts with terms ranging from one month to twelve months to hedge against declines in primary aluminum prices.
- Sales on the spot market. We also sell our primary aluminum products on the spot market at prices with reference to various factors, such as market spot prices and transportation costs.

In addition, we also procure and sell outsourced primary aluminum on the spot market or through short-term futures and options transactions. We determine our sales prices of the outsourced primary aluminum through negotiations with our customers, taking into consideration factors including our procurement prices and the prevailing market conditions. We sold approximately 5.18 million tonnes of outsourced primary aluminum in 2020.

Chemical alumina products and Gallium

Chemical alumina products are derived from our alumina production. We adjust our production of these products based on market demand. Our alumina refineries sell our chemical alumina products directly to external customers or indirectly to external customers through Chalco Trading Group for subsequent external trading. We sell most of our chemical alumina products in China. Prices for our chemical alumina products are determined through negotiations with our customers, taking into consideration the market conditions.

In addition, in the process of refining bauxite into alumina, we used to produce gallium as a by-product. We adjusted our production of gallium based on market demand. Prices for our gallium were determined through negotiations with our customers, taking into consideration the market conditions. Our total sales of gallium in 2018 and 2019 amounted to approximately RMB147 million and RMB97 million, respectively. In August 2019, we made a capital contribution with all of our gallium assets to China Rare Metals and Rare Earths Company Ltd. and are not engaged in gallium production currently. See “- A. History and Development of the Company - Capital Contribution to China Rare Metals and Rare Earths Company Ltd. with Gallium Assets” for details.

Coal

Ningxia Energy sells a portion of its self-produced coal directly to external customers through short-term contracts at prices determined through negotiations with our customers, taking into consideration factors including our procurement prices and prevailing market conditions. Ningxia Energy consumes the rest of its self-produced coal at its own electric power plant.

In addition, we also procure and sell outsourced coal under long-term agreements or on the spot market through Chalco Trading Group. We sold approximately 3.9 million tonnes of outsourced coal in 2020.

Trading of Outsourced Non-ferrous Metal Products and Other Materials

Since late 2009, we have been actively engaged in the trading of alumina and primary aluminum sourced from third-party suppliers. Please see “- Alumina” and “- Primary Aluminum” for more details. Through Chalco Trading Group, we also sell other non-ferrous metal products such as copper, zinc and lead as well as coal products that we procure from our third-party suppliers to external customers on the spot market or under long-term sales agreements. Please see “- Coal.” In 2020, we sold approximately 0.6 million tonnes of outsourced copper, zinc and lead. In addition, we also sell outsourced raw and ancillary materials such as iron ore, charred coal and cathode copper in bulk to customers such as steel manufacturers and copper processing companies on the spot market.

Chalco Trading Group has a team with trading expertise to conduct research on the markets of non-ferrous metal products and other materials. From time to time, we may enter into futures and options transactions to hedge against price fluctuations in the non-ferrous metal product market.

Delivery

We rely on rail shipping and trucks for the delivery of products within China.

Our alumina is transported by rail or trucks, and transportation costs are generally borne by our customers and excluded from our sales prices. For long-distance deliveries, we maintain spur lines connecting our plants to the national railway routes.

Our molten aluminum are delivered to our customers primarily by trucks. Other primary aluminum products are primarily transported by rail. Our coal products are transported both by trucks and by rail.

Rail shipping on the PRC national railway system is subject to government mandated pricing.

Principal Facilities

Our principal facilities include 22 principal production plants and our Zhengzhou Institute. Set forth below is a description of our principal production plants.

Guangxi Branch

Our Guangxi branch commenced operations in 1994 and is located in Guangxi Zhuang Autonomous Region in southwestern China, an area rich in bauxite reserves. Our Guangxi branch obtains bauxite delivered via highway from our Pingguo mine, one of our wholly-owned mines, located less than 17 kilometers from our Guangxi branch.

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Our Pingguo mine contains large, easily exploitable bauxite reserves with high alumina-to-silica ratios. Our Guangxi branch is our only principal refinery that exclusively uses the Bayer process. With technology and production equipment imported from Europe, the Guangxi refinery features a high level of automation and energy efficiency. Since its inception, we have continually increased the designed production capacity at this branch by overcoming production bottlenecks and investing in capacity expansions. Guangxi branch had an annual alumina production capacity of approximately 2,210,000 tonnes as of December 31, 2020. In 2020, our Guangxi branch produced approximately 2,352,820 tonnes of alumina, along with approximately 196,200 tonnes of chemical alumina products.

Guizhou Branch

Our Guizhou branch commenced its smelting operations in 1966 and was subsequently expanded to include alumina refining operations in 1978. Our Guizhou branch used 160Ka and 230Ka pre-bake reduction pot-lines in its primary aluminum production. The smelter in our Guizhou branch has undergone technological innovations and overhauls since its inception. Since November 2017, we have been engaged in the gradual closing down of the 160Ka pre-bake reduction pot-lines and, subsequently, the closing down of the 230Ka pre-bake reduction pot-lines. As of January 2018, the production in Guizhou branch had been fully shut down. In 2019, we disposed of the primary aluminum production facilities in Guizhou branch. Guizhou branch did not have any annual primary aluminum production capacity as of December 31, 2020 and did not produce any primary aluminum in 2020. It was mainly engaged in bauxite mining and production of aluminum alloys in 2020. As of December 31, 2020, Guizhou branch had an annual aluminum alloy production capacity of approximately 348,000 tonnes. In 2020, Guizhou branch produced approximately 158,132 tonnes of aluminum alloy products.

Chalco Mining

Chalco Mining was incorporated as one of our subsidiaries in the PRC in 2007 and is currently our wholly owned subsidiary. To optimize the allocation of our resources and further consolidate our operations, we transferred all of the assets and liabilities of our Henan branch to Chalco Mining in August 2017. Henan branch commenced its alumina refining operation in 1966 and primary aluminum smelting operation in 1967 (the latter of which was ceased in 2013) in Henan Province, a province rich in bauxite reserves. It was the first refinery in China to develop the Bayer-sintering combined process. Bauxite is delivered to Chalco Mining via railway and highway from our following mines: Xiaoguan mine, Gongyi mine and Dengfeng mine located in Zhengzhou, Luoyang mine in Luoyang and Mianchi mine in Mianchi. The alumina production line that we put into operation at Chalco Mining uses the ore-dressing Bayer process, which we developed to refine low alumina-to-silica ratio bauxite. Chalco Mining's production facilities have been substantially upgraded with equipment imported from Germany and Denmark. The refinery has also benefited from its access to high alumina-to-silica ratio bauxite from certain of our mines and through purchases on the market. Chalco Mining had an annual alumina production capacity of approximately 2,410,000 tonnes as of December 31, 2020. In 2020, Chalco Mining produced approximately 1,320,350 tonnes of alumina and 34,940 tonnes of chemical alumina products.

Chalco Shandong

Chalco Shandong was incorporated as one of our subsidiaries in the PRC in 2015 and is currently our wholly owned subsidiary. The predecessor of Chalco Shandong was our Shandong branch, which commenced operations in 1954. Chalco Shandong has the capacity to produce alumina and chemical alumina products. Bauxite is delivered to Chalco Shandong via railway and highway from the Yangquan mine in Yangquan, Shanxi Province. Its alumina refinery was China's first production facility for alumina. It produces its alumina through the Bayer-sintering process and the Bayer process. Through technology renovation, Chalco Shandong has the capacity to produce high-quality alumina products used for the production of refined aluminum and high-purity aluminum. Chalco Shandong purchases some bauxite from overseas and the rest from small third-party mines in Henan and Shanxi Provinces. Chalco Shandong had an annual alumina production capacity of approximately 2,270,000 tonnes as of December 31, 2020. It produced approximately 1,647,970 tonnes of alumina in 2020.

In addition, Chalco Shandong produces substantial amount of chemical alumina products. In 2020, it produced approximately 2,594,340 tonnes of chemical alumina products. It is the largest and most technologically advanced production facility for chemical alumina products in China with the ability to produce a wide variety of chemical alumina products.

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Qinghai Branch

Located in Qinghai Province, our Qinghai branch is a stand-alone primary aluminum production facility. This branch commenced operations in 1987 and is one of the most technologically advanced primary aluminum smelters in China. It operates 180Ka and 210Ka automated pre-bake anode reduction pot-lines that were developed domestically. In addition, our Qinghai branch also possesses production capacity of carbon cathodes and is able to manufacture carbon cathodes products. Our Qinghai branch benefits from relatively low electricity costs in Qinghai Province due to the hydroelectric power stations in the region. The Qinghai branch sources alumina from Shanxi New Material, Chalco Shandong, Chalco Mining and Zhongzhou Aluminum and incurs higher transportation costs for both raw materials and its primary aluminum products than our other branches.

Our Qinghai branch had an annual primary aluminum production capacity of approximately 420,000 tonnes as of December 31, 2020. It produced approximately 403,410 tonnes of primary aluminum in 2020.

Guizhou Huaren

Established in May 2017 and located in Qingzhen, Guizhou Province, Guizhou Huaren is a stand-alone primary aluminum production facility and commenced full operation in September 2018. Guizhou Huaren had an annual primary aluminum production capacity of approximately 400,000 tonnes as of December 31, 2020. It produced approximately 486,140 tonnes of primary aluminum products in 2020.

Shanxi Zhongrun

Established in November 2015 and located in Lvliang, Shanxi Province, Shanxi Zhongrun specializes in producing primary aluminum products. The first batch of electrolytic cells of Shanxi Zhongrun was put into operations in May 2018. Shanxi Zhongrun was fully put into operation in December 2020. Shanxi Zhongrun had an annual primary aluminum production capacity of approximately 432,000 tonnes as of December 31, 2020. It produced approximately 284,940 tonnes of primary aluminum products in 2020.

Zhongzhou Aluminum

Located in Henan Province, Zhongzhou Aluminum is a stand-alone alumina plant, located near abundant bauxite, coal and water supplies. Zhongzhou Aluminum was incorporated as one of our subsidiaries in the PRC in 2015 and is currently our wholly owned subsidiary. The predecessor of Zhongzhou Aluminum was our Zhongzhou branch. Zhongzhou Aluminum commenced operations in 1993 and is equipped with imported and self-developed technology and has undergone various improvements and upgrades, in particular to its Bayer-sintering process and Bayer process. Zhongzhou Aluminum obtains bauxite supplies partly from extractions of our mines, and partly from external suppliers in Henan and Shanxi Provinces and overseas.

Zhongzhou Aluminum had an annual alumina production capacity of approximately 3,050,000 tonnes as of December 31, 2020. Zhongzhou Aluminum produced approximately 2,080,680 tonnes of alumina and approximately 940,160 tonnes of chemical alumina products in 2020.

Chongqing Branch

Our Chongqing branch is located in Chongqing. Chongqing branch completed the construction of alumina production facilities in 2010 and its annual alumina production capacity was approximately 800,000 tonnes as of December 31, 2020. We have suspended production in Chongqing branch since July 2014 due to the relatively significant decrease in the price of alumina as compared with the price of alumina during the construction period, large negative variation of mineral resources and the high costs of natural gas and other energy at the time of suspension. In 2018, we entered into agreements with a third party to lease the alumina production facilities of Chongqing branch and to cooperate on mine operations, respectively. In 2020, we received RMB50.0 million for leasing alumina production facilities.

Guangxi Huasheng

Established in June 2017 and located in Fangchenggang, Guangxi Province, Guangxi Huasheng is mainly engaged in producing alumina products and was put into production in the third quarter of 2020. Guangxi Huasheng had an annual alumina production capacity of approximately 2,000,000 tonnes as of December 31, 2020. Guangxi Huasheng produced approximately 351,630 tonnes of alumina in 2020.

Guizhou Huajin

Established in July 2014 and located in Qingzhen, Guizhou Province, Guizhou Huajin specializes in producing alumina products. Guizhou Huajin had an annual alumina production capacity of approximately 1,600,000 tonnes as of December 31, 2020. Guizhou Huajin produced approximately 1,630,700 tonnes of alumina in 2020.

Shanxi Huaxing

Located in Shanxi Province, Shanxi Huaxing is a stand-alone alumina plant which commenced trial production in October 2013. Shanxi Huaxing obtains bauxite supplies from our own mines delivered primarily via highway and is located near abundant coal and water supplies.

In December 2015, we transferred out 50% of our equity interests in Shanxi Huaxing, a then wholly-owned subsidiary of our Company, through the Shanghai United Assets and Equity Exchange. In December 2018, we acquired the 50% equity interests in Shanxi Huaxing through the Shanghai United Assets and Equity Exchange from Baotou Transportation Investment Group Co., Ltd. Upon completion of the acquisition, Shanxi Huaxing became our wholly-owned subsidiary. Please see “- A. History and Development of the Company - Transfer of Equity Interest in Shanxi Huaxing” for more details about the transfer of equity interest.

Shanxi Huaxing had an annual alumina production capacity of approximately 2,000,000 tonnes as of December 31, 2020. Shanxi Huaxing produced approximately 1,342,360 tonnes of alumina products in 2020.

Lanzhou Aluminum

Located in Lanzhou city in Gansu Province, Lanzhou Aluminum is a stand-alone primary aluminum plant. In April 2007, we acquired a primary aluminum plant in Lanzhou, which was divided in to two parts in July 2007: our Lanzhou branch and Northwest Aluminum. In January 2019, we turned the Lanzhou branch into our wholly-owned subsidiary, Lanzhou Aluminum, in order to promote its business vitality. Lanzhou Aluminum owns a primary aluminum smelting plant with a designed annual primary aluminum production capacity of approximately 450,000 tonnes as of December 31, 2020. It produced approximately 408,070 tonnes of primary aluminum in 2020.

Shanxi New Material

Shanxi New Material is situated in Shanxi Province. In March 2003, we established the joint venture company, Shanxi Huaze, with Zhangze Electric Power to commence the construction of a primary aluminum production facility. In 2017, we contributed certain assets related to alumina production of our Shanxi branch to Shanxi Huaze. Upon completion of our asset contribution, our shareholding in Shanxi Huaze increased from 60% to 85.98% and Shanxi Huaze was renamed to Shanxi New Material. Shanxi New Material had an annual alumina production capacity of approximately 2,600,000 tonnes as of December 31, 2020 and produced approximately 1,792,930 tonnes of alumina and 95,620 tonnes of chemical alumina products in 2020. Its designed annual production capacity of primary aluminum was approximately 424,000 tonnes as of December 31, 2020 and it produced approximately 307,560 tonnes of primary aluminum in 2020. Please see “- A. History and Development of the Company - Merger and Reorganization of Shanxi Branch and Shanxi Huaze” for more details about the reorganization.

Zunyi Aluminum

Zunyi Aluminum is situated in Guizhou Province. In 2018, we merged Zunyi Alumina into Zunyi Aluminum. Upon the completion of the merger, our shareholding in Zunyi Aluminum increased from 62.1% to 67.445%. After the merger, Zunyi Aluminum had an annual alumina production capacity of approximately 1,000,000 tonnes as of December 31, 2020 and the aggregate production of Zunyi Aluminum was approximately 1,142,610 tonnes of alumina and 8,720 tonnes of chemical alumina products in 2020. Its post-merger designed annual production capacity of primary aluminum was approximately 375,000 tonnes as of December 31, 2020 and it produced approximately 402,180 tonnes of primary aluminum in 2020. Please see “- A. History and Development of the Company - Merger and Reorganization of Zunyi Alumina and Zunyi Aluminum” for more details about the merger.

Fushun Aluminum

Fushun Aluminum is situated in Liaoning Province, and was a stand-alone primary aluminum plant. In March 2006, we entered into a share transfer agreement with Liaoning Fushun Aluminum Plant to acquire 100% of the equity interests in Fushun Aluminum for a consideration of RMB500 million. Fushun Aluminum’s primary business was the production of primary aluminum and carbon products. We stopped production of primary aluminum in Fushun Aluminum in October 2015 due to the relatively significant decrease in the price of primary aluminum and high costs of electricity at that time. In 2018, we disposed of the primary aluminum production facilities in Fushun Aluminum. Fushun Aluminum did not have any annual primary aluminum production capacity as of December 31, 2020 and did not produce any primary aluminum in 2020.

Fushun Aluminum had an annual anode carbon production capacity of approximately 530,000 tonnes as of December 31, 2020 and it produced approximately 322,454 tonnes of baked carbon anodes in 2020.

Shandong Huayu

Shandong Huayu is situated in Shandong Province and is a stand-alone primary aluminum plant. We currently hold 55% equity interest in Shandong Huayu. Since November 2018, we have gradually suspended production of aluminum at Shandong Huayu due to market environment and production restriction for environmental protection. In 2019, we halted its primary aluminum production and before that Shandong Huayu produced approximately 8,500 tonnes of primary aluminum in 2019. In October 2020, Shandong Huayu agreed to transfer its primary aluminum capacity quota of 135,000 tonnes to Yunnan Aluminum through judicial auction at a consideration of RMB538.66 million. Shandong Huayu had an annual primary aluminum production capacity of approximately 65,000 tonnes as of December 31, 2020. Shandong Huayu still has supporting facilities and coal-fired generators.

Gansu Hualu

Gansu Hualu is situated in Gansu Province, and was a stand-alone primary aluminum plant. In August 2006, we entered into a share transfer agreement with Baiyin Nonferrous Metal (Group) Co., Ltd. (“Baiyin Nonferrous”) and Baiyin Ibis Aluminum Co., Ltd. (“Baiyin Ibis”). Baiyin Nonferrous contributed 127,000 tonnes of primary aluminum smelting and supporting facilities owned by Baiyin Ibis as capital contribution and holds a 49% equity interest in Gansu Hualu. We hold a 51% equity interest in Gansu Hualu. Since November 2015, the production of primary aluminum has been suspended. In 2019, most of the primary aluminum production facilities in Gansu Hualu were disposed and the rest were disposed in 2020. Gansu Hualu had no annual primary aluminum production capacity as of December 31, 2020 and did not produce any primary aluminum in 2020.

In addition, Gansu Hualu also possesses production capacity of carbon products. Its designed annual production capacity of anode carbon products was approximately 150,000 tonnes as of December 31, 2020 and it produced approximately 93,823 tonnes of anode carbon products in 2020.

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Baotou Aluminum

Baotou Aluminum is located in the Inner Mongolia Autonomous Region, and is a stand-alone primary aluminum plant. On December 28, 2007, through A Shares issuance and exchange for Baotou Aluminum shares, we acquired 100% of the equity interest of Baotou Aluminum. Baotou Aluminum is currently our wholly owned subsidiary. In April 2015, Baotou Aluminum and Baotou Transportation Investment Group Co., Ltd. established Inner Mongolia Huayun. Inner Mongolia Huayun commenced operations in 2017. Together with the primary aluminum production facilities at Inner Mongolia Huayun, Baotou Aluminum had a consolidated annual primary aluminum production capacity of approximately 1,340,000 tonnes as of December 31, 2020 and a consolidated output of approximately 1,249,490 tonnes of primary aluminum in 2020.

Liancheng Branch

Liancheng branch is located in Gansu Province. In late May 2008, we acquired 100% of the equity interest in Liancheng Longxing Aluminum Company Limited from Chinalco on the China Beijing Equity Exchange and subsequently turned it into our Liancheng branch which specializes in producing primary aluminum. We have implemented flexible production arrangement for certain primary aluminum production facilities in Liancheng branch since November 2018 as a result of high electricity costs. Liancheng branch had an annual primary aluminum production capacity of approximately 550,000 tonnes as of December 31, 2020. It produced approximately 152,900 tonnes of primary aluminum in 2020.

Ningxia Energy

Ningxia Energy is an integrated power generation company with coal mines located in Ningxia Autonomous Region. Its principal business includes conventional coal-fire power generation and renewable energy generation. Ningxia Energy was established in June 2003. In January 2013, we acquired an aggregate of 70.82% of the equity interest in Ningxia Energy. Ningxia Energy had a total installed capacity of 4,459.1 MW as of December 31, 2020. It also operates coal mines located in the Ningxia Autonomous Region. Please see “- D. Property, Plants and Equipment - Mines - Coal Mines.” In 2020, Ningxia Energy produced approximately 11.2 million tonnes of coal and approximately 15.1 billion kWh of electricity.

Zhengzhou Institute

The Zhengzhou Institute, located in Zhengzhou, Henan Province, was incorporated as our subsidiaries in 2015. Its predecessor was established in August 1965 and has served as the center for our research and development efforts. The Zhengzhou Institute specializes in the research and development of technologies for primary aluminum smelting, alumina refining and the development of new products of chemical alumina. Zhengzhou Institute is the only professional research institute in China dedicated to the research and development of aluminum smelting technologies and has played a key role in bringing about technological innovations in China’s aluminum industry. The Zhengzhou Institute was approved by the Ministry of Science and Technology of the PRC in 2003 to establish the National Research Center of Aluminum Refinery Technologies and Engineering. As of December 31, 2020, the Zhengzhou Institute had a limited production capacity for chemical alumina products, which it uses in connection with its research and development efforts.

Xinghua Technology

We acquired a 66% equity interest in Xinghua Technology in December 2016. Located in Shanxi Province, Xinghua Technology is an alumina plant with an annual alumina production capacity of approximately 900,000 tonnes as of December 31, 2020. It produced approximately 863,880 tonnes of alumina and approximately 6,890 tonnes of chemical alumina in 2020.

Competition

Competition from Domestic Competitors

Alumina

In 2020, we supplied approximately 46.7% of our total production of alumina to our own smelters and sold substantially all of the remaining self-produced alumina to our domestic customers. Our competitors mainly include other domestic and international alumina producers that conduct sales in China. In 2020, our alumina production (with chemical alumina products included) represented approximately 23.1% of total domestic production in China.

We are a leading enterprise in non-ferrous metal industry in China. As of December 31, 2020, 18 alumina producers in China (including Chalco) each had annual production capacity of 500,000 tonnes or above, which collectively represented approximately 96.9% of the total alumina production capacity in China. As of the same date, among these 18 alumina producers, 14 alumina producers (including Chalco) each had annual production capacity of one million tonnes or above, which collectively represented approximately 89.2% of the total alumina production capacity in China. In order to improve the efficiency and competitiveness of the Chinese alumina industry as well as to protect the environment, MIIT published the Standard Conditions for Aluminum Industry in July 2013 and issued a new version in March 2020, which provides stringent standards for the existing alumina enterprises. Although we face competition from other domestic and international refineries, we have several advantages over such competitors, including:

- we have access to a substantial and stable supply of bauxite;
- we are experienced in alumina production and our production technologies are specifically adapted to the particular chemical composition of bauxite found in China;
- we have strong capabilities in technology research and hold certain proprietary technologies and patents; and
- we have a substantial workforce that has extensive experience in production and management.

Primary Aluminum

We derived all of our primary aluminum revenues from domestic sales in 2020. Our competitors include other domestic and international primary aluminum producers that conduct sales in China. In 2020, our primary aluminum production represented approximately 9.9% of total domestic production in China.

We are a leading enterprise in non-ferrous metal industry in China. As of December 31, 2020, 21 primary aluminum producers in China (including Chalco) each had annual production capacity of 500,000 tonnes or above, which collectively represented approximately 89.2% of the total primary aluminum production capacity in China. As of the same date, among these 21 primary aluminum producers, ten primary aluminum producers (including Chalco) each had annual production capacity of one million tonnes or above, which collectively represented approximately 69.6% of the total primary aluminum production capacity in China. The PRC government encourages consolidation in the Chinese primary aluminum industry to create larger, more efficient producers that are better positioned to implement measures to reduce emissions. Moreover, according to the current Standard Conditions for Aluminum Industry and other administrative regulations, aluminum smelting enterprises must ensure the availability of resources, energy and water resources, and are encouraged to merge with hydropower, coal power and other power enterprises through reorganization. In addition, pursuant to relevant PRC regulations, the construction of new primary aluminum projects and the reconstruction or expansion of existing primary aluminum projects would be approved only if such projects would introduce new primary aluminum production capacity in an amount equal to or smaller than the amount of existing production capacity to be replaced.

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Although we face competition from other domestic and international smelters, we have several advantages over such competitors, including:

- **Scale of production.** With nine primary aluminum smelters, we can achieve significant economies of scale. In addition, our scale of production enables us to achieve high production volumes to fill large customer orders and maintain a large customer base. Through our national distribution network, we are able to make timely deliveries to customers from our local warehouses.
- **Technology.** We believe we have a more sophisticated technological innovation system and stronger innovation capability than most of our domestic competitors. The FHESST technology developed and employed by us is currently the most advanced energy saving technology in primary aluminum smelting in China. In addition, in terms of technological support and research and development capabilities, we are equipped with the most advanced research and development institute within the aluminum industry in China and enjoy advantages over other domestic smelters in technology advancement.
- **Vertical integration.** As a leading integrated alumina and primary aluminum producer in China, we are able to supply alumina internally to our primary aluminum plants. As a result, we save on transportation, warehousing and related costs. In addition, because we operate our own alumina refineries, we are able to assure a stable supply of alumina for our primary aluminum smelting operations.
- **Quality.** We have maintained and will continue to improve on the high quality standards for our primary aluminum which has satisfied national and industrial standards and customers' need.

The primary aluminum produced by most of our smelters satisfies the quality standards of the LME.

Competition from International Competitors

The tariff rate for alumina and primary aluminum imports was eliminated on January 1, 2008 and August 1, 2007, respectively. In 2020, China had a net import of approximately 3.65 million tonnes of alumina (with chemical alumina products included), increased significantly from a net import of 1.37 million tonnes in 2019, primarily attributable to the fact that the alumina price in the international market was under pressure due to the increase in overseas alumina supply in 2020 and China ramped up its alumina imports during the time when price difference between the domestic and international market was favorable. China had a net import of approximately 1.06 million tonnes of primary aluminum in 2020, compared to a net export of approximately 811 tonnes of primary aluminum in 2019, primarily because after the COVID-19 pandemic was effectively controlled in China, the rapid recovery of demand in the domestic market boosted the price, while the COVID-19 pandemic continued to spread overseas, causing a blow to the demand in overseas market, which stimulated a large number of import of primary aluminum. We expect to continue to face competition from international suppliers of alumina and primary aluminum which are large international companies.

Research and Development

Our research and development efforts over the years have facilitated the expansion of our production capacity and reduced our unit costs. We have successfully commercialized our previous research and development results in various technologies. In 2020, we completed 108 technological projects, including 85 research and development projects undertaken independently by our branches or subsidiaries, 17 special key science and technology projects and six science and technology application projects. In addition, we filed a total of 201 patent applications in 2020.

As of December 31, 2020, we owned 1,404 patents, which were primarily related to technologies and processes, equipment and new products. Once granted, a patent in China for an invention is valid for 20 years and for a utility model or a design 10 years from the date of the patent application. As of December 31, 2020, we owned 25 trademarks, each of which had a term of 10 years.

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We do not regard any single patent, license, or trademark to be material to our sales and operations as a whole. We are not involved in any material intellectual property disputes.

Environmental Protection

Our operations are subject to PRC national and local environmental laws and regulations, including laws and regulations governing waste discharge, waste generation, treatment and disposal of hazardous materials, land reclamation, pollutant emissions and environmental issues associated with mining.

The pollutants discharged from our alumina refining process include red mud, waste water and gas emissions and particulates. Our primary aluminum production process generates fluorides, pitch fume and particulates. It is illegal to release these pollutants untreated. The discharge of these pollutants after treatment must comply with national and local discharge limits.

Each of our alumina refineries, primary aluminum smelters and other production plants has its own waste treatment facilities onsite or has developed other methods to dispose of industrial waste in compliance with applicable environmental laws and regulations. Each of our production plant has established its environmental management system. All of our alumina refineries, primary aluminum smelters and carbon production plants in production passed the ISO14001 accreditations.

We have increased our energy-efficiency by implementing new production techniques and technologies, upgrading our production facilities, optimizing our production process and enhancing our logistics and operations management. In 2020, we saved energy equivalent to 8,566 tonnes of standard coal as a result of implementing new production techniques and technologies, upgrading our production facilities, optimizing our production process and enhancing our logistics and operations management. We have incorporated clean production technology and processes into our operations with a view to promoting the concept of “zero discharge” plants. In 2020, the discharge of all industrial waste water in the course of our alumina and primary aluminum production met the standards under relevant regulations.

In addition, we have focused on sustainable development of mine sites and achieved significant progress in mine reclamation. We reclaimed 11,042 mu of land throughout the year of 2020, representing a cumulative reclamation rate of over 94% as of December 31, 2020.

Our total expenditures for maintaining compliance with environmental laws and regulations were RMB778 million, RMB914 million and RMB1,171 million for 2018, 2019 and 2020, respectively. In 2020, we did not have any major environmental pollution incidents.

Insurance

We maintain insurance coverage for our fixed assets such as plant, machinery, equipment, office facilities and transportation vehicles against accidents or natural disasters such as typhoons, hurricanes, floods, landslides and lightning strikes. However, there are certain types of losses, such as losses from war, acts of terrorism and nuclear radiation, for which we cannot obtain insurance at a reasonable cost or at all.

We are covered under the work-related injury insurance required by the relevant local government labor departments, and we have procured additional business accidental insurance for our employees. More extensive insurance is either unavailable in China or would impose a cost on our operations that would reduce our competitiveness.

Our insurance premiums were RMB49.6 million, RMB42.9 million and RMB38.6 million in 2018, 2019 and 2020, respectively.

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Seasonality

Our business in general is not subject to seasonality. Separately, our bauxite output in Boffa bauxite mine may be subject to seasonal fluctuations due to the rainy season in Guinea.

Cyber Security

With respect to our internal internet policies on cyber-security, we have established an information safety management system and issued internal regulations on cyber-security, internal hardware and data safety systems and we are gradually implementing measures relating to the office environment information safety management, information system access control, protection from any malicious software, and internal review and audit of information safety risks, in order to prevent loss of information due to cyber-security incidents, network outages or hardware incidents. In 2020, we did not experience any material cyber-security incidents or related losses.

Regulatory Overview

Producers of alumina and primary aluminum are subject to national industrial policies and relevant laws and regulations in areas of environmental protection, import and export, land use, foreign investment regulation and taxation. We are also subject to regulations relating to activities such as mining.

We are principally subject to governmental supervision and regulation by four agencies of the PRC government:

- the NDRC, which sets and implements the major policies concerning China's economic and social development, approves investments exceeding certain amounts, coordinates and improves the reform of the economic system;
- the Ministry of Natural Resources of China, which has the authority to grant land use rights and mining right permits;
- the MIIT, which formulates industrial policies and investment guidelines for all industries including the aluminum industry; and
- the CSRC, the securities regulatory commission of China.

The following is a brief summary of the principal laws, regulations, policies and administrative directives to which we are subject.

Requirements for Capital Investments

Any capital markets financing activities by an enterprise or company incorporated in the PRC such as those to finance capital projects, are subject to approval by the CSRC and/or other relevant authorities in China, regardless of whether the funds are raised in China or on the international capital markets. An issuer incorporated in the PRC must obtain prior approval from the CSRC for issuance of equity securities or equity-linked securities. Offering of corporate bonds in the PRC is also subject to supervision of the CSRC. Offering of bonds by a PRC-incorporated company outside the PRC shall be filed with NDRC. For all overseas financing activities by an enterprise or company incorporated in the PRC, the issuer must register with and obtain prior approval from the administrative authorities of foreign exchange. Foreign investment in the exploring and mining of alumina and primary aluminum is permitted by the PRC government.

Standard Conditions for Aluminum Industry

The Standard Conditions for Aluminum Industry was issued by MIIT in July 18, 2013 and a new version was issued on February 28, 2020 to replace the 2013 version, which became effective on March 30, 2020. The new Standard Conditions for Aluminum Industry only applies to existing bauxite mining, alumina and primary aluminum enterprises and indicates that such standards do not constitute administrative approval or mandatory requirement. It provides that bauxite mining, alumina and primary aluminum production must comply with the state and local industry policies and overall plans on the mining resources and development of aluminum industry, as well as laws, regulations and policies related to the environmental protection, energy conservation, mining and production safety. According to the new Standard Conditions for Aluminum Industry, aluminum smelting enterprises must ensure the availability of resources, energy and water resources, and are encouraged to merge with hydropower, coal power and other power enterprises through reorganization. It further encourages that alumina enterprises use intelligent systems and equipment in its operation to achieve energy-conserving and environment-protective purpose. The new Standard Conditions for Aluminum Industry further set out guidelines and standards for enterprises in aluminum industry regarding product quality, facilities, energy consumption, resources consumption, environmental protection, production safety and occupational diseases prevention.

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Under the Standard Conditions for Aluminum Industry, the MIIT shall, in accordance with the applicable regulatory standards, review the applicants and disclose the names of applicants that meet the regulatory conditions. The MIIT promulgated on April 4, 2014, January 4, 2015 and February 14, 2016, respectively, the first, the second and the third lists of enterprises that meet the Standard Conditions for Aluminum Industry of 2013. Most of our production branches and subsidiaries have met the Standard Conditions for Aluminum Industry of 2013 version and are included on these lists. According to the current Standard Conditions for Aluminum Industry, enterprises that would like to be named in the list under this new Standard Conditions for Aluminum Industry need to resubmit application for the MIIT's review. The MIIT promulgated the first list of enterprises that meet the Standard Conditions for Aluminum Industry of 2020 version on January 5, 2021, which includes three of our production branches and subsidiaries. We are actively taking rectification measures to comply with the new Standard Conditions for Aluminum Industry and will participate in the subsequent applications.

Pricing

The PRC government does not impose any limitations with respect to the pricing of alumina, primary aluminum and related products. Thus, alumina and primary aluminum producers are free to set prices for their products. All the raw materials, supplemental materials and other supplies that we purchase are based on market prices. Freight transportation on the national railway system is subject to government mandated pricing.

Electricity Supply and Price

The National Energy Administration is responsible for the supervision and administration of the power industry in China. The NDRC and local governments regulate electricity pricing.

The Electric Power Law of China and related rules and regulations govern construction, generation, supply and consumption of electric power. Currently, China's state-owned power companies, through their respective local subsidiaries, operate all the regional power grids in China from which we obtain a part of our electricity requirements. In October 2007, PRC government issued "Notice on Further Solutions of the Difference in Electricity Rates," according to which the preferential electricity prices originally enjoyed by Chinese primary aluminum enterprises have been gradually abolished. In December 2007, PRC government issued "Notice of Eliminating Preferential Electricity Rate for High Energy Consuming Enterprises and Related Matters," which further eliminated the preferential electricity price arrangement enjoyed by Chinese primary aluminum enterprises. In December 2013, the NDRC and MIIT issued the "Circular on the Policies for Tiered Pricing of Electricity Used by Electrolytic Aluminum Enterprises" (the "Electricity Tiered Pricing Circular"), which became effective on January 1, 2014, to impose tiers of electricity prices on primary aluminum smelters. Specifically, if the alternating current consumed by any smelter is more than 13,700 kWh per tonne of molten aluminum but less than 13,800 kWh per tonne of molten aluminum, such smelter must pay additional RMB0.02 per kWh for the electricity used. If the alternating current consumed by any smelter is more than 13,800 kWh per tonne of molten aluminum, such smelter must pay additional RMB0.08 for per kWh for the electricity used.

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In March 2015, new policies and reforms relating to electricity generation, retail, usage, and other related sectors were introduced. Under “Several Opinions of the CPC Central Committee and the State Council on Further Deepening the Reform of the Electric Power System,” a series of reforms relating to electricity pricing, distribution and retail segments, electricity trading, distributed generation, and other aspects has been put forward. In November 2015, NDRC and the National Energy Administration of the PRC jointly issued further supplemental measures, including “Implementation Opinions on Promoting Transmission-Distribution Price Reform,” “Implementation Opinions on Promoting Power Market Construction,” “Implementation Opinions on Establishing Power Trading Institutions and Their Normative Operation,” “Implementation Opinions on Orderly Releasing Plans of Power Generation and Power Utilization,” “Implementation Opinions on Promoting Power-Sales Side Reform,” and “Guidance Opinions on Reinforcing and Regulating Supervision and Management of Coal-Fired Self-Generation Power Plants,” which set out further requirements and implementation steps in relation to the reform of electric power system. Towards the end of 2016, NDRC promulgated “Measures of Electricity Pricing for Transmission-Distribution Grid at the Provincial Level,” which established a regulatory framework of electricity transmission and distribution pricing.

Regulations Concerning Imports and Exports of Alumina and Primary Aluminum

Import taxes on alumina and primary aluminum have been eliminated. The export tariff on certain primary aluminum products has been 15% since August 1, 2007.

Environmental Protection Laws and Regulations

The Ministry of Ecology and Environment of China is responsible for supervision and administration of environmental protection in China. It formulates national environmental quality and discharge standards and monitors China’s environmental system. Bureau of Ecology and Environment at the municipal level or above are responsible for environmental protection within their respective jurisdictions.

The Law on Environment Impact Assessment and relevant regulations require each enterprise to file an environmental impact report with the relevant Bureau of Ecology and Environment for approval before undertaking the construction of a new production facility or any major expansion or renovation of an existing production facility. New facilities built pursuant to this approval are not permitted to operate until the relevant environmental bureau has performed an inspection and concluded that the facilities are in compliance with environmental standards.

The Environmental Protection Law requires any facility that produces pollutants or other hazards to incorporate environmental protection measures in its operations and establish an environmental protection responsibility system. Such system includes adoption of effective measures to control and properly dispose of waste gases, waste water, waste residue, dust or other waste materials. Any entity that discharges pollution must register with the relevant environmental protection authority. Regulations on the Administration of Pollutant Discharge Permits became effective on March 1, 2021, pursuant to which enterprises that discharge pollutants need to obtain permits from relevant environment authority in accordance with the regulations.

Penalties for breaches of the Environmental Protection Law include warning, payment of damages and imposition of fines. Any entity undertaking a construction project that fails to install pollution prevention and control facilities in compliance with environmental standards for a construction project may be ordered to suspend production or operations or to cease operations and may be fined. Criminal liability may be imposed for a material violation of environmental laws and regulations that causes any significant loss of property or personal injuries or death.

On December 25, 2016, the PRC government promulgated the Environmental Protection Tax Law, which became effective from January 1, 2018 and was amended on October 26, 2018. The Environmental Protection Tax Law imposes environmental protection tax to enterprises, entities, producers or operators which discharge taxable pollutants into air, water or lands. Taxable pollutants include air pollutants, water pollutants, solid wastes and noises. The environmental protection tax is collected by tax authority and levied in accordance with a table attached to the Environmental Protection Tax Law. However, emission of taxable pollutants into the centralized sewage and domestic waste treatment facilities, or storage or disposal of solid wastes in facilities or places that meet the national or local environmental protection standard, by enterprises, entities, producers or operators, is not deemed as direct emission of pollutants into the environment and is exempted from the environmental protection tax for such pollutants.

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In April 2020, the PRC government promulgated the amended Law on Prevention and Control of Environmental Pollution Caused by Solid Waste. Effective on September 1, 2020, the amended law imposes stricter responsibilities on the entities that generate industrial solid waste for environmental pollution caused by industrial solid waste. For example, under the revised version, if an entity that generates industrial solid waste engages a third party contractor to deliver, use or dispose such industrial solid waste, it shall verify the qualification of such third party contractor and enter into an agreement with such third party on requirements for the environment pollution prevention, failing which the entity will be jointly liable for any damages to the environment caused by the third party contractor in relation to such arrangement.

Mineral Resources Laws and Regulations

All mineral resources in China are owned by the state under the current Mineral Resources Law. Exploration, exploitation and mining operations must comply with the relevant provisions of the Mineral Resources Law and are under the supervision of the Ministry of Natural Resources. Exploration and exploitation of mineral resources are also subject to examination and approval by the Ministry of Natural Resources or relevant local authorities. Upon approval, the relevant administrative authorities, which are responsible for supervision and inspection of mining exploitation in their jurisdiction, will issue an exploration permit or mining permit. The holders of mining rights are required to file with the relevant administrative authorities annually.

The PRC government permits mine operators of collectively owned mines to exploit mineral resources in designated areas and individuals to mine scattered mineral resources. Such mine operators and individuals are subject to government regulation. Mining activities by individuals are restricted. Individuals are not permitted to exploit mineral reserves allocated for exploitation by a mining enterprise or company, or specified minerals prescribed by the state for protective mining. Indiscriminate mining that damages mineral resources is prohibited.

If mining activities result in damage to arable land, grassland or afforested area, the mining operator must take measures to return the land to an arable state within the prescribed time frame. Any entity or individual which fails to fulfil its remediation obligations may be fined and denied application for land use rights for new land by the relevant land and natural resources authorities.

It is unlawful for an entity or individual to conduct mining operations in areas designated for other legal mining operators. A mining operator whose exploitation causes harm to others in terms of production or in terms of living standards is liable for compensation and is required to take necessary remedial measures. When a mine is closed, a mine closure report and information concerning the mining facilities, hidden dangers, remediation and environmental protection must be submitted for examination and approval in accordance with the relevant PRC law and regulations.

Mineral products that have been illegally extracted and the related income derived from such activities may be confiscated and may result in fines, revocation of the mining permit and, in serious circumstances, criminal liability.

Energy Conservation Law

The amended Energy Conservation Law came into effect on October 26, 2018. It sets out the general principles for reducing energy waste and improving efficiency of energy consumption. It urges the adjustment of industry structure and replacement of high energy consumption projects with new energy or renewable energy resources. It provides that an energy conservation assessment and review system shall apply to newly investment projects and where a project does not meet the mandatory energy conservation standards, the project cannot be constructed. If a project that does not meet the mandatory energy conservation standards has been completed, it cannot be put into use.

In March 2014, the MIIT issued a regulation, the “Opinion on Implementing Supervision of Industrial Energy Conservation,” which lists the primary aluminum smelting as one of the high energy consumption operations that will be strictly monitored. In December 2014, the MIIT issued the Guidance for National Industrial Efficiency, which sets forth industrial efficiency standards for producers of major products in industries that involve high energy consumption, which included primary aluminum and alumina products.

Regulations Concerning Electrolytic Aluminum Industry

In June 2016, the General Office of the State Council promulgated “Guiding Opinions on Creating a Favorable Market Environment and Promoting the Non-Ferrous Metals Industry to Adjust Structure, Advance Transformation and Increase Efficiency,” under which the construction of new electrolytic aluminum projects and the reconstruction or expansion of existing electrolytic aluminum projects would be approved only if such construction, reconstruction or expansion would introduce new electrolytic aluminum production capacity in an amount equal to or smaller than the amount of existing electrolytic aluminum production capacity to be replaced by such construction, reconstruction or expansion.

In April 2017, NDRC, MIIT, the Ministry of Land and Resources (now known as Ministry of Natural Resources) and the Ministry of Environmental Protection (now known as Ministry of Ecology and Environment) jointly issued the “Notice Regarding the Plan on Special Action for Clean-up and Rectification of Projects in Violation of Laws and Regulations in the Electrolytic Aluminum Industry,” which sets forth a comprehensive plan to inspect electrolytic aluminum projects and rectify violations of applicable laws or regulations revealed in the inspection.

On January 1, 2018, MTT issued the “Notice Regarding Electrolytic Aluminum Enterprises to Realize Capacity Replacement by Acquisition, Merger and Restructure,” which requires electrolytic aluminum enterprises to achieve capacity replacement by acquisition, merger or capacity transferring and exchange of capacity quotas with its group companies.

Tax Laws and Regulation

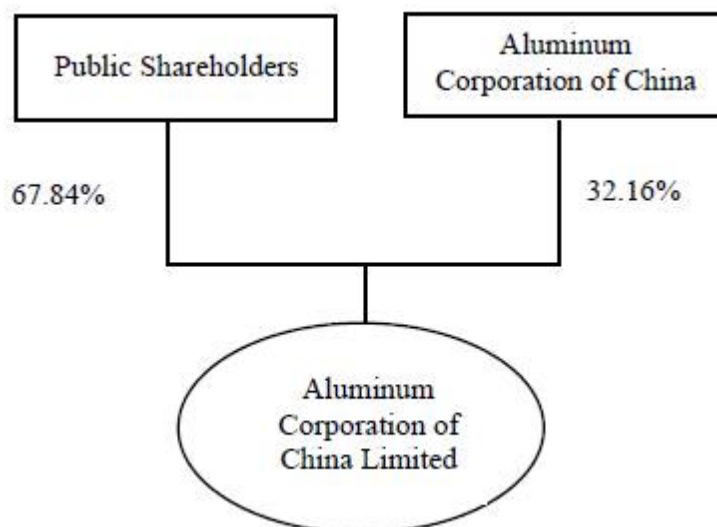
In March 2007, the PRC government promulgated the Enterprise Income Tax Law which became effective from January 1, 2008 and was revised in 2018. The Enterprise Income Tax Law imposes a single income tax rate of 25% on both domestic and foreign invested enterprises. Pursuant to the Enterprise Income Tax Law, important high- and new-tech enterprises that are necessary to be supported by the state are subject to a reduced enterprise income tax rate of 15%. Certain branches and subsidiaries of us were granted tax concessions including preferential tax rates of 15%. On December 6, 2007, PRC government promulgated the Enterprise Income Tax Law Implementation Rules which also became effective on January 1, 2008 and was later revised in 2019.

In March 2016, the MOF and the SAT jointly promulgated “Circular on Comprehensively Promoting the Pilot Program of the Collection of Value-added Tax in Lieu of Business Tax,” pursuant to which we are allowed to deduct input tax from output tax according to the amount set forth in the special value-added tax invoices obtained from our purchases of services, intangible assets or real estate. On April 4, 2018, the MOF and the SAT issued the Circular on Adjusting Value-added Tax Rates, which became effective on May 1, 2018. Pursuant to this circular, for sale or import of goods, the previous applicable value-added tax rate 17% and 11% were adjusted to 16% and 10% respectively.

On March 20, 2019, the MOF, the SAT and the General Administration of Customs jointly issued the Announcement on Policies for Deepening Reform of Value-added Tax, which became effective on April 1, 2019. Pursuant to this announcement, for sales or import of goods by a general taxpayer that were previously subject to value added tax at the rate of 16%, the applicable tax rate has been adjusted to 13%, and for those previously subject to value added tax at the rate of 10%, the applicable tax rate has been adjusted to 9%.

C. Organizational Structure

Set out below is a chart illustrating our corporate structure as of March 31, 2021:



Below sets forth further information of our principal subsidiaries as of December 31, 2020:

Company⁽¹⁾	Percentage of ownership interest attributable to the Company	Principal activities
Baotou Aluminum Co., Ltd.	100.00%	Manufacture and distribution of primary aluminum, aluminum alloy and related fabricated products and carbon products
Chalco Hong Kong Ltd.	100.00%	Overseas investments and alumina import and export activities, and mining and distribution of bauxite
China Aluminum International Trading Co., Ltd.	100.00%	Trading, import and export activities
Chalco Mining Co., Ltd.	100.00%	Manufacture, acquisition and distribution of bauxite mines, limestone ore, manufacturing and distribution of alumina
Chinalco Shanxi Jiaokou Xinghua Technology Ltd. ⁽²⁾	66.00%	Manufacture and distribution of alumina
Chalco Shanghai Company Limited	100.00%	Trading and engineering project management and leasing
Chalco Shanxi New Material Co., Ltd.	85.98%	Manufacture and distribution of alumina, primary aluminum and anode carbon products and electricity generation and supply
Zunyi Aluminum Co., Ltd.	67.45%	Manufacture and distribution of primary aluminum and alumina
Chalco Energy Co., Ltd.	100.00%	Thermoelectric supply and investment management
China Aluminum Ningxia Energy Group Co., Ltd.	70.82%	Thermal power, wind power and solar power generation, coal mining, and power related equipment manufacturing
Guizhou Huajin Aluminum Co., Ltd.	60.00%	Manufacture and distribution of alumina
Chalco Zhengzhou Research Institute of Non-ferrous Metal Co., Ltd.	100.00%	Research and development services
Chalco Shandong Co., Ltd.	100.00%	Manufacture and distribution of alumina
Chalco Zhongzhou Aluminum Co., Ltd.	100.00%	Manufacture and distribution of alumina

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Company ⁽¹⁾	Percentage of ownership interest attributable to the Company	Principal activities
Chalco Logistics Group Co., Ltd.	100.00%	Logistics and transportation
Shanxi Huaxing Aluminum Co., Ltd. ⁽³⁾	100.00%	Manufacture and distribution of alumina
Shanxi China Huarun Co., Ltd.	40.00%	Manufacture and distribution of primary aluminum
Guizhou Huaren New Material Co., Ltd.	40.00%	Manufacture and distribution of primary aluminum
China Aluminum International Trading Group Co., Ltd.	100.00%	Trading, importing and exporting of non-ferrous metal products
Chalco Materials Co., Ltd.	100.00%	Procurement of materials including raw materials and fuels

- (1) Chalco Hong Kong Ltd. is incorporated in Hong Kong. All other principal subsidiaries are incorporated in the PRC.
 (2) We directly hold 33% shares and indirectly hold 33% shares, through Chalco Shandong Co., Ltd.
 (3) We directly hold 60% shares and indirectly hold 40% shares, through Chalco Hong Kong Ltd.

D. Property, Plants and Equipment

Mines

Bauxite Mines

Our Bauxite Mines in China

The following map sets forth details of the area surrounding our largest bauxite mine in China, the Pingguo mine:



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The Guangxi Pingguo plant, located in the Guangxi Zhuang Autonomous Region, commenced operations in 1994. The surrounding infrastructure includes roadways and waterways.

Modernization and Physical Condition, Equipment, Infrastructure and Other Facilities

We have modern facilities at our mines in China, which were designed by professional PRC mine design institutes and adhere to international standards. Our mines are either open pit or underground. Our mines generally have mining offices and transportation facilities that have access to local roads and highways. In addition, we utilize advanced heavy equipment such as bulldozers and scrapers.

Source of Power and Water

All of our mining facilities in China are connected to the local or regional electric power grids. In addition, our mining facilities are connected to reliable water sources, all of which were sufficient for the requirements of each individual mine.

Our Overseas Bauxite Mines

Boffa Mine

The following map sets forth details of the area surrounding our Boffa mine in Guinea:



The Boffa mine is located in northeast of Boffa, the capital of Boffa Prefecture in Guinea. The project was completed and put into operation in April 2020. The Boffa mine is open pit. We have facilities such as open-pit mining machines, belt conveyor systems, bridges, ore storage yards, inland terminals and electric power stations. It has transportation facilities that have access to local roads and belt conveyor system. Our mining facilities in Boffa mine are connected to the electric power stations, which are powered by heavy oil fuel. For the ores of our Boffa mine, the average content of Al_2O_3 is 39.1% and the average content of SiO_2 is 1.1%.

Our Mines in Indonesia

Our mines in Indonesia have access to local roads. Prior to suspension of productions, the two mines that used to be put into operation were powered by diesel fuel and are equipped with washing machines.

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Coal Mines

We acquired 70% of the equity interest in Gansu Huayang in March 2011, which holds exploration rights for a portion of Luochuan mine in Gansu Province. We renewed the exploration permit in 2020, which will expire in October 2025. We are in the process of applying for the exploration permit for the rest of Luochuan mine. Luochuan mine is an underground mine. We have completed the exploration but have not commenced development of Luochuan mine. As of the date of this annual report, neither proven nor probable reserves have been established in accordance with Industry Guide 7.

We acquired the mining rights for Laodonghe mine, in January 2013 through Chalco Guizhou Mining Co., Ltd. We held 80.0% of the equity interest of Laodonghe mine in Guizhou Province. The mining permit expired in December 2018. To actively respond to the national policy to cut overcapacity in the coal industry, we completed the overall liquidation work of Laodonghe mine in 2020 in accordance with relevant regulations.

We completed the acquisition of 70.82% of the equity interest in Ningxia Energy in January 2013, which holds mining rights or exploration rights for certain coal deposits in Ningxia Autonomous Region. The coal mines owned and operated by Ningxia Energy include Wangwa mine, Wangwa No.2 mine, Yindonggou mine and Yinxingyijing mine, all of which are underground thermal coal mines. The operations at these coal mines are powered by electricity from local power grids and are accessible by public roads. As of the date of this annual report, neither proven nor probable reserves have been established in accordance with Industry Guide 7.

Wangwa mine, Wangwa No. 2 mine and Yindonggou mine are currently in extraction stage. We primarily use comprehensive mechanized longwall mining method to extract coal from Wangwa mine, Wangwa No. 2 mine and Yindonggou mine and we use advanced coal mining equipment including hydraulic roof supports and shearers. In addition, Ningxia Energy holds 50% of interest in Yinxingyijing mine while the other joint owner in Yinxingyijing mine does not participate in its operation. Yinxingyijing mine has been put into operation since January 2019. The exploration permit of Yinxingyijing mine expired in August 2018 and has been cancelled since then. We obtained the mining permit in February 2018, which will expire in February 2048.

The following table sets forth detailed information on Wangwa mine, Wangwa No. 2 mine and Yindonggou mine:

	Wangwa mine	Wangwa No. 2 mine	Yindonggou mine
Nature of Ownership	Owned and operated by Ningxia Energy, a 70.82% subsidiary of Chalco	Owned and operated by Ningxia Energy, a 70.82% subsidiary of Chalco	Owned and operated by Ningxia Energy, a 70.82% subsidiary of Chalco
Commencement of construction	1984 ⁽¹⁾	2007	2010
Commencement of extraction	1990 ⁽¹⁾	2010	2016
Permit renewal	November 2046	June 2032	July 2036
Mining recovery rate (%) ⁽²⁾	78	81	76
Depth of mine (<i>meters underground</i>)	400	400	478
Average thickness of main coal seam (<i>meters</i>)	6-11	8-10	2-8
Calorific value (<i>Kcal/kg</i>)	4,900-5,100	4,800-5,000	4,600-4,900
Sulphur content (%)	1.1	1.2	1.12
Average ash content (%)	14.2	15.3	12.2

(1) The capacity expansion and technology upgrade of Wangwa mine is currently at the final acceptance stage of the construction process.

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- (2) The mining recovery rate is the rate of the amount of coal recovered from a determined amount of reserves, which is calculated by dividing the actual volume of coal recovered in a year by the volume of reserves mined and consumed in the same year.

For the year ended December 31, 2020, Ningxia Energy incurred capital expenditures of approximately RMB610 million on infrastructure construction.

Land

Chinalco leases to us 426 pieces or parcels of land, located in eight provinces, covering an aggregate area of approximately 50.68 million square meters for any purpose related to our operations and businesses. Currently, all leases for our properties are valid and have not expired. The leased land mainly consists of:

- 419 pieces of allocated land with an area of approximately 49.79 million square meters. Chinalco has obtained authorization from the relevant administrative authorities to manage and lease the land use rights for such land; and
- seven pieces of land with an area of approximately 0.9 million square meters. Chinalco has paid the land premiums and obtained land use rights certificates.

The land is leased for the following terms:

- allocated land: 50 years commencing from July 1, 2001 (except for land use rights of mines operated by us, whose leased terms shall end on the expiration date of the mining rights or at the end of the actual mine life, whichever is earlier);
- granted land: until expiration of the relevant land use right permits; and
- for both allocated or granted land: normal commercial terms that stipulate, among other conditions, the terms of use, monthly or annual rental amounts payable in Renminbi and a six-month notification provision for termination of any lease agreement.

Buildings

Our principal executive offices, which we lease from Chinalco, are located at No. 62 North Xizhimen Street, Haidian District, Beijing, People's Republic of China, 100082.

Pursuant to the reorganization in connection with our initial public offering in 2001, Chinalco transferred to us, among other operating assets, ownership of the buildings and properties for the operation of our core businesses. Chinalco retained its remaining buildings and properties for its operations. The buildings transferred to us comprise 4,631 buildings with an aggregate gross area of approximately 4.2 million square meters. These buildings may be sold or transferred only with the consent of Chinalco and in accordance with applicable land transfer procedures. Chinalco has undertaken to provide its consent and the necessary assistance to affect land grant procedures to ensure that our buildings can be legally transferred or sold.

We and Chinalco also lease to each other a number of other buildings and properties for ancillary uses, which comprise mainly buildings for offices, dormitory, canteen and storage purposes. As of the date of this annual report, we leased 150 buildings to Chinalco, with an aggregate gross area of approximately 148,687 square meters, while Chinalco leased 106 buildings to us, with an aggregate gross area of approximately 182,542 square meters. In June 2018, we and China Aluminum Investment and Development Co., Ltd., a wholly-owned subsidiary of Chinalco, renewed a tenancy agreement pursuant to which we would lease from Chinalco the office premises at certain floors of No. 62 North Xizhimen Street, Haidian District, Beijing, PRC, with an aggregate gross floor area of 22,303 square meters. This agreement will expire on December 31, 2021.

Our Expansion

Our expansion projects in 2020 primarily include:

- The Boffa Project: Based on our preliminary research and analysis and after taking into account various factors, the total investment of this project is estimated to be US\$706 million, which is mainly allocated in the construction of mines, ports and lightering system. Accordingly to the preliminary design plan, the estimated investment for the construction of mines is RMB3,088 million. The project was completed and put into operation in April 2020, by which an aggregate of RMB2,770 million of capital expenditure had been incurred for the Boffa Project. See “- A. History and Development of the Company — Boffa Project” for more details.
- The 2,000,000-tonne alumina project of Guangxi Huasheng: We expect to invest a total amount of approximately RMB5,805 million in this project. By the end of 2020, an aggregate of RMB4,574 million of capital expenditure had been incurred. The project was completed and put into operation in the third quarter of 2020.
- The 432,000-tonne light alloy project of Shanxi Zhongrun: We expect to invest a total amount of approximately RMB4,512 million in this project. By March 28, 2019, each shareholder of Shanxi Zhongrun has made its paid-in capital on a pro rata basis, where the Company contributed RMB656.7 million. By the end of 2020, an aggregate of RMB3,590 million of capital expenditure had been incurred. In December 2020, the project was fully put into operation.

Item 4A. Unresolved Staff Comments

None.

Item 5. Operating and Financial Review and Prospects

The following discussion and analysis should be read in conjunction with our audited consolidated financial statements and selected historical financial data, in each case together with the accompanying notes included elsewhere in this annual report. This section contains certain “forward-looking statements” within the meaning of the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements are not guarantees of our future performance or results and our actual results could materially differ from those disclosed in the forward-looking statements. In evaluating our business, you should carefully consider the information provided in “Item 3. Key Information - D. Risk Factors.”

As the business combinations under common control incurred in the years ended December 31, 2017, 2018, 2019 and 2020, the comparative financial data for the years ended December 31, 2016, 2017, 2018 and 2019 are revised to reflect the business combinations under common control. Unless otherwise indicated in this section, our financial data for the years ended December 31, 2018 and 2019 are presented based on those revised amounts. Please see Note 39 to our audited consolidated financial statements.

A. Operating Results

Overview

We are a leading enterprise in the non-ferrous metal industry in China. We are engaged principally in alumina refining, primary aluminum smelting, and trading of non-ferrous metal products, coal products and other products. In addition, we are engaged in coal mining and power generation. The remainder of our revenues was derived from research and development activities and other products and services. We organize and manage our operations according to the following key segments:

- Our alumina segment, which consists of the mining and purchasing of bauxite and other raw materials, and production and sale of alumina as well as chemical alumina. Alumina accounted for approximately 78.7% of the total production volume for this segment in 2020. Chemical alumina products are used in the production of chemical, pharmaceutical, ceramic and construction materials. In the process of refining bauxite into alumina, we used to produce gallium as a by-product, which is a rare, high-value metal with applications in the electronics and telecommunication industries. In August 2019, we made a capital contribution with all of our gallium assets to China Rare Metals and Rare Earths Company Ltd. and we are not engaged in gallium production currently. See “Item 4. Information on the Company - A. History and Development of the Company - Capital Contribution to China Rare Metals and Rare Earths Company Ltd. with Gallium Assets” for details.
- Our primary aluminum segment, which consists of the procurement of alumina, other raw materials, supplemental materials and electrical power, the production and sale of primary aluminum and aluminum-related products, such as carbon products, aluminum alloy products and other aluminum products. Our principal primary aluminum products are ingots, molten aluminum and aluminum alloys, which accounted for approximately 24.8%, 36.1% and 39.1%, respectively, of our total production volume of primary aluminum in 2020. Our standard 20 kilogram remelt ingots are used for general aluminum fabrication in the construction, electricity, electronics, transportation, packaging, machinery and durable goods industries. We internally produce substantially all the carbon products used at our smelters and sell our remaining carbon products to external customers.
- Our trading segment, which mainly consists of the trading of alumina, primary aluminum, aluminum fabrication products, other non-ferrous metal products, and crude fuels such as coal products, as well as supplemental materials and logistics and transport services to our internal manufacturing plants and external customers. We established our trading business under Chalco Trading as a separate segment in July 2010 as a result of our operational structural adjustment. Since 2014, we have established Chalco Materials, Chalco Logistics and Chalco Trading Group to continuously promote and deepen development of our trading business, jointly constituting our trading segment. Established in 2018, Chalco Trading Group has undertaken the businesses that used to be operated by Chalco Trading.
- Our energy segment, which consists of the research and development, production and operation of energy products, including coal mining and conventional coal-fire power generation as well as renewable energy generation such as wind power and solar power. We are also engaged in new energy equipment production. We established our energy segment in January 2013 as a result of our acquisition of Ningxia Energy in line with our development strategy to partially offset our future energy costs. In 2020, we supplied the majority of the electricity we generated for our own production use, supplied a portion of the coal output to our own electric power plant and sold the remaining portion to external customers. Ningxia Energy supplied the electricity it generated mainly to the state grid in China.
- Our corporate and other operating segment, which consists of corporate and other aluminum-related research, development, and our other activities.

We used to be engaged in aluminum fabrication operations, where we processed primary aluminum for the production and sales of various aluminum fabrication products. As approved at our 2012 annual general meeting held on June 27, 2013, we disposed of substantially all of our aluminum fabrication operations to Chinalco. As a result, we ceased to operate aluminum fabrication business as a separate segment in June 2013.

Critical Accounting Policies

We prepare our consolidated financial statements in accordance with IFRS as issued by the International Accounting Standards Board, which requires the use of certain critical accounting estimates. It also requires management to exercise its judgment in the process of applying the accounting policies. The areas in our financial reporting involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed in Note 3 to our consolidated financial statements. We have established procedures and processes to facilitate the making of such judgments in the preparation of our consolidated financial statements. Management has used the best information available but actual performance may differ from our management’s estimates and future changes in key variables could change future reported amounts in our consolidated financial statements.

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Property, Plant and Equipment

Property, plant and equipment, other than construction in progress (“CIP”), are stated at cost less accumulated depreciation and any impairment losses. When an item of property, plant and equipment is classified as held for sale or when it is part of a disposal group classified as held for sale, it is not depreciated and is accounted for in accordance with IFRS 5. The cost of an item of property, plant and equipment comprises its purchase price and any directly attributable costs of bringing the asset to its working condition and location for its intended use.

Expenditure incurred after items of property, plant and equipment have been put into operation, such as repairs and maintenance, is normally charged to profit or loss in the period in which it is incurred. In situations where the recognition criteria are satisfied, the expenditure for a major inspection is capitalized in the carrying amount of the asset as a replacement. Where significant parts of property, plant and equipment are required to be replaced at intervals, we recognize such parts as individual assets with specific useful lives and depreciates them accordingly.

We calculate depreciation on the straight-line basis to write off the cost of each item of property, plant and equipment to its residual value over its estimated useful life. The principal annual rates used for this purpose are as follows:

Buildings	8-45 years
Machinery	3-30 years
Transportation facilities	6-10 years
Office and other equipment	3-10 years

Where parts of an item of property, plant and equipment have different useful lives, the cost of that item is allocated on a reasonable basis among the parts and each part is depreciated separately. We reviewed and adjusted the assets’ depreciation method, residual values and useful lives, if appropriate, at least at the end of each reporting period.

An item of property, plant and equipment including any significant part initially recognized is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss on disposal or retirement recognized in profit or loss in the year the asset is derecognized is the difference between the net sales proceeds and the carrying amount of the relevant asset.

CIP represents buildings under construction, and plant and equipment pending for installation, and is stated at cost less any impairment losses. Cost comprises construction expenditures, other expenditures necessary for the purpose of preparing the CIP for its intended use and those borrowing costs incurred before the assets are ready for their intended use that is eligible for capitalization. CIP is transferred to property, plant and equipment when the CIP is ready for its intended use.

Goodwill

Goodwill is measured as described in Note 2.3 to our consolidated financial statements. Goodwill on acquisitions of subsidiaries is included in intangible assets. Goodwill is not amortized but it is tested for impairment annually, or more frequently if events or changes in circumstances indicate that it might be impaired, and is carried at cost less accumulated impairment losses. Gains and losses on the disposal of an entity include the carrying amount of goodwill relating to the entity sold.

Goodwill is allocated to cash-generating units for the purpose of impairment testing. The allocation is made to those cash-generating units or groups of cash-generating units that are expected to benefit from the business combination in which the goodwill arose. The units or groups of units are identified at the lowest level at which goodwill is monitored for internal management purposes, being the operating segments.

Intangible assets - mining rights and mineral exploration rights

Our mineral exploration rights and mining rights relate to coal, bauxite and other mines.

(i) Recognition

Except for mineral exploration rights and mining rights acquired in a business combination, mineral exploration rights and mining rights are initially recorded at the cost which includes the acquisition consideration, qualifying exploration and other direct costs. The mineral exploration rights are stated at cost less any impairment, and the mining rights are stated at cost less any amortization and impairment.

(ii) Reclassification

Mineral exploration rights are converted to mining rights when technical feasibility and commercial viability of extracting a mineral resource are demonstrable, and are subject to amortization when commercial production has commenced.

We assess the stage of each mine under construction to determine when a mine moves into the production stage. The criteria used to assess the start date are determined based on the unique nature of each mine construction project. We consider various relevant criteria, such as completion of a reasonable period of testing of the mine and equipment, ability to produce in saleable form (within specifications) and ability to sustain ongoing production to assess when a mine is substantially complete and ready for its intended use.

(iii) Amortization

Mining rights other than coal mining rights are amortized on a straight-line basis over a shorter period of the mining right valid period and expected mining life. Estimated mineable periods of the majority of the mining rights range from 3 to 30 years.

Coal mining rights are amortized on a unit-of-production basis over the economically recoverable reserves evaluated based on the reserves estimated in accordance with the standards of the mine concerned.

(iv) Impairment

An impairment review is performed when there are indicators that the carrying amount of the mineral exploration rights and mining rights may exceed their recoverable amounts. To the extent that this occurs, the excess is fully provided as an impairment loss.

Leases

Leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group.

Contracts may contain both lease and non-lease components. We allocate the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. However, for leases of real estate for which we are a lessee, it has elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants other than the security interests in the leased assets that are held by the lessor. Leased assets may not be used as security for borrowing purposes.

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Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate, initially measured using the index or rate as of the commencement date;
- amounts expected to be payable by us under residual value guarantees;
- the exercise price of a purchase option if we are reasonably certain to exercise that option, and
- payments of penalties for terminating the lease, if the lease term reflects us exercising that option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be readily determined, which is generally the case for leases in the Group, the lessee's incremental borrowing rate is used, being the rate that the individual lessee would have to pay to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment with similar terms, security and conditions.

To determine the incremental borrowing rate, we:

- where possible, use recent third-party financing received by the individual lessee as a starting point, adjusted to reflect changes in financing conditions since third party financing was received;
- use a build-up approach that starts with a risk-free interest rate adjusted for credit risk for leases held by the Group, which does not have recent third-party financing, and,
- make adjustments specific to the lease, such as term, country, currency and security.

If a readily observable amortizing loan rate is available to the individual lessee (through recent financing or market data) which has a similar payment profile to the lease, then our entities use that rate as a starting point to determine the incremental borrowing rate.

We are exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Lease payments are allocated between principal and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs, and
- restoration costs.

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Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis as follows:

Buildings	2—20 years
Machinery	2—10 years
Land use rights	10—50 years

If we are reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life. While we revalue our land and buildings that are presented within property, plant and equipment, we have chosen not to do so for the right-of-use buildings held by us.

Payments associated with short-term leases of equipment and vehicles and all leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss. We apply the short-term lease recognition exemption to our short-term leases of machinery and equipment (that is those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). We also apply the recognition exemption for leases of low-value assets to leases of office equipment that are considered to be of low value (i.e. below RMB30,000).

Lease income from operating leases where we are a lessor is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred in obtaining an operating lease are added to the carrying amount of the underlying asset and recognized as expense over the lease term on the same basis as lease income. The respective leased assets are included in the balance sheet based on their nature. We did not need to make any adjustments to the accounting for assets held as lessor as a result of adopting the new leasing standard.

Impairment of financial assets

We recognize an allowance for expected credit losses ("ECLs") for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that we expect to receive, discounted at an approximation of the original effective interest rate. The ECL of December 31, 2019 was estimated based on a range of forecast economic conditions as of that date. Since early January 2020, the COVID-19 outbreak has spread across mainland China and beyond, causing disruption to business and economic activity. The impact on GDP and other key indicators have been considered when determining the severity and likelihood of downside economic scenarios that are used to estimate ECL under IFRS 9 in 2020.

Impairment of non-financial assets

Goodwill and intangible assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash inflows which are largely independent of the cash inflows from other assets or groups of assets (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

Inventories

Inventories comprise raw materials, work-in-progress, finished goods, spare parts and packaging materials and others, and are stated at the lower of cost and net realizable amount. Cost is determined using the weighted average method. Work-in-progress and finished goods comprise materials, direct labor and an appropriate proportion of all production overhead expenditure (based on the normal operating capacity). Borrowing costs are excluded as our inventory usually didn't meet the definition of "qualifying assets".

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Provision for impairment of inventories is usually determined by the excess of cost over the net realizable amount and recorded in profit or loss. Net realizable amounts are determined based on the estimated selling price less estimated conversion costs, selling expenses and related taxes in the ordinary course of business. The provision for or the reversal of provision for impairment of inventories is recognized within "Cost of sales" in profit or loss.

Current and deferred income tax

The income tax expense or credit for the period is the tax payable on the current period's taxable income based on the applicable income tax rate for each jurisdiction adjusted by changes in deferred tax assets and liabilities attributable to temporary differences and to unused tax losses.

Current income tax

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period in the countries where we and our subsidiaries and associates operate and generate taxable income. Our management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation and considers whether it is probable that a taxation authority will accept an uncertain tax treatment. We measure our tax balances either based on the most likely amount or the expected value, depending on which method provides a better prediction of the resolution of the uncertainty.

Deferred income tax

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred income tax is also not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantively enacted by the end of the reporting period and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

Deferred tax liabilities and assets are not recognized for temporary differences between the carrying amount and tax bases of investments in foreign operations where we are able to control the timing of the reversal of the temporary differences and it is probable that the differences will not reverse in the foreseeable future.

Deferred tax assets and liabilities are offset where there is a legally enforceable right to offset current tax assets and liabilities and where the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis, or to realize the asset and settle the liability simultaneously.

Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

Revenue recognition

Revenue from contracts with customers

Revenue from contracts with customers is recognized when control of goods or services is transferred to the customers at an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services.

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When the consideration in a contract includes a variable amount, the amount of consideration is estimated to which we will be entitled in exchange for transferring the goods or services to the customer. The variable consideration is estimated at contract inception and constrained until it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized will not occur when the associated uncertainty with the variable consideration is subsequently resolved.

When the contract contains a financing component which provides the customer with a significant benefit of financing the transfer of goods or services to the customer for more than one year, revenue is measured at the present value of the amount receivable, discounted using the discount rate that would be reflected in a separate financing transaction between us and the customer at contract inception. When the contract contains a financing component which provides us a significant financial benefit for more than one year, revenue recognized under the contract includes the interest expense accreted on the contract liability under the effective interest method. For a contract where the period between the payment by the customer and the transfer of the promised goods or services is one year or less, the transaction price is not adjusted for the effects of a significant financing component, using the practical expedient in IFRS 15.

(a) Sale of industrial products

Revenue from the sale of industrial products (including sales of scrap and other materials) is recognized at the point in time when control of the asset is transferred to the customer, generally on delivery of the industrial products.

(b) Rendering of services

We provide transportation and other service and the revenue from services is recognized over time, using an input method to measure progress towards complete satisfaction of the service, because the customer simultaneously receives and consumes the benefits provided by the Group.

Revenue from other sources

(a) Rental income

Rental income is recognized on a time proportion basis over the lease terms. Variable lease payments that do not depend on an index or a rate are recognized as income in the accounting period in which they are incurred.

(b) Other income

Interest income is recognized on an accrual basis using the effective interest method by applying the rate that exactly discounts the estimated future cash receipts over the expected life of the financial instrument or a shorter period, when appropriate, to the net carrying amount of the financial asset.

Dividend income is recognized when the shareholders' right to receive payment has been established, it is probable that the economic benefits associated with the dividend will flow to us and the amount of the dividend can be measured reliably.

New IFRS Pronouncements

For a detailed discussion of new accounting pronouncements, please see Note 2.1.4 and 2.1.5 to our audited consolidated financial statements.

Factors Affecting Our Results of Operations

We believe that the following factors which impact our various revenue and expense items (as described below) have had, and will continue to have, a significant effect on the development of our business, financial position and results of operation.

Economic Condition of China and the World

As the major aluminum product market is globalized, the demand for and prices of our products are highly correlated with the general economic condition of China and the world and the performance of the major aluminum and related product markets. In recent years, China's economy continued to experience growth despite the negative effects of the global financial crisis beginning in the second half of 2008 and economic recession in 2009, as well as general market volatility and changing macroeconomic conditions. However, as China is in the process of transforming its development model, optimizing its economic structure and changing its growth drivers, the growth of China's economy has slowed down since 2014, with GDP growth of 6.9% from 2014 to 2015, 6.7% from 2015 to 2016, 6.9% from 2016 to 2017, 6.6% from 2017 to 2018 and 6.1% from 2018 to 2019, as compared to 7.5% from 2013 to 2014. Furthermore, the outbreak and global spread of the COVID-19 in 2020 adversely affect global and China's economy and financial market in general. As a result, the GDP growth of China was 2.3% from 2019 to 2020. Meanwhile, the global outbreak of COVID-19 and the efforts to contain it have negatively impacted the global economy and financial markets, causing a global recession in 2020. Please refer to "Item 3. Key Information - D. Risk Factors - Our business may be materially and adversely affected by the COVID-19 pandemic" for further details of the impact of the outbreak of COVID-19.

The global output of alumina (with chemical alumina products included) in 2020 increased by approximately 1.0% from 2019 to approximately 132.92 million tonnes. The global alumina consumption (with chemical alumina products included) in 2020 increased approximately by 0.6% from 2019 to approximately 136.11 million tonnes. In 2020, the domestic output of alumina (with chemical alumina products included) decreased approximately by 0.8% from 2019 to approximately 71.01 million tonnes and the domestic consumption for alumina (with chemical alumina products included) increased by approximately 2.5% from 2019 to approximately 74.81 million tonnes.

The global output of primary aluminum in 2020 increased approximately by 2.3% from 2019 to approximately 65.38 million tonnes. The global consumption of primary aluminum in 2020 decreased approximately 3.1% from 2019 to approximately 62.87 million tonnes. In 2020, the domestic output of primary aluminum increased approximately by 3.8% from 2019 to approximately 37.30 million tonnes and the domestic consumption of primary aluminum increased approximately by 4.9% from 2019 to approximately 38.35 million tonnes.

Mix and Pricing of Our Products

We are engaged principally in alumina refining, primary aluminum smelting and sales of these products and trading of non-ferrous metal products and other products. In addition, we are engaged in coal mining and power generation. We coordinate substantially all of our sales and marketing activities for our self-produced alumina products and some of our sales and marketing activities for our self-produced primary aluminum products through Chalco Trading Group, taking into account the spot market prices and SHFE prices. In 2020, revenues generated from alumina, primary aluminum, trading and energy segments (after elimination of inter-segment sales) accounted for 7.0%, 21.7%, 67.4% and 3.7%, respectively, of our consolidated total revenues after elimination of inter-segment sales. We apply different policies to price different products. For information on our pricing of different products, please see the section headed "Item 4. Information of the Company - B. Business Overview - Sales and Marketing."

The sales prices of alumina that our alumina refineries sell internally to Chalco Trading Group are determined based on our budgeted sale prices, spot market prices and the prices of primary aluminum on SHFE. Chalco Trading Group coordinates the external negotiation and execution of sales contracts of our alumina products. The alumina prices in both domestic and international market decreased in 2020 when compared to that of 2019. The decline in the alumina price in international market was attributable to production reduction of some aluminum smelters in the first half of 2020 due to the COVID-19 pandemic, resulting in weak demand for alumina, while such decline was partially offset by the gradual recovery of the global economy and increase in operating production capacity of primary aluminum in overseas markets in the second half of 2020. In 2020, the spot price of alumina in the international market reached a high of approximately US\$306 per tonne and bottomed out at approximately US\$225 per tonne. The average spot price of alumina in the international market was approximately US\$271 per tonne, representing a decrease of 18.6% from 2019. The spot price of alumina in the domestic market reached a high of RMB2,569 per tonne and bottomed out at RMB2,072 per tonne. The average spot price of alumina in the domestic market was approximately RMB2,335 per tonne, representing a decrease of 13.4% from 2019. The decrease of the alumina price in domestic market was primarily due to the deterioration in global macro environment and production reduction of some aluminum smelters due to the COVID-19 pandemic in the first half of 2020, partially offset by strong rise in the primary aluminum price in domestic market and the reduction of production of part of alumina plants in the second half of 2020. Our average selling price of alumina decreased by 10.3% from RMB2,747 per tonne in 2019 to RMB2,465 per tonne in 2020.

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Like most primary aluminum producers in China, we price our primary aluminum products by reference to the primary aluminum spot prices and futures price on the SHFE. In 2020, the primary aluminum prices in international market generally declined due to outbreak of COVID-19 globally, but such decline was partially offset by the recovery of consumption of primary aluminum starting from the third quarter of 2020. The change of primary aluminum prices in domestic market in 2020 was due to the effective control of COVID-19 pandemic in China and rapid resumption of work and production in downstream and terminal industries, resulting in a sharp rebound in the demand of primary aluminum, driving primary aluminum prices to bottom out. In 2020, three month aluminum futures prices reached a high of US\$2,096 per tonne and a low of US\$1,455 per tonne on LME; and a high of RMB16,835 per tonne and a low of RMB11,345 per tonne on SHFE. In 2020, the average price of spot aluminum and three-month aluminum futures at LME were approximately US\$1,701 per tonne and US\$1,727 per tonne, respectively, representing a decrease of 5.0% and 4.7% from that of 2019, respectively. The average three-month aluminum futures prices at SHFE decreased by 0.5% from RMB13,877 per tonne in 2019 to RMB13,807 per tonne in 2020 while the average spot prices of primary aluminum at SHFE increased by 1.4% from RMB13,914 per tonne in 2019 to RMB14,112 per tonne in 2020. Our average selling price of primary aluminum increased by 2.0% from RMB13,869 per tonne in 2019 to RMB14,142 per tonne in 2020.

Price Volatility of Non-ferrous Metal and Coal Products

Since late 2009, as a result of the implementation of our operational structural adjustment, we have been engaged substantially in the trading of outsourced non-ferrous metal products to increase our profit. In 2012, we began to engage in the trading of significant amounts of outsourced coal products to diversify our product portfolio. Although the profit margin of sales of outsourced products is typically lower than that of our self-produced products, we generated substantial revenues and profit from the trading of outsourced products during the past few years due to our significant trading volumes. Our revenue generated from external sales of products purchased from external sources in 2020 was approximately RMB103,842.1 million, representing approximately 55.8% of total revenue from external sales in our trading segment. From time to time, we may enter into futures and option transactions in addition to the simple buy-low-sell-high trading model to hedge against price fluctuations in the non-ferrous metal and coal products market. However, short-term price volatility of these products remains a key factor affecting our operation results, as we need to make the correct prediction concerning the price trends of these products on the markets to ensure substantial revenues through large trading volume. If the market price trend does not match our prediction, we may be forced to sell trading products at low prices or to purchase trading products at high prices, which may adversely affect gross margins and profitability.

Manufacturing Costs

Our cost of revenues consists primarily of the costs of raw materials, overhead cost and electric power cost. Our principal raw material is bauxite. For the years ended December 31, 2018, 2019 and 2020, bauxite supplied by our mines accounted for 44%, 38% and 46%, respectively, of our total bauxite used in the production of alumina. The unit cost of bauxite produced by us is generally lower than the unit cost of bauxite procured from external suppliers. In 2020, as a result of our great efforts to reduce costs and the decrease in costs of soda ash and fuel, our average cost of alumina per tonne decreased by approximately 8.8% from that in 2019.

Primary aluminum is one of our major aluminum products and is produced by smelting operations. Smelting operations require a substantial and continuous supply of electricity. Electricity cost is the most significant component of our primary aluminum production cost and accounted for approximately 37% of our unit production cost for primary aluminum in 2020. The availability and price of electricity are key considerations in our primary aluminum operations. Interruptions of electricity supply can result in lengthy production shutdowns, increased costs associated with restarting production and waste of production in progress, and prolonged interruptions can cause damage to, or the destruction of, production equipment and facilities. Our average annual electricity price per kWh (including tax) decreased by 4% from 2018 to 2019 and remained relatively stable from 2019 to 2020.

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Given our high proportion of fixed costs, we must generate sufficient sales to absorb our fixed costs to maintain or increase our operating margins. Our acquisitions and production expansion in recent years have significantly increased our costs that are relatively fixed in nature, such as leases and depreciation of property, plant and equipment and employee benefit expenses. If we are able to maintain satisfactory facility utilization rates and productivity, our production capacity expansion will enable us to reduce our unit costs through economies of scale and recover associated increased costs through higher output. In 2020, we continued to focus on lowering production costs and increasing production efficiency through reducing raw material consumption by improving technology and internal management.

Availability and Costs of Financing

We require a significant amount of capital to fund our operations. For example, we need substantial amounts of funds for expanding our operations, purchasing and maintaining equipment and procuring commodities. We have in the past funded our capital expenditures primarily with bank loans and the issuance of medium-term notes and bonds and long-term bonds. The availability of financing is subject to various factors, including our credit history and the prevailing credit policy adopted by the PRC government. Over the years, we have maintained good relationships with the commercial banks in China, which enables us to access bank financing at relatively low costs. Any change of lending policies adopted by the PRC government in the future may, among other things, affect our ability to obtain financing and may in turn adversely affect our operating results.

Our finance costs decreased by 10.0% from 2019 to 2020, primarily because the Company reduced the scale of its interest-bearing debts and optimized its financing costs to achieve the year-on-year decrease in financial costs. If we are unable to secure sufficient external funding when required, we may not be able to fund our working capital requirements and necessary capital expenditures, which could adversely affect our business, financial performance and prospects.

In addition, our borrowing costs and access to debt financing depend significantly on our credit ratings. These ratings, including long-term corporate credit ratings and financing bond credit ratings, are assigned by rating agencies, which may lower or withdraw their ratings. Any change in our credit ratings or average interest rate could have negative implications, which may increase our finance costs and affect our financial results.

Regulatory Environment

The PRC government continues to shape the structure and development of the aluminum industry through industry guidelines for energy conservation, safety, environmental and quality. The central and local PRC government will give more support to entities that meet the standards in such industry guidelines. If the PRC government changes its current industry guidelines or the interpretation of those industry guidelines, we may face pressure on profit margins and constraints on our ability to expand our business operations.

Selected Statement of Operation Items

Revenue

Our revenue is primarily generated from sales of alumina, primary aluminum, other non-ferrous metal products and coal products. In addition, we are engaged in coal mining and power generation. The remainder of our revenues was derived from research and development activities and other products and services. We established our trading and energy businesses as new business segments in 2010 and 2013, respectively.

Cost of Sales

Our cost of sales consists primarily of the purchase of inventories in relation to trading activities, cost of raw materials, consumables and electric power used in manufacturing, the fixed cost of and employee benefit expenses. For the years ended December 31, 2018, 2019 and 2020, our cost of sales was RMB167,110.2 million, RMB178,068.1 million and RMB172,571.4 million, respectively, and accounted for 92.7%, 93.6% and 92.8%, respectively, of the total consolidated revenues for those periods.

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Operating Expenses

Selling and Distribution Expenses. Our selling and distribution expenses consist primarily of transportation and loading expenses, packaging expense and, to a lesser extent, port expenses and employee benefit expenses for employees in selling and distribution department. Selling and distribution expenses accounted for 33.4%, 23.9% and 17.3% of our total operating expenses for the years ended December 31, 2018, 2019 and 2020, respectively.

General and Administrative Expenses. Our general and administrative expenses consist primarily of early retirement benefit expenses, employee benefit expenses for directors and officers and employees in administrative department and, to a lesser extent, taxes other than income tax expenses, depreciation of non-production property, plant and equipment, provision for impairment of receivables, termination benefit expenses, operating lease rental expenses, travelling and entertainment, legal and other professional fees, amortization of right-of-use assets, utilities and office supplies, insurance expense, pollutants discharge fees, repairs and maintenance expenses, auditors' remuneration, amortization of intangible assets, and others. General and administrative expenses accounted for 53.2%, 56.6% and 49.2% of our total operating expenses for the years ended December 31, 2018, 2019 and 2020, respectively. Employee benefit expenses, including salaries and bonus, housing fund, staff welfare and other expenses, employment expense in relation to early retirement schemes and termination benefit, comprise a significant component of our general and administrative expenses, accounting for 40.1%, 46.3% and 41.2% of our total general and administrative expenses for the years ended December 31, 2018, 2019 and 2020, respectively.

Research and Development Expenses. Our research and development expenses accounted for 8.4%, 13.4% and 17.0% of our total operating expenses for the years ended December 31, 2018, 2019 and 2020, respectively.

Impairment loss on property, plant and equipment. Our impairment loss on property, plant and equipment accounted for 0.6%, 3.7% and 4.9% of our total operating expenses for the years ended December 31, 2018, 2019 and 2020, respectively. The increase in impairment loss on property, plant and equipment in 2020 was primarily resulting from the impairment loss on the plant and production facilities of Shanxi Huasheng for its termination of production.

Impairment losses on financial assets. Our impairment losses on financial assets accounted for 11.6% of our total operating expenses for the year ended December 31, 2020.

Impairment losses on investments in joint ventures. We did not incur any impairment losses on investments in joint ventures for the year ended December 31, 2020.

Other Income

Our other income consists primarily of tax returns and grants on industrial development support from the government. For the year ended December 31, 2020, our other income was RMB139.6 million, and accounted for approximately 0.1% of the total consolidated revenues.

Other Gains, net

Our other net gains consisted primarily of gains on disposal of subsidiaries, gains on disposal of property, plant and equipment, gains on share of associates' net assets, gains on disposal of joint venture or associates, gains on futures and gains on disposal of business. For the year ended December 31, 2020, our other net gains were RMB903.9 million, and accounted for approximately 0.5% of the total consolidated revenues.

Finance Income

Our finance income consists primarily of interest income. For the year ended December 31, 2020, our finance income was RMB226.9 million, and accounted for approximately 0.1% of the total consolidated revenues.

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Finance Costs

Our financing costs consist primarily of interest expense on our borrowings and bonds. Interest rates on loans related to capital expenditures and working capital set by banks generally follow guidelines issued by the PBOC. The PBOC regulates the interest rates for commercial loans charged by state-owned banks from time to time as part of the PRC government's efforts to regulate the PRC economy. In 2020, we incurred interest expense (net of capitalized interest) of RMB4,420.5 million on our borrowings.

Share of Profits and Losses of Joint Ventures

Our share of profits and losses of joint ventures is the profit attributable to us from our joint ventures, based on our equity interests in such joint ventures. A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

Share of Profits and Losses of Associates

Our share of profits and losses of associates is the profit attributable to us from our associates, based on our equity interests in such associates. An associate is an entity over which we have significant influence but not control.

Consolidated Results of Operations

The following table sets forth certain income and expense items as a percentage of our revenues from our consolidated statements of comprehensive income for the periods indicated:

	Year Ended December 31,					
	2018		2019		2020	
	(Restated)		(Restated)		RMB	US\$
	RMB	(%)	RMB	(%)		(%)
	<i>(in millions, except percentage)</i>					
Revenue	180,350.9	100.0	190,215.4	100.0	185,994.3	100.0
Cost of Sales	(167,110.2)	(92.7)	(178,068.1)	(93.6)	(172,571.4)	(92.8)
Gross Profit	13,240.7	7.3	12,147.3	6.4	13,422.9	7.2
Selling and distribution expenses	(2,499.4)	(1.4)	(1,675.9)	(0.9)	(1,457.1)	(0.8)
General and administrative expenses	(3,980.5)	(2.2)	(3,971.9)	(2.1)	(4,156.9)	(2.2)
Research and development expenses	(626.9)	(0.3)	(940.8)	(0.5)	(1,434.1)	(0.8)
Impairment loss on property, plant and equipment	(46.5)	<0.1	(259.4)	(0.1)	(416.8)	(0.2)
Impairment losses on financial assets	(108.0)	(0.1)	(171.0)	(0.1)	(978.8)	(0.5)
Impairment losses on investments in joint ventures	(217.0)	(0.1)	—	—	—	—
Other income	135.4	0.1	84.6	<0.1	139.6	0.1
Other gains, net	925.1	0.5	1,247.5	0.7	903.9	0.5
Operating profit	6,823.0	3.8	6,460.4	3.4	6,022.7	3.2
Finance Income	492.3	0.3	261.2	0.1	226.9	0.1
Finance cost	(4,882.7)	(2.7)	(4,921.5)	(2.6)	(4,420.5)	(2.4)
Share of profits and losses of joint ventures	(199.5)	(0.1)	270.1	0.1	180.5	0.1
Share of profits and losses of associates	39.3	<0.1	48.8	<0.1	145.7	0.1
Profit before income tax	2,272.6	1.3	2,119.0	1.1	2,155.3	1.2
Income tax benefit/(expense)	(826.4)	(0.5)	(628.4)	(0.3)	(582.2)	(0.3)
Profit for the year	1,446.2	0.8	1,490.6	0.8	1,573.1	0.8

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No customer individually accounted for more than 10% of our total revenue for the year ended December 31, 2020. Sales to Chinalco and its subsidiaries, joint ventures, associates and other related parties accounted for approximately 11.2%, 13.0% and 17.2% of consolidated revenues for the years ended December 31, 2018, 2019 and 2020, respectively. For information on related party transactions, see “Item 7. Major Shareholders and Related Party Transactions - B. Related Party Transactions” and Note 36 to our audited consolidated financial statements.

Year Ended December 31, 2020 Compared with Year Ended December 31, 2019

Revenue

Our revenue decreased by 2.2% from RMB190,215.4 million for the year ended December 31, 2019 to RMB185,994.3 million for the year ended December 31, 2020, primarily due to the decrease in our trading business.

Cost of Sales

Our cost of sales decreased by 3.1% from RMB178,068.1 million for the year ended December 31, 2019 to RMB172,571.4 million for the year ended December 31, 2020, primarily due to the decrease in our trading business.

Selling and Distribution Expenses

Our selling and distribution expenses decreased by 13.1% from RMB1,675.9 million for the year ended December 31, 2019 to RMB1,457.1 million for the year ended December 31, 2020, primarily due to the decrease in our domestic transportation expenses of products.

General and Administrative Expenses

Our general and administrative expenses increased by 4.7% from RMB3,971.9 million for the year ended December 31, 2019 to RMB4,156.9 million for the year ended December 31, 2020, primarily due to the increase in the land use tax.

Research and Development Expenses

Our research and development expenses increased by 52.4% from RMB940.8 million for the year ended December 31, 2019 to RMB1,434.1 million for the year ended December 31, 2020, primarily due to the increase in investment in optimizing the electrolytic process of primary aluminum, improving the added value of aluminum fabrication products and developing the mid-to-high-end products.

Other Income

Other income increased by 64.9% from RMB84.6 million for the year ended December 31, 2019 to RMB139.6 million for the year ended December 31, 2020, primarily due to the increases in the government grants recorded under other income.

Other Gains, Net

Our net other gains decreased by 27.5% from RMB1,247.5 million for the year ended December 31, 2019 to RMB903.9 million for the year ended December 31, 2020, primarily because we had gains on disposal of certain subsidiaries, associates and business in 2019 while we did not have such disposals in 2020.

Finance Income

Our finance income decreased by 13.1% from RMB261.2 million for the year ended December 31, 2019 to RMB226.9 million for the year ended December 31, 2020, primarily due to the decrease in interest income resulting from the decrease in the wealth management products held by us.

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Finance Costs

Our finance costs decreased by 10.2% from RMB4,921.5 million for the year ended December 31, 2019 to RMB4,420.5 million for the year ended December 31, 2020, primarily because we reduced the scale of our interest-bearing debts and utilized financings with lower interest rates.

Share of Profits and Losses of Joint Ventures

Our profit in our share of profits and losses of joint venture decreased by 33.2% from RMB270.1 million for the year ended December 31, 2019 to RMB180.5 million for the year ended December 31, 2020. This was primarily attributable to the decrease in the profitability of one of our joint ventures, which is an alumina refinery, as a result of the decrease in the alumina price in 2020.

Share of Profits and Losses of Associates

Our profit in our share of profits and losses of associates increased significantly from RMB48.8 million for the year ended December 31, 2019 to RMB145.7 million for the year ended December 31, 2020. This was primarily because we had new associates in December 2019 and the profits of such associates increased in 2020 due to the increase in the primary aluminum price.

Income Tax

Our income tax expense decreased by 7.4% from RMB628.4 million for the year ended December 31, 2019 to RMB582.2 million for the year ended December 31, 2020. This was mainly the adjustment on temporary differences for comprehensive tax rate in accordance with the latest preferential tax policies for the development of the western region.

Results of Operations

As a result of the foregoing, our net profit increased by 5.5% from RMB1,490.6 million for the year ended December 31, 2019 to RMB1,573.0 million for the year ended December 31, 2020.

Year Ended December 31, 2019 Compared with Year Ended December 31, 2018

Revenue

Our revenue increased by 5.5% from RMB 180,350.9 million for the year ended December 31, 2018, to RMB 190,215.4 million for the year ended December 31, 2019, primarily due to the increase in revenue generated from the sales of products sourced from external suppliers. Please see “- Discussion of Segment Operations — Year Ended December 31, 2019 Compared with Year Ended December 31, 2018 — Trading Segment” for discussion regarding sales of outsourced products in 2019 as compared to 2018.

Cost of Sales

Our cost of sales increased by 6.6% from RMB167,110.2 million for the year ended December 31, 2018, to RMB178,068.1 million for the year ended December 31, 2019, primarily due to the increase in the procurement costs from products sourced from external suppliers. Please see “- Discussion of Segment Operations - Year Ended December 31, 2019 Compared with Year Ended December 31, 2018 — Trading Segment” for detailed discussion regarding procurement of outsourced products in 2019 as compared to 2018.

Selling and Distribution Expenses

Our selling and distribution expenses decreased by 32.9% from RMB2,499.4 million for the year ended December 31, 2018, to RMB1,675.9 million for the year ended December 31, 2019, primarily due to the decrease in transportation expenses of products.

General and Administrative Expenses

Our general and administrative expenses remained stable from RMB3,980.5 million for the year ended December 31, 2018, to RMB3,971.9 million for the year ended December 31, 2019.

Research and Development Expenses

Our research and development expenses increased by 50.1% from RMB626.9 million in the year ended December 31, 2018 to RMB940.8 million for the year ended December 31, 2019, primarily due to the increase in investment in research and development of bauxite utilization improvement and high-quality alumina.

Other Income

Other income decreased by 37.5% from RMB135.4 million in the year ended December 31, 2018 to RMB84.6 million for the year ended December 31, 2019, primarily due to the decreases in the government grants recorded under other income.

Other Gains, Net

Our net other gains increased by 34.9% from RMB925.1 million for the year ended December 31, 2018 to RMB1,247.5 million for the year ended December 31, 2019, primarily due to the increase in gains from our investment in certain associates and the increase in gains on disposal of certain subsidiaries, associates and business, partially offset by the decrease in gains on re-measured equity value because we converted certain entities from joint ventures and associates to our subsidiaries in 2018 while we did not have such conversion in 2019. Please see “- Year Ended December 31, 2018 Compared with Year Ended December 31, 2017 — Other Gains, Net” for details of such conversion in 2018.

Finance Income

Our finance income decreased by 46.9% from RMB492.3 million for the year ended December 31, 2018 to RMB261.2 million for the year ended December 31, 2019, primarily due to the decrease in interest income resulting from the decrease in cash and cash equivalent held by us.

Finance Costs

Due to the increase of interest on lease liabilities as a result of the adoption of new accounting standards, although the expense of other interest decreased in 2019, our finance costs remained stable from RMB4,882.7 million for the year ended December 31, 2018 to RMB4,921.5 million for the year ended December 31, 2019.

Share of Profits and Losses of Joint Ventures

We had a profit of RMB270.1 million in our share of profits and losses of joint venture for the year ended December 31, 2019, whereas we incurred a loss of RMB199.5 million in our share of profits and losses of joint venture for the year ended December 31, 2018. This was primarily attributable to the increase in profitability of some of our joint ventures.

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Share of Profits and Losses of Associates

Our profit in our share of profits and losses of associates increased by 24.2% from RMB39.3 million for the year ended December 31, 2018 to RMB48.8 million for the year ended December 31, 2019. This was primarily attributable to improved operations of some of our associates that experienced losses in 2018.

Income Tax

Our income tax expense decreased by 24.0% from RMB826.4 million for the year ended December 31, 2018 to RMB628.4 million for the year ended December 31, 2019. This was mainly because we had deferred tax expenses in 2018 but deferred tax benefits in 2019.

Results of Operations

As a result of the foregoing, our net profit increased by 3.1% from RMB1,446.2 million for the year ended December 31, 2018 to RMB1,490.6 million for the year ended December 31, 2019.

Discussion of Segment Operations

We account for our operations on a segmental basis; that is, separately preparing the accounting for our alumina, primary aluminum, trading, energy and corporate and other operating segments. Unless otherwise indicated, also included in these segments are other revenues derived from activities such as supplying electricity, gas, heat and water to our affiliates, selling scrap and other materials and providing services including transportation and research and development to third parties. For additional information relating to our business segments and segment presentation, see Note 5 to our consolidated financial statements.

The following table sets forth a breakdown of our revenues by segment and the contribution of external sales and inter-segment sales for the periods indicated:

	Year Ended December 31,					
	2018	2019	2020		2020	2020
	(Restated)	(Restated)	RMB	US\$	%	%
	RMB	RMB	(in millions, except percentage)			
Revenue						
<i>Alumina:</i>						
External sales	14,758.4	14,326.6	12,945.2	1,983.9	5.0	7.0
Inter-segment sales	29,392.5	29,573.4	29,436.9	4,511.4	11.4	
Total	44,150.9	43,900.0	42,382.1	6,495.3	16.5	
<i>Primary aluminum:</i>						
External sales	41,344.3	37,394.6	40,430.6	6,196.3	15.7	21.7
Inter-segment sales	12,457.9	11,694.4	11,458.6	1,756.1	4.5	
Total	53,802.2	49,089.0	51,889.2	7,952.4	20.2	
<i>Trading</i>						
External sales	116,757.0	131,058.5	125,334.2	19,208.3	48.7	67.4
Inter-segment sales	25,775.9	27,877.2	30,058.1	4,606.6	11.7	
Total	142,532.9	158,935.7	155,392.3	23,814.9	60.4	
<i>Energy</i>						
External sales	7,037.0	7,109.8	6,940.4	1,063.7	2.7	3.7
Inter-segment sales	198.3	236.1	243.8	37.4	0.1	
Total	7,235.3	7,345.9	7,184.2	1,101.0	2.8	
<i>Corporate and others</i>						
External sales	454.2	325.9	343.8	52.7	0.1	0.2
Inter-segment sales	213.0	167.1	105.8	16.2	<0.1	
Total	667.2	493.0	449.6	68.9	0.2	
Total Revenues before inter-segment eliminations	248,388.5	259,763.6	257,297.4	3,9432.6	100	
Eliminations of inter-segment sales	(68,037.6)	(69,548.2)	(71,303.2)	(10,927.7)	(27.7)	
Consolidated total revenues	180,350.9	190,215.4	185,994.2	28,504.9	72.3	100.0

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The following table sets forth segment results before income tax by segment for the periods indicated:

	Year Ended December 31,			
	2018	2019	2020	2020
	<i>RMB</i>	<i>RMB</i>	<i>RMB</i>	<i>US\$</i>
	<i>(in millions)</i>			
<i>Alumina:</i>				
Revenues	44,150.9	43,900.0	42,382.1	6,495.3
Cost and expenses ⁽¹⁾	(40,654.5)	(43,055.2)	(40,954.8)	(6,276.6)
Segment results⁽²⁾	3,496.4	844.8	1,427.3	218.7
<i>Primary aluminum:</i>				
Revenues	53,802.2	49,089.0	51,889.2	7,952.4
Cost and expenses ⁽¹⁾	(54,731.5)	(48,401.8)	(49,866.0)	(7,642.3)
Segment results⁽²⁾	(929.3)	687.2	2,023.2	310.1
<i>Trading:</i>				
Revenues	142,532.9	158,935.7	155,392.3	23,814.9
Cost and expenses ⁽¹⁾	(141,784.4)	(157,977.7)	(154,836.4)	(23,729.7)
Segment results⁽²⁾	748.5	958.0	555.9	85.2
<i>Energy:</i>				
Revenues	7,235.3	7,345.9	7,184.2	1,101.0
Cost and expenses ⁽¹⁾	(7,209.3)	(6,942.4)	(7,261.4)	(1,112.9)
Segment results⁽²⁾	26.0	403.5	(77.2)	(11.8)
<i>Corporate and others</i>				
Revenues	667.2	493.0	449.6	68.9
Cost and expenses ⁽¹⁾	(1,934.3)	(1,480.7)	(2,154.80)	(337.1)
Segment results⁽²⁾	(1,267.1)	(987.7)	(1,705.2)	(268.2)
Elimination ⁽³⁾	198.0	213.2	(68.8)	(10.5)
Total profit before income tax	2,272.5	2,119.0	2,155.2	330.3

- (1) Consist of cost of sales, operating expenses, other income, other gains, finance income, finance costs and others attributable to each segment.
- (2) Segment results refer to profit before income tax.
- (3) Elimination refers to the aggregate inter-segment eliminations of segment results of each segment.

Year Ended December 31, 2020 Compared with Year Ended December 31, 2019

Alumina Segment

Revenues. Total revenue generated by the alumina segment decreased by 3.5% from RMB43,900.0 million for the year ended December 31, 2019 to RMB42,382.1 million for the year ended December 31, 2020, primarily due to the year-on-year decrease in the price of alumina.

Revenue from external sales of the alumina segment decreased by 9.6% from RMB14,326.6 million for the year ended December 31, 2019 to RMB12,945.2 million for the year ended December 31, 2020, primarily due to the year-on-year decrease in the price of alumina.

Revenue from inter-segment sales of the alumina segment slightly decreased by 0.5% from RMB29,573.4 million for the year ended December 31, 2019 to RMB29,436.9 million for the year ended December 31, 2020, primarily due to a decrease by 10.2% in the internal sale price of our self-produced alumina in 2020 as compared to that in 2019, partially offset by an increase by 3.4% in the volume of our self-produced alumina supplied with our own smelters in 2020 as compared to that in 2019.

Cost and expenses. The total cost and expenses for our alumina segment decreased by 4.9% from RMB43,055.2 million for the year ended December 31, 2019 to RMB40,954.8 million for the year ended December 31, 2020, primarily due to the decrease in the cost of alkali used in the alumina refining.

Segment results. The segment profit for our alumina segment increased by 69.0% from RMB844.8 million for the year ended December 31, 2019 to RMB1,427.3 million for the year ended December 31, 2020, primarily due to the decrease in the cost of alkali used in the alumina refining.

Primary Aluminum Segment

Revenues. Total revenue generated by the primary aluminum segment increased by 5.7% from RMB49,089.0 million for the year ended December 31, 2019 to RMB51,899.2 million for the year ended December 31, 2020, primarily due to the increase in the price of primary aluminum.

Revenue from external sales of the primary aluminum segment increased by 8.1% from RMB37,394.6 million for the year ended December 31, 2019 to RMB40,430.6 million for the year ended December 31, 2020, primarily due to an increase by 2.2% in the average external selling prices for our self-produced primary aluminum and the increase by 35.5% in the sales volume of carbon anodes in 2020, as compared to those in 2019.

Revenue from inter-segment sales of primary aluminum segment decreased by 2.0% from RMB11,694.4 million for the year ended December 31, 2019 to RMB11,458.6 million for the year ended December 31, 2020, remaining relatively stable.

Cost and expenses. The total cost and expenses for our primary aluminum segment increased by 3.0% from RMB48,401.8 million for the year ended December 31, 2019 to RMB49,866.0 million for the year ended December 31, 2020, primarily due to the decrease by approximately RMB260 million in the gains derived from disposal of capacity quotas of primary aluminum in 2020 and the increase by 35.5% in the sales volume of carbon anodes in 2020, as compared to that in 2019.

Segment results. We had a segment profit of RMB2,023.2 million for the year ended December 31, 2020, increasing significantly from a segment profit of RMB687.2 million for the year ended December 31, 2019. This was mainly due to the increase in the price of primary aluminum.

Trading Segment

Revenues. Total revenue generated by the trading segment decreased by 2.2% from RMB158,935.7 million for the year ended December 31, 2019 to RMB155,392.3 million for the year ended December 31, 2020, primarily due to the decrease by 70.3% in revenue from external trading of zinc ingots and the decrease by 51.7% in revenue from external trading of coking coal in 2020, as compared to those in 2019, partially offset by the increase by 15.1% in revenue from external trading of aluminum ingots in 2020, as compared to that in 2019.

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Revenue from external sales of the trading segment decreased by 4.4% from RMB131,058.5 million for the year ended December 31, 2019 to RMB125,334.2 million for the year ended December 31, 2020, primarily due to the decrease by 70.3% in revenue from external trading of zinc ingots and the decrease by 51.7% in revenue from external trading of coking coal in 2020, as compared to those in 2019, partially offset by the increase by 15.1% in revenue from external trading of aluminum ingots in 2020, as compared to that in 2019.

Revenue from internal sales of the trading segment increased by 7.8% from RMB27,877.2 million for the year ended December 31, 2019 to RMB30,058.1 million for the year ended December 31, 2020, primarily due to the increase in the internal trading of alumina and bauxite.

Cost and expenses. The total cost and expenses for our trading segment decreased by 2.0% from RMB157,977.7 million for the year ended December 31, 2019 to RMB154,836.4 million for the year ended December 31, 2020, primarily due to the decrease by 70.7% in the cost for trading of zinc ingots and the decrease by 58.4% in the cost for trading of coking coal in 2020, as compared to those in 2019, partially offset by the increase by 16.2% in the cost for trading of aluminum ingots in 2020, as compared to that in 2019.

Segment results. Our segment profit decreased by 42.0% from RMB958.0 million for the year ended December 31, 2019 to RMB555.9 million for the year ended December 31, 2020. This was mainly due to the decrease in the import volume of coking coal as affected by the COVID-19 pandemic.

Energy Segment

Revenues. Total revenue generated by the energy segment decreased by 2.2% from RMB7,345.9 million for the year ended December 31, 2019 to RMB7,184.2 million for the year ended December 31, 2020, primarily due to the decrease in coal prices.

Revenue from external sales of the energy segment decreased by 2.4% from RMB7,109.8 million for the year ended December 31, 2019 to RMB6,940.4 million for the year ended December 31, 2020, primarily due to the decrease in coal prices.

Revenue from internal sales of the energy segment increased from RMB236.1 million for the year ended December 31, 2019 to RMB243.8 million for the year ended December 31, 2020, remaining relatively stable.

Cost and expenses. The total cost and expenses for our energy segment increased by 4.6% from RMB6,942.4 million for the year ended December 31, 2019 to RMB7,261.4 million for the year ended December 31, 2020, primarily because we had gains on disposal of associates while we did not have such disposal in 2020.

Segment results. We recorded a segment loss of RMB77.2 million for the year ended December 31, 2020, whereas we had a segment profit of RMB403.5 million for the year ended December 31, 2019. This was primarily due to the decrease in the price of the coal during the year. In addition, we had gains on disposal of associates in 2019 while we did not have such disposal in 2020.

Corporate and Other Operating Segment

Revenues. Revenue from the corporate and other operating segment decreased by 8.8% from RMB493.0 million for the year ended December 31, 2019 to RMB449.6 million for the year ended December 31, 2020, primarily due to the decrease in business of an engineering company in this segment.

Segment results. We recorded a segment loss of RMB1,705.2 million for the year ended December 31, 2020, representing an increase of 77.2% from a segment loss of RMB987.7 million for the year ended December 31, 2019. This was mainly because we had gains from our investment in Yunnan Aluminum and Yixin Aluminum in 2019 and we made provision for impairment losses of certain long aging receivables in 2020.

Year Ended December 31, 2019 Compared with Year Ended December 31, 2018

Alumina Segment

Revenues. Total revenue generated by the alumina segment slightly decreased from RMB44,150.9 million for the year ended December 31, 2018, to RMB43,900.0 million for the year ended December 31, 2019, primarily due to the decrease in the sales prices of the external sales of alumina.

Revenue from external sales of the alumina segment decreased by 2.9% from RMB14,758.4 million for the year ended December 31, 2018, to RMB14,326.6 million for the year ended December 31, 2019, primarily due to the decrease in the sales prices of the external sales of alumina.

Revenue from inter-segment sales of the alumina segment remained stable from RMB29,392.5 million for the year ended December 31, 2018, to RMB29,573.4 million for the year ended December 31, 2019.

Cost and expenses. The total cost and expenses for our alumina segment increased by 5.9% from RMB40,654.5 million for the year ended December 31, 2018, to RMB43,055.2 million for the year ended December 31, 2019, primarily due to the increase in costs of bauxite as we procured more bauxite from external suppliers in 2019 and the losses from disposal of production facilities in Guizhou branch.

Segment results. The segment profit for our alumina segment decreased by 75.8% from RMB3,496.4 million for the year ended December 31, 2018 to RMB844.8 million for the year ended December 31, 2019, primarily due to the increases in cost and expenses resulting from the increase in costs of bauxite as we procured more bauxite from external suppliers in 2019 and the losses from disposal of production facilities in Guizhou branch.

Primary Aluminum Segment

Revenues. Total revenue generated by the primary aluminum segment decreased by 8.8% from RMB53,802.2 million for the year ended December 31, 2018, to RMB49,089.0 million for the year ended December 31, 2019, primarily due to the decrease in output of primary aluminum as a result of production suspension of Shandong Huayu and production termination of Shanxi Huasheng.

Revenue from external sales of the primary aluminum segment decreased by 9.6% from RMB41,344.3 million for the year ended December 31, 2018, to RMB37,394.6 million for the year ended December 31, 2019, primarily due to the decrease in trading volume for external sales of primary aluminum as a result of production suspension of Shandong Huayu and production termination of Shanxi Huasheng.

Revenue from inter-segment sales of primary aluminum segment decreased by 6.1% from RMB12,457.9 million for the year ended December 31, 2018, to RMB11,694.4 million for the year ended December 31, 2019, primarily due to the decrease in trading volume for internal sales of primary aluminum as a result of production suspension of Shandong Huayu and production termination of Shanxi Huasheng.

Cost and expenses. The total cost and expenses for our primary aluminum segment decreased by 11.6% from RMB54,731.5 million for the year ended December 31, 2018, to RMB48,401.8 million for the year ended December 31, 2019, primarily due to the production suspension of Shandong Huayu and production termination of Shanxi Huasheng.

Segment results. We had a segment profit of RMB687.2 million for the year ended December 31, 2019, whereas we incurred a segment loss of RMB929.3 million for the year ended December 31, 2018. This was mainly due to the decreases in prices of carbon anodes and alumina used under the primary aluminum segment in 2019 by 11.5% and 4.5%, respectively, in comparison with 2018.

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Trading Segment

Revenues. Total revenue generated by the trading segment increased by 11.5% from RMB142,532.9 million for the year ended December 31, 2018 to RMB158,935.7 million for the year ended December 31, 2019, primarily due to the increases in trading volumes for external sales of outsourced primary aluminum, alumina and charred coal in 2019 by 159.2%, 119.8% and 40.0%, respectively, in comparison with 2018, partially offset by the decrease in trading volume of other non-ferrous metal products, such as copper and zinc.

Revenue from external sales of the trading segment increased by 12.2% from RMB116,757.0 million for the year ended December 31, 2018 to RMB131,058.5 million for the year ended December 31, 2019, primarily due to the increases in trading volumes for external sales of outsourced primary aluminum, alumina and charred coal in 2019 by 159.2%, 119.8% and 40.0%, respectively, in comparison with 2018, partially offset by the decrease in trading volume of other non-ferrous metal products, such as copper and zinc.

Revenue from internal sales of the trading segment increased by 8.2% from RMB25,775.9 million for the year ended December 31, 2018 to RMB27,877.2 million for the year ended December 31, 2019, primarily due to the increase in internal sales of bauxite as we imported more bauxite from suppliers overseas in 2019.

Cost and expenses. The total cost and expenses for our trading segment increased by 11.4% from RMB141,784.4 million for the year ended December 31, 2018 to RMB157,977.7 million for the year ended December 31, 2019, primarily due to the increases in trading volumes for external sales of outsourced primary aluminum, alumina and charred coal in 2019 by 159.2%, 119.8% and 40.0%, respectively, in comparison with 2018, partially offset by the decrease in trading volume of other non-ferrous metal products, such as copper and zinc.

Segment results. Our segment profit increased by 28.0% from RMB748.5 million for the year ended December 31, 2018 to RMB958.0 million for the year ended December 31, 2019. This was mainly due to the increase in trading volume of charred coal, which is of a relatively high gross profit margin.

Energy Segment

Revenues. Total revenue generated by the energy segment increased by 1.5% from RMB7,235.3 million for the year ended December 31, 2018 to RMB7,345.9 million for the year ended December 31, 2019, remaining relatively stable.

Revenue from external sales of the energy segment increased by 1.0% from RMB7,037.0 million for the year ended December 31, 2018 to RMB7,109.8 million for the year ended December 31, 2019, remaining relatively stable.

Revenue from internal sales of the energy segment increased by 19.1% from RMB198.3 million for the year ended December 31, 2018 to RMB236.1 million for the year ended December 31, 2019, primarily due to increased sales of bauxite from a subsidiary in the energy segment to a company in the alumina segment.

Cost and expenses. The total cost and expenses for our energy segment decreased by 3.7% from RMB7,209.3 million for the year ended December 31, 2018 to RMB6,942.4 million for the year ended December 31, 2019, primarily due to the increases of share of profits of joint ventures and gains on disposal of associates, partially offset by the increase in the costs of coal.

Segment results. Our segment profit increased significantly from RMB26.0 million for the year ended December 31, 2018 to RMB403.5 million for the year ended December 31, 2019. This was mainly because the increases of share of profits of joint ventures and gains on disposal of associates, partially offset by the increase in the costs of coal.

Corporate and Other Operating Segment

Revenues. Revenue from the corporate and other operating segment decreased by 26.1% from RMB667.2 million for the year ended December 31, 2018 to RMB493.0 million for the year ended December 31, 2019, primarily due to decrease in maintenance service provided to primary aluminum enterprises resulting from the production suspension of Shandong Huayu and the production termination of Shanxi Huasheng.

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Segment results. Our segment loss decreased by 22.1% from RMB1,267.1 million for the year ended December 31, 2018 to RMB987.7 million for the year ended December 31, 2019. This was mainly because the increase in gains from our investment in Yunnan Aluminum and Yixin Aluminum.

B. Liquidity and Capital Resources

Historically, our primary sources of funding have been cash generated from operating activities, prepayments and deposits from customers, bank and other loans and proceeds from equity or notes and bonds offerings. Our primary uses of funds have been working capital for production, capital expenditures and repayments of short-term, medium-term and long-term borrowings.

As of December 31, 2020, our current assets amounted to RMB46,203.7 million, representing a decrease of 5.1% from RMB48,701.5 million as of December 31, 2019, primarily due to the decrease in the wealth management products held by us. As of December 31, 2020, our restricted cash and time deposits and cash and cash equivalents balance amounted to RMB10,687.2 million, representing an increase of 17.6% from RMB9,084.6 million as of December 31, 2019. As of December 31, 2020, our trade and notes receivable amounted to RMB9,293.2 million, representing an increase of 25.3% from RMB7,419.2 million as of December 31, 2019.

As of December 31, 2020, our current liabilities amounted to RMB62,627.2 million, representing a decrease of 9.5% from RMB69,203.1 million as of December 31, 2019. This is mainly due to our effort to optimize the maturity profile of the liabilities and minimize the scale of short-term bonds.

As of December 31, 2020, our net current liabilities amounted to RMB16,423.5 million, representing a decrease of 19.9% from RMB20,501.6 million as of December 31, 2019. As of December 31, 2020, our current ratio (current assets/current liabilities) was 0.74, compared with 0.70 as of December 31, 2019. Our quick ratio ((current assets - inventories - prepayments)/current liabilities) was 0.41 as of December 31, 2020, remained relatively stable compared to that as of December 31, 2019.

We have considered our available sources of funds as follows:

- Our expected net cash inflows from operating activities in 2021;
- As of December 31, 2020, we had total banking facilities of approximately RMB207,605 million, of which RMB51,287 million had been utilized and unutilized banking facilities amounted to RMB156,318 million as of December 31, 2020, among which, banking facilities of approximately RMB130,371 million will be subject to renewal during the next 12 months from January 1, 2021. We are confident that all banking facilities can be renewed upon their expiration based on our past experience with banks and our good credit standing;
- Bond facilities registered with National Association of Financial Market Institutional Investors but not utilized; and
- Other available sources of financing from banks and other financial institutions based on our good credit history.

We believe that we have adequate resources to continue in operational existence for the foreseeable future not less than 12 months from December 31, 2020. The Board therefore continues to adopt the going concern basis in preparing these financial statements.

[Table of Contents](#)**Cash Flows and Working Capital**

The following table sets forth a condensed summary of our statement of cash flows for the periods indicated:

	Year Ended December 31,			
	2018	2019	2020	2020
	(Restated)	(Restated)		
	RMB	RMB	RMB	US\$
	<i>(in millions)</i>			
Net cash flows generated from operating activities	13,021.7	12,491.7	14,881.3	2,280.7
Net cash flows (used in)/generated from investing activities	(5,530.7)	(13,395.8)	1,932.8	296.2
Net cash flows used in financing activities	(16,280.6)	(10,474.0)	(15,773.4)	(2,417.4)
Net increase/(decrease) in cash and cash equivalents	(8,789.6)	(11,378.1)	1,040.7	159.5

Net Cash Flows Generated from Operating Activities

For the year ended December 31, 2020, we had cash inflows after changes in working capital and adjustment for non-cash items and non-operating cash items of RMB15,678.7 million and net cash generated from operating activities of RMB14,881.3 million. The adjustment primarily consisted of non-cash and non-operating activities items such as depreciation of property, plant and equipment of RMB7,152.2 million, finance cost of RMB4,420.5 million and impairment loss of inventory of RMB1,321.4 million and outflows of RMB1,059.5 million for changes in working capital and outflows of income tax of RMB797.3 million. The outflows from changes in working capital consisted primarily of (i) an increase in trade and notes receivables of RMB3,867.9 million and (ii) an increase in inventories of RMB1,668.3 million, and partially offset by (i) an increase in trade and notes payables of RMB3,009.5 million and (ii) an increase in other payables and accrued liabilities of RMB1,879.4 million.

For the year ended December 31, 2019, we had cash inflows after changes in working capital and adjustment for non-cash items and non-operating cash items of RMB13,043.1 million and net cash generated from operating activities of RMB12,491.7 million. The adjustment primarily consisted of non-cash and non-operating activities items such as depreciation of property, plant and equipment of RMB7,100.8 million, finance cost of RMB4,921.5 million, impairment loss of inventory of RMB1,163.3 million and depreciation of right-of-use assets of RMB1,075.8 million, outflows of RMB2,546.3 million for changes in working capital and outflows of income tax of RMB551.4 million. The outflows from changes in working capital consisted primarily of (i) a decrease in trade and notes payables of RMB1,405.6 million and (ii) an increase in trade and notes receivables of RMB1,169.3 million, and partially offset by (i) a decrease in restricted cash of RMB859.5 million and (ii) a decrease in other non-current assets of RMB547.9 million.

For the year ended December 31, 2018, we had cash inflows after changes in working capital and adjustment for non-cash items and non-operating cash items of RMB13,971.8 million and net cash generated from operating activities of RMB13,021.7 million. The adjustment primarily consisted of non-cash and non-operating activities items such as depreciation of property, plant and equipment of RMB7,505.7 million and finance cost of RMB4,882.7 million, and outflows of RMB2,629.5 million for changes in working capital and outflows of income tax of RMB950.1 million. The outflows from changes in working capital consisted primarily of (i) an increase in trade and notes receivables of RMB2,559.3 million, (ii) an increase in inventories of RMB1,051.6 million and (iii) a decrease in other payables and accrued liabilities of RMB951.6 million, and partially offset by a decrease in other current assets of RMB852.9 million.

Net Cash Flows (Used in)/Generated from Investing Activities

We recorded net cash flows generated from investing activities of RMB1,932.8 million for the year ended December 31, 2020 while we recorded net cash flows used in investing activities of RMB13,395.8 million for the year ended December 31, 2019, primarily due to the decrease in the financial products held by us and the decrease in our investment in project construction. In 2018, we had net cash flows used in investing activities of RMB5,530.7 million.

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Net Cash Flows Used in Financing Activities

The net cash flows used in financing activities increased by 33.6% from RMB10,474.0 million for the year ended December 31, 2019 to RMB15,773.4 million for the year ended December 31, 2020, primarily due to the year-on-year increase in net repayment of debts by the Company during the year. Our net cash used in financing activities for the year ended December 31, 2020, consisted primarily of repayments of short-term and long-term loans of RMB43,111.5 million, repayments of bonds and notes of RMB30,638.8 million and repayment of gold leasing arrangements of RMB6,921.9 million, partially offset by drawdown of short-term and long-term loans of RMB46,021.4 million and proceeds from issuance of short-term bonds and medium-term notes (net of issuance costs) of RMB25,900.0 million.

The net cash flows used in financing activities decreased by 35.7% from RMB16,280.6 million for the year ended December 31, 2018 to RMB10,474.0 million for the year ended December 31, 2019, primarily due to the decrease in net repayment of our debts. Our net cash used in financing activities for the year ended December 31, 2019, consisted primarily of repayments of short-term and long-term loans of RMB66,105.4 million and repayments of bonds and notes of RMB22,400.0 million, partially offset by drawdown of short-term and long-term loans of RMB40,669.2 million, proceeds from issuance of short-term bonds and medium-term notes (net of issuance costs) of RMB37,974.4 million and proceeds from gold leasing arrangements of RMB6,921.9 million.

Loans and Borrowings

During the past years, we engaged in debt financing to fund our operations and business expansion. As of December 31, 2019 and 2020, our gearing ratio (net debts/total capital attributable to owners of the parent as defined in Note 37.3 to our audited consolidated financial statements) was approximately 69% and 67%, respectively.

	As of December 31,		
	2019	2020	2020
	(Restated)	2020	2020
	<i>RMB</i>	<i>RMB</i>	<i>US\$</i>
		<i>(in millions)</i>	
Short-term loans and borrowings			
Short-term bank and other loans	21,238.2	20,738.0	3,178.2
Short-term bonds, unsecured	9,331.5	2,411.3	369.5
Gold leasing arrangements	7,018.6	—	—
Current portion of lease liabilities	1,358.7	828.3	127.0
Current portion of medium-term notes	—	7,100.7	1,088.2
Current portion of long-term bank and other loans	3,339.7	3,629.0	556.2
Sub-total	42,286.7	34,707.3	5,319.1
Long-term loans and borrowings			
Lease liabilities	8,369.3	7,086.2	1,086.0
Long-term bank and other loans	38,835.9	43,014.6	6,592.3
Medium-term notes and bonds and long-term bonds and private placement notes	16,736.8	18,975.4	2,908.1
Less:			
Current portion of lease liabilities	(1,358.7)	(828.3)	(126.9)
Current portion of medium-term notes and long-term bonds	—	(7,100.7)	(1,088.2)
Current portion of long-term bank and other loans	(3,339.7)	(3,629.0)	(556.2)
Sub-total	59,243.6	57,518.2	8,815.0
Total borrowings	101,530.3	92,225.5	14,134.2
Less: Bank balances and cash	9,084.6	10,687.2	1,637.9
Net	92,445.7	81,538.3	12,496.3

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Bank and Other Loans

The weighted average annual interest rate of short-term bank and other loans for the year end December 31, 2020 was 3.46%. Our short-term bank and other loans will mature within one year.

The weighted average annual interest rate of long-term bank and other loans for the years ended December 31, 2020 was 4.9%. The following table sets forth the aggregate maturities of our outstanding long-term bank and other loans as of December 31, 2020. The following table sets forth the amounts of the contractual undiscounted cash flows:

	As of December 31, 2020	
	RMB	US\$
	(in millions)	
Within 1 year	3,629.0	556.2
Between 1 and 2 years	6,702.7	1,027.2
Between 2 and 5 years	15,638.1	2,396.6
Over 5 years	17,044.8	2,612.2
Total	43,014.6	6,592.2

As of December 31, 2020, we had secured loans of RMB10,080.0 million (including long-term and short-term loans). As of December 31, 2020, long-term loans and borrowings amounting to RMB6,888 million (current portion of RMB912 million and non-current portion of RMB5,976 million) were secured by the contractual right to charge users for electricity generated in the future and no short-term loans and borrowings were secured by letters of credit.

As of December 31, 2020, we had foreign currency denominated loans with a principal amount of RMB15 million in Japanese Yen and RMB1,312 million in U.S. dollars.

Notes and Bonds

The following table sets forth the face value, maturity, effective interest rate and outstanding amount of our outstanding long-term bonds and medium-term notes as of December 31, 2020:

	Face value/maturity	Effective interest rate	December 31, 2020
	(RMB in thousands)		
2018 Medium-term notes	2,000,000/2021	5.84%	1,998,802
2019 Medium-term bonds	2,000,000/2024	4.31%	1,985,264
2018 Medium-term bonds	1,100,000/2021	4.66%	1,099,284
2018 Medium-term bonds	900,000/2023	5.06%	898,807
2018 Medium-term bonds	1,400,000/2021	4.30%	1,398,160
2018 Medium-term bonds	1,600,000/2023	4.57%	1,597,071
2019 Medium-term bonds	2,000,000/2022	3.84%	1,999,196
2019 Medium-term bonds	1,000,000/2022	3.50%	1,997,265
2019 Medium-term bonds	900,000/2023	4.99%	999,623
2020 Medium-term bonds	900,000/2023	3.04%	897,972
2020 Medium-term bonds	500,000/2025	3.31%	499,853
2020 Medium-term bonds	1,000,000/2023	3.07%	999,617
2018 Hong Kong Medium-term bonds	2,785,840/2021	5.25%	2,604,465
Total			18,975,379

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The following table sets forth face value, maturity, effective interest rate and outstanding amount of our outstanding short-term bonds as of December 31, 2020:

	Face value /maturity	Effective interest rate	December 31, 2020
		<i>(RMB in thousands)</i>	
Short-term bonds	500,000/2021	1.40%	501,781
Short-term bonds	1,000,000/2021	2.30%	1,002,925
Short-term bonds	500,000/2021	1.20%	500,553
Short-term bonds	400,000/2021	2.46%	405,997
Total			2,411,256

Senior Perpetual Capital Securities

Please refer to “Item 4. Information on the Company - A. History and Development of the Company - Senior Perpetual Capital Securities Offering” for further details.

Restriction on Cash Dividends

Our PRC subsidiaries are required to set aside a certain amount of their retained profits each year, if any, to fund certain statutory reserves and these reserves may not be distributed as cash dividends. In addition, when our subsidiaries incur debts on their own behalf, the instruments governing the debt may restrict their ability to pay dividends or make other distributions to us. Our directors are of the view that we will continue to be able to meet our borrowing payment obligations as they fall due from cash generated from our operating activities.

Capital Expenditures and Capital Commitments

The following table sets forth our capital expenditures for the years ended 2018, 2019 and 2020, and the capital expenditures of each segment as a percentage of our total capital expenditures for the periods indicated:

	Year Ended December 31					
	2018		2019		2020	
	<i>RMB</i>	%	<i>RMB</i>	%	<i>RMB</i>	%
	<i>(in millions, except percentage)</i>					
Alumina	2,663.0	29.2	6,799.4	56.9	2,319.4	50.1
Primary aluminum	4,603.3	50.4	3,330.7	28.3	1,072.6	23.2
Trading	103.5	1.1	134.7	1.1	329.4	7.1
Energy	1,613.2	17.7	1,449.6	12.3	881.8	19.1
Corporate and others	144.0	1.6	166.0	1.4	25.4	0.5
Total	9,127.1	100.0	11,780.4	100.0	4,628.7	100.0

In 2020, we spent approximately RMB4,628.7 million of our capital expenditures (excluding equity interest investments) primarily in investments in construction, transformation and upgrading of projects, energy saving and consumption reduction, environmental governance, resources acquisition and technological research and development. Our total capital expenditure decreased by 60.7% from 2019 to 2020, primarily due to the completion of most of our material projects in 2020.

We expect our estimated capital expenditures in 2021 to be a total of approximately RMB4.1 billion, primarily for infrastructure and technology upgrading.

As of December 31, 2020, our Group’s contractual but not provided capital commitment to fixed assets investment amounted to RMB1,437.4 million.

As of December 31, 2020, our commitments to make capital contribution to our associates and joint ventures amounted to RMB761.8 million, comprised of the capital contributions of RMB400 million to Chinalco Overseas Development Co., Ltd., RMB320 million to Yunnan Aluminum, RMB8 million to Loudi Zhongyu New Materials Co., Ltd., RMB6 million to Chalco Tendering Company Limited and RMB28 million to Shanxi Qinlv Taiyue New Materials Co., Ltd., respectively.

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We expect to use primarily operating cash flow in meeting such commitments with the shortfall to be satisfied by proceeds of bank loans, short-term and long-term bonds and medium-term notes.

C. Research and Development

For the years ended December 31, 2018, 2019 and 2020, we have had a department responsible for organizing and coordinating the research and development efforts of the Company, and the Zhengzhou Institute, the only professional research institute in China dedicated to the research and development of aluminum smelting technologies, has been responsible for taking the lead in the research and development of important and key technologies for our operations and providing technology services for our plants. The technology centers at our plants focus on providing solutions for specific issues of each plant and applying our developed technologies. Each of the plants also has opportunities to participate in operational testing and pilot industrialization relating to research and development of important and key technologies. We also collaborate with universities and other research institutions in China on some of our complicated projects.

D. Trend Information

Other than as disclosed elsewhere in this annual report, we are not aware of any trends, uncertainties, demands, commitments or events for the period from January 1, 2020 to December 31, 2020, that are reasonably likely to have a material effect on our revenue, profitability, liquidity or capital resources, or that caused the disclosed financial information to be not necessarily indicative of future operating results or financial conditions.

E. Off-Balance-Sheet Arrangements

There are no off-balance sheet arrangements material to investors that have or are reasonably likely to have a current or future effect on our financial condition, our changes in financial condition, revenue or expenses, results of operations, liquidity, capital expenditures or capital resources.

F. Tabular Disclosure of Contractual Obligations

The following table summarizes our contractual obligations and commercial commitments for the periods indicated as of December 31, 2020:

	Payment due by period				
	Total	Within 1 year	1 to 2 years (RMB in millions)	2 to 5 years	Thereafter
Lease liabilities, including current portion	12,597.2	1,151.3	473.4	1,263.8	9,708.7
Long-term bank and other loans, including current portion	43,014.6	3,629.0	6,702.7	15,638.1	17,044.8
Medium-term notes and bonds, including current portion	19,010.0	7,110.0	3,000.0	6,900.0	2,000.0
Short-term bonds	2,400.0	2,400.0	—	—	—
Gold leasing arrangement	—	—	—	—	—
Short-term bank and other loans	20,738.0	20,738.0	—	—	—
Interest payables for loans and borrowings	11,126.4	2,935.4	2,105.8	4,046.1	2,039.1
Financial liabilities at fair value through profit or loss	26.7	26.7	—	—	—
Financial liabilities included in other payables and accrued liabilities, excluding accrued interest	8,454.1	8,454.1	—	—	—
Financial liabilities included in other non-current liabilities	1,036.9	—	194.6	74.4	767.9
Trade and notes payables	15,440.9	15,440.9	—	—	—
Subtotal	133,844.8	61,885.4	12,476.6	27,922.4	31,560.5
Capital commitments on property, plant and equipment	1,437.4	N/A	N/A	N/A	N/A
Commitments for capital contribution	761.8	N/A	N/A	N/A	N/A
Total	2,199.2				

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G. Safe Harbor

See “Forward-Looking Statements” at the beginning of this annual report.

Item 6. Directors, Senior Management and Employees

A. Directors and Senior Management

Directors

The seventh session of our Board currently consists of six directors, including one executive director, two non-executive directors and three independent non-executive directors. In accordance with our Articles of Association, our affairs are managed by our Board. The business address of each of our directors is No. 62 North Xizhimen Street, Hai Dian District, Beijing, People’s Republic of China, 100082.

We follow our home country practice in relation to the composition of our Board in reliance on the exemption provided under Section 303A.00 of the NYSE Corporate Governance Rules available to foreign private issuers. Our home country practice does not require a majority of directors of a listed company to be independent directors. As such, the majority of our directors are not independent within the meaning of NYSE Corporate Governance Rules.

The table and discussion below set forth information concerning our directors who served on our Board during the year ended December 31, 2020, and up to date of this annual report.

Name	Age	Positions with the Company
Executive Directors⁽¹⁾		
Lu Dongliang ⁽²⁾	47	Executive Director and Chairman of the Board (resigned)
He Zhihui ⁽³⁾	58	Executive Director and President (resigned)
Jiang Yinggang ⁽⁴⁾	57	Executive Director and Senior Vice President (passed away)
Zhu Runzhou ⁽⁵⁾	56	Executive Director and President
Non-executive Directors⁽⁶⁾		
Ao Hong ⁽⁷⁾	59	Non-executive Director and Acting Chairman
Wang Jun	55	Non-executive Director
Independent Non-executive Directors⁽⁸⁾		
Chen Lijie	66	Independent Non-executive Director
Hu Shihai	66	Independent Non-executive Director
Lie-A-Cheong Tai Chong, David	61	Independent Non-executive Director

- (1) As of the date of this annual report, we had one executive director.
- (2) On May 14, 2020, Mr. Lu Dongliang resigned from the positions of the chairman of the Board and the executive director of the Company and from all other positions in each of the special committees under the Board.
- (3) On October 21, 2020, Mr. He Zhihui resigned from an executive director and president of the Company and from all other positions in each of the special committees under the Board.
- (4) On August 31, 2020, Mr. Jiang Yinggang passed away due to illness.
- (5) On October 21, 2020, the appointment of Mr. Zhu Runzhou as the president of the Company and the resignation of Mr. Zhu Runzhou as a vice president of the Company were approved at the 11th meeting of the seventh session of the Board.
- (6) As of the date of this annual report, we had two non-executive directors.
- (7) On May 14, 2020, due to the resignation of Mr. Lu Dongliang, the Board unanimously recommended Mr. Ao Hong as the acting chairman until the election of a new chairman of the Board.
- (8) As of the date of this annual report, we had three independent non-executive directors.

Executive Director

Zhu Runzhou, aged 56, is currently an executive director and president of the Company. Mr. Zhu graduated from Wuhan University, majoring in software engineering, with a master's degree in engineering. He is a professor-level senior engineer. Mr. Zhu successively served as the deputy chief engineer of Gansu Jingyuan Power Plant, the chairman of Baiyin Huadian Water Supply Co., Ltd., head of Guodian Guizhou Kaili Power Plant, director of the preparatory office of the technical transformation program of Guodian in Duyun City, deputy general manager of Guodian Guizhou Branch, deputy general manager of Guodian Yunnan Branch and general manager of Guodian Power Xuanwei Power Generation Co., Ltd., general manager of Guodian Guangxi Branch, deputy general manager of the energy management department of the Company and deputy general manager of Chalco Energy, a director, general manager and chairman of Ningxia Energy, and the general manager of Chalco Xinjiang Aluminum Power Co., Ltd, and an executive director and vice president of the Company.

Non-Executive Directors

Ao Hong, aged 59, is currently an acting chairman and a legal representative of the Company and a non-executive director of the Company. Mr. Ao graduated from Central South University with a doctoral degree in management science and engineering. He is a professor-grade senior engineer with over 30 years of work experience in enterprises of non-ferrous metals industry. He successively served as the deputy dean of Beijing General Research Institute for Non-ferrous Metals and concurrently the chairman of GRINM Semiconductor Materials Co., Ltd., the chairman of Guorui Electronics Co., Ltd., the chairman of Guo Jing Micro-electronic Holding, Limited in Hong Kong, a deputy general manager of Chinalco. He also successively served as the chairman of the supervisory committee of the Company, chairman of the labor union of Chinalco, the dean of Chinalco Research Institute of Science and Technology and the chairman of China Rare Earth Co., Ltd. and an executive director and the president of the Company. Mr. Ao is currently also a director and the full-time deputy secretary of the Communist Party Committee of Chinalco.

Wang Jun, aged 55, is currently a non-executive director of the Company. Graduated from Huazhong Institute of Engineering with a degree of industrial and civil construction, he is an engineer. He has extensive experience in financial and corporate management. Mr. Wang formerly served as an engineer in the engineering department of Babcock & Wilcox Beijing Company Ltd., deputy manager of the real estate development department of China Yanxing Company, senior deputy manager of the equity management department, and senior manager of the business management department, senior manager, deputy general manager and general manager of the custody and settlement department in China Cinda Asset Management Co., Ltd. and general manager of the equity management department of China Cinda Asset Management Co. Ltd. Mr. Wang currently serves as the business director of China Cinda Asset Management Co., Ltd. Mr. Wang also serves as a director of China Nuclear Engineering Corporation Limited currently.

Independent Non-Executive Directors

Chen Lijie, aged 66, is currently an independent non-executive director of the Company. Ms. Chen graduated from Renmin University of China Law School and obtained a doctoral degree in Laws. Ms. Chen Lijie has more than 30 years of experience in laws. She acted as director and deputy director of Commercial Affairs of the Office of Legislative Affairs of the State Council, deputy director of Department of Policies and Laws of the National Economic and Trade Commission, patrol officer of Bureau of Policies, Laws and Regulations of SASAC and chief legal consultant of China Mobile Communications Corporation. Ms. Chen is currently also an independent director of Beijing Empyrean Software Co., Ltd.

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Hu Shihai, aged 66, is currently an independent non-executive director of the Company. Mr. Hu graduated from Shanghai Jiao Tong University majoring in thermal energy engineering. He is a professor-level senior engineer with more than 40 years of working experience in the power industry. Mr. Hu has extensive experience in corporate management and technical management and successively served as the supervisor, director and deputy head of the Huaneng Shanghai Shidongkou No. 2 Power Plant, deputy director of the preparatory office of the Shanghai Waigaoqiao No. 2 Power Plant, manager of the production department and assistant to the general manager of Huaneng Power International, Inc. and assistant to the general manager and director of the safety production department, and chief engineer of China Huaneng Group.

Lie-A-Cheong Tai Chong, David, aged 61, honored with the Silver Bauhinia Star (SBS), Officier de l'Ordre National du Merite and Justice of Peace. Mr. Lie is currently an independent non-executive director of the Company. Mr. Lie is the executive chairman of Newpower International (Holdings) Co., Ltd. and China Concept Consulting Ltd. He was selected as a member of the National Committee of the 8th, 9th, 10th, 11th and 13th Chinese People's Political Consultative Conference since 1993. From 2007 to 2013, he acted as a panel convener cum member of the Financial Reporting Review Panel of Hong Kong Special Administrative Region ("HKSAR"). Mr. Lie is currently the honorary consul of the Hashemite Kingdom of Jordan in the HKSAR, the chairman of the Hong Kong-Taiwan Economic and Cultural Cooperation and Promotion Council, a member of the Commission on Strategic Development of the HKSAR, a standing committee member of the China Overseas Friendship Association, and a member of the Hong Kong General Chamber of Commerce (HKGCC). Currently, Mr. Lie is also an independent non-executive director of Herald Holdings Limited and Harbour Centre Development Limited, both of which are listed companies in Hong Kong.

Supervisors

Our supervisors are elected to represent our employees and shareholders and serve a term of three years or until the election of their respective successors, whichever is earlier. Our supervisors currently comprise Mr. Ye Guohua, Ms. Shan Shulan, Mr. Guan Xiaoguang and Mr. Yue Xuguang.

The table and discussion below set forth certain information concerning our supervisors who served on our supervisory committee during the year ended December 31, 2020, and up to the date of this annual report.

Name ⁽¹⁾	Age	Positions with the Company
Ye Guohua	52	Chairman of Supervisory Committee
Shan Shulan	49	Supervisor
Ou Xiaowu ⁽²⁾	56	Supervisor (resigned)
Guan Xiaoguang	50	Supervisor
Yue Xuguang	57	Supervisor

(1) As of the date of this annual report, we had four supervisors.

(2) On October 22, 2020, Mr. Ou Xiaowu resigned as a supervisor of the Company.

Ye Guohua, aged 52, is currently the chairman of the supervisory committee of the Company. Mr. Ye graduated from Shanghai University of Finance and Economics, majoring in accounting, with a bachelor's degree in economics and is a senior accountant. Mr. Ye has extensive experience in financial management and accounting. He successively served as the director of accounting department of the refinery of Shanghai Gaoqiao Petrochemical Company, the deputy chief accountant and head of accounting department of Sinopec Shanghai Gaoqiao Branch, the chief financial officer, executive director, a member of the Party Committee, deputy general manager of Sinopec Shanghai Petrochemical Company Limited, the director of accounting department of China Petroleum & Chemical Group Corporation, the chairman of Century Bright International Investment Company, the chairman of Sinopec Insurance Limited, the vice chairman of Taiping & Sinopec Financial Leasing Co., Ltd., a director of Sinopec Finance Co., Ltd., and a director of Sinopec Oilfield Service Corporation. Mr. Ye is also a member of the Communist Party Committee and the chief accountant of Chinalco, and the chairman of Chinalco High-end Manufacturing Co., Ltd.

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Shan Shulan, aged 49, is currently a supervisor of the Company. Ms. Shan graduated from Beijing Institute of Light Industry, majoring in industrial corporate management, with a bachelor's degree in engineering. She is a certified public accountant and statistician. Ms. Shan has extensive experience in accounting, finance management and other fields. She successively served as an economic analyst at the economic research office of Beijing Glass Instruments Plant, the financial manager of Beijing CEMFIL Glass Fiber Co. Ltd. under Saint-Gobain in China, the financial manager for Beijing region of Carrefour (China) Co., Ltd., the financial manager for China region of Baker Hughes Centrilift, the financial manager for China region of Microsoft Research Asia (China), and the business director and deputy head of budget division and the head of budget assessment division of the finance department of Chinalco. Ms. Shan currently serves as the deputy director of the finance department of Chinalco. She also concurrently serves as a supervisor of Chinalco Innovative Development Investment Company Limited and a director of Aluminum Corporation of China Overseas Holdings Limited and China Aluminum Insurance Broker (Beijing) Co., Ltd.

Guan Xiaoguang, aged 50, is currently a supervisor of the Company and the general manager of the general affairs department of the Company. Mr. Guan holds a master's degree in business administration from Peking University. He is a senior economist with rich experience in human resources management and political work. Mr. Guan successively served as a cadre of the personnel division and deputy secretary of the Youth League Committee of the North China University of Technology, deputy secretary of the Youth League Committee of the attached agencies directly under the China Nonferrous Metals Industry Corporation, deputy director and director of the Investment Management Office of the China Nonferrous Metals Industry Association, head of business and deputy director of the office of the expert advisory committee of Chinalco, manager of the talent development and training division of the human resources department of the Company, head and deputy director of the talent development and training division of the human resources department (veteran cadre work department) of Chinalco, deputy secretary of the Party committee, chairman of the labor union and supervisor of Shandong Aluminum Co., Ltd. and deputy general manager and general manager of the president's office (the office of the Party committee (discipline inspection commission)) of the Company.

Yue Xuguang, aged 57, is currently a supervisor of the Company. Mr. Yue graduated from Kunming Institute of Technology with a bachelor degree in engineering majoring in mineral census and exploration. He is a senior economist. He has rich experience in human resources management. Mr. Yue successively served as the deputy head of the coordination division of the labor insurance bureau and the head of the labor management division of the personnel and education department of China Nonferrous Metals Industry Corporation, the deputy head of the general division of the personnel office of State Bureau of Nonferrous Metal Industry (enjoying the head-level treatment), the deputy head of the personnel department of Chinalco, the head of the labor division of the personnel department of Chinalco, the manager of the remuneration management division of the human resources department of the Company, the head of the general division of the general office of Chinalco, the manager of the general division of the capital operating department of the Company, the deputy general manager and general manager of the human resources department of the Company, the deputy head (departmental head level) of the human resources department (veteran cadre work department) of Chinalco, the secretary of the party committee and deputy general manager of Chinalco Asset Operation and Management Co., Ltd. and the general manager of the human resources department of the Company.

Senior Management

The table and discussion below set forth certain information concerning other members of senior management during the year ended December 31, 2020, and up to the date of this annual report.

Name	Age	Positions with the Company
Wu Maosen	57	Vice President
Tian Yong ⁽¹⁾	61	Vice President (resigned)
Wang Jun	50	Chief Financial Officer and Secretary to the Board

(1) Mr. Tian Yong resigned from the position of the vice president of the Company on February 27, 2020.

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Wu Maosen, aged 57, is currently a vice president of the Company. Mr. Wu graduated from Dalian Railway College with a bachelor's degree in engineering, majoring in welding technology and equipment. He is a senior engineer with excellent performance. Mr. Wu has extensive experience in corporate management. He has successively served as the deputy head of the alumina branch, the deputy head of the overhauling branch and the director of the transport department of Shanxi Aluminum Plant, the assistant to the general manager of our Shanxi branch, the deputy commander-in-chief of the engineering and construction command department of Chalco Shanxi, a deputy general manager of Shanxi Huaze, the deputy head and head of Shanxi Aluminum Plant, a director and a general manager and the secretary of the Party Committee of Qinghai Huanghe Hydropower Regeneration Aluminum Co., Ltd., the secretary of the Party Committee, an executive director and general manager of Chalco Asset Operation and Management Company and successively served as an executive director of Chalco Shanghai, an executive director and the general manager of Chalco Industrial Development Co., Ltd., the chairman of the board of Huaxi Aluminum, the chairman of the board and the general manager of Chalco Investment and Development Co., Ltd., the deputy team-leader of the team aiming at making up deficits and shaking off dilemma, transforming and upgrading of our Shanxi branch and Shanxi Aluminum Plant and the chairman and an executive director of the board of Chinalco Research Institute of Science and Technology Co., Ltd.

Wang Jun, aged 50, is currently the chief financial officer and the secretary to the Board (company secretary) of the Company. Mr. Wang obtained a master's degree in business administration from Tsinghua University. He is a senior accountant and a member of the Chartered Institute of Management Accountants (CIMA). He has also been recognized as a national top accounting leading talent. Mr. Wang has worked in grassroots units, overseas companies, listed companies and various departments of the group, and has extensive experience in financial accounting, fund management and capital operation. Mr. Wang successively served as a director, the chief financial officer and the secretary to the board of directors of China Aluminum International Engineering Corporation Limited, the deputy chief accountant, general manager of finance department and capital operating department of Chinalco and a supervisor of the Company. Mr. Wang currently also serves as a director of Chinalco Finance and a director of Aluminum Corporation of China Overseas Holdings Limited.

B. Compensation

Executive Compensation

Executive directors are entitled to a director's fee, performance bonuses and welfare benefits provided under the relevant PRC laws and regulations. Non-executive directors are entitled only to a director's fees. In 2020, the aggregate amount of cash compensation paid by us to our directors, supervisors and other members of senior management for services performed in connection with their respective capacities above was approximately RMB3.1 million, RMB1.8 million and RMB1.9 million, respectively. Our executive directors and supervisors who are employees also receive compensation in forms including allowances, subsidies and medical care, maternity, unemployment, occupational injury and other benefits. None of the service contracts of our directors provide benefits to our directors upon their termination.

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Details of the emoluments paid to our directors and supervisors during the year ended December 31, 2020 are as follows:

Name of Directors and Supervisors	Fees <i>RMB('000)</i>	Salary <i>RMB('000)</i>	Bonus <i>RMB('000)</i>	Pension <i>RMB('000)</i>	Total <i>RMB('000)</i>
Directors					
<i>Executive Directors</i>					
Lu Dongliang ⁽¹⁾	—	—	—	—	—
He Zhihui ⁽²⁾	—	866	—	37	903
Jiang Yinggang ⁽³⁾	—	562	—	31	593
Zhu Runzhou	—	894	—	44	938
<i>Non-Executive Directors</i>					
Ao Hong	—	—	—	—	—
Wang Jun ⁽⁴⁾	50	—	—	—	50
<i>Independent Non-Executive Directors</i>					
Lie-A-Cheong Tai Chong, David	211	—	—	—	211
Chen Lijie	211	—	—	—	211
Hu Shihai	211	—	—	—	211
Subtotal	683	2,322	—	112	3,117
Supervisors					
Ye Guohua	—	—	—	—	—
Ou Xiaowu ⁽⁵⁾	—	134	—	7	141
Shan Shulan	—	—	—	—	—
Guan Xiaoguang	—	770	—	44	814
Yue Xuguang	—	770	—	44	814
Subtotal	—	1,674	—	95	1,769
Total	683	3,996	—	207	4,886

- (1) On May 14, 2020, Mr. Lu Dongliang resigned from the chairman of the Board and the executive director of the Company.
- (2) On October 21, 2020, Mr. He Zhihui resigned from an executive director and president of the Company.
- (3) On August 31, 2020, Mr. Jiang Yinggang passed away due to illness.
- (4) Mr. Wang Jun issued a voluntary waiver of director's remuneration to the Company, according to which Mr. Wang voluntarily has waived his remuneration for his service as a director of the Company since May 2020.
- (5) On October 22, 2020, Mr. Ou Xiaowu resigned as a supervisor of the Company and was reassigned to the Company as the deputy secretary of the party committee and the secretary of the disciplinary committee.

Senior Management Incentive System

In order to better provide incentives for our senior management and improve our shareholders' value, we adopted a special compensation system for our senior management designed to align our senior management's financial interests with our operating performance. Under this system, the senior management's compensation consists of the following components:

- basic salaries;
- performance bonuses;
- welfare benefits; and
- incentive bonuses.

C. Board Practices

Board of Directors

All of our directors and supervisors serve a term of three years or until such later date as their successors are elected or appointed. Directors and supervisors may serve consecutive terms. Each of our directors and supervisors has entered into a service contract with us, none of which can be terminated by us within one year without payment of compensation (other than statutory compensation). There were no arrangements providing for benefits upon termination of directors, supervisors or other senior management personnel. Two of the supervisors is an employee representative appointed by our employees and the rest are appointed by the shareholders. The following table sets forth the number of years our current directors and supervisors have held their positions and the expiration of their current term.

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Name	Held Position Since	Expiration of Term
Zhu Runzhou	December 11, 2018	June 30, 2022
Ao Hong	February 13, 2018	June 30, 2022
Wang Jun	June 27, 2013	June 30, 2022
Chen Lijie	February 26, 2015	June 30, 2021
Hu Shihai	June 25, 2015	June 30, 2021
Lie-A-Cheong Tai Chong, David	December 29, 2015	June 30, 2021
Ye Guohua	December 11, 2018	June 30, 2022
Shan Shulan	February 20, 2019	June 30, 2022
Guan Xiaoguang	June 25, 2019	June 30, 2022
Yue Xuguang	December 10, 2019	June 30, 2022

Audit Committee

As at the date of this annual report, our audit committee consists of three independent non-executive directors, namely, Ms. Chen Lijie, Mr. Hu Shihai and Mr. Lie-A-Cheong Tai Chong, David. Mr. Lie-A-Cheong Tai Chong, David is the chairman of the audit committee.

The primary duties of our audit committee as set out in the committee charter include proposing to engage or replace the auditor, supervising our internal audit and its implementation, being responsible for the communication between the internal audit and external audit, auditing our financial information and its disclosure, reviewing the Company's financial control, internal control and risk management systems, studying on our other relevant professional matters, and putting forward suggestions for the decisions of the Board for reference.

Remuneration Committee

As at the date of this annual report, our remuneration committee consists of one non-executive director, namely Mr. Ao Hong, and two independent non-executive directors, namely Mr. Hu Shihai and Mr. Lie-A-Cheong Tai Chong, David. Mr. Hu Shihai is the chairman of the remuneration committee. The primary duties of our remuneration committee as set out in the committee charter include: preparing the remuneration management scheme and remuneration proposal for directors, employee-representative supervisors and senior management, and providing suggestions to the Board; preparing measures on performance evaluation of senior management, performance assessment procedures and relevant rewards and punishments, and providing suggestions to the Board; monitoring the implementation of the remuneration system of our Company; reviewing senior management's fulfilment of duties and conducting performance assessments; and other functions and authorities delegated by the Board. In 2020, the remuneration committee convened one meeting to consider and approve remuneration standards for 2020 for our directors, supervisors and other senior management members.

We follow our home country practice in relation to the composition of our remuneration committee in reliance on the exemption provided under NYSE Corporate Governance Rule 303A.00 available to foreign private issuers. Our home country practice does not require us to establish a remuneration committee which must be composed entirely of independent directors.

Nomination Committee

As at the date of this annual report, our nomination committee consists of three independent non-executive directors, namely Mr. Lie-A-Cheong Tai Chong, David, Mr. Hu Shihai and Ms. Chen Lijie. The primary duties of our nomination committee as set out in the committee charter include: studying the selection standards and procedures for directors, senior management and members of special committees under the Board and providing suggestions to the Board; reviewing the qualification of candidates for directors, senior management and members of special committees under the Board and providing advice on inspection and appointment; assessing the independence of independent non-executive directors; and other functions and authorities delegated by the Board.

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We follow our home country practice in relation to the composition of our nomination committee in reliance on the exemption provided under NYSE Corporate Governance Rule 303A.00 available to foreign private issuers. Our home country practice does not require us to establish a nomination committee which must be composed entirely of independent directors.

Development and Planning Committee

As at the date of this annual report, our development and planning committee consists of one executive director, namely Mr. Zhu Runzhou and one independent non-executive director, namely Mr. Hu Shihai. In accordance with the committee charter, the committee reviews and assesses our strategic plans for long-term development, fiscal budgeting, investment, business operations and investments returns.

Occupational Health and Safety and Environmental Committee

As at the date of this annual report, our occupational health and safety and environmental committee consists of one non-executive director, namely Mr. Wang Jun. This committee considers our annual planning on health, environmental protection and safety, supervises our implementation of the planning on health, environmental protection and safety initiatives, makes inquiries into serious incidents and inspects and supervises the handling of such incidents and makes recommendations to the Board on major decisions on health, environmental protection and safety.

Supervisory Committee

As at the date of this annual report, our supervisory committee consists of four supervisors, namely Mr. Ye Guohua and Ms. Shan Shulan as our shareholder representative supervisors and Mr. Guan Xiaoguang and Mr. Yue Xuguang as our employee representative supervisors. Mr. Ou Xiaowu was appointed as a shareholder representative supervisor in December 2019 and resigned in October 2020 due to work re-arrangement.

Mr. Ye Guohua is the chairman of our supervisory committee. The term of all members of the supervisory committee will expire upon the election of the eighth session of supervisory committee at the general meeting and employees' representatives meeting of the Company by the end of June 2022. The primary duties of our supervisory committee include: inspecting implementation of resolutions of the general meetings; inspecting legal compliance of our operations; inspecting our financial activities; inspecting the utilization of proceeds raised by us; inspecting the acquisitions and disposals of our assets; inspecting our connected transactions; and reviewing self-assessment report on internal control.

D. Employees

As of December 31, 2018, 2019 and 2020, we had 65,211, 65,507 and 63,007 employees, respectively. The number of our employees decreased from 2019 to 2020, which was mainly due to optimize staffing and normal retirement. The table below sets forth the number of our employees by function and location as of the periods indicated:

Function	As of December 31,					
	2018		2019		2020	
		(%)		(%)		(%)
Alumina production	28,038	43.00	28,437	43.41	24,485	38.86
Primary aluminum production	23,630	36.24	22,189	33.87	22,612	35.89
Mining operation	2,700	4.14	3,996	6.10	4,721	7.49
Research and development	1,024	1.57	1,101	1.68	783	1.24
Sales and marketing	548	0.84	819	1.25	643	1.02
Energy	5,997	9.20	6,017	9.19	6,833	10.84
Management and others ⁽¹⁾	3,274	5.02	2,948	4.50	2,930	4.65
Total	65,211	100.0	65,507	100.0	63,007	100.0

(1) Excluding our management personnel for alumina production, and primary aluminum production.

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Location	Employees	% of Total
<i>Shandong</i>	5,749	9.12
Chalco Shandong	5,547	8.80
Shandong Huayu	202	0.32
<i>Henan</i>	10,087	16.01
Chalco Mining	5,493	8.72
Zhongzhou Aluminum	3,935	6.25
Zhengzhou Institute	659	1.05
<i>Guizhou</i>	6,684	10.61
Guizhou Huajin	2,912	4.62
Guizhou branch	2,123	3.37
Zunyi Aluminum	814	1.29
Guizhou Huaren	835	1.33
<i>Guangxi</i>	3,310	5.25
Guangxi branch	2,642	4.19
Guangxi Huasheng	668	1.06
<i>Shanxi</i>	11,765	18.67
Shanxi branch	2,203	3.50
Shanxi Huasheng	731	1.16
Shanxi New Material	6,279	9.97
Shanxi Zhongrun	949	1.51
Shanxi Huaxing	1,098	1.74
Xinghua Technology	505	0.80
<i>Gansu</i>	5,648	8.96
Lanzhou Aluminum	2,703	4.29
Gansu Hualu	1,054	1.67
Liancheng branch	1,891	3.00
<i>Liaoning</i>	1,274	2.02
Fushun Aluminum	1,274	2.02
<i>Qinghai</i>	3,099	4.92
Qinghai branch	3,099	4.92
<i>Chongqing</i>	49	0.08
Chongqing branch	49	0.08
<i>Inner Mongolia</i>	5,562	8.83
Baotou Aluminum	5,562	8.83
<i>Ningxia</i>	5,776	9.17
Ningxia Energy	5,776	9.17
<i>Shanghai</i>	319	0.51
Chalco Shanghai	11	0.02
Chalco Trading Group	308	0.49
<i>Beijing</i>	3,070	4.87
Chalco Materials	108	0.17
Chalco Energy	63	0.10
Chalco Logistics	2,899	4.60
<i>Overseas</i>	372	0.59
Chalco Guinea Company S.A.	372	0.59
<i>Others</i>	16	0.03
<i>Headquarters</i>	227	0.36
Total	63,007	100.00

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We have workers' unions at the plant level that protect employees' rights and welfare benefits, organize educational programs, encourage employee participation in management decisions and mediate disputes between individual employees and us. All employees are union members. We have not experienced any strikes or other labor disturbances that have interfered with our operations and we believe that we maintain good relationships with our employees.

The remuneration package of our employees includes salaries, bonuses, subsidies, allowances and medical care, housing subsidies, maternity, unemployment, occupational injury, retirement pension and other benefits.

In accordance with applicable PRC regulations, we participate in pension contribution plans organized by provincial and municipal governments, under which each of our plants is required to contribute an amount equal to a specified percentage of its employees' salaries, bonuses and various allowances. As the relevant PRC authorities adjusted the social insurance rate, the amount of contribution as a percentage of the employees' salary has been adjusted to approximately 16% from approximately 20% since May 1, 2019. We have made all required pension contributions up to December 31, 2020. Retirees who retired prior to the date of the reorganization have their pensions paid out of the pension plans established by the PRC government. We provide to our employees various social welfare benefits through various institutions owned by Chinalco and its other affiliates or through third parties.

E. Share Ownership

As of the date of this annual report, none of our directors, supervisors or senior management own any interest in shares of our Company.

Item 7. Major Shareholders and Related Party Transactions

A. Major Shareholders

We are a joint stock limited company organized under the laws of the PRC. Our parent company, Chinalco, a state-owned enterprise, beneficially owns 32.16% of our outstanding ordinary Shares directly and indirectly through its controlled entities as of March 31, 2021. Chinalco holds a significant portion of our domestic shares in the form of state legal person shares, which do not have voting rights different from our other shares. Chinalco has substantial influence over our management, policies and corporate actions and can exercise all rights as our controlling shareholder subject to the relevant laws, rules and regulations. As of March 31, 2021, approximately 67.84% of our total outstanding ordinary Shares are held by public shareholders, of which 45.72% and 22.12% are owned by holders of A Shares and H Shares, respectively. The following table sets forth information regarding ownership of our issued and outstanding capital stock as of March 31, 2021. The table includes all persons who are known by us to own, either as beneficial owners or holders of record, 5% or more of any class of shares.

Holders of A Shares and H Shares ⁽¹⁾	March 31, 2021 ⁽²⁾		
	Number of shares	% of respective share class	% of issued total share capital
Chinalco ⁽³⁾			
A Shares	5,295,895,019(L) ⁽⁴⁾	40.49(L)	31.11(L)
H Shares	178,590,000(L)	4.53(L)	1.05(L)
China Life Insurance (Group) Company ⁽⁵⁾			
A Shares	671,882,629(L)	5.14(L)	3.95(L)
BlackRock, Inc. ⁽⁸⁾			
H Shares	303,988,745(L)	7.71(L)	1.79(L)
	7,688,000(S) ⁽⁶⁾	0.19(S)	0.05(S)
The Bank of New York Mellon Corporation ⁽⁹⁾			
H Shares	199,720,881(L)	5.06(L)	1.17(L)
	153,661,275(S)	3.90(S)	0.90(S)
	40,066,226(P) ⁽⁷⁾	1.02(P)	0.24(P)

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- (1) Information disclosed hereby is based on the information available on the website of the Hong Kong Stock Exchange at www.hkexnews.hk.
 - (2) As at March 31, 2021, the total number of our A Shares was 13,078,706,983, the total number of our H Shares was 3,943,965,968, and the number of our total issued shares was 17,022,672,951 shares.
 - (3) Including 5,050,376,970 A Shares directly held by Chinalco, an aggregate interest of 245,518,049 A Shares directly held by various controlled subsidiaries of Chinalco, comprising 238,377,795 A Shares held by Baotou Aluminum Group and 7,140,254 A Shares held by Chalco Shanxi Aluminum Co., Ltd. and an interest of 178,590,000 H Shares directly held by Aluminum Corporation of China Overseas Holdings Limited, a subsidiary of Chinalco.
 - (4) The letter “L” denotes a long position.
 - (5) These interests were held directly by China Life Insurance Company Limited controlled by China Life Insurance (Group) Company.
 - (6) The letter “S” denotes a short position.
 - (7) The letter “P” denotes a lending pool.
 - (8) These interests were held directly by various corporations controlled by BlackRock, Inc. Among the aggregate interests in the long position in H shares, 1,032,000 H shares were held as derivatives. Among the aggregate interests in the short position in H shares, 4,390,000 H shares were held as derivatives.
 - (9) These interests were held directly by The Bank of New York Mellon and indirectly by The Bank of New York Mellon Corporation. Among the aggregate interests in the short position in H shares, 153,661,275 H shares were held as derivatives.

We are not aware of any arrangement that may on a subsequent date result in a change of control of Chalco. We have completed the Asset Restructuring through capital contributions by several investors to our subsidiaries and subsequent issuance of additional A Shares to these investors to purchase their entire stake in these subsidiaries. On February 25, 2019, we issued to the investors approximately 2.1 billion A Shares in aggregate, representing approximately 12.45% of the enlarged total issued share capital of the Company. See “Item 4. Information on the Company - A. History and Development of the Company - Subscription of Equity Interest of Certain Subsidiaries and Subsequent Issuance of Additional A Shares” for detailed information of the Asset Restructuring. For the period from June 25, 2018 to June 24, 2019, Chinalco increased its shareholding in the Company by 160,512,964 A shares and 115,276,000 H shares on a cumulative basis, representing approximately 0.94% and 0.68% of our total issued share capital as of June 24, 2019, respectively. See “Item 4. Information on the Company - A. History and Development of the Company - Controlling Shareholder’s Shareholding Increase in the Company” for detailed information of the shareholding increase. For the period from May 22, 2020 to May 29, 2020, Chinalco increased its shareholding in the Company by 16,314,000 H shares on a cumulative basis through its subsidiary, representing approximately 0.10% of our total issued share capital as of December 31, 2020.

As of March 31, 2021, there were 44 registered holders of ADRs evidencing 6,017,656 of our ADSs.

As an owner of at least 30% of our issued and outstanding shares, the parent company is deemed a controlling shareholder and therefore may not exercise its voting rights with respect to various matters related to our shares in a manner prejudicial to the interests of our other shareholders. See “Item 10. Additional Information - B. Memorandum and Articles of Association.” In accordance with our Articles of Association, each share of our capital stock has one vote and the shares of the same class have the same rights. Other than the foregoing restrictions, the voting rights of our major holders of domestic and H Shares are identical to those of any other holders of the same class of shares. Holders of domestic shares and H Shares are deemed to be shareholders of different classes for some matters, which may affect their respective interests. Other than the foregoing, holders of H Shares and domestic shares are entitled to the same voting rights.

B. Related Party Transactions

Connected Transactions under Hong Kong Listing Rules

Under the Listing Rules, transactions between connected persons and us, or connected transactions, generally must be reported to the Hong Kong Stock Exchange, announced to the public and/or approved by shareholders unless the foregoing requirements are waived by the Hong Kong Stock Exchange or exempted under the Listing Rules. Each year our independent non-executive directors must review our non-exempt continuing transactions and confirm that these transactions have been entered into:

- (i) in the ordinary and usual course of our business;
- (ii) with the terms of the transaction being fair and reasonable as far as our shareholders are concerned;
- (iii) either on normal commercial terms or, if there are not sufficient comparable transactions to judge whether they are on normal commercial terms, on terms no less favorable to us than terms available to or from (as appropriate) independent third parties; and
- (iv) in accordance with the relevant agreement governing them on terms that are fair and reasonable and in the interests of our shareholders as a whole.

Although the definition of connected transactions is not synonymous with the definition of related party transactions, the concepts are sufficiently similar that the description of our connected transactions would satisfy disclosure requirements under U.S. securities laws.

The following table sets forth the details of our major connected transactions for the year ended December 31, 2020.

Agreement	Nature	Term/ Date of the Agreement	Transaction Amount in 2020 (RMB in millions)	Cap for 2020 (RMB in millions)
Continuing Connected Transactions				
Comprehensive Social and Logistics Services Agreement (Counterparty: Chinalco)	Chinalco provides us with a broad range of social and logistics services including education and schooling, public transportation and property management.	The original agreement was entered on November 5, 2001, and expired on December 31, 2012. Pursuant to the supplementary agreement entered into in 2012, the term was renewed and expired on December 31, 2015. Pursuant to the supplementary agreement entered into in 2015, the term was renewed for three years from January 1, 2016 to December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021.	476	Annual cap: 500

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<u>Agreement</u>	<u>Nature</u>	<u>Term/ Date of the Agreement</u>	<u>Transaction Amount in 2020</u> (RMB in millions)	<u>Cap for 2020</u> (RMB in millions)
General Agreement on Mutual Provision of Production Supplies and Ancillary Services (Counterparty: Chinalco)	We purchase from Chinalco ancillary production supplies and services which include, among other things, various raw materials required in alumina and primary aluminum production, transportation and loading services and production supporting services. We provide Chinalco with products including, among other things, aluminum and alumina products, supporting services and ancillary production services.	The original agreement was entered on into November 5, 2001, and expired on December 31, 2012. Pursuant to the supplementary agreement entered into in 2012, the term was renewed and entered on December 31, 2015. Pursuant to the supplementary agreement entered into in 2015, the term was renewed for three years from January 1, 2016 to December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021. On June 3, 2019, we and Chinalco entered into a supplemental agreement to revise the scope of mutual supply of products and include the pricing principles and methods of payment for the additional products subject to mutual supply.	7,243 15,091	Annual cap for expenditure transactions: 15,300 Annual cap for revenue transactions: 30,800
Mineral Supply Agreement (Counterparty: Chinalco)	Chinalco provides us with bauxite and limestone from several mines that it operates. Chinalco must not provide bauxite and limestone to bauxite and limestone requirements.	The original agreement was entered on November 5, 2001, and expired on December 31, 2012. Pursuant to the supplementary agreement entered into in 2012, the term was renewed and expired in December 31, 2015. Pursuant to the supplementary agreement entered into in 2015, the term was renewed for three years from January 1, 2016 to December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021.	48	Annual cap: 360

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Agreement	Nature	Term/ Date of the Agreement	Transaction Amount in 2020 (RMB in millions)	Cap for 2020 (RMB in millions)
Provision of Engineering, Construction and Supervisory Services Agreement (Counterparty: Chinalco)	Chinalco provides us with certain engineering, construction and supervisory services at the state guidance price and, where there is no state guidance price, at market price. Such services are mainly provided by subsidiaries of Chinalco including China Aluminum International Engineering Corporation Limited.	The original agreement was entered on November 5, 2001, and expired on December 31, 2012. Pursuant to the supplementary agreement entered into in 2012, the term was renewed and expired on December 31, 2015. Pursuant to the supplementary agreement entered into in 2015, the term was renewed for three years from January 1, 2016 to December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021.	1,755	Annual cap: 13,100
Land Use Rights Leasing Agreement (Counterparty: Chinalco)	Chinalco leases 470 parcels of land covering an aggregate area of approximately 61.2 million square meters and spanning across eight provinces in the PRC to us.	The original agreement was entered on November 5, 2001, for a term of 50 years, expiring on June 30, 2051.	490	Annual cap: 500
Fixed Assets Lease Framework Agreement (Counterparty: Chinalco)	We have agreed with Chinalco to provide leases to each other regarding buildings, constructions, machinery, apparatus, transportation facilities as well as equipment, appliance or tools and other fixed assets owned by either party in relation to production and operation.	The original agreement was entered into on April 28, 2015 and expired on December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021.	60	Annual cap for expenditure transactions: 200
			38	Annual cap for revenue transactions: 100
Financial Services Agreement (Counterparty: Chinalco Finance)	Chinalco Finance has agreed with Chinalco to provide us with deposit services, credit services and miscellaneous financial services. We have the right to choose the financial institution for financial services and the financial institution for deposit services and loan services as well as the amounts of loans and deposits with reference to our own needs. Chinalco Finance undertakes that the terms for the provision of financial services to us at any time would be no less favorable than those of the same type of financial services provided by Chinalco Finance to Chinalco and other subsidiaries of Chinalco or those of the same type of financial services that may be provided to us by other financial institutions.	The original agreement expired on August 25, 2012, for a term of 1 year. Pursuant to the financial services agreement renewed on August 24, 2012, the term was extended and expired on August 25, 2015. Pursuant to the financial services agreement renewed on April 28, 2015, the term was renewed for a term of 3 years from August 26, 2015, and was amended and replaced as a whole by a new financial services agreement. A new financial services agreement was entered on October 26, 2017, for a term of 3 years, expired on October 25, 2020. Another new financial services agreement was entered into on August 27, 2020 for a term of 3 years from October 26, 2020.	8,923	Daily cap of deposit balance (including accrued interests): 12,000
			2,448	Daily cap of loan balance (including accrued interests): 5,000
			0	Other financial services (before October 26, 2020) ⁽²⁾ : 50
			0	Other financial services (after October 26, 2020) ⁽²⁾ : 40

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<u>Agreement</u>	<u>Nature</u>	<u>Term/ Date of the Agreement</u>	<u>Transaction Amount in 2020</u> <u>(RMB in millions)</u>	<u>Cap for 2020</u> <u>(RMB in millions)</u>
Finance Lease Agreement (Counterparty: Chinalco Finance Lease Co., Ltd.)	Chinalco Finance Lease Co., Ltd. provides finance lease services to us.	The original finance lease framework agreement was entered into between the Company and Chinalco Lease on August 27, 2015, with a term from August 27, 2015, to December 31, 2016. A new finance lease framework agreement was entered into between the Company and Chinalco Lease on November 13, 2015, with a term of 3 years from January 1, 2016, to December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021.	427	10,000
Factoring Cooperation Agreement (Counterparty: Chinalco Commercial Factoring (Tianjin) Co., Ltd.)	Chinalco Commercial Factoring (Tianjin) Co., Ltd. provides factoring financing services to the Company.	The original agreement was entered on September 27, 2017, and expired on December 31, 2018. Pursuant to the supplementary agreement entered into in 2018, the term was renewed for three years from January 1, 2019 to December 31, 2021.	0	3,000
Labor and Engineering Services Framework Agreement (Counterparty: Chalco Steering Intelligent Technology Co., Ltd.)	Chalco Steering Intelligent Technology Co., Ltd. provides us with engineering services and labor services which include, among other things, equipment repairs, intelligent industrial design and maintenance.	Pursuant to the original agreement entered into on September 17, 2018, the term is from January 1, 2018 to December 31, 2020, for a term of three years. Pursuant to the new labor and engineering services framework entered into on October 27, 2020, the term was renewed for one year from January 1, 2021 to December 31, 2021.	12	Annual cap: 200

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Agreement	Nature	Term/ Date of the Agreement	Transaction Amount in 2020 (RMB in millions)	Cap for 2020 (RMB in millions)
One-Off Connected Transactions (1)				
Capital Contribution Agreement (Parties: Chalco Logistics and Chongqing Southwest Aluminum Transportation Co., Ltd.)	Chalco Logistics entered into a capital contribution agreement of Chongqing Southwest Aluminum Transportation Co., Ltd. with Southwest Aluminum Transportation Company and its former shareholder Xinan Aluminum (Group) Co., Ltd. Upon completion of the capital contribution, Southwest Aluminum Transportation Company was held as to 51% by Chalco Logistics, and would become a subsidiary of Chalco Logistics.	March 26, 2020	8.19	N/A
Capital Contribution Agreement (Parties: Chalco Logistics, Zhongzhou Aluminum Plant, Logistics Zhongzhou and Zhongzhou Aluminum)	Chalco Logistics, Zhongzhou Aluminum and Zhongzhou Aluminum Plant made respective capital contribution to Logistics Zhongzhou. Upon completion of the capital contribution, Chalco Logistics, Zhongzhou Aluminum and Zhongzhou Aluminum Plant owned approximately 46.36%, 39.58% and 14.06% equity interests of Logistics Zhongzhou, respectively.	March 26, 2020	185.32 (capital contribution)	N/A
Absorption and Merger Agreement (Parties: Chalco Logistics, Zhongzhou Aluminum, Logistics Zhongzhou, Zhongzhou Aluminum Plant and Zhongzhou Logistics)	Chalco Logistics, Zhongzhou Aluminum, Logistics Zhongzhou, Zhongzhou Aluminum Plant and Zhongzhou Logistics entered into the Absorption and Merger Agreement, pursuant to which, Logistics Zhongzhou conducted absorption and merger of Zhongzhou Logistics. Upon completion of the Absorption and Merger, Zhongzhou Logistics cancelled its legal status, and Logistics Zhongzhou was held as to 41%, 35% and 24% by Chalco Logistics, Zhongzhou Aluminum and Zhongzhou Aluminum Plant.	April 14, 2020	31.48	N/A

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<u>Agreement</u>	<u>Nature</u>	<u>Term/ Date of the Agreement</u>	<u>Transaction Amount in 2020</u> <u>(RMB in millions)</u>	<u>Cap for 2020</u> <u>(RMB in millions)</u>
Assets Transfer Agreement (Parties: Zhongzhou Aluminum and Logistics Zhongzhou)	Zhongzhou Aluminum agreed to sell and Logistics Zhongzhou acquired the logistics business assets of Zhongzhou Aluminum.	April 14, 2020	126.50	N/A

- (1) See “Item 4. Information on the Company - A. History and Development of the Company - Subscription for A Shares of Yunnan Aluminum” for detailed information of other one-off connected transaction.

All transactions with related parties are conducted at prices and terms mutually agreed by the parties involved, which are determined as follows:

- (a) Sales of materials and finished goods comprised sales of alumina, primary aluminum, copper and scrap materials. Transactions entered into are covered by general agreements on mutual provision of production supplies and ancillary services. The pricing policy is summarized below:
- (1) The price prescribed by the PRC government (“State-prescribed price”) is adopted;
 - (2) If there is no State-prescribed price, the price recommended in guidance issued by the PRC government (“State-guidance price”) is adopted;
 - (3) If there is neither a State-prescribed price nor a State-guidance price, then the market price (being price charged to and from independent third parties) is adopted; and
 - (4) If none of the above is available, then the adoption of a contractual price (being reasonable costs incurred in providing the relevant services plus not more than 5% of such costs) is adopted).
- (b) Sales of utility, including electricity, gas, heat and water, are provided at State-prescribed prices.
- (c) Engineering, project construction and supervisory services were provided for our construction projects. The State-guidance price or prevailing market price (including the tender price where by way of tender) is adopted for pricing purposes.
- (d) The pricing policy for purchases of key and auxiliary materials (including bauxite, limestone, carbon, cement and coal) is the same as that set out in (i) above.
- (e) Social services and logistics services provided by Chinalco cover public security, fire services, education and training, school and hospital services, cultural and physical education, newspaper and magazines, broadcasting and printing as well as property management, environmental and hygiene, greenery, nurseries and kindergartens, sanatoriums, canteens and offices, public transport and retirement management and other services. Provisions of these services are covered by the Comprehensive Social and Logistics Services Agreement. The pricing policy is the same as that set out in (a) above.

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- (f) Pursuant to the Land Use Rights Lease Agreements entered into between Chinalco and us, operating leases for industrial or commercial land are charged at the market rent rate. We also entered into a building rental agreement with Chinalco and pays rent based on the market rate for its lease of buildings owned by Chinalco.
- (g) Other services are environmental protection operation services. The prevailing market price is adopted for pricing purposes.
- (h) See Note 36(a) to our audited consolidated financial statements for more detailed information about our significant related party transactions.

During the years ended December 31, 2018, 2019 and 2020, our significant transactions with other state-owned enterprises (excluding Chinalco and its subsidiaries) constituted a relatively large portion of our sales of goods and purchases of raw materials, electricity, property, plant and equipment and services. In addition, substantially all restricted cash, time deposits, cash and cash equivalents and borrowings as of December 31, 2018, 2019 and 2020 and the relevant interest earned or paid during the year are transacted with banks and other financial institutions which are controlled by the PRC government.

We provide the following additional information on significant related party transactions during the periods indicated based on Note 36 to our audited consolidated financial statements:

- (a) Significant related party transactions

	For the year ended December 31		
	2018	2019	2020
	<i>(RMB in thousands)</i>		
Sales of goods and services rendered:			
Sales of materials and finished goods to:			
Chinalco and its subsidiaries	11,320,015	13,612,817	13,986,223
Associates of Chinalco	897,642	514,414	520,485
Joint ventures	4,462,670	5,676,548	6,694,824
Associates	2,626,780	3,812,565	9,232,432
Non-controlling shareholder of a subsidiary and its subsidiaries	—	—	42,298
	<u>19,307,107</u>	<u>23,616,344</u>	<u>30,476,262</u>
Sales of utility to:			
Chinalco and its subsidiaries	620,552	687,290	1,104,542
Associates of Chinalco	15,719	4,062	3,268
Joint Ventures	186,672	263,436	470,984
Associates	24,309	35,650	18,568
	<u>847,252</u>	<u>990,438</u>	<u>1,597,362</u>
Provision of engineering, construction and supervisory services to:			
Chinalco and its subsidiaries	5,981	—	—
Joint ventures	—	—	—
Associates	1,725	—	—
	<u>7,706</u>	<u>—</u>	<u>—</u>
Rental revenue of land use rights and buildings from:			
Chinalco and its subsidiaries	31,551	52,571	39,284
Associates of Chinalco	—	65	237
Joint ventures	1,545	1,967	1,426
Associates	1,511	775	365
	<u>34,607</u>	<u>55,378</u>	<u>41,312</u>

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	For the year ended December 31		
	2018	2019	2020
	<i>(RMB in thousands)</i>		
Purchase of goods and services:			
Purchases of engineering, construction and supervisory services from:			
Chinalco and its subsidiaries	2,088,338	2,949,866	1,755,092
Associates of Chinalco	—	—	265
Joint ventures	2,100	69,332	—
Associates	405,993	218,616	12,233
	<u>2,496,431</u>	<u>3,237,814</u>	<u>1,767,590</u>
Purchases of key and auxiliary materials and finished goods from:			
Chinalco and its subsidiaries	3,513,420	8,161,223	6,266,563
Associates of Chinalco	18,917	18	2,586
Joint ventures	8,182,251	2,647,234	5,501,158
Associates	2,108,072	1,893,449	10,576,907
Non-controlling shareholder of a subsidiary and its subsidiaries	—	—	30,101
	<u>13,822,660</u>	<u>12,701,924</u>	<u>22,377,315</u>
Provision of social services and logistics services by: Chinalco and its subsidiaries	<u>312,062</u>	<u>309,180</u>	<u>475,532</u>
Provision of utilities services by: Chinalco and its subsidiaries	992,827	763,812	650,921
Associates of Chinalco	96,510	100,835	85,469
Joint Ventures	26,269	280,523	443,290
Associates	77,432	8,326	—
	<u>1,193,038</u>	<u>1,153,496</u>	<u>1,179,680</u>
Provision of other services by: A joint venture	<u>226,280</u>	<u>272,220</u>	<u>373,655</u>
	<u>226,280</u>	<u>272,220</u>	<u>373,655</u>
Rental expenses for buildings and land use rights charged by: Chinalco and its subsidiaries	<u>501,866</u>	<u>499,191</u>	<u>661,888</u>
Other significant related party transactions:			
Borrowing from a subsidiary of Chinalco	<u>6,525,000</u>	<u>3,890,000</u>	<u>1,925,000</u>
Interest expense on borrowings, discounted notes and factoring arrangement from subsidiaries of Chinalco	<u>143,415</u>	<u>141,991</u>	<u>87,985</u>
Consideration to acquire the shares in the subsidiaries of Chinalco			
Investment to Yunnan Aluminum	—	1,287,608	—
Investment to Yixin Aluminum	—	850,000	—
	—	<u>2,137,608</u>	—
Disposal of electronic aluminum capacity quota to a subsidiary of Chinalco	—	800,000	—
Disposal of assets under a sale and leaseback contract to a subsidiary of Chinalco	<u>224,000</u>	<u>500,000</u>	—
Finance lease under a sale and leaseback contract from a subsidiary of Chinalco	<u>224,000</u>	<u>558,924</u>	—

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	For the year ended December 31		
	2018	2019	2020
		(RMB in thousands)	
Trade receivable factoring arrangement from a subsidiary of Chinalco	470,101	136,656	—
Discounted notes receivable to a subsidiary of Chinalco	756,000	679,517	36,750
Provision of financial guarantees to:			
Joint ventures	12,450	12,450	—

(b) Balances with related parties

	December 31, 2019 (Restated)	December 31, 2020
Cash and cash equivalents deposited with		
A subsidiary of Chinalco	3,285,093	3,561,997
Trade and notes receivables		
Chinalco and its subsidiaries	1,054,168	760,138
Associates of Chinalco	6,034	56,107
Joint ventures	788,183	743,369
Associates	25	107
	1,848,410	1,559,721
Provision for impairment of receivables	(17,815)	(74,668)
	1,830,595	1,485,053
Other current assets		
Chinalco and its subsidiaries	421,805	268,321
Joint ventures	1,503,505	1,416,094
Associates	47,743	433,453
Non-controlling shareholder of a subsidiary and its subsidiaries	—	1,200
	1,973,053	2,119,068
Provision for impairment of other current assets	(30,509)	(422,089)
	1,942,544	1,696,979
Other non-current assets		
Associates	111,845	111,845
Interest-bearing loans and borrowings		
Subsidiaries of Chinalco (including lease liabilities)	9,857,187	8,887,422
Trade and notes payables		
Chinalco and its subsidiaries	334,840	437,732
Joint ventures	527,744	561,508
Associates	9,789	10,562
Associates of Chinalco	917	1,511
	873,290	1,011,313
Other payables and accrued liabilities		
Chinalco and its subsidiaries	1,810,514	2,193,782
Associates of Chinalco	17,056	1,019
Associates	80,012	28,424
Joint ventures	73,823	3,940
	1,981,405	2,227,165
Contract liabilities		
Chinalco and its subsidiaries	29,210	17,460
Associates of Chinalco	—	13,453

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	December 31, 2019 (Restated)	December 31, 2020
Associates	223	79
Joint ventures	56,010	519
Non-controlling shareholder of a subsidiary and its subsidiaries	—	656
	<u>85,443</u>	<u>32,167</u>

Guarantees

We provided guarantees to our related parties to guarantee their loans during the period from January 1, 2020 to March 31, 2021. The outstanding balance of the loans we guaranteed was nil as of March 31, 2021 and the largest amount outstanding of the loans we guaranteed during the period from January 1, 2020 to March 31, 2021 was RMB12.45 million. The interest rates on such loans range from 4.9% to 6.53% per annum.

Our related parties also provided guarantees to us to guarantee our loans during the period from January 1, 2020 to March 31, 2021. The outstanding balance of the loans guaranteed by our related parties was nil as of March 31, 2021 and the largest amount outstanding of the loans guaranteed by our related parties during the period from January 1, 2020 to March 31, 2021 was RMB218 million. The interest rate on such loan range from 6.4% to 6.4125% per annum.

Loans

We provided several entrusted loans to our related parties mainly for the purpose of supplementing working capital during the period from January 1, 2020 to March 31, 2021. The outstanding balance of such entrusted loans was mainly RMB675 million as of March 31, 2021 and the largest amount outstanding of the entrusted loans during the period from January 1, 2020 to March 31, 2021 was RMB675 million. The interest rates on such entrusted loans range from 4.3% to 10% per annum.

Our related party also provided several loans to us mainly for the purpose of supplementing working capital during the period from January 1, 2020 to March 31, 2021. The outstanding balance of such loans was RMB1.92 billion as of March 31, 2021 and the largest amount outstanding of the loans during the period from January 1, 2020 to March 31, 2021 was RMB2.16 billion. The interest rates on such loans range from 3.075% to 4.6075% per annum.

C. *Interests of Experts and Counsel*

Not applicable.

Item 8. Financial Information**A. *Consolidated Statements and Other Financial Information***

We have appended our consolidated financial statements filed as part of this annual report on Form 20-F.

Legal Proceedings

We are not currently a party to any pending legal proceedings which are expected to have a significant effect on our financial position or results of operations, nor are we aware of any proceedings that are pending or threatened which may have a significant effect on our financial position or results of operations. We may from time to time become a party to various legal or administrative proceedings arising in the ordinary course of our business.

Dividend Policy

Under the Company Law of the PRC and our Articles of Association, all of our shareholders have equal rights to dividends and distributions. The holders of the H Shares share proportionately on a per share basis in all dividends and other distributions declared by our Board. Any final dividend for a fiscal year is subject to shareholders' approval. Cash dividends, if made, are declared in Renminbi with respect to H Shares on a per share basis and paid in HK dollars. The Bank of New York Mellon, as depository, converts the HK dollar dividend payments and distributes them to holders of ADSs in U.S. dollars, less expenses of conversion.

We believe that our dividend policy strikes a balance between two important goals of providing our shareholders with a competitive return on investment and assuring sufficient reinvestment of profits to enable us to achieve our strategic objectives. The declaration of dividends is subject to the discretion of our Board, which takes into account the following factors:

- our financial results;
- capital requirements;
- contractual restrictions on the payment of dividends by us to our shareholders or by our subsidiaries to us;
- our shareholders' interests;
- the effect on our creditworthiness;
- general business conditions; and
- other factors our Board may deem relevant.

Under our current profit distribution policy as set forth in our Articles of Association, the basic principles of such policy include (i) giving adequate consideration to return to investors and making dividend to shareholders in an applicable percentage of the distributable profits, (ii) maintaining the continuity and stability of our dividend policy, while taking into consideration of our interests in the long term and the overall interests of all shareholders, as well as our sustainable development; and (iii) giving priority to dividend in cash.

More specifically, under such policy, we may make dividends in cash, in shares or in a combination of both cash and shares. Subject to conditions, we may make interim profit distributions. Save in exceptional circumstances, if our profit for the year and our cumulative undistributed profit are positive, we may make dividend in cash and (i) the profit to be distributed in cash per annum will not be less than 10% of the distributable profit realized for that year, or (ii) the total profit to be distributed in cash in the past three years will not be less than 30% of the average annual distributable profit realized in the past three years.

Pursuant to PRC laws and regulations, dividends may only be distributed after allowance has been made for: (1) recovery of losses, if any and (2) allocations to the statutory surplus reserve. The allocations to the statutory surplus reserve is 10% of our net profit determined in accordance with PRC Generally Accepted Accounting Principles, unless the accumulated statutory surplus reserve exceeds 50% of our registered share capital, in which case the surplus reserve is discretionary.

See "Item 10. Additional Information - E. Taxation" for a discussion of the tax consequences of receipt of dividends.

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B. Significant Changes

Except as disclosed elsewhere in this annual report, we have not experienced any significant changes since the date of our audited consolidated financial statements which is included in this annual report.

Item 9. The Offer and Listing

Our A Shares are traded under the stock code “601600” in the Shanghai Stock Exchange, as our principal host market, while our H Shares are traded under the stock code “02600” in the Hong Kong Stock Exchange as the principal market for our H Shares. The ADSs have been issued by The Bank of New York Mellon, acting as depository bank, and are listed on the New York Stock Exchange under the symbol “ACH” with each ADS representing 25 H Shares.

In connection with the proposed Asset Restructuring, the trading of A Shares of the Company on the Shanghai Stock Exchange was suspended from September 12, 2017 to February 25, 2018. For more information regarding the Asset Restructuring, see “Item 4. Information on the Company - A. History and Development of the Company - Subscription of Equity Interest of Certain Subsidiaries and Subsequent Issuance of Additional A Shares.”

Item 10. Additional Information

A. Share Capital

Not applicable.

B. Memorandum and Articles of Association

The following is a summary of certain provisions of our Articles of Association, as amended. Such summary does not purport to be complete. For further information, you and your advisors should refer to the text of our Articles of Association, as amended, and to the texts of applicable laws and regulations. A copy of our Articles of Association is filed as an exhibit to this annual report.

Our objects and purposes

Our Articles of Association as amended from time to time are filed with the Hong Kong Companies Registrar. Our business purpose and business scope can be found in Article 13 and Article 14, respectively, of our Articles of Association.

Directors’ power to vote on matters in which he or she has an interest

Under Article 174, a director shall not vote in any resolution of the board of directors for approving any contract, transaction or arrangement in which such director or any of his associates (as defined in the applicable rules governing the listing of securities amended from time to time) is materially interested, and shall not be counted into the quorum of the meeting either. Unless the interested director has disclosed his or her interest to the board of directors in accordance with the Article 174 and the contract, transaction or arrangement has been approved by the board of directors at a meeting in which the interested director is not counted in the quorum and has refrained from voting, a contract, transaction or arrangement in which such director is materially interested is voidable at the instance of our Company except as against a bona fide party thereto acting without notice of the breach of duty by such director. According to Article 86(2), matters concerning the remuneration of directors shall be decided by the shareholders’ general meeting.

Borrowing powers

Subject to compliance with applicable laws and regulations of the PRC, we have the power to raise and borrow money which power includes (without limitation) the issuance of debentures and the charging or mortgaging of part or whole of our business or properties and other rights permitted. The Articles of Association do not contain any specific provision in respect of the manner in which borrowing powers may be exercised by the directors nor do they contain any specific provision in respect of the manner in which such powers may be varied, other than (a) provisions which give the directors the power to formulate proposals for the issuance of debentures by us; (b) Article 87(2), which provides that the issuance of bonds must be approved by the shareholders in a general meeting by way of a special resolution; and (c) Article 112(4), which provides that the directors have the power to formulate our annual final financial budgets and final accounts.

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Age limit for retirement

There is no provision pertaining to the retirement of directors pursuant to an age limit requirement in our Articles of Association.

Directors' qualifying shares

Under Article 107, the directors are not required to hold any qualifying shares.

Dividend rights

Article 55(1) provides that holders of our ordinary shares have the right to receive dividends and distribution of profits in other forms, in proportion to the number of shares held. Under Article 49, when we convene a shareholders' general meeting, distribute dividends, liquidate or perform other activities that require the verification of equity rights, the Board or the general meeting convener must specify a date as the record date. The shareholders registered in the shareholder register at closing on the record date are our shareholders entitled to appropriate rights and interests. Article 207 provides that under the premise of obeying the laws of the PRC, we have the right to forfeit the unclaimed dividends, subject to the expiry of the applicable relevant limitation period.

Voting rights

Article 55(2) provides that holders of our ordinary shares have the right to lawfully request, convene, chair, attend in person or appoint a proxy to attend and vote at shareholders' meetings in respect of the number of shares held. Each ordinary share is entitled to one vote on all matters submitted to a vote of our shareholders at all shareholders' meetings, except for (i) the cumulative voting system under Article 110; and (ii) meetings of a special class of shareholders where only holders of shares of the affected class are entitled to vote on the basis of one vote per share of the affected class, but Article 98 provides that interested shareholders shall not vote at class shareholders' meetings. Article 110 provides that in case that the our controlling shareholders' shareholding percentage is more than 30%, the cumulative voting system may be implemented for the election of directors and supervisors at a shareholders' general meeting.

A special resolution of the shareholders' general meeting will be required for important matters specified in Article 87, such as the increase or reduction of the registered capital and issuance of any class of shares, amendments to our Articles of Association, and our division, merger, dissolution and liquidation, and a special resolution must be adopted by shareholders in attendance (including proxies) at the meeting with supermajority votes as set forth in Article 80. For other matters to be approved in a shareholders' general meeting, an ordinary resolution as set forth in Article 80 will need to be adopted.

Rights to share profits

Article 61(7) provides that a plan for profit distribution and a plan for making up for losses formulated by the Board in accordance with Article 112(6) must be approved by way of the shareholders' general meeting.

Rights to share surplus in the event of liquidation

Article 55(6) provides that the holders of ordinary shares have the right to participate in the distribution of our surplus assets in proportion to the number of shares held in the event of the termination or liquidation of us. Article 228 sets forth the order of priority of payments out of our properties in the event of liquidation.

Enforceability of Shareholders' Rights

Our Articles of Association provide that, with certain limited exceptions, where disputes and claims which concern our affairs and are based on rights or obligations provided for in our Articles of Association, the Company Law of the PRC or other relevant laws arise between holders of H Shares and us, holders of A Shares, or our director, supervisor, general manager or other senior management staff, such disputes and claims must be submitted to arbitration. Chapter 23 of our Articles of Association sets forth further details of the dispute resolution procedure.

Redemption provisions; sinking fund provisions and liability to further capital calls

Article 30 provides that we may repurchase issued shares in compliance with the requirements provided in relevant PRC laws and regulations, regulatory requirements or the Articles of Association and with the approvals from the relevant governing authorities of PRC under the following circumstances: (1) reduction of our registered capital; (2) merger with another company which owns our shares; (3) use of shares for our employee shareholding scheme or as equity incentive; (4) shareholders disagreeing with our general meeting's resolution on merger or division and requiring us to acquire the shares in their possession; (5) use of shares for conversion of corporate bonds convertible into our shares; (6) where it is necessary to safeguard our value and the rights and interests of our shareholders; and (7) other circumstances required by law and administrative regulations. Under Articles 32 and 33, share repurchases by agreements outside a stock exchange are generally subject to our shareholders' approval. Under Article 33, share repurchases under the circumstances described in item (1), (2) and (3) above shall be resolved at the shareholders' general meeting, while share repurchases under the circumstances described in item (5) and (6) above shall be subject to approval by more than two-thirds of directors present at the meeting of the Board.

No shares issued by us are redeemable, entitled to a sinking fund or subject to liability for further capital calls.

Actions necessary to change the rights of holders of our shares or holders of a class of shares

Under Article 87(5), revision of any rights of class shareholders, e.g., rights to dividends, share profits or surplus in the event of liquidation or voting rights, requires a special resolution of the shareholders' general meeting. A special resolution must be adopted by shareholders in attendance (including proxies) at the meeting with supermajority votes as set forth in Article 80.

The rights attached to any class of shares may be varied or abrogated only with the sanction of a special resolution passed at the shareholders' general meeting and by holders of shares of the affected class passed at a separate general meeting of the class convened in accordance with Articles 97 to 101, respectively. The circumstances which are deemed to be a variation or abrogation of the class rights, including alternation of the number of shares of the class, are set forth under Article 97. Except for the circumstances under Article 97(1), (9) and (10), shareholders of the affected class, whether or not otherwise having the right to vote at shareholders' general meetings, have the right to vote at class meetings but interested shareholders (which is defined under Article 98) are not entitled to vote at class meetings.

Resolutions of a class meeting shall be passed by the required percentage of shares (as specified under Article 99) with voting rights held by the class shareholders who, according to Article 98, are entitled to vote at that class meeting. Written notice must be given to all shareholders who are registered as holders of that class in the register of shareholders 45 days (inclusive of date of meeting) before the date of the class meeting. Such notice must contain the matters to be considered at such meeting, the date and the place of meeting. Those shareholders of the class who intend to attend shall send the written reply to us 20 days before the class meeting according to Article 100.

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The proceedings of class meetings shall be conducted as near as possible to those of shareholders' general meetings. The provisions in the Articles of Association relating to the proceedings of shareholders' general meetings shall apply to class meetings.

The special procedures for approval by a class of shareholders do not apply where we issue, upon approval by special resolution of shareholders in general meeting, either separately or concurrently once every 12 months, domestic shares and H Shares not more than 20% of the outstanding shares of the respective class.

Provisions discriminating against any existing or prospective shareholder as a result of owning a substantial number of shares

Chinalco, as our controlling shareholder (which is defined under Article 59), shall not exercise its voting rights in a manner prejudicial to the interest of all or some part of the shareholders when making decisions:

- to relieve a director or supervisor of his duty to act honestly in our best interest;
- to approve the expropriation by a director or supervisor (for his own benefit or for the benefit of another) of our assets, in any manner, including but not limited to an opportunity beneficial to us; or
- to approve the expropriation by a director or supervisor (for his own benefit or for the benefit of another) the individual rights of other shareholders, including but not limited to rights to distributions and voting rights save and except for our restructuring, submitted for approval by the shareholders in general meeting in accordance with the Articles of Association.

Conditions governing the manner in which annual general meetings and extraordinary general meetings of shareholders are convoked

Shareholders' general meetings can be held as annual general meetings or extraordinary general meetings. Annual general meetings are held once a year within six months after the end of the preceding fiscal year.

The Board is required to convene an extraordinary general meeting within two months of the occurrence of any of the following circumstances:

- (1) the number of directors falls below the number required by the Company Law of the PRC or two-thirds of the number required by the Articles of Association;
- (2) our unrecovered losses amount to one-third of the total amount of our paid-in-capital;
- (3) upon the request of shareholder(s) holding 10% or more of our shares for more than ninety consecutive days (the number of shares held shall be the figures as of the date of the written request from the shareholder); and
- (4) whenever the Board deems necessary or the supervisory committee proposes to convene the same.

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We shall, within 45 days (inclusive of date of meeting) before the date of meeting, send written notices of the shareholders' general meeting and inform all registered shareholders of the matters to be considered at the meeting and the date and venue of the meeting. Those shareholders who intend to attend the meeting shall send the written reply to us 20 days before the meeting. The meeting may be held if the number of voting shares represented by the shareholders intending to attend the meeting meets the threshold prescribed under Article 66. Otherwise, we shall, within five days, inform the shareholders once again of the matters to be considered at, and the date and place of, the meeting in the form of a public announcement, after which we may hold the meeting. A meeting and the resolutions adopted thereat shall not be invalidated due to the accidental omission to give notice of the meeting to, or the non-receipt of notice of the meeting by, a person entitled to receive notice. Motions put forward at the general meeting shall be specific and shall relate to the matters to be considered at a shareholders' general meeting. Motions raised at a general meeting shall:

- (1) be free of conflicts with the provision of laws, administrative regulations and Articles of Association, and fall within our business scope and the terms of the reference of the shareholders' general meeting;
- (2) have definite topics to discuss and specific matters to resolve; and
- (3) be submitted in writing or served to the board of directors.

Limitations on the rights to own securities

Under Article 19, the shares issued to domestic investors and denominated in Renminbi are Domestic-Invested Shares whereas the shares issued to overseas investors and denominated in foreign currency are Foreign-Invested Shares.

Provisions having an effect of delaying, deferring or preventing a change in control

Under Article 116, decisions in respect of market development, merger and acquisition, and investment in a new field, where the consideration to be paid or the assets to be acquired exceed 10% of our total assets, the Board is required to engage relevant professional consultants to provide professional opinions, which shall serve as the key reference for the decision of the Board concerning such investment, merger or acquisition.

Under Article 87(3), division, merger, dissolution and liquidation of us and material acquisitions and disposals by us must be approved by a special resolution at a shareholders' general meeting.

There are no provisions under the Articles of Association pertaining to the ownership threshold above which shareholder ownership must be disclosed.

Conditions governing changes in registered capital

Under Article 112(7), any proposal for the increase or decrease of our registered capital must be formulated by the Board. Article 87(1) further provides that any increase or reduction in share capital requires adoption of a special resolution at a shareholders' general meeting. In addition, according to Article 97, alternation of the number of shares of a class or of a different class having voting rights, distribution rights or other privileges equal or superior to such class is regarded as alternation or abolishment of rights of such class, and must satisfy the requirements for shareholders' meetings of the affected class. See "—Actions necessary to change the rights of holders of our shares or holders of a class of shares."

Certain Differences Between PRC Company Law and Delaware Corporate Law

We are a PRC joint stock company, which is a corporate entity organized under the Company Law of the PRC. The PRC company law differs from laws applicable to United States corporations and their shareholders. A description of securities registered under Section 12 of the Exchange Act is filed as Exhibit 2.4 to this annual report on Form 20-F and includes a summary of certain significant differences between the provisions of the PRC company law applicable to us and the comparable provisions of the laws applicable to companies incorporated in the United States and their shareholders (for this purpose we refer to Delaware corporate law). Such summary does not purport to be complete and is subject to and qualified in its entirety by reference to our Articles of Association, as amended, and to the relevant laws and regulations.

C. Material Contracts

For the two years immediately preceding the date of this annual report, we have not entered into any additional material contracts other than in the ordinary course of business and other than those described in “Item 4. Information on the Company - A. History and Development of the Company” and “Item 7. Major Shareholders and Related Party Transactions - B. Related Party Transactions.”

D. Exchange Controls

The existing foreign exchange regulations have significantly reduced government foreign exchange controls for transactions under the current account, including trade and service-related foreign exchange transactions and payment of dividends. We may undertake current account foreign exchange transactions without prior approval from the SAFE by producing commercial documents evidencing such transactions, provided that they are processed through Chinese banks licensed to engage in foreign exchange transactions. The PRC government has stated publicly that it intends to make the Renminbi freely convertible in the future. However, we cannot predict whether the PRC government will continue its existing foreign exchange policy and when the PRC government will allow free conversion of Renminbi to foreign currency.

Foreign exchange transactions under the capital account, including principal payments in respect of foreign currency-denominated obligations, continue to be subject to significant foreign exchange controls and require the approval of the SAFE. These limitations could affect our ability to obtain foreign exchange through debt or equity financing, or to obtain foreign exchange for capital expenditures.

Since 1994, the conversion of Renminbi into HK and U.S. dollars has been based on rates set by the PBOC, which are set daily based on the previous day’s PRC interbank foreign exchange market rate and current exchange rates on the world financial markets. From 1994 to July 20, 2005, the official exchange rate for the conversion of Renminbi to U.S. dollars was generally stable. On July 21, 2005, the PRC government introduced a managed floating exchange rate system to allow the value of the Renminbi to fluctuate within a regulated band based on market supply and demand and by reference to a basket of currencies. Since then, the PRC government has made, and may in the future make, further adjustments to the exchange rate system. In April 2012, the PRC government took a milestone step in turning the Renminbi into a global currency by doubling the size of its trading band against the U.S. dollar, pushing through a crucial reform that further liberalizes its financial markets. The PBOC allows the Renminbi to rise or fall 1% from a mid-point every day, effective April 16, 2012, compared with its previous 0.5% limit. The PBOC further allows the Renminbi to rise or fall 2% from a mid-point every day, effective March 17, 2014. In August 2015, the PBOC announced that the daily central parity quotes the market-makers reported to the China Foreign Exchange Trade System operated by the PBOC before the market opens should be based on the closing rate of the inter-bank foreign exchange rate market on the previous day, supply and demand in the market, and price movement of major currencies, effective on August 11, 2015. Fluctuations in exchange rates may adversely affect the value, translated or converted into U.S. dollars or HK dollars, of our net assets, earnings and any declared dividends. We cannot give any assurance that any future movements in the exchange rate of the Renminbi against the U.S. dollar and other foreign currencies will not adversely affect our results of operations and financial condition.

E. Taxation

PRC Taxation

The following summary of the material PRC and United States federal income tax provisions relating to the ownership and disposition of H Shares or ADSs held by the investor as capital assets is based upon laws and relevant interpretations thereof in effect as of the date of this annual report, all of which are subject to change, and does not constitute legal or tax advice. This summary does not deal with all possible tax consequences relating to an investment in our ordinary shares, such as the tax consequences under state, local and other tax laws.

Dividends Paid to Individual Investors

Any shares registered in the name of our depository bank will be deemed as being held by non-resident enterprise shareholders and the dividends attributable to the corresponding ADSs will be subject to the withholding of the PRC corporate income tax. We are therefore required to withhold 10% corporate income tax when we make dividend distributions to the investors of our ADSs. Investors of our ADSs will not be subject to further PRC individual income tax or PRC corporate income tax. The 10% dividend withholding tax rate is not subject to any reduction under the 1984 Agreement between the United States and the People's Republic of China for the Avoidance of Double Taxation, or the PRC Treaty.

Capital Gains

With respect to foreign enterprises which are established under the laws of non-PRC jurisdictions and have no establishment or residence in China or whose capital gains from China do not relate to their establishment or residence in China ("non-resident foreign enterprises"), according to the Enterprise Income Tax Law and its implementation rules, which became effective on January 1, 2008, capital gains realized by non-resident foreign enterprises are ordinarily subject to capital gains tax at the rate of 10%, unless exempted or reduced pursuant to an applicable double-taxation treaty or other exemptions. The capital gains realized by resident enterprises, including enterprises established under the laws of non-PRC jurisdictions but whose "de facto management body" is located in the PRC, upon the sales of overseas-listed shares are subject to the PRC enterprise income tax.

With respect to foreign individual investors, the Provisions for Implementation of Individual Income Tax Law of China, as amended, stipulated that individual income tax on gains realized on the sale of equity shares shall be regulated in separate rules to be drafted by the State Council of China. However, as of the date of this annual report, there are no such rules enacted by the State Council yet. On March 30, 1998, the MOF and the SAT jointly issued the "Circular of Taxation Regarding the Continued Exemption of Individual Income Taxes Levied on Income Obtained from the Transfer of Shares," which provided that income derived from the transfer of shares issued by listed companies shall not be taxed as income for the purposes of levying individual income taxes after July 1, 1997.

For PRC mainland investors, on October 31, 2014, the SAT issued "Circular on Tax Policies Relating to the Pilot Program of Shanghai-Hong Kong Stock Connect," which provided that any capital gain from transferring stocks listed on the Hong Kong Stock Exchange by a PRC mainland investor would not be subject to tax during the period from November 17, 2014 to November 16, 2017. For mainland enterprises, such capital gains would be included in its income and subject to income tax. On November 1, 2017, the MOF, the SAT and the CSRC jointly issued "Circular on Extending Individual Income Tax Policies Relating to the Shanghai-Hong Kong Stock Connect," which provided that income generated from price differences through investment in stocks listed on the Hong Kong Stock Exchange by PRC mainland individual investors via the Shanghai-Hong Kong Stock Connect would be exempt from individual income tax from November 17, 2017 to December 4, 2019. On December 4, 2019, the MOF, the SAT and the CSRC jointly issued the "Circular on Extending Individual Income Tax Policies Relating to the Shanghai-Hong Kong Stock Connect, Shenzhen-Hong Kong Stock Connect and Mainland-Hong Kong Mutual Recognition of Funds," which further exempts the individual income tax on income generated from transfer through investment in stocks listed on the Hong Kong Stock Exchange by PRC mainland individual investors via the Shanghai-Hong Kong Stock Connect or Shenzhen-Hong Kong Stock Connect and investment in Mainland-Hong Kong mutually recognized Funds from December 5, 2019 to December 31, 2022.

Tax Treaties

China currently has such treaties with more than one hundred countries and regions, including the following countries:

- the United States;
- Australia;
- Canada;

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- France;
- Germany;
- Japan;
- Malaysia;
- Singapore;
- the United Kingdom; and
- the Netherlands.

Under most treaties, the rate of withholding tax imposed by China's taxation authorities remains 10%. The double taxation treaty between China and the United States provides that 10% withholding tax rate will be applied to the gross amount of dividends repatriated to an eligible U.S. holder. Under the treaty, an eligible U.S. holder is a person who, by reason of domicile, residence, place of head office, place of incorporation or any other criterion of similar nature is subject to taxation in the United States, as applicable under the treaty's "treaty shopping provisions."

Additional China Tax Considerations

Pursuant to the prevailing stamp duty regulations, a stamp duty is not imposed by China on the transfer of shares, such as the H Shares or ADSs, of Chinese publicly traded companies that take place outside of China.

United States Federal Income Taxation

Each potential investor is strongly urged to consult its own tax advisor to determine the particular U.S. federal, state, local, treaty and foreign tax consequences of acquiring, owning or disposing of the H Shares or ADSs.

The following summary describes the principal U.S. federal income tax consequences of purchasing, owning and disposing of the H Shares or ADSs. This summary only applies to U.S. holders, as defined below, who hold the H Shares or ADSs as capital assets within the meaning of Section 1221 of the Internal Revenue Code of 1986 as amended (the "Code"). This discussion does not address all of the tax consequences relating to the purchase, ownership and disposition of the H Shares or ADSs, and does not take into account U.S. holders that may be subject to special rules, including:

- financial institutions;
- insurance companies;
- tax-exempt organizations;
- real estate investment trusts, regulated investment companies, grantor trusts;
- persons that have a functional currency other than the U.S. dollar;
- persons that will own H Shares or ADSs through partnerships or other pass-through entities;
- persons that actually or constructively own 10% or more of the combined voting power of our voting stock or of the total value of our stock;

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- dealers or traders in securities or currencies;
- certain former citizens or long-term residents of the United States;
- persons that will hold the H Shares or ADSs as a position in a “straddle” or as part of a “hedging” or “conversion” or other risk reduction transaction for U.S. federal income tax purposes;
- persons who receive the H Shares or ADSs as compensation for services;
- “dual resident” corporations;
- persons that generally mark their securities to market for U.S. federal income tax purposes;
- persons who are residents of the People’s Republic of China or who are subject to Hong Kong profits tax; or
- persons who purchase or sell the H Shares or ADSs as part of a wash sale for U.S. federal tax purposes.

Moreover, this description does not address U.S. federal estate, gift or alternative minimum taxes, the U.S. federal unearned income Medicare contribution tax, or any foreign state or local tax consequences of the acquisition, ownership and disposition of the H Shares or ADSs. Each U.S. holder should consult its tax advisor with respect to the U.S. federal, state, local and foreign tax consequences of acquiring, owning and disposing of H Shares or ADSs.

This discussion is based on the Code, its legislative history, final, temporary and proposed U.S. Treasury regulations promulgated thereunder, published rulings and court decisions as in effect on the date hereof, as well as on the agreement between the United States and the People’s Republic of China for the avoidance of double taxation (the “Treaty”), all of which are subject to change, or change in interpretation, possibly with retroactive effect. In addition, this discussion is based in part upon the assumption that each obligation in the deposit agreement and any related agreements will be performed according to its terms.

You are a “U.S. holder” if you are a beneficial owner of H Shares or ADSs and, for U.S. federal income tax purposes, are:

- an individual citizen or resident of the United States;
- a corporation created or organized under the laws of the United States or any political subdivision thereof;
- an estate the income of which is subject to U.S. federal income tax without regard to its source; or
- a trust: (i) subject to the primary supervision of a U.S. court and one or more U.S. persons (within the meaning of the Code) have the authority to control all substantial decisions of the trust; or (ii) that has validly elected to be treated as a U.S. person under applicable U.S. Treasury Regulations.

If a partnership (including any entity or arrangement treated as a partnership for U.S. federal tax purposes) holds H Shares or ADSs, the tax treatment of the partnership and a partner in such partnership will generally depend upon the status of the partner and the activities of the partnership. If an investor is a partner in a partnership that holds H Shares or ADSs, such investor should consult its tax advisor.

In general, if you hold ADSs evidencing H Shares, you will be treated as the owner of the H Shares represented by the ADSs. Exchanges of H Shares for ADSs, and ADSs for H Shares, generally will not be subject to United States federal income tax.

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The tax treatment of your H Shares or ADSs will depend in part on whether or not we are classified as a passive foreign investment company, or PFIC, for United States federal income tax purposes. Except as discussed below under “—Passive Foreign Investment Company Rules,” this discussion assumes that we are not classified as a PFIC for U.S. federal income tax purposes.

INVESTORS SHOULD CONSULT THEIR TAX ADVISORS AS TO THE PARTICULAR TAX CONSIDERATIONS APPLICABLE TO THEM RELATING TO THE PURCHASE, OWNERSHIP AND DISPOSITION OF THE H SHARES OR ADSs, INCLUDING THE APPLICABILITY OF U.S. FEDERAL, STATE AND LOCAL TAX LAWS OR NON-U.S. TAX LAWS, ANY CHANGES IN APPLICABLE TAX LAWS AND ANY PENDING OR PROPOSED LEGISLATION OR REGULATIONS.

Distributions on the H Shares or ADSs

The gross amount of any distribution (without reduction for any PRC tax withheld) we make on the H Shares or ADSs, other than certain pro-rata distributions of the H Shares, will be includible in income as dividend income when you, in the case of the H Shares, or the depository, in the case of ADSs, receive the distribution, actually or constructively. Because we do not calculate earnings and profits in accordance with U.S. tax principles, all distributions by us to U.S. holders will generally be treated as dividends. Any dividend will not be eligible for the dividends-received deduction allowed to certain U.S. corporations in respect of dividends received from U.S. corporations.

If you are a noncorporate U.S. holder, dividends that constitute qualified dividend income will be taxable to you at the preferential rates applicable to long-term capital gains provided that you hold the H Shares or ADSs for more than 60 days during the 121-day period beginning 60 days before the ex-dividend date and meet other holding period requirements. Dividends that we pay with respect to the H Shares or ADSs will be qualified dividend income, provided that, in the year that you receive the dividend, we are eligible for the benefits of the Treaty. We believe that we are currently eligible for the benefits of the Treaty, and we therefore believe that dividends that we currently distribute on the H Shares or ADSs constitute qualified dividend income. However, there can be no assurance that we will be eligible for the benefits of the Treaty in future taxable years, and there can therefore be no assurance that dividends that we distribute on the H Shares or ADSs will continue to constitute qualified dividend income in such years.

Furthermore, even if we are not eligible for the benefits of the Treaty in a taxable year, dividends on the ADSs will nevertheless be treated as qualified dividend income if the ADSs are readily tradable on an established securities market in the United States. So long as our ADSs remain listed on the NYSE, we therefore expect that dividends on the ADSs will be treated as qualified dividend income irrespective of whether we are eligible for the benefits of the Treaty. However, if our ADSs were to be delisted from the NYSE (as discussed above in “Item 3. Key Information — D. Risk Factors — The audit reports included in this annual report are prepared by auditors who are not inspected fully by the Public Company Accounting Oversight Board and, as such, you are deprived of the benefits of such inspection. In addition, legislative and regulatory developments related to U.S.-listed China-based companies due to lack of PCAOB inspection and other developments may have a material adverse impact on our listing and trading in the United States and the trading prices of our ADSs.”), our ADSs would no longer be readily tradable on an established securities market in the United States. If our ADSs were delisted from the NYSE, dividends paid with respect to ADSs will continue to be qualified dividend income so long as we continue to be eligible for the benefits of the Treaty (as discussed above).

The amount of the dividend distribution that you must include in your income as a U.S. holder will be the U.S. dollar value of the HK dollar payments made, determined at the spot HK dollar/U.S. dollar rate on the date the dividend distribution is includible in your income, regardless of whether the payment is in fact converted into U.S. dollars. Generally, any gain or loss resulting from currency exchange fluctuations during the period from the date you include the dividend payment in income to the date you convert the payment into U.S. dollars will be treated as ordinary income or loss and will not be eligible for the special tax rate applicable to qualified dividend income. Dividends paid by us generally will constitute income from sources outside the United States for U.S. foreign tax credit limitation purposes and will generally be categorized as “passive income” for U.S. foreign tax credit purposes. We may be required to withhold PRC income tax on dividends paid to U.S. holders on the H Shares or ADSs. Subject to various limitations, any PRC tax withheld from distributions in accordance with the Treaty will be deductible or creditable against your U.S. federal income tax liability.

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You may not be able to claim a foreign tax credit (and instead may qualify to claim a deduction) for non-U.S. taxes imposed on dividends paid on the H Shares or ADSs if you (i) have held the H Shares or ADSs for less than a specified minimum period, or (ii) are obligated to make related payments with respect to positions in substantially similar or related property (for example, pursuant to a short sale). The rules relating to the U.S. foreign tax credit are complex and U.S. holders may be subject to various limitations on the amount of foreign tax credits that are available. In addition, in the case of a noncorporate U.S. holder, rules similar to the special rules that apply in determining the foreign tax credit limitation when the taxpayer has foreign source capital gains that are taxed in the U.S. at the lower capital gains rate apply in determining the noncorporate U.S. holder's foreign tax credit limitation arising from dividends that are taxed at the capital gains rate.

Sale, Exchange or Other Disposition

Upon a sale, exchange or other disposition of the H Shares, you will generally recognize capital gain or loss for U.S. federal income tax purposes in an amount equal to the difference between the U.S. dollar value of the amount realized and your tax basis, determined in U.S. dollars, in such H Shares. Generally, gain or loss recognized upon the sale or other disposition of H Shares or ADSs will be capital gain or loss, will be long-term capital gain or loss if the U.S. holder's holding period for such H Shares or ADSs exceeds one year, and will be income or loss from sources within the United States for foreign tax credit limitation purposes. Long-term capital gains of noncorporate U.S. holders are generally taxed at preferential rates. The deductibility of capital losses is subject to significant limitations.

With respect to the sale or exchange of H Shares, the amount realized upon a sale of H Shares generally will be the U.S. dollar value on the settlement date for the sale in the case of a cash basis U.S. holder (or an accrual basis U.S. Holder that so elects). If H Shares are traded on an "established securities market," a cash basis taxpayer or, if it so elects, an accrual basis taxpayer, will determine the U.S. dollar value of the amount realized by translating the amount received at the spot rate of exchange on the settlement date of the sale. A U.S. holder will have a tax basis in the foreign currency received equal to the U.S. dollar amount realized. Any currency exchange gain or loss realized on a subsequent conversion of the foreign currency into U.S. dollars for a different amount generally will be treated as ordinary income or loss from sources within the United States. However, if such foreign currency is converted into U.S. dollars on the date received by the U.S. holder, a cash basis or electing accrual basis U.S. holder should not recognize any gain or loss on such conversion.

Any gain or loss that you recognize upon a sale of the H Shares or ADSs will generally be U.S. source gain or loss for foreign tax credit limitation purposes and, as a result of the U.S. foreign tax credit limitation, foreign taxes, if any, imposed upon capital gains in respect of H Shares or ADSs may not be currently creditable. Under the Treaty, however, if any PRC tax were to be imposed on any gain from the disposition of H Shares or ADSs, the gain could be treated as PRC source income. U.S. holders are urged to consult their tax advisors regarding the tax consequences if a foreign tax is imposed on a disposition of H Shares or ADSs, including the availability of the foreign tax credit under their particular circumstances. Any Hong Kong stamp duty paid will not be a creditable tax for United States federal income tax purposes, although the proceeds that you are treated as receiving upon a sale of the H Shares will be reduced by the amount of the stamp duty.

Passive Foreign Investment Company Rules

A non-U.S. corporation is a PFIC for any taxable year in which, after applying relevant look-through rules with respect to the income and assets of subsidiaries:

- 75% or more of its gross income consists of passive income, such as dividends, interest, rents, royalties, and gains from the sale of assets that give rise to such income; or
- 50% or more of the average quarterly value of its gross assets consists of assets that produce, or are held for the production of, passive income.

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Passive income generally includes dividends, interest, gains from the sale or exchange of investment property, rents and royalties, and certain other specified categories of income. However, passive income does not include certain rents and royalties derived from the active conduct of a trade or business. If the stock of a non-U.S. corporation is publicly traded for the taxable year, the asset test is applied using the fair market value of the assets for purposes of measuring such corporation's assets. If we own at least 25% (by value) of the stock of another corporation, we will be treated, for purposes of the PFIC tests, as owning our proportionate share of the other corporation's assets and receiving our proportionate share of the other corporation's income for purposes of the PFIC income and asset tests.

Based on the composition of our assets and income and the current expectations regarding the price of the H Shares and ADSs, we believe that we were not a PFIC for U.S. federal income tax purposes with respect to our 2020 taxable year and we do not intend or anticipate becoming a PFIC in the foreseeable future. However, the determination of PFIC status is a factual determination that must be made annually at the close of each taxable year and, therefore, there can be no certainty as to our status in this regard until the close of the current or any future taxable year. Changes in the nature of our income or assets or a decrease in the trading price of our shares may cause us to be considered a PFIC in the current or any subsequent year. If we were a PFIC in any year during a U.S. holder's holding period for the H Shares or ADSs, we would ordinarily continue to be treated as a PFIC for each subsequent year during which the U.S. holder owned the H Shares or ADSs.

If we were a PFIC in any taxable year that you held the H Shares or ADSs, you generally would be subject to special rules with respect to "excess distributions" made by us on the H Shares or ADSs and with respect to gain from your disposition of the H Shares or ADSs. An "excess distribution" generally is defined as the excess of the distributions you receive with respect to the H Shares or ADSs in any taxable year, other than the taxable year in which your holding period in the H Shares or ADSs begins, over 125% of the average annual distributions you have received from us during the shorter of the three preceding years, or your holding period for the H Shares or ADSs that preceded the taxable year in which you receive the distribution. Generally, you would be required to allocate any excess distribution or gain from the disposition of the H Shares or ADSs ratably over your holding period for the H Shares or ADSs. The portion of the excess distribution or gain allocated to a prior taxable year, other than a year prior to the first year in which we became a PFIC, would be taxed at the highest U.S. federal income tax rate in effect for such taxable year, and you would be subject to an interest charge on the resulting tax liability, determined as if the tax liability had been due with respect to such particular taxable years. The portion of the excess distribution or gain that is not allocated to prior taxable years, together with the portion allocated to the years prior to the first year in which we became a PFIC, would be included in your gross income for the taxable year of the excess distribution or disposition and taxed as ordinary income.

These adverse tax consequences may be mitigated if the U.S. holder is eligible to and does elect to annually mark-to-market the H Shares or ADSs. If a U.S. holder makes a mark-to-market election, such holder will generally include as ordinary income the excess, if any, of the fair market value of the H Shares or ADSs at the end of each taxable year over its adjusted basis, and will be permitted an ordinary loss in respect of the excess, if any, of the adjusted basis of the H Shares or ADSs over their fair market value at the end of the taxable year (but only to the extent of the net amount of income previously included in income as a result of the mark-to-market election). Any gain recognized on the sale or other disposition of the H Shares or ADSs will be treated as ordinary income and any loss would be an ordinary loss to the extent of the net amount of previously included income as a result of the mark-to-market election and, thereafter, a capital loss. The mark-to-market election is available only for "marketable stock," which is stock that is traded in other than *de minimis* quantities on at least 15 days during each calendar quarter on a qualified exchange or other market, as defined in the applicable Treasury regulations. The H Shares or ADSs may qualify as "marketable stock" because the ADSs are listed on the New York Stock Exchange.

A U.S. holder's adjusted tax basis in the H Shares or ADSs will be increased by the amount of any income inclusion and decreased by the amount of any deductions under the mark-to-market rules. If a U.S. holder makes a mark-to-market election it will be effective for the taxable year for which the election is made and all subsequent taxable years unless the H Shares or ADSs are no longer regularly traded on a qualified exchange or the IRS consents to the revocation of the election. U.S. holders are urged to consult their tax advisors about the availability of the mark-to-market election, and whether making the election would be advisable in their particular circumstances. However, the stock of any of our subsidiaries that were PFICs would not be eligible for the mark-to-market election.

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Alternatively, a timely election to treat us as a qualified electing fund could be made to avoid the foregoing rules with respect to excess distributions and dispositions. You should be aware, however, that if we become a PFIC, we do not intend to satisfy the recordkeeping requirements that would permit you to make a qualified electing fund election.

In addition, notwithstanding any election you make with regard to the shares or ADSs, dividends that you receive from us will not constitute qualified dividend income to you if we are a PFIC (or are treated as a PFIC with respect to you) either in the taxable year of the distribution or the preceding taxable year. Dividends that you receive that do not constitute qualified dividend income are not eligible for taxation at the preferential rates applicable to qualified dividend income. Instead, you must include the gross amount of any such dividend paid by us in your gross income, and it will be subject to tax at rates applicable to ordinary income.

If we were regarded as a PFIC, a U.S. holder of H Shares or ADSs may be required to file an information return on IRS Form 8621.

U.S. holders should consult their tax advisors concerning the U.S. federal income tax consequences of holding the H Shares or ADSs if we were considered to be a PFIC.

Information with Respect to Foreign Financial Assets

Owners of “specified foreign financial assets” with an aggregate value in excess of \$50,000 (and in some circumstances, a higher threshold) may be required to file an information report with respect to such assets with their tax returns. “Specified foreign financial assets” may include financial accounts maintained by foreign financial institutions, as well as the following, but only if they are held for investment and not held in accounts maintained by financial institutions: (i) stocks and securities issued by non-United States persons, (ii) financial instruments and contracts that have non-United States issuers or counterparties, and (iii) interests in foreign entities. Holders are urged to consult their tax advisors regarding the application of this reporting requirement to their ownership of the H Shares or ADSs.

Backup Withholding and Information Reporting

If you are a noncorporate U.S. holder, information reporting requirements, on IRS Form 1099, generally will apply to dividend payments or other taxable distributions made to you within the United States, and the payment of proceeds to you from the sale of the H Shares or ADSs effected at a United States office of a broker.

Additionally, backup withholding may apply to such payments if you fail to comply with applicable certification requirements or (in the case of dividend payments) are notified by the IRS that you have failed to report all interest and dividends required to be shown on your federal income tax returns.

Payment of the proceeds from the sale of the H Shares or ADSs effected at a foreign office of a broker generally will not be subject to information reporting or backup withholding. However, a sale effected at a foreign office of a broker could be subject to information reporting in the same manner as a sale within the United States (and in certain cases may be subject to backup withholding as well) if (i) the broker has certain connections to the United States, (ii) the proceeds or confirmation are sent to the United States or (iii) the sale has certain other specified connections with the United States.

You generally may obtain a refund of any amounts withheld under the backup withholding rules that exceed your income tax liability by filing a refund claim with the IRS.

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Hong Kong Taxation

The following discussion summarizes the material Hong Kong tax provisions relating to the ownership of H Shares or ADSs held by you.

Dividends

Under current Hong Kong Inland Revenue Department practice, no Hong Kong tax is payable by the recipient in respect of dividends paid by us, either by withholding or otherwise, unless such dividends are attributable to a trade, profession or business carried on in Hong Kong.

Taxation of Capital Gains

Hong Kong profits tax is currently charged at a flat rate of 16.5% for corporations and 15% for unincorporated businesses and individuals, except that the respective half-rates of 8.25% and 7.5% apply for the first HK\$2 million of assessable profits for years of assessment beginning on or after April 1, 2018.

No Hong Kong tax is imposed on capital gains arising from the sale of property (such as H Shares) acquired and held as a capital investment. However, if a person carries on a business in Hong Kong that includes trading and dealing in securities, and derives trading gains from such activities or from other Hong Kong sources, Hong Kong profits tax will be payable. Gains from sales of H Shares effected on the Hong Kong Stock Exchange are considered to be from a Hong Kong source for this purpose. The source of gains from off-exchange transactions is less clear and, generally, will depend on whether the purchase and sale contracts were negotiated and, in substance, concluded in Hong Kong. In addition, exemption from profits tax is available for certain classes of taxpayers, notably privately offered onshore and offshore funds operating in Hong Kong, as well as non-Hong Kong residents who do not otherwise carry on business in Hong Kong, subject to compliance with various other requirements.

The Hong Kong tax position with respect to gains from the disposal of ADSs is similar. However, no Hong Kong tax will apply on trading gains arising from the sale of ADSs where the purchase and sale were effected on the NYSE.

Hong Kong Stamp Duty

Hong Kong stamp duty is payable by each seller and purchaser for every sold note and every bought note created for every sale and purchase of “Hong Kong stock” (which means stock the transfer of which is required to be registered in Hong Kong), including the H Shares. Stamp duty is charged at the total rate of 0.2% (or 0.26% with effect from August 1, 2021 as explained below) of the value of the H Shares transferred (the buyer and seller each paying half of such stamp duty). In addition, a fixed duty of HK\$5 is currently payable on an instrument of transfer of H Shares. If one of the parties to a sale is a non-resident of Hong Kong and does not pay the required stamp duty, the unpaid stamp duty will be assessed on the instrument of transfer (if any), and the transferee will be liable for the full payment of such amount. On February 24, 2021, the government of Hong Kong announced to increase the stamp duty on the sale and purchase of “Hong Kong stock” by 30% with effect from August 1, 2021, subject to the completion of the necessary legislative process which is ongoing as at the date of this annual report.

If the withdrawal of H Shares when ADSs are surrendered or the issuance of ADSs when H Shares are deposited results in a change of beneficial ownership in the H Shares under Hong Kong law, Hong Kong stamp duty at the rate described above for sale and purchase transactions will apply. The issuance of ADSs for deposited H Shares issued directly to the depository or for the account of the depository should not lead to a Hong Kong stamp duty liability. Holders of the ADSs are not liable for the Hong Kong stamp duty on transfers of ADSs outside of Hong Kong so long as the transfers do not result in a change of beneficial interest in the H Shares under Hong Kong law.

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Estate Duty

The Revenue (Abolition of Estate Duty) Ordinance 2005 came into effect on February 11, 2006 in Hong Kong. No Hong Kong estate duty is payable and no estate duty clearance papers are needed for an application for a grant of representation in respect of holders of H Shares or ADSs whose death occurs on or after February 11, 2006.

F. Dividends and Paying Agents

Not applicable.

G. Statement by Experts

Not applicable.

H. Documents on Display

We are subject to the periodic reporting and other informational requirements of the Exchange Act. Under the Exchange Act, we are required to file reports and other information with the SEC. Specifically, we are required to file an annual report under Form 20-F no later than four months after the close of each of our fiscal years, which is December 31, for fiscal years ended after December 15, 2011. Copies of reports and other information, when so filed, may be inspected without charge and may be obtained at prescribed rates at the SEC's public reference room located at 100 F Street, NE, Washington, D.C. 20549. The public may obtain information regarding the Washington, D.C. Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a website at www.sec.gov that contains reports and other information regarding registrants that make electronic filings with the SEC using its EDGAR filing system. As a foreign private issuer, we are exempt from the rules under the Exchange Act prescribing the furnishing and content of quarterly reports and proxy statements, and officers, directors and principal shareholders of ours are exempt from the reporting and short-swing profit recovery provisions contained in Section 16 of the Exchange Act.

I. Subsidiary Information

Not applicable.

Item 11. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to various types of market risks, including credit risk relating to financial assets and changes in foreign exchange rates, interest rates and the prices of alumina and primary aluminum, in the normal course of business.

We borrow short-term, medium-term and long-term funds, including variable rate debts, principally denominated in Renminbi. We hedge a limited amount of our sales through the trade of futures contracts on the SHFE and LME. Our hedging activities are subject to policies approved by our senior management. Substantially all of the financial instruments we hold are for purposes other than trading.

The following discussion, which contains "forward-looking statements" that involve risks and uncertainties, summarize our market-sensitive financial instruments. Such discussions address markets risk only and do not present other risks, which we face in the normal course of business.

Credit Risk

Credit risk arises from balances with banks and financial institutions, trade and notes receivables, other current and non-current receivables as well as credit exposures of customers, including outstanding receivables and committed transactions. We also provide financial guarantees to certain subsidiaries and a joint venture. The carrying amounts of these receivables and amounts of financial guarantees represent our maximum exposure to credit risk in relation to our financial assets and guarantees.

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We maintain substantially all of our bank balances and cash and short-term investments in several major state-owned banks in the PRC. Our directors are of the opinion that these assets are not exposed to significant credit risk.

With regard to receivables, the marketing department assesses the credit quality of the customers and related parties, taking into account their financial positions, past experience and other factors. We perform periodic credit evaluations of our customers and believe that adequate provisions for impairment of receivables have been made in the financial statements. Management does not expect any further losses from non-performance by these counterparties.

For the year ended December 31, 2020, revenues of approximately RMB46,262 million are derived from entities directly or indirectly owned or controlled by the PRC government including Chinalco. There were no other individual customers from whom we have derived revenue of more than 10% of our revenue during the year ended December 31, 2018, 2019 and 2020. Thus, our directors are of the opinion that we were not exposed to any significant concentration of credit risk as of December 31, 2018, 2019 and 2020.

Foreign Exchange Rate Risk

We conduct our business primarily in Renminbi, which is our functional and reporting currency. We convert a portion of our Renminbi revenues into other currencies to meet foreign currency obligations and to pay for imported equipment and materials.

Many foreign currency exchange transactions involving Renminbi, including foreign exchange transactions under our capital account, are subject to foreign exchange controls and require the approval of the SAFE. Actions taken by the PRC government could cause future exchange rates to vary significantly from current or historical exchange rates. On July 21, 2005, the PBOC announced a reform of its exchange rate system. Under the reform, the Renminbi is no longer effectively linked to the U.S. dollar but instead is allowed to fluctuate within a narrow and managed band against a basket of foreign currencies, according to market demand and supply conditions. In April 2012, the PRC government took a milestone step in turning the Renminbi into a global currency by doubling the size of its trading band against the U.S. dollar, pushing through a crucial reform that further liberalizes its financial markets. The PBOC allows the Renminbi to rise or fall 1% from a mid-point every day, effective on April 16, 2012, compared with its previous 0.5% limit. The PBOC allows the Renminbi to rise or fall 2% from a mid-point every day, effective on March 17, 2014, compared with its previous 1% limit. In August 2015, the PBOC announced that the daily central parity quotes the market-makers reported to the China Foreign Exchange Trade System operated by the PBOC before the market opens should be based on the closing rate of the inter-bank foreign exchange rate market on the previous day, supply and demand in the market, and price movement of major currencies, effective on August 11, 2015. Any appreciation of the Renminbi will increase the prices of our export sales denominated in foreign currencies and reduce the Renminbi equivalent value of our trade and notes receivable denominated in foreign currencies, which may adversely affect our financial condition and results of operations. Our financial condition and operating performance may also be affected by changes in the value of currencies other than Renminbi in which our earnings and obligations are denominated.

Our bank balances and cash on hand as of December 31, 2020 amounted to RMB10,687.2 million, including Renminbi balances and foreign currency deposits of U.S. dollar, HK dollar, Euro and Indonesian rupiah, which translated into RMB9,581.2 million, RMB1,095.7 million, RMB2.8 million and RMB7.5 million, respectively. Most of our sales are domestic and as such we have a limited amount of foreign currency denominated receivables and payables. As of December 31, 2020, we had foreign currency denominated loans with principal amount of RMB14.7 million in Japanese Yen and RMB3,916.7 million in U.S. dollars. In addition, as of December 31, 2020, our trade and notes receivables, other receivables and trade and notes payables denominated in U.S. dollars amounted to RMB684.9 million, RMB151.8 million and RMB34.6 million, respectively; our other payables and accrued liabilities denominated in U.S. dollars and HK dollars amounted to RMB92.2 million and RMB0.2 million, respectively.

As of December 31, 2020, if Renminbi had strengthened/weakened by 5% against U.S. dollars with all other variables held constant, the total comprehensive income for the year would have been approximately RMB82 million higher/lower, mainly as a result of foreign exchange gains and losses arising from the translation of U.S.-dollar-denominated borrowings, other payables and medium-term note. Profit was less sensitive to the fluctuation in the RMB/U.S. dollars exchange rates in 2020 than in 2019, mainly due to decrease in the USD denominated other payables and medium-term notes.

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As the assets and liabilities denominated in other foreign currencies other than U.S. dollars were relatively minimal to our total assets and liabilities, our directors are of the opinion that we were not exposed to significant foreign currency risk arising from other assets and liabilities denominated in currency other than the functional currency of the group entities as of December 31, 2019 and 2020.

Interest Rate Risk

As of December 31, 2020, as we had no significant interest-bearing assets except for bank deposits and entrusted loans, our income and operating cash flows are substantially independent of changes in market interest rates.

Most of the bank deposits are maintained in savings and time deposit accounts in the PRC. The interest rates are regulated by the PBOC and our Group treasury closely monitors the fluctuation on such rates periodically. The interest rates of entrusted loans are fixed. As the interest rates applied to the entrusted loans were fixed, our directors are of the opinion that we were not exposed to any significant interest rate risk for our financial assets held as of December 31, 2019 and 2020.

The interest rate risk for our financial liabilities primarily arises from interest-bearing loans. Loans borrowed at floating interest rates expose us to cash flow interest rate risk. We enter into debt obligations to support general corporate purposes including capital expenditures and working capital needs. Our Group treasury closely monitors market interest rates and maintains a balance between variable rate and fixed rate borrowings in order to reduce the exposures to the interest rate risk described above.

As of December 31, 2020, if interest rates had been 100 basis points higher/lower for bank and other loans borrowed at floating interest rates with all other variables held constant, net profit for the year would have been RMB430 million lower/higher, respectively, mainly as a result of the higher/lower interest expense on floating rate borrowings.

Our interest rate risk for our financial liabilities also arises from medium-term notes and short-term bonds issued at fixed rates. As the fluctuation of comparable interest rates of corporate bonds with similar terms was relatively low, our directors are of the opinion that we are not exposed to any significant fair value interest rate risk for its fixed interest rate borrowings held as of December 31, 2019 and 2020.

Commodity Price Risk

We are exposed to fluctuations in the prices of alumina, primary aluminum and other products. We import a small portion of our alumina supply from suppliers outside China. Such purchases are made at market prices. In addition, all our sales of alumina, primary aluminum and other products are made at market prices. Therefore, fluctuations in the prices of alumina and primary aluminum have a significant effect on our operating performances.

We use mainly futures contracts and option contracts traded on the SHFE and the LME to hedge against fluctuations in primary aluminum prices. We use the futures contract for hedging other than speculation. As of December 31, 2020, the fair values of the outstanding futures contracts amounting to RMB17 million and RMB27 million were recognized in financial assets and financial liabilities at fair value through profit or loss, respectively. As of December 31, 2020, we did not hold any option contracts.

As of December 31, 2019 and 2020, if the commodity futures prices had increased/decreased by 3% and all other variables held constant, the profit for the respective year would have changed by the amounts shown below:

	2019	2020
Primary aluminum	Decrease/increase RMB40 million	Decrease/increase RMB5 million

Liquidity risk

We monitor rolling forecasts of our liquidity requirements to ensure we have sufficient cash to meet operational needs while maintaining sufficient headroom on our undrawn committed borrowing facilities at all times so that we do not breach borrowing limits or covenants (where applicable) on any of our borrowing facilities. Such forecast takes into consideration our debt financing plans, covenant compliance, compliance with internal balance sheet ratio targets and, if applicable, external regulatory or legal requirements. Our management also monitors rolling forecasts of our liquidity reserve on the basis of expected cash flows.

As of December 31, 2020, we had total banking facilities of approximately RMB207,605 million, of which RMB51,287 million had been utilized, and unutilized banking facilities amounted to RMB156,318 million as of December 31, 2020, among which, banking facilities of approximately RMB130,371 million will be subject to renewal during the next 12 months from January 1, 2021. Our directors are confident that such banking facilities could be renewed upon their expiration based on our past experience with banks and our good credit standing. In addition, as of December 31, 2020, we had no credit facilities through our futures agent at LME. The futures agent has the right to adjust the related credit facilities.

The following table sets forth the maturity profile of our financial liabilities as of December 31, 2020:

	<u>Within 1 year⁽¹⁾</u>	<u>1 to 2 years⁽¹⁾</u>	<u>2 to 5 years⁽¹⁾</u> <i>(RMB in millions)</i>	<u>Over 5 years⁽¹⁾</u>	<u>Total⁽¹⁾</u>
Lease liabilities, including current portion	1,151.3	473.4	1,263.8	9,708.7	12,597.2
Long-term bank and other loans, including current portion	3,629.0	6,702.7	15,638.1	17,044.8	43,014.6
Medium-term notes and bonds, including current portion	7,110.0	3,000.0	6,900.0	2,000.0	19,010.0
Short-term bonds	2,400.0	—	—	—	2,400.0
Gold leasing arrangement	—	—	—	—	—
Short-term bank and other loans	20,738.0	—	—	—	20,738.0
Interest payables for loans and borrowings	2,935.4	2,105.8	4,046.1	2,039.1	11,126.4
Financial liabilities at fair value through profit or loss	26.7	—	—	—	26.7
Financial liabilities included in other payables and accrued liabilities, excluding accrued interest	8,454.1	—	—	—	8,454.1
Financial liabilities included in other non-current liabilities ⁽²⁾	—	194.6	74.4	767.9	1,036.9
Trade and notes payables	15,440.9	—	—	—	15,440.9
Total	61,885.4	12,476.5	27,922.4	31,560.5	133,844.8

(1) The amounts disclosed are the contractual undiscounted cash flows.

(2) As of December 31, 2020, the carrying value of financial liabilities included in other non-current liabilities was RMB1,036.9 million.

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Item 12. Description of Securities Other Than Equity Securities

A. Debt Securities

Not applicable.

B. Warrants and Rights

Not applicable.

C. Other Securities

Not applicable.

D. American Depositary Shares

The following table summarizes the fees and charges that a holder of our ADSs may have to pay, directly or indirectly, in connection with the ownership of Chalco's ADSs.

Persons depositing or withdrawing shares must pay:	For:
\$5.00 (or less) per 100 ADSs (or portion thereof)	<ul style="list-style-type: none">• Issuance of ADSs, including issuances resulting from a distribution of shares or rights or other property
	<ul style="list-style-type: none">• Cancellation of ADSs for the purpose of withdrawal, including if the deposit agreement terminates
\$0.02 (or less) per ADS (or portion thereof)	<ul style="list-style-type: none">• Any cash distribution
A fee equivalent to the fee that would be payable if securities distributed to ADS holders had been shares and the shares had been deposited for issuance of ADSs	<ul style="list-style-type: none">• Distribution of securities distributed to holders of deposited securities (including rights) that are distributed by the depositary of ADS holders
\$0.02 (or less) per ADS (or portion thereof) per calendar year	<ul style="list-style-type: none">• Depositary services
As necessary	<ul style="list-style-type: none">• Transfer and registration of shares to or from the name of the depositary or its agent when you deposit or withdraw shares
As necessary	<ul style="list-style-type: none">• Cable, telex and facsimile transmissions (when expressly provided in the deposit agreement)
	<ul style="list-style-type: none">• Converting foreign currency to U.S. dollars
As necessary	<ul style="list-style-type: none">• Taxes and other governmental charges that the depositary or the custodian have to pay on any ADS or share underlying an ADS, for example, stock transfer taxes, stamp duty or withholding taxes

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Persons depositing or withdrawing shares must pay:

For:

As necessary

- Any charges incurred by the depository or its agents for servicing the deposited securities

The Bank of New York Mellon, as depository, has agreed to reimburse certain expenses related to the administration and maintenance of our ADR program incurred by us in connection with the program. From January 1, 2020 to December 31, 2020, we received from the depository reimbursements of US\$25,582 for our continuing annual stock exchange listing fees and our expenses incurred in connection with investor relationship programs. The depository has also agreed to waive certain standard out-of-pocket administrative, maintenance and shareholder services expenses related to our ADR program. From January 1, 2020 to December 31, 2020, the total amount of the fees that were waived was US\$112,004.

PART II

Item 13. Defaults, Dividend Arrearages and Delinquencies

None.

Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds

None.

Item 15. Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, after evaluating the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15(d)-15(e) of the Exchange Act) as of the end of the period covered by this annual report, have concluded that, as of such date, our disclosure controls and procedures were effective.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Our internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of a company's assets, (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors, and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the consolidated financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Under the supervision of and with the participation of the principal executive officer and principal financial officer, our management conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2020, based on the framework in the Internal Control-Integrated Framework (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission in May 2013.

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Based on our evaluation under the framework in Internal Control-Integrated Framework (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission, our management concluded that, as of December 31, 2020, our internal control over financial reporting was effective to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with the IFRS.

The effectiveness of our internal controls over financial reporting as of December 31, 2020 has been audited by PricewaterhouseCoopers Zhong Tian LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Changes in Internal Control over Financial Reporting

During 2020, there have been no material changes in our internal control over financial reporting that occurred during the fiscal year covered by this annual report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 16A. Audit Committee Financial Expert

Our audit committee members are three independent non-executive directors, namely, Ms. Chen Lijie, Mr. Hu Shihai and Mr. Lie-A-Cheong Tai Chong, David. Our Board has determined that Mr. Lie-A-Cheong Tai Chong, David, the chairman of the audit committee, qualifies as an “audit committee financial expert” as defined in Item 16A of Form 20-F and is the financial expert serving on our audit committee. See “Item 6. Directors, Senior Management and Employees.”

Item 16B. Code of Ethics

We have adopted a code of ethics that applies to our chief executive officer, chief financial officer, other directors, independent non-executive directors, senior management and employees. We have posted our code of ethics on our website: <http://www.chalco.com.cn/en/qywhen/gjglen/202012/P020201215377712432190.pdf>. A hard copy of this code of ethics is available to investors free of charge upon written request to the address on the cover of this annual report on Form 20-F.

Item 16C. Principal Accountant Fees and Services

Ernst & Young Hua Ming LLP served as our independent auditor for the fiscal year ended December 31, 2019. On June 24, 2020, we engaged PricewaterhouseCoopers Zhong Tian LLP served as our independent auditor for the fiscal year ended December 31, 2020. A description of the fees billed to us by our principal accountants for professional services in each of the last two fiscal years is set forth below:

	Year ended December 31	
	2019	2020
	<i>(RMB in thousands)</i>	
Audit fee	25,444 ⁽¹⁾	18,170 ⁽²⁾
Audit-related fees	250 ⁽³⁾	—
Tax fees	1,938 ⁽⁴⁾	700 ⁽⁵⁾
Other fees	200 ⁽⁶⁾	—

(1) “Audit fee” for the year ended December 31, 2019 represents the fee obtained from audit work charged by Ernst & Young Hua Ming LLP and Ernst & Young.

(2) “Audit fee” for the year ended December 31, 2020 represents the fee obtained from audit work charged by PricewaterhouseCoopers and PricewaterhouseCoopers Zhong Tian LLP.

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- (3) “Audit-related fees” for the year ended December 31, 2019 represent aggregate fees charged by Ernst & Young Hua Ming LLP and Ernst & Young for comfort letters about acquisitions and issue of capital verification report.
- (4) “Tax fees” for the year ended December 31, 2019 represent the fees charged by Ernst & Young (China) Advisory Limited for providing consulting services.
- (5) “Tax fees” for the year ended December 31, 2020 represent the fees charged by PricewaterhouseCoopers Consultants (Shenzhen) Limited, Beijing Branch for providing consulting services.
- (6) “Other fees” for the year ended December 31, 2019 represent the fees charged by Ernst & Young (China) Advisory Limited for permissible professional services rendered in connection with the environmental, social and governance report, investment advisory and other advisories.

Our audit committee pre-approves all audit, audit-related services, tax services and other services performed by our principal accountants, including the services provided by Ernst & Young Hua Ming LLP and PricewaterhouseCoopers Zhong Tian LLP for the years ended December 31, 2019 and 2020, respectively.

Item 16D. Exemptions from the Listing Standards for Audit Committees

Not applicable.

Item 16E. Purchase of Equity Securities by the Issuer and Affiliated Purchasers

We did not have an equity securities repurchase program and did not repurchase any of our equity securities during the year ended December 31, 2020.

Item 16F. Change in Registrant’s Certifying Accountant

(a) Change of Principal Accountant

On March 26, 2020, our Board resolved, as approved and recommended by our audit committee, to propose change in our independent registered public accounting firms, Ernst & Young Hua Ming LLP (“EY”), upon the expiration of its current term of office at the close of the forthcoming annual general meeting of the shareholders in June 2020 (the “2019 AGM”) due to the relevant regulations issued by the MOF and the SASAC, which impose certain restrictions in respect of the number of years of audit services that an accounting firm may continuously provide to a state-owned enterprise and its subsidiaries. As a result, EY did not offer themselves for re-appointment at the 2019 AGM.

EY’s audit reports on the consolidated financial statements for the fiscal years ended December 31, 2018 and 2019, and for the fiscal years ended December 31, 2018 and 2019, do not contain any adverse opinion or any disclaimer of opinion, and are not qualified or modified as to uncertainty, audit scope, or accounting principles.

During the years ended December 31, 2018 and 2019 and through June 23, 2020, the date of retirement, there have been no (i) disagreements between us and EY on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which, if not resolved to the satisfaction of EY, would have caused them to make reference thereto in their audit reports on the consolidated financial statements for such years, or (ii) reportable events as defined in Item 16F(a)(1)(v) of Form 20-F. As used herein, the term “reportable event” means any of the items listed in paragraphs (a)(1)(v)(A)-(D) of Item 16F of Form 20-F.

We have provided a copy of the above statements to EY and have requested that EY furnish us with a letter addressed to the SEC stating whether they agree with the above statements, and if not, stating the respects in which they do not agree. A copy of such letter, dated April 22, 2021, furnished by EY is filed as Exhibit 15.1 to this annual report on Form 20-F.

(b) Appointment of New Principal Accountant

On March 26, 2020, our Board resolved, as approved and recommended by our audit committee, to propose to appoint PricewaterhouseCoopers Zhong Tian LLP (“PwC”) as our new independent registered public accounting firm, which was approved by our shareholders at the 2019 AGM held on June 23, 2020, upon which the tenure of the office of PwC commenced.

During the years ended December 31, 2018 and 2019 and through June 23, 2020, neither we nor anyone on our behalf consulted PwC regarding (i) the application of accounting principles to a specified transaction, either completed or proposed, (ii) the type of audit opinion that might be rendered on our consolidated financial statements, and neither a written report nor oral advice was provided to us that PwC concluded was an important factor considered by us in reaching a decision as to any accounting, auditing, or financial reporting issue, (iii) any matter that was the subject of disagreement as defined in Item 16F(a)(1)(iv) of Form 20-F and the related instructions to this Item, or (iv) any reportable events as defined in paragraphs Item 16F(a)(1)(v) of Form 20-F.

Item 16G. Corporate Governance

The NYSE has imposed a series of corporate governance standards for companies listed on the NYSE in Section 303A of the NYSE Listed Company Manual. However, the NYSE provides that listed companies that are foreign private issuers, subject to certain limitations and conditions, are permitted to follow “home country” practice in lieu of the provisions of Section 303A of the NYSE Listed Company Manual. As a foreign private issuer listed on the NYSE, we are required to disclose a summary of the significant differences between our corporate governance practice and NYSE corporate governance rules that apply to U.S. domestic issuers.

	NYSE Listed Company Manual Requirements on Corporate Governance	Our Practice
Majority of independent directors	NYSE requires that the board of a listed company must comprise a majority of independent directors.	Under applicable PRC and Hong Kong laws and regulations, our Board is not required to be formed with a majority of independent directors. The Listing Rules require that every board of directors of a listed company must include at least three independent non-executive directors and at least one third of the board of directors of a listed company are independent non-executive directors. Our Board currently comprises three independent directors and three non-independent directors, which is in compliance with the requirement by the PRC securities regulatory authorities and of the Listing Rules.
Nominating/Corporate Governance Committee	NYSE requires U.S. domestic issuers to have only independent directors on their nominating/corporate governance committees.	The Listing Rules require that listed companies should establish a nomination committee which consists of a majority of independent non-executive directors. We have a nomination committee that consists of three independent directors, which is in compliance with the requirement of the Listing Rules.
Compensation Committee	NYSE requires U.S. domestic issuers to have a compensation committee composed entirely of independent directors.	The Listing Rules contain a code provision that the listed companies should establish a remuneration committee which consists of a majority of independent non-executive directors. We have a remuneration committee that consists of two independent directors and a non-independent director, which is in compliance with the requirement of the Listing Rules.

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Item 16H. Mine Safety Disclosure

As of the date of this annual report, we do not own or operate any mine in the United States. For details of the mining safety control of our bauxite mines in China, see “Item 4. Information on the Company - B. Business Overview - Raw Materials - Alumina - Own Mines.”

PART III

Item 17. Financial Statements

We have elected to provide the financial statements and related information specified in Item 18 in lieu of Item 17.

Item 18. Financial Statements

The audited Consolidated Financial Statements as required under Item 18 are attached hereto starting on page F-1 of this Form 20-F.

Item 19. Exhibits

<u>Exhibit Number</u>	<u>Description</u>
1.1	English translation of Amended Articles of Association of Aluminum Corporation of China Limited (incorporated by reference to Exhibit 1.1 of our annual report on Form 20-F (file No. 001-15264) filed with the Securities and Exchange Commission on April 22, 2020)
2.1	Registrant’s Specimen American Depositary Receipt (incorporated by reference to Exhibit 2.1 of our annual report on Form 20-F/A (file No. 001-15264) filed with the Securities and Exchange Commission on October 9, 2012)
2.2	Registrant’s Specimen Certificate for H Shares (incorporated by reference to Exhibit 2.2 of our annual report on Form 20-F/A (file No.001-15264) filed with the Securities and Exchange Commission on October 9, 2012)
2.3	Deposit Agreement among the Registrant, The Bank of New York, as depositary, and Owners and Beneficial Owners of the American Depositary Receipts (incorporated by reference to Exhibit 2.3 of our annual report on Form 20-F/A (file No. 001-15264) filed with the Securities and Exchange Commission on October 9, 2012)
2.4	Description of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (incorporated by reference to Exhibit 2.4 of our annual report on Form 20-F (file No. 001-15264) filed with the Securities and Exchange Commission on April 22, 2020)
4.1	English translation of Form of Employment Contract (incorporated by reference to Exhibit 4.1 of our annual report on Form 20-F/A (file No. 001-15264) filed with the Securities and Exchange Commission on October 9, 2012)
8.1*	List of Subsidiaries of Aluminum Corporation of China Limited as of December 31, 2020

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Exhibit Number	Description
12.1*	Certification by the Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
12.2*	Certification by the Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
13.1*	Certification by the Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
13.2*	Certification by the Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
15.1*	Letter from Ernst & Young Hua Ming LLP
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed with this annual report on Form 20-F

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SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

ALUMINUM CORPORATION OF CHINA LIMITED

By: /s/ Zhu Runzhou

Name: Zhu Runzhou

Title: Executive Director and President

Date: April 22, 2021

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ALUMINUM CORPORATION OF CHINA LIMITED AND ITS SUBSIDIARIES

Consolidated Financial Statements

For the Years Ended December 31, 2018, 2019 and 2020

Together with Reports of Independent Public Accounting Firm

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INDEX TO THE CONSOLIDATED FINANCIAL STATEMENTS
ALUMINUM CORPORATION OF CHINA LIMITED

	<u>Pages</u>
Reports of the Independent Registered Public Accounting Firm	F3-F11
Consolidated Statements of Financial Position as of December 31, 2019 and 2020	F12-F13
Consolidated Statements of Profit or Loss and Other Comprehensive Income for the Years Ended December 31, 2018, 2019 and 2020	F14-F15
Consolidated Statements of Changes in Equity for the Years Ended December 31, 2018, 2019 and 2020	F16-F18
Consolidated Statements of Cash Flows for the Years Ended December 31, 2018, 2019 and 2020	F19-F20
Notes to the Consolidated Financial Statements	F21-F152

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Aluminum Corporation of China Limited

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial position of Aluminum Corporation of China Limited and its subsidiaries (the “Company”) as of December 31, 2020, and the related consolidated statements of profit or loss and other comprehensive income, changes in equity and cash flows for the year ended December 31, 2020, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company’s internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2020, and the results of its operations and its cash flows for the year ended December 31, 2020 in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinion

The Company’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting appearing under Item 15. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Impairment assessment of property, plant and equipment

As described in Note 3(a) and Note 7 to the consolidated financial statements, the Company's net carrying value of property, plant and equipment ("PP&E") was RMB 100,638 million as of December 31, 2020. Management assesses related assets for potential impairment whenever there are indications that the carrying value of an asset or a group of assets may not be recoverable. As of December 31, 2020, management performed impairment assessment on PP&E with impairment indications at the level of cash generating unit ("CGU") to which the PP&E was allocated using discounted cash flow model. The discounted cash flow model applied for the impairment assessment involved significant assumptions including product prices and discount rate.

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The principal considerations for our determination that performing procedures relating to the impairment assessment of PP&E is a critical audit matter are there were significant judgements by management in determining their respective recoverable amount using discounted cash flows model. This in turn led to a high degree of auditor judgment, subjectivity and audit effort in evaluating management's significant assumptions including product prices and discount rate. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included evaluating and testing the effectiveness of controls relating to management's impairment assessment of PP&E, including controls over the development of model and significant assumptions used in the impairment assessment. These procedures also included, among others, (i) testing management's process for determining the recoverable amount of PP&E with impairment indications; (ii) evaluating the appropriateness of the management's model used to determine the recoverable amount; (iii) evaluating the reasonableness of significant assumption of product prices by comparing management forecast prices against historical prices and present market prices, taking into account the published forecast prices ; and (iv) testing the completeness, accuracy and relevancy of the underlying data used and the mathematical accuracy of the calculations in the model. Professionals with specialized skill and knowledge were used to assist in the evaluation of the appropriateness of the model and the reasonableness of certain significant assumptions, including the discount rate.

Impairment assessment of goodwill

As described in Note 3(b) and Note 6 to the consolidated financial statements, the Company's carrying value of goodwill was RMB 3,510 million as of December 31, 2020. Management performed impairment assessment of goodwill on an annual basis. When performing the impairment assessment, the recoverable amount of the CGU to which the goodwill was allocated was estimated by management using discounted cash flows model, and compared with the carrying value of the CGU to determine if goodwill was impaired. The discounted cash flows model used for the impairment assessment involved significant assumptions including product prices, long-term growth rate and discount rate.

The principal considerations for our determination that performing procedures relating to the impairment assessment of goodwill is a critical audit matter are there were significant judgements by management in determining their respective recoverable amount using discounted cash flows model. This in turn led to a high degree of auditor judgment, subjectivity and audit effort in evaluating management's significant assumptions including product prices, long-term growth rate and discount rate. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

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Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included evaluating and testing the effectiveness of controls relating to management's impairment assessment of goodwill, including controls over the development of model and significant assumptions used in the impairment assessment. These procedures also included, among others, (i) testing management's process for determining recoverable amount of goodwill; (ii) evaluating the appropriateness of management's model used to determine recoverable amount; (iii) evaluating the reasonableness of significant assumption of product prices used by management by comparing management forecast price against historical prices and present market prices, taking into account the published forecast prices; and (iv) testing the completeness, accuracy and relevancy of the underlying data used and the mathematical accuracy of the calculations in the model. Professionals with specialized skill and knowledge were used to assist in the evaluation of the appropriateness of the model and the reasonableness of certain significant assumptions, including the long-term growth rate and discount rate.

/s/ PricewaterhouseCoopers Zhong Tian LLP
PricewaterhouseCoopers Zhong Tian LLP
Shanghai, the People's Republic of China
April 22, 2021

We have served as the Company's auditor since 2020.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of Aluminum Corporation of China Limited

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial position of Aluminum Corporation of China Limited (the “Group”) as of December 31, 2019, and the related consolidated statements of profit or loss and other comprehensive income, changes in equity and cash flows for each of the two years in the period ended December 31, 2019, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Group at December 31, 2019, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2019, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Group’s internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated April 22, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Group’s management. Our responsibility is to express an opinion on the Group’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Group in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of the critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Impairment of property, plant and equipment

Description of the Matter

At December 31, 2019, the Group’s property, plant and equipment (“PPE”) was RMB103,409 million. As described in Notes 2.11, 3 and 7 to the consolidated financial statements, the Group is required to review PPE for impairment whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. Management performed an impairment assessment on such PPE by determining the recoverable amounts of the cash generating units (“CGUs”) that the PPE are allocated to. As a result of the impairment assessment, impairment losses of RMB259 million were recognized during the year ended December 31, 2019.

Auditing management’s impairment assessment of PPE was complex due to the significant estimates and judgments involved in the projections of future cash flows, including the future prices of aluminum and alumina, expected production and sales volumes, production costs, operating expenses and discount rates applied to these forecasted future cash flows. These estimates and judgments may be significantly affected by unexpected changes in the future market or economic conditions.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design, and tested the operating effectiveness of controls over the PPE impairment assessment process including tests of controls over management’s review of the significant assumptions used in the impairment assessment.

Amongst other audit procedures performed, we compared the methodology used by the Group, that is, recoverable amount calculations based on future discounted cash flows, to industry practice and tested the completeness and accuracy of the underlying data used in the projections. We also assessed the reasonableness of the significant assumptions used in the calculations, which comprised of, amongst others, future prices of aluminum and alumina, expected production and sales volumes, production costs, operating expenses and discount rates, by comparing them to external industry outlook reports from a number of sources and by analyzing the historical accuracy of management’s estimates. In addition, we involved our valuation specialists to assist us with assessing the appropriateness of the valuation methodologies and the reasonableness of assumptions used, including the discount rates.

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We performed a sensitivity analysis around the significant assumptions described above to assess the changes to the recoverable amounts of the CGUs resulting from changes in these assumptions, both individually and in aggregate.

We also assessed the adequacy of the Group's disclosures included in Note 7 to the consolidated financial statements regarding the significant assumptions of impairment testing.

Impairment of goodwill

Description of the Matter

At December 31, 2019, the Group's goodwill was RMB3,511 million. As described in Notes 2.3, 2.11, 3 and 6 to the consolidated financial statements, the Group is required to, at least annually, perform impairment assessments of goodwill. For the purpose of performing impairment assessments, goodwill was allocated to CGUs. Management performed the impairment testing by comparing the recoverable amount of the CGUs and the carrying amount of the CGUs.

Auditing management's annual goodwill impairment assessment was complex because the determination of the recoverable amount of the underlying CGUs involved estimates and judgments, including future prices of aluminum and alumina, expected production and sales volumes, production costs, operating expenses, terminal growth rates used to estimate future cash flows and discount rates applied to these forecasted future cash flows of the underlying CGUs. These estimates and judgments may be significantly affected by unexpected changes in future market or economic conditions.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design, and tested the operating effectiveness of controls over the impairment assessment process including testing controls over management's review of the key assumptions used in the goodwill impairment assessment. Amongst other audit procedures performed, we compared the methodology used (recoverable amount calculations based on future discounted cash flows) by the Group to industry guidelines, and tested the completeness and accuracy of the underlying data used in the forecast. We evaluated the reasonableness of management's key assumptions used in the calculations, which comprised of, among others, future prices of aluminum and alumina, expected production and sales volumes, production costs, operating expenses, terminal growth rates, and discount rates, by comparing them to external industry outlook reports from a number of sources and analyzing the historical accuracy of management's estimates. In addition, we involved our valuation specialists to assist us with assessing the appropriateness of the valuation methodologies and the reasonableness of assumptions used, including the discount rates.

We performed a sensitivity analysis around the key assumptions described above to evaluate the changes to the recoverable amounts of the CGUs resulting from changes in these assumptions, both individually and in aggregate.

We also assessed the adequacy of the Group's disclosures included in Note 6 to the consolidated financial statements regarding the key assumptions of impairment testing.

Recognition of deferred tax assets

Description of the Matter

At December 31, 2019, the Group had deferred tax assets on deductible temporary differences and tax losses carried forward of RMB1,523 million. As described in Notes 2.20, 3 and 11 to the consolidated financial statements, the Group recognized these deferred tax assets to the extent that it is probable that future taxable profits will be available to utilize the deferred tax assets.

Auditing management's recoverability assessment of deferred tax assets involved subjective estimation and complex auditor judgment because the forecast of future taxable profits is complex and judgmental and is based on significant assumptions, including future tax rates, the possible utilization of loss carry forwards and future taxable profits that are affected by unexpected changes in the tax law framework and future market or economic conditions.

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*How We Addressed the Matter in
Our Audit*

We obtained an understanding, evaluated the design, and tested the operating effectiveness of controls over the recoverability assessment of deferred tax assets including testing controls over management's review of the significant assumptions used in the forecast.

Among other audit procedures performed, we compared the tax rates and the possible utilization of loss carry forwards with the tax law framework and tested the completeness and accuracy of the underlying data used in the forecast. We tested the Group's scheduling of the timing and amount of reversal of taxable temporary differences.

We also evaluated management's significant assumptions in determining the future available taxable profits, for example, the future prices of aluminum and alumina, expected production and sales volumes, production costs and operating expenses by comparing them with the market trend forecasted by external industry analysts and analyzing the historical accuracy of management's estimates.

In addition, we involved our tax professionals to assist us in evaluating the technical merits from a tax perspective of management's analysis.

We also assessed the adequacy of the Group's disclosures included in Note 11 to the consolidated financial statements regarding deferred tax assets.

/s/ Ernst & Young Hua Ming LLP

We served as the Group's auditor from 2012 to 2019.

Beijing, the People's Republic of China

April 22, 2020 except for the effects of business combinations under common control incurred in 2020 as discussed in Note 39, as to which the date is April 22, 2021

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CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

Year ended 31 December 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

	Notes	December 31,	December 31, 2020	
		(Restated) RMB'000	RMB'000	USD'000
ASSETS				
Non-current assets				
Intangible assets	6	13,764,460	13,448,304	2,061,043
Property, plant and equipment	7	103,408,976	100,638,153	15,423,472
Investment properties	8	1,503,266	1,601,876	245,498
Right-of-use assets	20 (a)	15,890,437	14,287,838	2,189,707
Investments in joint ventures	9 (a)	3,385,582	3,374,553	517,173
Investments in associates	9 (b)	9,512,401	9,173,410	1,405,887
Other financial assets measured at fair value	10	2,239,251	1,526,703	233,977
Deferred tax assets	11	1,522,729	1,481,235	227,009
Other non-current assets	12	3,208,922	3,165,920	485,198
Total non-current assets		154,436,024	148,697,992	22,788,964
Current assets				
Inventories	13	19,515,641	19,856,754	3,043,181
Trade and notes receivables	14	7,419,218	9,293,218	1,424,247
Other current assets	15	9,178,799	6,349,220	973,061
Other financial assets measured at fair value	37.2	3,503,175	17,311	2,653
Restricted cash and term deposits	16	1,305,781	1,056,037	161,845
Cash and cash equivalents (excluding bank overdrafts)	16	7,778,853	9,631,152	1,476,039
Total current assets		48,701,467	46,203,692	7,081,026
Total assets		203,137,491	194,901,684	29,869,990

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CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

Year ended 31 December 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

	Notes	December 31,	December 31, 2020	
		(Restated) RMB'000	RMB'000	USD'000
EQUITY AND LIABILITIES				
EQUITY				
Equity attributable to owners of the Company				
Share capital	17	17,022,673	17,022,673	2,608,839
Other equity instruments	41	5,487,104	4,486,429	687,575
Other reserves	18	34,369,802	34,564,504	5,297,242
Accumulated losses		(2,207,600)	(1,741,596)	(266,911)
		<u>54,671,979</u>	<u>54,332,010</u>	<u>8,326,745</u>
Non-controlling interests	38	<u>16,085,487</u>	<u>16,839,706</u>	<u>2,580,798</u>
Total equity		<u>70,757,466</u>	<u>71,171,716</u>	<u>10,907,543</u>
LIABILITIES				
Non-current liabilities				
Interest-bearing loans and borrowings	19	59,243,563	57,518,097	8,815,034
Other non-current liabilities	21	2,220,620	2,147,558	329,128
Deferred tax liabilities	11	<u>1,712,739</u>	<u>1,437,087</u>	<u>220,243</u>
Total non-current liabilities		<u>63,176,922</u>	<u>61,102,742</u>	<u>9,364,405</u>
Current liabilities				
Trade and notes payables	23	12,608,806	15,440,859	2,366,415
Other payables and accrued liabilities	22	12,415,608	10,754,008	1,648,123
Contract liabilities	5	1,638,826	1,399,339	214,458
Financial liabilities at fair value through profit or loss	37.2	805	26,684	4,090
Income tax payable		252,454	299,053	45,832
Interest-bearing loans and borrowings	19	<u>42,286,604</u>	<u>34,707,283</u>	<u>5,319,124</u>
Total current liabilities		<u>69,203,103</u>	<u>62,627,226</u>	<u>9,598,042</u>
Total liabilities		<u>132,380,025</u>	<u>123,729,968</u>	<u>18,962,447</u>
Total equity and liabilities		<u>203,137,491</u>	<u>194,901,684</u>	<u>29,869,990</u>
Net current liabilities		<u>(20,501,636)</u>	<u>(16,423,534)</u>	<u>(2,517,016)</u>
Total assets less current liabilities		<u>133,934,388</u>	<u>132,274,458</u>	<u>20,271,948</u>

The accompanying notes on pages F-21 to F-152 are an integral part of these consolidated financial statements.

The financial statements on pages F-12 to F-152 were approved by the Board of Directors on April 22, 2021 and were signed on its behalf.

Zhu Runzhou
Executive Director and President

Wang Jun
Chief Financial Officer

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

	Note	2018 (Restated)	2019 (Restated)	2020	
		RMB'000	RMB'000	RMB'000	USD'000
Revenue	5	180,350,912	190,215,398	185,994,253	28,504,866
Cost of sales	25	(167,110,215)	(178,068,129)	(172,571,364)	(26,447,719)
Gross profit		<u>13,240,697</u>	<u>12,147,269</u>	<u>13,422,889</u>	<u>2,057,147</u>
Selling and distribution expenses	25	(2,499,394)	(1,675,869)	(1,457,056)	(223,303)
General and administrative expenses	25	(3,980,462)	(3,971,895)	(4,156,940)	(637,077)
Research and development expenses	25	(626,873)	(940,828)	(1,434,056)	(219,779)
Impairment losses on property, plant and equipment		(46,484)	(259,354)	(416,841)	(63,884)
Impairment losses on investments in joint ventures		(216,953)	—	—	—
Impairment losses on financial assets	26	(107,956)	(171,016)	(978,834)	(150,013)
Other income	27	135,367	84,611	139,551	21,387
Other gains, net	28	925,100	1,247,509	903,872	138,524
Operating profit		<u>6,823,042</u>	<u>6,460,427</u>	<u>6,022,585</u>	<u>923,002</u>
Finance income	29	492,322	261,193	226,921	34,777
Finance costs	29	(4,882,692)	(4,921,541)	(4,420,528)	(677,476)
Finance costs, net		<u>(4,390,370)</u>	<u>(4,660,348)</u>	<u>(4,193,607)</u>	<u>(642,699)</u>
Share of net profits of investment accounted for using the equity method					
Joint ventures	9 (a)	(199,452)	270,115	180,502	27,663
Associates	9 (b)	39,335	48,767	145,737	22,335
		<u>(160,117)</u>	<u>318,882</u>	<u>326,239</u>	<u>49,998</u>
Profit before income tax		2,272,555	2,118,961	2,155,217	330,301
Income tax expense	32	(826,366)	(628,376)	(582,188)	(89,224)
Profit for the year		<u>1,446,189</u>	<u>1,490,585</u>	<u>1,573,029</u>	<u>241,077</u>
Profit attributable to:					
Owners of the Company		709,397	853,102	741,004	113,564
Non-controlling interests		<u>736,792</u>	<u>637,483</u>	<u>832,025</u>	<u>127,513</u>
		<u>1,446,189</u>	<u>1,490,585</u>	<u>1,573,029</u>	<u>241,077</u>
Basic and diluted earnings per share for profit attributable to ordinary shareholders of the Company (expressed in RMB per share)	33	<u>0.034</u>	<u>0.037</u>	<u>0.028</u>	<u>0.0043</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

	Note	For the year ended December 31			
		2018	2019	2020	
		(Restated) RMB'000	(Restated) RMB'000	RMB'000	USD'000
Profit for the year		1,446,189	1,490,585	1,573,029	241,077
Other comprehensive income					
<i>Items that will be reclassified to profit or loss</i>					
Exchange differences on translation of foreign operations		(120,756)	(32,323)	163,008	24,982
<i>Items that will not be reclassified to profit or loss</i>					
Changes in fair value of financial assets measured at fair value through other comprehensive income		(15,491)	57,815	(43,920)	(6,731)
Income tax effect		3,769	(14,642)	3,066	470
Share of other comprehensive income of associates and joint ventures accounted for using the equity method		—	—	(2,522)	(387)
Other comprehensive income for the year, net of tax		<u>(132,478)</u>	<u>10,850</u>	<u>119,632</u>	<u>18,334</u>
Total comprehensive income for the year		<u>1,313,711</u>	<u>1,501,435</u>	<u>1,692,661</u>	<u>259,411</u>
Total comprehensive income for the year attributable to:					
Owners of the company		577,558	863,702	862,119	132,125
Non-controlling interests		736,153	637,733	830,542	127,286
		<u>1,313,711</u>	<u>1,501,435</u>	<u>1,692,661</u>	<u>259,411</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

	Attributable to owners of the Company										Non-controlling interests	Total equity
	Share capital (Note 17)	Capital reserve		Statutory surplus reserve	Special reserve	Fair value reserve	Other equity instruments	Foreign currency translation reserve	Accumulated losses	Total		
		Share premium	Other capital reserves									
At December 31, 2019	17,022,673	27,019,102	1,108,544	5,867,557	139,891	49,511	5,487,104	182,197	(2,216,946)	54,659,633	16,065,427	70,725,060
Adjustment due to business combinations under common control (Note 39)	—	3,000	—	—	—	—	—	—	9,346	12,346	20,060	32,406
At January 1, 2020 (Restated)	17,022,673	27,022,102	1,108,544	5,867,557	139,891	49,511	5,487,104	182,197	(2,207,600)	54,671,979	16,085,487	70,757,466
Profit for the year	—	—	—	—	—	—	—	—	741,004	741,004	832,025	1,573,029
Other comprehensive income for the year												
Changes in fair value of equity investments at fair value through other comprehensive income, net of tax	—	—	—	—	—	(39,371)	—	—	—	(39,371)	(1,483)	(40,854)
Exchange differences on translation of foreign operations	—	—	—	—	—	—	—	163,008	—	163,008	—	163,008
Share of other comprehensive income of associates and joint ventures accounted for using the equity method	—	—	—	—	—	(2,522)	—	—	—	(2,522)	—	(2,522)
Total comprehensive income for the year	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>(41,893)</u>	<u>—</u>	<u>163,008</u>	<u>741,004</u>	<u>862,119</u>	<u>830,542</u>	<u>1,692,661</u>
Business combinations under common control (Note 39)	—	(21,896)	—	—	—	—	—	—	—	(21,896)	21,896	—
Capital injection from non-controlling shareholders	—	3,271	—	—	—	—	—	—	—	3,271	426,751	430,022
Disposal of subsidiaries	—	—	3,616	—	—	—	—	—	—	3,616	—	3,616
Issuance of senior perpetual securities	—	—	—	—	—	—	1,000,000	—	—	1,000,000	—	1,000,000
Release of deferred government subsidies	—	—	49,290	—	—	—	—	—	—	49,290	—	49,290
Other appropriations	—	—	—	—	32,259	—	—	—	—	32,259	(19,741)	12,518
Share of reserves of joint ventures and associates	—	—	(58)	—	7,105	—	—	—	—	7,047	—	7,047
Distribution of other equity instruments	—	—	—	—	—	—	—	—	(275,000)	(275,000)	(146,416)	(421,416)
Underwriting fees of other equity instruments	—	—	—	—	—	—	(675)	—	—	(675)	—	(675)
Dividends distribution of subsidiaries to non-controlling shareholders	—	—	—	—	—	—	—	—	—	—	(358,813)	(358,813)
Repayment of senior perpetual securities	—	—	—	—	—	—	(2,000,000)	—	—	(2,000,000)	—	(2,000,000)
At December 31, 2020	<u>17,022,673</u>	<u>27,003,477</u>	<u>1,161,392</u>	<u>5,867,557</u>	<u>179,255</u>	<u>7,618</u>	<u>4,486,429</u>	<u>345,205</u>	<u>(1,741,596)</u>	<u>54,332,010</u>	<u>16,839,706</u>	<u>71,171,716</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

	Attributable to owners of the Company										Non-controlling interests	Total equity
	Share capital (Note 17)	Capital reserve		Statutory surplus reserve	Special reserve	Fair value reserve	Other equity instruments	Foreign currency translation reserve	Accumulated losses	Total		
		Share premium	Other capital reserves									
At December 31, 2018	14,903,798	18,454,678	11,690,292	5,867,557	145,938	6,588	3,988,000	214,520	(2,856,064)	52,415,307	15,254,312	67,669,619
Adjustment due to a business combination under common control	—	3,000	—	—	—	—	—	—	7,243	10,243	19,659	29,902
At January 1, 2019 (Restated)	14,903,798	18,457,678	11,690,292	5,867,557	145,938	6,588	3,988,000	214,520	(2,848,821)	52,425,550	15,273,971	67,699,521
Profit for the year	—	—	—	—	—	—	—	—	853,102	853,102	637,483	1,490,585
Other comprehensive income for the year												
Changes in fair value of equity investments at fair value through other comprehensive income, net of tax	—	—	—	—	—	42,923	—	—	—	42,923	250	43,173
Exchange differences on translation of foreign operations	—	—	—	—	—	—	—	(32,323)	—	(32,323)	—	(32,323)
Total comprehensive income for the year	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>42,923</u>	<u>—</u>	<u>(32,323)</u>	<u>853,102</u>	<u>863,702</u>	<u>637,733</u>	<u>1,501,435</u>
Business combinations under common control	—	(237)	—	—	—	—	—	—	—	(237)	—	(237)
Capital injection from non-controlling shareholders	—	—	4,144	—	—	—	—	—	—	4,144	706,970	711,114
Acquisition of non-controlling interests	—	—	149,322	—	—	—	—	—	—	149,322	(149,322)	—
Disposal of subsidiaries	—	—	—	—	(1,666)	—	—	—	119	(1,547)	(26,234)	(27,781)
Issuance of senior perpetual securities	—	—	—	—	—	—	1,499,104	—	—	1,499,104	—	1,499,104
Issuance of share capital	2,118,875	8,564,661	(10,735,214)	—	—	—	—	—	—	(51,678)	—	(51,678)
Other appropriations	—	—	—	—	(5,317)	—	—	—	—	(5,317)	(17,768)	(23,085)
Share of reserves of joint ventures and associates	—	—	—	—	936	—	—	—	—	936	—	936
Dividends distribution of subsidiaries to non-controlling shareholders	—	—	—	—	—	—	—	—	—	—	(199,215)	(199,215)
Distribution of other equity instruments	—	—	—	—	—	—	—	—	(212,000)	(212,000)	(140,648)	(352,648)
At December 31, 2019	<u>17,022,673</u>	<u>27,022,102</u>	<u>1,108,544</u>	<u>5,867,557</u>	<u>139,891</u>	<u>49,511</u>	<u>5,487,104</u>	<u>182,197</u>	<u>(2,207,600)</u>	<u>54,671,979</u>	<u>16,085,487</u>	<u>70,757,466</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

	Attributable to owners of the Company											Non-controlling interests	Total equity
	Share capital (Note 17)	Capital reserve		Statutory surplus reserve	Special reserve	Fair value reserve	Other equity instruments	Foreign currency translation reserve	Accumulated losses	Total			
		Share premium	Other capital reserves										
At December 31, 2017	14,903,798	18,827,833	952,878	5,867,557	146,934	17,671	2,019,288	335,276	(3,466,283)	39,604,952	26,037,642	65,642,594	
Adjustment due to a business combination under common control	—	3,000	—	—	—	—	—	—	5,306	8,306	17,402	25,708	
At January 1, 2018 (Restated)	14,903,798	18,830,833	952,878	5,867,557	146,934	17,671	2,019,288	335,276	(3,460,977)	39,613,258	26,055,044	65,668,302	
Profit for the year	—	—	—	—	—	—	—	—	709,397	709,397	736,792	1,446,189	
Other comprehensive income for the year													
Changes in fair value of equity investments at fair value through other comprehensive income, net of tax	—	—	—	—	—	(11,083)	—	—	—	(11,083)	(639)	(11,722)	
Exchange differences on translation of foreign operations	—	—	—	—	—	—	—	(120,756)	—	(120,756)	—	(120,756)	
Total comprehensive income for the year	—	—	—	—	—	(11,083)	—	(120,756)	709,397	577,558	736,153	1,313,711	
Business combinations under common control	—	(443,582)	—	—	—	—	—	—	—	(443,582)	—	(443,582)	
Capital injection from non-controlling shareholders	—	78,271	—	—	—	—	—	—	—	78,271	759,350	837,621	
Capital injection before business combinations under common control	—	69,885	—	—	—	—	—	—	—	69,885	—	69,885	
Acquisition of non-controlling interests	—	(218)	—	—	—	—	—	—	—	(218)	(3,547)	(3,765)	
Restructure of subsidiaries	—	(77,511)	—	—	—	—	—	—	—	(77,511)	77,511	—	
Disposal of subsidiaries	—	—	—	—	—	—	—	—	—	—	(1,160)	(1,160)	
Issuance of senior perpetual securities	—	—	—	—	—	—	1,988,000	—	—	1,988,000	—	1,988,000	
Release of deferred government subsidies	—	—	2,200	—	—	—	—	—	—	2,200	—	2,200	
Equity exchange arrangement	—	—	10,735,214	—	—	—	—	—	—	10,735,214	(10,735,214)	—	
Other appropriations	—	—	—	—	8,119	—	—	—	—	8,119	(1,514)	6,605	
Step acquisition of a subsidiary	—	—	—	—	(11,166)	—	—	—	—	(11,166)	—	(11,166)	
Share of reserves of joint ventures and associates	—	—	—	—	2,051	—	—	—	—	2,051	—	2,051	
Distribution of other equity instruments	—	—	—	—	—	—	(19,288)	—	(90,722)	(110,010)	(300,538)	(410,548)	
Dividends distribution before business combinations under common control	—	—	—	—	—	—	—	—	(6,519)	(6,519)	—	(6,519)	
Acquisition of subsidiaries	—	—	—	—	—	—	—	—	—	—	1,468,435	1,468,435	
Dividends distribution of subsidiaries to noncontrolling shareholders	—	—	—	—	—	—	—	—	—	—	(605,416)	(605,416)	
Repayment of senior perpetual securities	—	—	—	—	—	—	—	—	—	—	(2,175,133)	(2,175,133)	
At December 31, 2018	14,903,798	18,457,678	11,690,292	5,867,557	145,938	6,588	3,988,000	214,520	(2,848,821)	52,425,550	15,273,971	67,699,521	

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF CASH FLOW

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

	Notes	For the year ended December 31			
		2018	2019	2020	
		(Restated) RMB'000	(Restated) RMB'000	RMB'000	USD'000
Net cash flows from operating activities	35	<u>13,021,676</u>	<u>12,491,673</u>	<u>14,881,346</u>	<u>2,280,666</u>
Investing activities					
Purchases of property, plant and equipment		(6,748,212)	(9,050,859)	(5,038,896)	(772,245)
Purchase of other financial assets measured at fair value		—	(3,500,700)	(7,020,000)	(1,075,862)
Purchases of investment properties		—	(44,063)	—	—
Purchases of intangible assets		(103,304)	—	—	—
Purchases of land use rights		(2,838)	—	—	—
Proceeds from disposal of property, plant and equipment		564,791	1,132,847	1,534,275	235,138
Proceeds from disposal of a joint venture and an associate		30,816	367,867	—	—
Proceeds from disposal of subsidiaries, net of cash		—	23,797	42,910	6,576
Proceeds from disposal of other financial assets measured at fair value		198,000	2,155	11,207,783	1,717,668
Proceeds from disposal of intangible assets		—	5,764	277,715	42,562
Proceeds from disposal of right-of-use assets		—	—	15,118	2,317
Proceeds from disposal and deemed disposal of subsidiaries and business, net of cash		6,558	—	—	—
Investments in joint ventures		(90,000)	(50,000)	(4,333)	(664)
Investments in associates		(266,300)	(2,653,244)	(7,473)	(1,145)
Dividend from other financial assets measured at fair value		109,914	97,775	82,794	12,689
Dividends received from associates and joint ventures		327,983	236,708	323,109	49,519
Change in deposit of futures contracts		(13,288)	(67,253)	(56,156)	(8,606)
Assets-related government grants received		167,314	103,373	47,558	7,289
Investment income from other financial assets measured at fair value		—	—	524,726	80,418
Loans repaid by related parties		32,215	—	—	—
Proceeds from acquisition of subsidiaries, net of cash		<u>255,650</u>	<u>—</u>	<u>3,690</u>	<u>566</u>
Net cash flows (used in)/ generated from investing activities		<u>(5,530,701)</u>	<u>(13,395,833)</u>	<u>1,932,820</u>	<u>296,220</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
CONSOLIDATED STATEMENT OF CASH FLOW (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

	Notes	For the year ended December 31			
		2018 (Restated) RMB'000	2019 (Restated) RMB'000	2020	
				RMB'000	USD'000
Financing activities					
Repayments of short-term bonds and mid-term notes		(21,815,000)	(22,400,000)	(30,638,813)	(4,695,604)
Repayments of short-term and long-term bank borrowings and other loans		(70,560,667)	(66,105,388)	(43,111,460)	(6,607,120)
Repayments of gold leasing arrangements		(7,519,283)	(1,607,905)	(6,921,860)	(1,060,821)
Cash consideration paid for business combination under common control		(373,495)	(237)	—	—
Proceeds from gold leasing arrangements		2,323,105	6,921,860	—	—
Proceeds from issuance of short-term bonds and medium-term notes		13,185,034	37,974,402	25,900,000	3,969,349
Proceeds from sale and leaseback finance leases, net of deposit and transaction costs		1,204,843	—	—	—
Drawdown of short-term and long-term bank borrowings and other loans		76,899,591	40,669,197	46,021,404	7,053,089
Senior perpetual securities' distribution paid		(410,548)	(352,648)	(421,416)	(64,585)
Capital injection from non-controlling shareholders		837,621	711,114	197,276	30,234
Capital injection from the parent company to the entity acquired under common control		69,885	—	—	—
Share issue cost		—	(51,678)	—	—
Principal portion of lease payments		—	(3,032,106)	(1,748,202)	(267,924)
Finance lease instalment paid		(3,915,404)	—	—	—
Dividends paid by subsidiaries to non-controlling shareholders		(327,645)	(222,930)	(356,340)	(54,611)
Interest paid		(5,445,120)	(4,467,803)	(3,664,725)	(561,644)
Repayments of senior perpetual securities		(2,417,758)	—	(2,000,000)	(306,513)
Purchase of non-controlling interests		(3,765)	—	—	—
Instalment payment of bonds issuance expenses		—	(9,913)	(29,285)	(4,488)
Proceeds from issuance of perpetual securities		1,988,000	1,500,000	1,000,000	153,257
Net cash flows used in financing activities		<u>(16,280,606)</u>	<u>(10,474,035)</u>	<u>(15,773,421)</u>	<u>(2,417,381)</u>
Net increase/(decrease) in cash and cash equivalents					
		(8,789,631)	(11,378,195)	1,040,745	159,505
Cash and cash equivalents at beginning of year		27,868,110	19,135,843	7,778,853	1,192,161
Effect of foreign exchange rate changes, net		57,364	21,205	(88,401)	(13,548)
Cash and cash equivalents at December 31	16	<u>19,135,843</u>	<u>7,778,853</u>	<u>8,731,197</u>	<u>1,338,118</u>

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS**

For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

1 GENERAL INFORMATION

Aluminum Corporation of China Limited (the “Company”) (中國鋁業股份有限公司) and its subsidiaries (together the “Group”) are principally engaged in manufacture and distribution of alumina, primary aluminum and energy products, and the operational governance across the relevant industry. The Group is also engaged in the investment in coal, railway, machinery manufacturing and the relevant industry, and the development of bauxite related resources, the production, fabrication and distribution of bauxite, carbon and relevant non-ferrous metal products as well as the trading and logistics of non-ferrous metal products and coal products.

The Company is a joint stock company which was established on September 10, 2001 and is domiciled in the People’s Republic of China (the “PRC”) with limited liability. The address of its registered office is No. 62 North Xizhimen Street, Haidian District, Beijing, the PRC.

The Company’s shares have been listed on the Main Board of the Hong Kong Stock Exchange and the New York Stock Exchange since 2001. The Company also listed its A shares on the Shanghai Stock Exchange in 2007.

In the opinion of the directors, the ultimate holding company and parent of the Company is Aluminum Corporation of China (“Chinalco”) (中國鋁業集團有限公司), a company incorporated and domiciled in the PRC and wholly owned by the State-owned Assets Supervision and Administration Commission of the State Council.

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**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

1 GENERAL INFORMATION (CONTINUED)

Information about subsidiaries

Particulars of the Company's principal subsidiaries are as follows:

Name	Place of registration and business	Registered capital	Principal activities	Percentage of equity attributable to the Company	
				Direct	Indirect
Shanxi Huaxing Aluminum Co. Ltd. ("Shanxi Huaxing") (山西華興鋁業有限公司)	PRC/Mainland China	1,850,000	Manufacture and distribution of alumina	60.00%	40.00%
Baotou Aluminum Co., Ltd. ("Baotou Aluminum") (包頭鋁業有限公司)	PRC/Mainland China	2,245,510	Manufacture and distribution of primary aluminum, aluminum alloy and related fabricated products and carbon products	100.00%	—
China Aluminum International Trading Co., Ltd. ("Chalco Trading") (中鋁國際貿易有限公司)	PRC/Mainland China	1,731,111	Import and export activities	100.00%	—
Chalco Shanxi New Material Co., Ltd. ("Shanxi New Material") (中鋁山西新材料有限公司)	PRC/Mainland China	4,279,601	Manufacture and distribution of alumina, primary aluminum and anode carbon products and electricity generation and supply	85.98%	—
China Aluminum International Trading Group Co., Ltd. ("Trading Group") (中鋁國際貿易集團有限公司)	PRC/Mainland China	1,030,000	Import and export activities	100.00%	—
Zunyi Aluminum Co., Ltd. (遵義鋁業股份有限公司)	PRC/Mainland China	3,204,900	Manufacture and distribution of primary aluminum and alumina	67.45%	—
Chalco Hong Kong Ltd. ("Chalco Hong Kong") (中國鋁業香港有限公司)	Hong Kong	HKD849,940 in thousand	Overseas investments and alumina import and export activities, and mining and distribution of bauxite.	100.00%	—
Chalco Mining Co., Ltd. ("Chalco Mining") (中鋁礦業有限公司)	PRC/Mainland China	4,028,859	Manufacture, acquisition and distribution of bauxite mines, limestone ore and alumina	100.00%	—
Chalco Energy Co., Ltd. (中鋁能源有限公司)	PRC/Mainland China	1,384,398	Thermoelectric supply and investment management	100.00%	—
China Aluminum Ningxia Energy Group Co., Ltd. ("Ningxia Energy") (中鋁寧夏能源集團)	PRC/Mainland China	5,025,800	Thermal power, wind power and solar power generation, coal mining, and power-related equipment manufacturing	70.82%	—
Guizhou Huajin Aluminum Co., Ltd. ("Guizhou Huajin") (貴州華錦鋁業有限公司)	PRC/Mainland China	1,000,000	Manufacture and distribution of alumina	60.00%	—
Chalco Zhengzhou Research Institute of Non-ferrous Metal Co., Ltd. (中國鋁業鄭州有色金屬研究院有限公司)	PRC/Mainland China	214,858	Research and development services	100.00%	—
Chalco Shandong Co., Ltd. ("Chalco Shandong") (中鋁山東有限公司)	PRC/Mainland China	4,052,847	Manufacture and distribution of alumina	100.00%	—
Chalco Zhongzhou Aluminum Co., Ltd. ("Zhongzhou Aluminum") (中鋁中州鋁業有限公司)	PRC/Mainland China	5,071,235	Manufacture and distribution of alumina	100.00%	—
China Aluminum Logistics Group Corporation Co., Ltd. (中鋁物流集團有限公司)	PRC/Mainland China	964,291	Logistics and transportation	100.00%	—
Chinalco Shanxi Jiaokou Xinghua Technology Ltd. ("Xinghua Technology") (中鋁集團山西交口興華科技股份有限公司)	PRC/Mainland China	588,182	Manufacture and distribution of primary aluminum	33.00%	33.00%
Chinalco Shanghai Company Limited ("Chinalco Shanghai") (中鋁(上海)有限公司)	PRC/Mainland China	968,300	Trading and engineering project management and leasing	100.00%	—
Shanxi China Huarun Co., Ltd. ("Shanxi Huarun") (山西中鋁華潤有限公司)	PRC/Mainland China	1,641,750	Manufacture and distribution of primary aluminum	40.00%	—
Guizhou Huaren New Material Co., Ltd. ("Guizhou Huaren") (貴州華仁新材料有限公司)	PRC/Mainland China	1,200,000	Manufacture and distribution of primary aluminum	40.00%	—
Chinalco Materials Co., Ltd. (中鋁物資有限公司)	PRC/Mainland China	1,000,000	Import and export activities and trading	100.00%	—

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

This note provides a list of the significant accounting policies adopted in the preparation of these consolidated financial statements. These policies have been consistently applied to all the years presented, unless otherwise stated. The financial statements are for the Group consisting of the Company and its subsidiaries.

2.1 Basis of preparation

2.1.1 Compliance with IFRS and HKCO

The consolidated financial statements of the Company have been prepared in accordance with International Financial Reporting Standards (“IFRS”) and the disclosure requirements of the Hong Kong Companies Ordinance Cap. 622 (“HKCO”).

The preparation of the financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Group’s accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

2.1.2 Going Concern

As of December 31, 2020, the Group’s current liabilities exceeded its current assets by approximately RMB16,424 million (December 31, 2019 (restated): RMB20,502 million). The directors of the Company have considered the Group’s available sources of funds as follows:

- The Group’s expected net cash inflows from operating activities in 2021;
- Unutilized banking facilities of approximately RMB156,318 million as of December 31, 2020, of which amounts totalling RMB130,371 million will be subject to renewal during the next 12 months. The directors of the Company are confident that these banking facilities could be renewed upon expiration based on the Group’s past experience and good credit standing;
- Bond facilities registered with National Association of Financial Market Institutional Investors but not yet utilized; and
- Other available sources of financing from banks and other financial institutions given the Group’s credit history.

The directors of the Company believe that the Group has adequate resources to continue operations for the foreseeable future of not less than 12 months from December 31, 2020. The directors of the Company therefore are of the opinion that it is appropriate to adopt the going concern basis in preparing the consolidated financial statements.

2.1.3 Historical cost convention

The financial statements have been prepared on a historical cost basis except for certain financial assets and financial liabilities measured at fair value.

2.1.4 New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2020:

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.1 Basis of preparation (Continued)

2.1.4 New and amended standards adopted by the Group (Continued)

- Definition of Material — amendments to IAS 1 and IAS 8
- Definition of a Business — amendments to IFRS 3
- Interest Rate Benchmark Reform — amendments to IFRS 9, IAS 39 and IFRS 7
- Covid-19-Related Rent Concessions — amendments to IFRS 16
- Revised Conceptual Framework for Financial Reporting

The amendments listed above did not have any material impact on the amounts recognized in prior periods and are not expected to significantly affect the current or future periods.

2.1.5 New standards and interpretations not yet adopted

Certain new accounting standards and interpretations have been published that are not mandatorily effective for December 31, 2020 reporting periods and have not been early adopted by the Group. These standards are not expected to have a material impact on the entity in the current or future reporting periods and on foreseeable future transactions.

2.2 Principles of consolidation and equity accounting

2.2.1 Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity where the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The acquisition method of accounting is used to account for business combinations by the Group (Note 2.3).

Inter-company transactions, balances and unrealized gains on transactions between group companies are eliminated. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

Non-controlling interests in the results and equity of subsidiaries are shown separately in the consolidated statement of profit or loss and other comprehensive income, statement of changes in equity and balance sheet respectively.

2.2.2 Associates

Associates are all entities over which the Group has significant influence but not control or joint control. This is generally the case where the Group holds between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method of accounting (Note 2.2.4), after initially being recognized at cost.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.2 Principles of consolidation and equity accounting (Continued)

2.2.3 Joint arrangements

Under IFRS 11 'Joint Arrangements', investments in joint arrangements are classified as either joint operations or joint ventures. The classification depends on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangement. The Group only has joint ventures.

Joint ventures

Interests in joint ventures are accounted for using the equity method (Note 2.2.4), after initially being recognized at cost in the consolidated statement of financial position.

2.2.4 Equity method

Under the equity method of accounting, the investments are initially recognized at cost and adjusted thereafter to recognize the Group's share of the post-acquisition profits or losses of the investee in profit or loss, and the Group's share of movements in other comprehensive income of the investee in other comprehensive income. Dividends received or receivable from associates and joint ventures are recognized as a reduction in the carrying amount of the investment.

Where the Group's share of losses in an equity-accounted investment equals or exceeds its interest in the entity, including any other unsecured long-term receivables, the Group does not recognize further losses, unless it has incurred obligations or made payments on behalf of the other entity.

Unrealized gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in these entities. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of equity-accounted investees have been changed where necessary to ensure consistency with the policies adopted by the Group.

The carrying amount of equity-accounted investments is tested for impairment in accordance with the policy described in Note 2.11.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.2 Principles of consolidation and equity accounting (Continued)

2.2.5 Changes in ownership interests

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A change in ownership interest results in an adjustment between the carrying amounts of the controlling and non-controlling interests to reflect their relative interests in the subsidiary. Any difference between the amount of the adjustment to non-controlling interests and any consideration paid or received is recognized in a separate reserve within equity attributable to owners of the Company.

When the Group ceases to consolidate or equity account for an investment because of a loss of control, joint control or significant influence, any retained interest in the entity is remeasured to its fair value with the change in carrying amount recognized in profit or loss. This fair value becomes the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognized in other comprehensive income are reclassified to profit or loss or transferred to another category of equity as specified/ permitted by applicable IFRSs.

If the ownership interest in a joint venture or an associate is reduced but joint control or significant influence is retained, only a proportionate share of the amounts previously recognized in other comprehensive income are reclassified to profit or loss where appropriate.

2.3 Business combination

(a) Merger accounting for business combinations under common control

The consolidated financial statements incorporate the financial statements of the combining entities or businesses in business combination under common control as if they had been combined from the date when the combining entities or businesses first came under the control of the ultimate holding company.

The net assets of the combining entities or businesses are consolidated using the carrying amount from the ultimate holding company's perspective. No amount is recognized for goodwill or excess of the Group's interest in the book value of the net assets over cost at the time of the common control combination, to the extent of the continuation of the ultimate holding company's interest.

The consolidated statement of comprehensive income includes the results of each of the combining entities or businesses from the earliest date presented or since the date when the combining entities or businesses first came under common control, where this is a shorter period, regardless of the date of the common control combination.

The comparative financial data have been restated to reflect the business combinations under common control occurred during this year as disclosed in Note 39.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.3 Business combination (Continued)

(a) Merger accounting for business combinations under common control (Continued)

Transaction costs, including professional fees, registration fees, costs of furnishing information to shareholders, costs or losses incurred in combining operations of the previously separate businesses and other costs incurred in relation to the common control combination that is to be accounted for by using the merger accounting method are recognized as expenses in the period in which they are incurred.

(b) Acquisition method of accounting for other business combinations and goodwill

The acquisition method of accounting is used to account for the acquisition of subsidiaries by the Group, other than common control combinations. The consideration transferred is measured at the acquisition date fair value which is the sum of acquisition date fair value of assets transferred by the Group, liabilities assumed by the Group to the former owner of the acquiree and the equity interests issued by the Group in exchange for control of the acquiree. The consideration transferred included the fair value of any assets and liabilities resulting from a contingent consideration arrangement. Acquisition-related costs are expensed as incurred. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at fair value at the acquisition date. All other components of non-controlling interests are measured at fair value. For each business combination, the Group elects whether to measure the non-controlling interests in the acquiree that are present ownership interests and entitle their holders to a proportional share of net assets in the event of liquidation at fair value or at the proportional share of the acquiree's identifiable net assets.

When the Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances and pertinent conditions as of the acquisition date. This includes the separation of embedded derivatives in host contracts of the acquiree.

If the business combination is achieved in stages, the previously held equity interest is remeasured at its acquisition date fair value and any resulting gain or loss is recognized in profit or loss.

Goodwill is initially measured at cost, being the excess of the aggregate of the consideration transferred, the amount recognized for non-controlling interests and any fair value of the Group's previously held equity interests in the acquiree over the identifiable net assets acquired and liabilities assumed. If the sum of this consideration and other items is lower than the fair value of the net assets acquired, the difference is, after reassessment, recognized in profit or loss as a gain on bargain purchase.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. Goodwill is tested for impairment at least annually or more frequently if events or changes in circumstances indicate that the carrying value may be impaired. The Group performs its annual impairment test of goodwill as of December 31. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash-generating units, or groups of cash-generating units, that are expected to benefit from the synergies of the combination, irrespective of whether other assets or liabilities of the Group are assigned to those units or groups of units.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.3 Business combination (Continued)

(b) Acquisition method of accounting for other business combinations and goodwill (Continued)

Impairment is determined by assessing the recoverable amount of the cash generating unit (group of cash-generating units) to which the goodwill relates. Where the recoverable amount of the cash-generating unit (group of cash-generating units) is less than the carrying amount, an impairment loss is recognized. An impairment loss recognized for goodwill is not reversed in a subsequent period.

Where goodwill has been allocated to a cash-generating unit (or group of cash-generating units) and part of the operation within that unit is disposed of, the goodwill associated with the operation disposed of is included in the carrying amount of the operation when determining the gain or loss on the disposal. Goodwill disposed of in these circumstances is measured based on the relative value of the operation disposed of and the portion of the cash-generating unit retained.

2.4 Separate financial statements

Investments in subsidiaries, associates and jointly ventures are accounted for at cost less impairment. Cost includes direct attributable costs of investment. The results of subsidiaries, associates and jointly ventures are accounted for by the Company on the basis of dividend received and receivable.

Impairment testing of the investments in subsidiaries, associates and jointly ventures is required upon receiving a dividend from these investments if the dividend exceeds the total comprehensive income of the subsidiary, associates and jointly ventures in the period the dividend is declared or if the carrying amount of the investment in the separate financial statements exceeds the carrying amount in the consolidated financial statements of the investee's net assets including goodwill.

2.5 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision maker. The chief operating decision-makers, who are responsible for allocating resources and assessing the performance of the operating segments, have been identified as the executive presidents committee of the Company that make strategic decisions.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.6 Foreign currency translation

Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). The consolidated financial statements are presented in RMB, which is the Company's functional and presentation currency.

Transactions and balances

Foreign currency transactions recorded by the entities in the Group are initially recorded using their respective functional currency rates prevailing at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated at the functional currency rates of exchange ruling at the end of the reporting period. Differences arising on settlement or translation of monetary items are recognized in profit or loss.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates at the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was measured. The gain or loss arising on translation of a non-monetary item measured at fair value is treated in line with the recognition of the gain or loss on change in fair value of the item.

In determining the exchange rate on initial recognition of the related asset, expense or income on the derecognition of a non-monetary asset or non-monetary liability relating to an advance consideration, the date of initial transaction is the date on which the Group initially recognizes the non-monetary asset or non-monetary liability arising from the advance consideration. If there are multiple payments or receipts in advance, the Group determines the transaction date for each payment or receipt of the advance consideration.

Group companies

The results and financial positions of all the group entities (none of which has the currency of a hyper-inflationary economy) that has a functional currency different from the presentation currency are translated into the presentation currency as follows:

- (i) assets and liabilities in each statement of financial position presented are translated at the closing rates at the end of the reporting period;
- (ii) income and expenses in each statement of profit and loss and other comprehensive income are translated at average exchange rates (unless this average is not a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, in which case income and expenses are translated at the rates at the dates of the transactions); and
- (iii) all resulting exchange differences are recognized in other comprehensive income. Upon disposal of a foreign operation, the other comprehensive income related to the foreign operation is reclassified to profit or loss.

Goodwill and fair value adjustments to the carrying amounts of assets and liabilities arising on the acquisition of a foreign entity are treated as assets and liabilities of the foreign entity and translated at the closing rate. Exchange differences arising are recognized in other comprehensive income.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.7 Property, plant and equipment

Property, plant and equipment, other than construction in progress, are stated at cost less accumulated depreciation and any impairment losses. When an item of property, plant and equipment is classified as held for sale or when it is part of a disposal group classified as held for sale, it is not depreciated and is accounted for in accordance with IFRS 5. The cost of an item of property, plant and equipment comprises its purchase price and any directly attributable costs of bringing the asset to its working condition and location for its intended use.

Expenditure incurred after items of property, plant and equipment have been put into operation, such as repairs and maintenance, is normally charged to profit or loss in the period in which it is incurred. In situations where the recognition criteria are satisfied, the expenditure for a major inspection is capitalized in the carrying amount of the asset as a replacement. Where significant parts of property, plant and equipment are required to be replaced at intervals, the Group recognizes such parts as individual assets with specific useful lives and depreciates them accordingly.

Depreciation is calculated on the straight-line basis to write off the cost of each item of property, plant and equipment to its residual value over its estimated useful life. The principal annual rates used for this purpose are as follows:

Buildings	8 – 45 years
Machinery	3 – 30 years
Transportation facilities	6 – 10 years
Office and other equipment	3 – 10 years

Where parts of an item of property, plant and equipment have different useful lives, the cost of that item is allocated on a reasonable basis among the parts and each part is depreciated separately. Residual values, useful lives and the depreciation method are reviewed, and adjusted if appropriate, at least at each financial year end.

An item of property, plant and equipment including any significant part initially recognized is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss on disposal or retirement recognized in profit or loss in the year the asset is derecognized is the difference between the net sales proceeds and the carrying amount of the relevant asset.

Construction in progress (“CIP”) represents buildings under construction, which is stated at cost less any impairment losses, and is not depreciated. Cost comprises the direct costs of construction and capitalized borrowing costs on related borrowed funds during the period of construction. CIP is reclassified to the appropriate categories of property, plant and equipment when completed and ready for use.

An asset’s carrying amount is written down immediately to its recoverable amount if the asset’s carrying amount is greater than its estimated recoverable amount (Note 2.11).

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.8 Investment properties

Investment properties are interests in land use rights and buildings (including the leasehold property held as a right-of-use asset which would otherwise meet the definition of an investment property) held to earn rental income and/or for capital appreciation, rather than for use in the production or supply of goods or services or for administrative purposes; or for sale in the ordinary course of business. Such properties are measured initially at cost, including transaction costs. After initial recognition, the Group uses the cost methods to measure all of its investment properties.

Depreciation is calculated on the straight-line basis to write off the cost to investment property's residual value over its estimated useful life. The estimated useful lives are as follows:

Buildings	50 years
Land use rights	40 – 70 years

The carrying amounts of investment properties measured using the cost method are reviewed for impairment when events or changes in circumstances indicate that the carrying amounts may not be recoverable. Any gains or losses on the retirement or disposal of an investment property are recognized in profit or loss in the year of the retirement or disposal.

2.9 Intangible assets

(a) Goodwill

Goodwill is measured as described in Note 2.3. Goodwill on acquisitions of subsidiaries is included in intangible assets. Goodwill is not amortized but it is tested for impairment annually, or more frequently if events or changes in circumstances indicate that it might be impaired, and is carried at cost less accumulated impairment losses.

Gains and losses on the disposal of an entity include the carrying amount of goodwill relating to the entity sold. Goodwill is allocated to cash-generating units for the purpose of impairment testing. The allocation is made to those cash-generating units or groups of cash-generating units that are expected to benefit from the business combination in which the goodwill arose. The units or groups of units are identified at the lowest level at which goodwill is monitored for internal management purposes, being the operating segments (Note 5).

(b) Mining rights and mineral exploration rights

The Group's mineral exploration rights and mining rights relate to coal, bauxite and other mines.

(i) Recognition

Except for mineral exploration rights and mining rights acquired in a business combination, mineral exploration rights and mining rights are initially recorded at cost which includes the acquisition consideration, qualifying exploration and other direct costs. The mineral exploration rights are stated at cost less any impairment, and the mining rights are stated at cost less any amortization and impairment.

(ii) Reclassification

Mineral exploration rights are converted to mining rights when obtain mining rights certification, or technical feasibility and commercial viability of extracting a mineral resource are demonstrable, and are subject to amortization when commercial production has commenced.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.9 Intangible assets (Continued)

(b) Mining rights and mineral exploration rights (Continued)

The Group assesses the stage of each mine under construction to determine when a mine moves into the production stage. The criteria used to assess the start date are determined based on the unique nature of each mine construction project. The Group considers various relevant criteria, such as completion of a reasonable period of testing of the mine and equipment, ability to produce in saleable form (within specifications) and ability to sustain ongoing production to assess when a mine is substantially complete and ready for its intended use.

(iii) Amortization

Mining rights other than coal mining rights are amortized on a straight-line basis over a shorter period of the mining right valid period and expected mining life. Estimated mineable periods of the majority of the mining rights range from 3 to 30 years.

Coal mining rights are amortized on a unit-of-production basis over the economically recoverable reserves evaluated based on the reserves estimated in accordance with the standards of the mine concerned.

(iv) Impairment

An impairment review is performed when there are indicators that the carrying amount of the mineral exploration rights and mining rights may exceed their recoverable amounts. To the extent that this occurs, the excess is fully provided as an impairment loss.

(c) Computer software

Acquired computer software licenses are capitalized on the basis of the costs incurred to acquire and bring to use specific software. These costs are amortized over their estimated useful lives, which do not exceed 10 years. Costs associated with maintaining computer software programs are recognized as an expense as incurred.

(d) Aluminum production quota

Aluminum production quota are initially recorded at cost and subsequently states at cost less any amortization and impairment. Amortization is provided on a straight-line basis over expected useful life.

(e) Other intangible assets

Other intangible assets mainly include profit-sharing rights of Maochang mine, which are initially recorded at costs incurred to acquire the specific right. Amortization is calculated on the straight-line basis over its estimated useful life. The estimated useful live of profit-sharing rights of Maochang mine is 22.5 years.

For intangible assets with finite useful life, the estimated useful lives and amortization method are reviewed annually at the end of each reporting period and adjusted when necessary.

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.10 Research and development costs

Research and development expenditures are classified as research expenditures and development expenditures according to the nature of the expenditures and whether there is significant uncertainty of development activities transforming to assets.

Research expenditures are recognized in profit or loss for the current period. Development expenditures are recognized as assets when all of the following criteria are met:

- (i) it is technically feasible to complete the asset so that it will be available for use or sale;
- (ii) management intends to complete the asset and intends and has the ability to use or sell it;
- (iii) it can be demonstrated that the asset will generate probable future economic benefits;
- (iv) there are adequate technical, financial and other resources to complete the development of the asset and management has the ability to use or sell the asset; and
- (v) the expenditure attributable to the asset during its development phase can be reliably measured.

Development expenditures that do not meet the criteria above are recorded in profit or loss for the current period as incurred. Development expenditures that have been recorded in profit or loss in previous periods will be not recognized as assets in subsequent periods. The Group has not had any development expenditure capitalized.

2.11 Impairment of non-financial assets

Goodwill and intangible assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash inflows which are largely independent of the cash inflows from other assets or groups of assets (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.12 Non-current assets (or disposal groups) held for sale

Non-current assets (or disposal groups) are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. They are measured at the lower of their carrying amount and fair value less costs to sell, except for assets such as deferred tax assets, assets arising from employee benefits, financial assets and investment property that are carried at fair value and contractual rights under insurance contracts, which are specifically exempt from this requirement.

An impairment loss is recognized for any initial or subsequent write-down of the asset (or disposal group) to fair value less costs to sell. A gain is recognized for any subsequent increases in fair value less costs to sell of an asset (or disposal group), but not in excess of any cumulative impairment loss previously recognized. A gain or loss not previously recognized by the date of the sale of the non-current asset (or disposal group) is recognized at the date of derecognition.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.12 Non-current assets (or disposal groups) held for sale (Continued)

Non-current assets (including those that are part of a disposal group) are not depreciated or amortized while they are classified as held for sale. Interest and other expenses attributable to the liabilities of a disposal group classified as held for sale continue to be recognized.

Non-current assets classified as held for sale and the assets of a disposal group classified as held for sale are presented separately from the other assets in the balance sheet. The liabilities of a disposal group classified as held for sale are presented separately from other liabilities in the balance sheet.

2.13 Investments and other financial assets

Initial recognition and measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortized cost, fair value through other comprehensive income, and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient of not adjusting the effect of a significant financing component, the Group initially measures a financial asset at its fair value, plus in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient are measured at the transaction price determined under IFRS 15 in accordance with the policies set out for "Revenue recognition" below.

In order for a financial asset to be classified and measured at amortized cost or fair value through other comprehensive income, it needs to give rise to cash flows that are solely payments of principal and interest ("SPPI") on the principal amount outstanding. Financial assets with cash flows that are not SPPI are classified and measured at fair value through profit or loss, irrespective of the business model.

The Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both. Financial assets classified and measured at amortized cost are held within a business model with the objective to hold financial assets in order to collect contractual cash flows, while financial assets classified and measured at fair value through other comprehensive income are held within a business model with the objective of both holding to collect contractual cash flows and selling. Financial assets which are not held within the aforementioned business models are classified and measured at fair value through profit or loss.

All regular way purchases and sales of financial assets are recognized on the trade date, that is, the date that the Group commits to purchase or sell the asset. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the period generally established by regulation or convention in the market place.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.13 Investments and other financial assets (Continued)

Subsequent measurement

The subsequent measurement of financial assets depends on their classification as follows:

Financial assets at amortized cost (debt instruments)

Financial assets at amortized cost are subsequently measured using the effective interest method and are subject to impairment. Gains and losses are recognized in profit or loss when the asset is derecognized, modified or impaired.

Financial assets at fair value through other comprehensive income (debt instruments)

For debt investments at fair value through other comprehensive income, interest income, foreign exchange revaluation and impairment losses or reversals are recognized in profit or loss and computed in the same manner as for financial assets measured at amortized cost. The remaining fair value changes are recognized in other comprehensive income. Upon derecognition, the cumulative fair value change recognized in other comprehensive income is recycled to profit or loss.

Financial assets designated at fair value through other comprehensive income (equity investments)

Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity investments designated at fair value through other comprehensive income when they meet the definition of equity under IAS 32 Financial Instruments: Presentation and are not held for trading. The classification is determined on an instrument-by-instrument basis.

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognized as other income in profit or loss when the right of payment has been established, it is probable that the economic benefits associated with the dividend will flow to the Group and the amount of the dividend can be measured reliably, except when the Group benefits from such proceeds as a recovery of part of the cost of the financial asset, in which case, such gains are recorded in other comprehensive income. Equity investments designated at fair value through other comprehensive income are not subject to impairment assessment.

Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with net changes in fair value recognized in profit or loss.

This category includes derivative instruments, wealth management products and equity investments which the Group had not irrevocably elected to classify at fair value through other comprehensive income. Dividends on equity investments classified as financial assets at fair value through profit or loss are also recognized as other gains in profit or loss when the right of payment has been established, it is probable that the economic benefits associated with the dividend will flow to the Group and the amount of the dividend can be measured reliably.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.13 Investments and other financial assets (Continued)

Subsequent measurement (Continued)

Financial assets at fair value through profit or loss (Continued)

A derivative embedded in a hybrid contract, with a financial liability or non-financial host, is separated from the host and accounted for as a separate derivative if the economic characteristics and risks are not closely related to the host; a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and the hybrid contract is not measured at fair value through profit or loss. Embedded derivatives are measured at fair value with changes in fair value recognized in profit or loss. Reassessment only occurs if there is either a change in the terms of the contract that significantly modifies the cash flows that would otherwise be required or a reclassification of a financial asset out of the fair value through profit or loss category.

A derivative embedded within a hybrid contract containing a financial asset host is not accounted for separately. The financial asset host together with the embedded derivative is required to be classified in its entirety as a financial asset at fair value through profit or loss.

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognized (i.e., removed from the Group's consolidated statement of financial position) when:

- the rights to receive cash flows from the asset have expired; or
- the Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a "pass-through" arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When the Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risk and rewards of ownership of the asset. When it has neither transferred nor retained substantially all the risks and rewards of the asset nor transferred control of the asset, the Group continues to recognize the transferred asset to the extent of the Group's continuing involvement. In that case, the Group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

Impairment of financial assets

The Group recognizes an allowance for expected credit losses ("ECLs") for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The ECL of December 31, 2019 was estimated based on a range of forecast economic conditions as of that date. Since early January 2020, the coronavirus outbreak has spread across mainland China and beyond, causing disruption to business and economic activity. The impact on GDP and other key indicators have been considered when determining the severity and likelihood of downside economic scenarios that are used to estimate ECL under IFRS 9 in 2020.

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NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.13 Investments and other financial assets (Continued)

General approach

ECLs are recognized in three stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12 months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL). For those have objective evidence of impairment at the reporting date, lifetime ECL are recognized and interest revenue is calculated on the net carrying amount.

At each reporting date, the Group assesses whether the credit risk on a financial instrument has increased significantly since initial recognition. When making the assessment, the Group compares the risk of a default occurring on the financial instrument as of the reporting date with the risk of a default occurring on the financial instrument as of the date of initial recognition and considers reasonable and supportable information that is available without undue cost or effort, including historical and forward-looking information.

The Group considers a financial asset to be in default when internal or external information indicates that the Group is unlikely to receive the outstanding contractual amounts in full before taking into account any credit enhancements held by the Group. A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows.

Debt investments at fair value through other comprehensive income and financial assets at amortized cost are subject to impairment under the general approach and they are classified within the following stages for measurement of ECLs except for trade receivables and contract assets which apply the simplified approach as detailed below.

Stage 1 — Financial instruments for which credit risk has not increased significantly since initial recognition and for which the loss allowance is measured at an amount equal to 12-month ECLs

Stage 2 — Financial instruments for which credit risk has increased significantly since initial recognition but that are not credit-impaired financial assets and for which the loss allowance is measured at an amount equal to lifetime ECLs

Stage 3 — Financial assets that are credit-impaired at the reporting date (but that are not purchased or originated credit-impaired) and for which the loss allowance is measured at an amount equal to lifetime ECLs

Simplified approach

For trade receivables and contract assets that do not contain a significant financing component or when the Group applies the practical expedient of not adjusting the effect of a significant financing component, the Group applies the simplified approach in calculating ECLs. Under the simplified approach, the Group does not track changes in credit risk, but instead recognizes a loss allowance based on lifetime ECLs at each reporting date. The Group has established a provision matrix that is based on its historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

For trade receivables and contract assets that contain a significant financial component and lease receivables, the Group chooses as its accounting policy to adopt the simplified approach in calculating ECLs with policies as described above.

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.14 Financial liabilities

Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate.

All financial liabilities are recognized initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

The Group's financial liabilities include trade and other payables, derivative financial instruments and interest-bearing bank and other borrowings.

Subsequent measurement

The subsequent measurement of financial liabilities depends on their classification as follows:

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading and financial liabilities designated upon initial recognition as at fair value through profit or loss.

Financial liabilities are classified as held for trading if they are incurred for the purpose of repurchasing in the near term. This category also includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by IFRS 9. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on liabilities held for trading are recognized in profit or loss. The net fair value gain or loss recognized in profit or loss does not include any interest charged on these financial liabilities.

Financial liabilities at amortized cost (loans and borrowings)

After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortized cost, using the effective interest rate method unless the effect of discounting would be immaterial, in which case they are stated at cost. Gains and losses are recognized in profit or loss when the liabilities are derecognized as well as through the effective interest rate amortization process.

Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate. The effective interest rate amortization is included in finance costs in profit or loss.

Financial liabilities at amortized cost (trade and other payables)

These amounts represent liabilities for goods and services provided to the Group prior to the end of financial year which are unpaid. The amounts are unsecured and are usually paid within 30 days of recognition. Trade and other payables are presented as current liabilities unless payment is not due within 12 months after the reporting period. They are subsequently measured at amortized cost using the effective interest method.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.14 Financial liabilities (Continued)

Subsequent measurement (continued)

Financial guarantee contracts

Financial guarantee contracts issued by the Group are those contracts that require a payment to be made to reimburse the holder for a loss it incurs because the specified debtor fails to make a payment when due in accordance with the terms of a debt instrument. A financial guarantee contract is recognized initially as a liability at its fair value, adjusted for transaction costs that are directly attributable to the issuance of the guarantee. Subsequent to initial recognition, the Group measures the financial guarantee contracts at the higher of: (i) the ECL allowance determined in accordance with the policy as set out in “Impairment of financial assets”; and (ii) the amount initially recognized less, when appropriate, the cumulative amount of income recognized.

Derecognition of financial liabilities

A financial liability is derecognized when the obligation under the liability is discharged or cancelled, or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and a recognition of a new liability, and the difference between the respective carrying amounts is recognized in profit or loss.

2.15 Offsetting financial instruments

Financial assets and liabilities are offset and the net amount is reported in the balance sheet where the Group currently has a legally enforceable right to offset the recognized amounts, and there is an intention to settle on a net basis or realize the asset and settle the liability simultaneously.

2.16 Derivatives

Derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The accounting for subsequent changes in fair value depends on whether the derivative is designated as a hedging instrument. The Group’s derivative instruments do not qualify for hedge accounting. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss and are included in other gains/(losses).

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.17 Inventories

Inventories comprise raw materials, work-in-progress, finished goods, spare parts and packaging materials and others, and are stated at the lower of cost and net realizable amount. Cost is determined using the weighted average method. Work-in-progress and finished goods comprise materials, direct labor and an appropriate proportion of all production overhead expenditure (based on the normal operating capacity). Borrowing costs are excluded as the inventory of the Group usually didn't meet the definition of "qualifying assets".

Provision for impairment of inventories is usually determined by the excess of cost over the net realizable amount and recorded in profit or loss. Net realizable amounts are determined based on the estimated selling price less estimated conversion costs, selling expenses and related taxes in the ordinary course of business. The provision for or the reversal of provision for impairment of inventories is recognized within "Cost of sales" in profit or loss.

2.18 Cash and cash equivalents

For the purpose of presentation in the statement of cash flows, cash and cash equivalents includes cash on hand and demand deposits, and short term highly liquid investments that are readily convertible into known amounts of cash, are subject to an insignificant risk of changes in value, and have a short maturity of generally within three months when acquired, and bank overdrafts. Bank overdrafts are shown within borrowings in current liabilities in the balance sheet.

2.19 Borrowing costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use or sale. Qualifying assets are assets that necessarily take a substantial period of time to get ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization.

Other borrowing costs are expensed in the period in which they are incurred.

2.20 Current and deferred income tax

The income tax expense or credit for the period is the tax payable on the current period's taxable income based on the applicable income tax rate for each jurisdiction adjusted by changes in deferred tax assets and liabilities attributable to temporary differences and to unused tax losses.

Current income tax

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period in the countries where the Company and its subsidiaries and associates operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation and considers whether it is probable that a taxation authority will accept an uncertain tax treatment. The Group measures its tax balances either based on the most likely amount or the expected value, depending on which method provides a better prediction of the resolution of the uncertainty.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.20 Current and deferred income tax (Continued)

Deferred income tax

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred income tax is also not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantively enacted by the end of the reporting period and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

Deferred tax liabilities and assets are not recognized for temporary differences between the carrying amount and tax bases of investments in foreign operations where the Company is able to control the timing of the reversal of the temporary differences and it is probable that the differences will not reverse in the foreseeable future.

Deferred tax assets and liabilities are offset where there is a legally enforceable right to offset current tax assets and liabilities and where the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis, or to realize the asset and settle the liability simultaneously.

Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

2.21 Employee benefits

Employee benefits mainly include salaries, bonuses, allowances and subsidies, pension insurance, social insurance and housing funds, labor union fees, employees' education fees and other expenses related to the employees for their services. The Group recognizes employee benefits as liabilities during the accounting period when employees rendered the services and allocates the related cost of assets and expenses based on different beneficiaries.

(a) Bonus plans

The expected cost of bonus plans is recognized as a liability when the Group has a present legal or constructive obligation as a result of services rendered by employees and a reliable estimate of the obligation can be made.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.21 Employee benefits (Continued)

(b) Retirement benefit obligations

The Group primarily pays contributions on a monthly basis to participate in a pension plan organized by the relevant municipal and provincial governments in the PRC. In 2020, the Group made monthly contributions at the rate of 16% (2019: 17%) of the qualified employees' salaries and was exempted after January. The municipal and provincial governments undertake to assume the retirement benefit obligations of all existing and future retired employees payable under these plans. The Group has no legal or constructive obligations for further contributions if the fund does not hold sufficient assets to pay all employees the benefit relating to their current and past services.

(c) Other social insurance and housing funds

The Group provides other social insurance and housing funds to the qualified employees in the PRC based on certain percentages of their salaries. These percentages are not to exceed the upper limits of the percentages prescribed by the Ministry of Human Resources and Social Security of the PRC. These benefits are paid to social security organizations and the amounts are expensed as incurred. The Group has no legal or constructive obligations for further contributions if the fund does not hold sufficient assets to pay all employees the benefit relating to their current and past services.

(d) Termination benefit obligations and early retirement benefit obligations

Termination and early retirement benefit obligations are payable when employment is terminated by the Group before the normal retirement date, or whenever an employee accepts voluntary redundancy and/or early retirement in exchange for these benefits. The Group recognizes termination and early retirement benefit obligations when it is demonstrably committed to either: terminating the employment of current employees according to a detailed formal plan without possibility of withdrawal; or providing termination benefits as a result of an offer made to encourage voluntary redundancy and/or early retirement. The specific terms vary among the terminated and early retired employees depending on various factors including position, length of service and district of the employees concerned. Benefits falling due for more than 12 months after the end of the reporting period are discounted to their present values.

2.22 Provisions

Provisions for legal claims, asset retirement obligations are recognized when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated. Provisions are not recognized for future operating losses.

Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole. A provision is recognized even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting period. The discount rate used to determine the present value is a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The increase in the provision due to the passage of time is recognized as interest expense.

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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.23 Revenue recognition

Revenue from contracts with customers

Revenue from contracts with customers is recognized when control of goods or services is transferred to the customers at an amount that reflects the consideration to which the Group expects to be entitled in exchange for those goods or services.

When the consideration in a contract includes a variable amount, the amount of consideration is estimated to which the Group will be entitled in exchange for transferring the goods or services to the customer. The variable consideration is estimated at contract inception and constrained until it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized will not occur when the associated uncertainty with the variable consideration is subsequently resolved.

When the contract contains a financing component which provides the customer with a significant benefit of financing the transfer of goods or services to the customer for more than one year, revenue is measured at the present value of the amount receivable, discounted using the discount rate that would be reflected in a separate financing transaction between the Group and the customer at contract inception. When the contract contains a financing component which provides the Group a significant financial benefit for more than one year, revenue recognized under the contract includes the interest expense accreted on the contract liability under the effective interest method. For a contract where the period between the payment by the customer and the transfer of the promised goods or services is one year or less, the transaction price is not adjusted for the effects of a significant financing component, using the practical expedient in IFRS 15.

(a) Sale of industrial products

Revenue from the sale of industrial products (including sales of scrap and other materials) is recognized at the point in time when control of the asset is transferred to the customer, generally on delivery of the industrial products.

(b) Rendering of services

The Group provides transportation and other service and the revenue from services is recognized over time, using an input method to measure progress towards complete satisfaction of the service, because the customer simultaneously receives and consumes the benefits provided by the Group.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.23 Revenue recognition (Continued)

Revenue from other sources

Rental income

Rental income is recognized on a time proportion basis over the lease terms. Variable lease payments that do not depend on an index or a rate are recognized as income in the accounting period in which they are incurred.

Other income

Interest income is recognized on an accrual basis using the effective interest method by applying the rate that exactly discounts the estimated future cash receipts over the expected life of the financial instrument or a shorter period, when appropriate, to the net carrying amount of the financial asset.

Dividend income is recognized when the shareholders' right to receive payment has been established, it is probable that the economic benefits associated with the dividend will flow to the Group and the amount of the dividend can be measured reliably.

2.24 Earning per share

(a) Basic earnings per share

Basic earnings per share is calculated by dividing:

- the profit attributable to owners of the Company, excluding any costs of servicing equity other than ordinary shares;
- by the weighted average number of ordinary shares outstanding during the financial year, adjusted for bonus elements in ordinary shares issued during the year and excluding treasury shares.

(b) Diluted earnings per share

Diluted earnings per share adjusts the figures used in the determination of basic earnings per share to take into account:

- the after-income tax effect of interest and other financing costs associated with dilutive potential ordinary shares, and
- the weighted average number of additional ordinary shares that would have been outstanding assuming the conversion of all dilutive potential ordinary shares.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.25 Leases

Leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group.

Contracts may contain both lease and non-lease components. The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. However, for leases of real estate for which the Group is a lessee, it has elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants other than the security interests in the leased assets that are held by the lessor. Leased assets may not be used as security for borrowing purposes.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate, initially measured using the index or rate as of the commencement date;
- amounts expected to be payable by the Group under residual value guarantees;
- the exercise price of a purchase option if the Group is reasonably certain to exercise that option, and
- payments of penalties for terminating the lease, if the lease term reflects the Group exercising that option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be readily determined, which is generally the case for leases in the Group, the lessee's incremental borrowing rate is used, being the rate that the individual lessee would have to pay to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment with similar terms, security and conditions.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.25 Leases (Continued)

To determine the incremental borrowing rate, the Group:

- where possible, uses recent third-party financing received by the individual lessee as a starting point, adjusted to reflect changes in financing conditions since third party financing was received;
- uses a build-up approach that starts with a risk-free interest rate adjusted for credit risk for leases held by the Group, which does not have recent third-party financing, and,
- makes adjustments specific to the lease, such as term, country, currency and security.

If a readily observable amortizing loan rate is available to the individual lessee (through recent financing or market data) which has a similar payment profile to the lease, then the Group entities use that rate as a starting point to determine the incremental borrowing rate.

The Group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Lease payments are allocated between principal and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs, and
- restoration costs.

Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis as follows:

Buildings	2 — 20 years
Machinery	2 — 10 years
Land use rights	10 — 50 years

If the Group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life. While the Group revalues its land and buildings that are presented within property, plant and equipment, it has chosen not to do so for the right-of-use buildings held by the Group.

**ALUMINUM CORPORATION OF CHINA LIMITED
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2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.25 Leases (Continued)

Payments associated with short-term leases of equipment and vehicles and all leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss. The Group applies the short-term lease recognition exemption to its short-term leases of machinery and equipment (that is those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the recognition exemption for leases of low-value assets to leases of office equipment that are considered to be of low value (i.e. below RMB30,000).

Lease income from operating leases where the Group is a lessor is recognized in income on a straight-line basis over the lease term (Note 8). Initial direct costs incurred in obtaining an operating lease are added to the carrying amount of the underlying asset and recognized as expense over the lease term on the same basis as lease income. The respective leased assets are included in the balance sheet based on their nature. The Group did not need to make any adjustments to the accounting for assets held as lessor as a result of adopting the new leasing standard.

2.26 Dividend distribution

Provision is made for the amount of any dividend declared, being appropriately authorized and no longer at the discretion of the entity, on or before the end of the reporting period but not distributed at the end of the reporting period.

2.27 Government grants

Government grants are recognized at their fair value where there is reasonable assurance that the grant will be received and all attaching conditions will be complied with. When the grant relates to an expense item, it is recognized as income on a systematic basis over the periods that the costs, which it is intended to compensate, are expensed.

Asset-related government grants are recognized when the government document designates that the government grants are used for constructing or forming long-term assets. If the government document is inexplicit, the Group should make a judgement based on the basic conditions to obtain the government grants, and recognizes them as asset-related government grants if the conditions are to construct or to form long-term assets. Otherwise, the government grants should be income-related.

For asset-related government grants that is related to long lived assets that already exist at the time of recognizing the government grant, the grant is deducted in calculating the carrying amount of the asset. The grant is recognized in profit or loss over the life of a depreciable asset as a reduced depreciation expense. If the asset is not yet purchased or constructed at the time of recognizing the government grant, the grant is recognized as deferred income and will be deducted from the cost of the asset once the asset is recognized.

Income-related government grants that are specific to compensate expenses or costs that have already incurred, they are directly recognized in profit or loss for the current period as deduction of the related expenses or costs. If the income-related government grants are specific to compensate future expenses or costs of the Group, they are recognized as deferred income and will be released to profit or loss when the related expenses or costs are incurred.

ALUMINUM CORPORATION OF CHINA LIMITED
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3 SIGNIFICANT ACCOUNTING JUDGEMENTS AND ESTIMATES

The preparation of the Group's consolidated financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the accompanying disclosures, and the disclosure of contingent liabilities. Uncertainty about these judgements, assumptions and estimates could result in outcomes that require a material adjustment to the carrying amounts of assets or liabilities affected in future periods.

Judgements

In the process of applying the Group's accounting policies and preparing the Group's consolidated financial statements, management has made the following judgements, apart from those involving estimates, which have a significant effect on the amounts recognized in the consolidated financial statements.

(a) Significant influence over an entity in which the Group holds less than 20% of voting rights

At December 31, 2020, the Group owned 10.04% equity interest in Yunnan Aluminum Co., Ltd.* ("Yunnan Aluminum") (雲南鋁業股份有限公司). The Group considers that it has significant influence over Yunnan Aluminum even though it owns less than 20% of the voting rights, on the grounds that the Group is the second largest shareholders of Yunnan Aluminum and assigned one out of the eleven directors of the Board of Directors of Yunnan Aluminum Group, thus have the right to participate in decision making of Yunnan Aluminum.

At December 31, 2020, the Group owned a 6.68% equity interest in Chalco Mineral Resources Co., Ltd.* ("Chalco Resources") (中鋁礦產資源有限公司). The Group considers that it has significant influence over Chalco Resources even though it owns less than 20% of the voting rights, on the grounds that the Group can appoint one out of the five directors of the Board of Directors of Chalco Resources, thus have the right to participate in decision making of Chalco Resources.

At December 31, 2020, the Group owned 14.71% of the voting right of Chinalco Capital Holdings Co., Ltd.* ("Chinalco Capital") (中鋁資本控股有限公司). The Group considers that it has significant influence over Chinalco Capital since it can appoint one out of three directors of the Board of Directors of Chinalco Capital, thus have the right to participate in decision making of Chinalco Capital.

At December 31, 2020, the Group owned a 16% equity interest in Baise New Aluminum Power Co., Ltd. * ("New Aluminum Power") (百色新鋁電力有限公司). The Group considers that the Group has significant influence over New Aluminum Power even though it owns less than 20% of the voting rights, on the grounds that the Group can appoint one out of the nine directors of the Board of Directors of New Aluminum Power, thus have the right to participate in decision making of New Aluminum Power.

At December 31, 2020, the Group owned a 14.29% equity interest in Inner Mongolia Geliugou Co., Ltd.* ("Inner Mongolia Qiliugou") (內蒙古圪柳溝能源有限公司). The Group considers that it has significant influence over Inner Mongolia Qiliugou even though it owns less than 20% of the voting rights, on the grounds that the Group can appoint one out of the seven directors of the Board of Directors of Inner Mongolia Qiliugou, thus have the right to participate in decision making of Inner Mongolia Qiliugou.

**ALUMINUM CORPORATION OF CHINA LIMITED
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3 SIGNIFICANT ACCOUNTING JUDGEMENTS AND ESTIMATES (CONTINUED)

Judgements (Continued)

(b) Consolidation of entities in which the Group holds less than a majority of voting rights

At December 31, 2020, the Group owned a 40.23% equity interest in Ningxia Yinxing Energy Co., Ltd. (“Yinxing Energy”) (寧夏銀星能源股份有限公司). Since the remaining 59.77% of the equity shares in Yinxing Energy are held by a large number of individual shareholders, in opinion of the directors of the Company, the Group has control over Yinxing Energy, and Yinxing Energy continues to be included in the consolidation scope.

At December 31, 2020, the Company owned a 40% equity interest in Guizhou Huaren New Materials Co., Ltd.* (“Guizhou Huaren”) (貴州華仁新材料有限公司). In accordance with the acting-in-concert agreement signed between the Company and Qingzhen Industry Investment Co., Ltd.* (“Qingzhen Industry”)(清鎮市工業投資有限公司) and Guizhou Chengqian Enterprise (Group) Co., Ltd. * (“Guizhou Chengqian”) (貴州成黔企業(集團)有限公司). Qingzhen Industry and Guizhou Chengqian would exercise the shareholders’ and board of directors’ votes in concert with the Group. Therefore, the directors of the Company believe that the Company has control over Guizhou Huaren and consolidated Guizhou Huaren’s financial statements from the date the Group obtained control.

At December 31, 2020, the Company owned 40% of the shares of Shanxi China Aluminum China Resources Co., Ltd.* (“Shanxi Zhongrun”) (山西中鋁華潤有限公司). In accordance with the acting-in-concert agreement signed between the Company and China Resources Coal Industry Group Co., Ltd. (“China Resources Coal Industry”), China Resources Coal Industry would exercise the shareholders’ and Board of Directors’ votes in concert with the Group. Therefore, the directors of the Company believe that the Company has control over Shanxi Zhongrun and consolidated Shanxi Zhongrun’s financial statements from the date the Group obtained control.

Estimates and assumptions

The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are described below. The Group’s assumptions and estimates are based on parameters available when the consolidated financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising beyond the control of the Group. Such changes are reflected in the assumptions when they occur.

ALUMINUM CORPORATION OF CHINA LIMITED
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3 SIGNIFICANT ACCOUNTING JUDGEMENTS AND ESTIMATES (CONTINUED)

Estimates and assumptions (Continued)

(a) Impairment assessment of property, plant and equipment

As of December 31, 2020, the Company's net carrying amount of property, plant and equipment ("PP&E") was RMB 100,638 million. Management assesses related assets for potential impairment whenever there are indications that the carrying value of an asset or a group of assets may not be recoverable. As of December 31, 2020, management performed impairment assessment on property, plant and equipment ("PP&E") with impairment indications at the level of cash generating unit ("CGU") to which the PP&E was allocated using discounted cash flow model. The discounted cash flows model used for the impairment assessment of PP&E involved significant assumptions including product prices and the discount rate.

(b) Impairment assessment of goodwill

As of December 31, 2020, the Company's carrying value of goodwill was RMB 3,510 million. Management performed impairment assessment of goodwill on an annual basis. When performing the impairment assessment, the recoverable amount of the CGU to which the goodwill was allocated was estimated by management using discounted cash flow model, and compared with the carrying amount of the CGU to determine if goodwill was impaired. The discounted cash flow models used for the impairment assessment of goodwill involved significant assumptions including product prices, the long-term growth rate and the discount rate.

(c) Property, plant and equipment and intangible assets (excluding goodwill) — estimated useful lives and residual values

The Group's management determines the estimated useful lives and residual values (if applicable) and consequently the related depreciation/amortization charges for its property, plant and equipment and intangible assets (excluding goodwill). These estimates are based on the historical experience of the actual useful lives of property, plant and equipment of similar nature and functions, or based on the useful life of intangible assets. Management will increase the depreciation/amortization charge where useful lives are less than previously estimated, and it will write off or write down technically obsolete or non-strategic assets that have been abandoned or sold.

Actual economic lives may differ from estimated useful lives and actual residual values may differ from estimated residual values. Periodic review could result in change in depreciable lives and residual values and therefore change in depreciation/amortization expense in future periods.

ALUMINUM CORPORATION OF CHINA LIMITED
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3 SIGNIFICANT ACCOUNTING JUDGEMENTS AND ESTIMATES (CONTINUED)

Estimates and assumptions (Continued)

(d) Coal reserve estimates and units-of-production amortization for coal mining rights

External qualified valuation professionals evaluate “economically recoverable reserves” based on the reserves estimated by external qualified exploration engineers in accordance with the PRC standards. The estimates of coal reserves are inherently imprecise and represent only the approximate amounts of the coal reserves because of the subjective judgements involved in developing such information. Economically recoverable reserve estimates are evaluated on a regular basis and have taken into account recent production and technical information about each mine.

(e) Estimated net realizable value of inventories

In accordance with the Group’s accounting policy, the Group’s management estimated net realizable value of inventories based on specific facts and circumstances. For different types of inventories, it requires the estimation on selling prices, costs of conversion, selling expenses and the related tax expense to calculate the net realizable amount of inventories. For inventories held for executed sales contracts, management estimates the net realizable amount based on the contracted price. For raw materials and work-in-progress, management has established a model in estimating the net realizable amount at which the inventories can be realized in the normal course of business after considering the Group’s manufacturing cycles, production capacity and forecasts, estimated future conversion costs and selling prices. Management also takes into account the price or cost fluctuations and other related matters occurring after the end of the reporting period which reflect conditions that existed at the end of the reporting period.

It is reasonably possible that if there is a significant change in circumstances including the Group’s business and the external environment, outcomes within the next financial year would be significantly affected.

(f) Investments in joint ventures and associates — recoverable amount

In accordance with the Group’s accounting policy, each investment in a joint venture and an associate is evaluated in every reporting period to determine whether there are any indicators of impairment. If any such indicators exists, an estimate of the recoverable amount is performed and an impairment loss is recognized to the extent that the carrying amount exceeds the recoverable amount. The recoverable amount of the investment in a joint venture and an associate is measured at the higher of fair value less costs of disposal and value in use.

A fair value measurement of a non-financial asset takes into account a market participant’s ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

Value in use is also generally determined as the present value of the estimated future cash flows of those expected to arise from the continued use of the asset in its present form and its eventual disposal. Present values are determined using a risk-adjusted pre-tax discount rate appropriate to the risks inherent in the asset. Future cash flow estimates are based on expected production and sales volumes, commodity prices (considering current and historical prices, price trends and related factors) and operating costs. This policy requires management to make these estimates and assumptions which are subject to risk and uncertainty; hence there is a possibility that changes in circumstances will alter these projections, which may impact on the recoverable amounts of the investments. In such circumstances, some or all of the carrying value of the investments may be impaired and the impairment would be charged against profit or loss.

ALUMINUM CORPORATION OF CHINA LIMITED
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3 SIGNIFICANT ACCOUNTING JUDGEMENTS AND ESTIMATES (CONTINUED)

Estimates and assumptions (Continued)

(g) Income tax

The Group estimates its income tax provision and deferred taxation in accordance with the prevailing tax rules and regulations, taking into account any special approvals obtained from the relevant tax authorities and any preferential tax treatment to which it is entitled in each location or jurisdiction in which the Group operates. There are many transactions and calculations for which the ultimate tax determination is uncertain during the ordinary course of business. The Group recognizes liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, the differences will impact on the income tax and deferred tax provisions in the period in which the determination is made.

Deferred tax assets are recognized for unused tax losses and deductible temporary differences, such as the provision for impairment of receivables, inventories and property, plant and equipment and accruals of expenses not yet deductible for tax purposes, to the extent that it is probable that taxable profits will be available against which the losses deductible temporary difference can be utilized.

An entity shall recognize a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates and joint ventures, except to the extent that both of the following conditions are satisfied:

- the parent, investor or joint venture is able to control the timing of the reversal of the temporary difference; and
- it is probable that the temporary difference will not reverse in the foreseeable future.

In the event that future tax rules and regulations or related circumstances change, adjustments to current and deferred taxation may be necessary which would impact on the Group's results or financial position.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

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3 SIGNIFICANT ACCOUNTING JUDGEMENTS AND ESTIMATES (CONTINUED)**Estimates and assumptions (Continued)****(h) Impairment of receivables**

The loss allowances for receivables are based on assumptions about risk of default and expected loss rates to determine the expected loss. The Group uses judgement in making these assumptions and selecting the inputs to the impairment calculation, based on the Group's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

The Group takes into account different macroeconomic scenarios in considering forward looking information. The Group regularly monitors and reviews the key macroeconomic assumptions and parameters related to the calculation of expected credit losses, including the risk of economic downturn, external market environment, technological environment, changes in customer conditions, GDP and consumer price index, etc. During the year ended December 31, 2020, the Group has taken into account the uncertainties arising from the COVID-19 outbreak and updated the relevant assumptions and parameters accordingly. The key macroeconomic parameters are listed below:

Items	Year	Scenarios		
		Basic	Negative	Positive
Growth rate of gross GDP growth rate	2021	8.83%	8.39%	9.27%
	2022 and subsequent years	5.30%	5.04%	5.57%
Consumer Price Index Growth Rate	2021	1.33%	1.26%	1.40%
	2022 and subsequent years	2.40%	2.28%	2.52%

4 SIGNIFICANT CHANGES IN THE CURRENT REPORTING PERIOD

There was outbreak of COVID-19 in the PRC in January 2020 and subsequently expanded to a worldwide pandemic. The COVID-19 outbreak had great impact on domestic aluminum and alumina market during the first half of 2020.

The Group has followed and strengthened its support to the government's requirements on COVID-19 prevention and control work and has taken possible effective measures to mitigate the impact, including control of procurement and sales paces in market fluctuations, adjustment of the products structure and marketing strategies and reduction of operating costs and expenses.

As of December 31, 2020 and up to date of this report, the COVID-19 has been effectively controlled in the PRC. As a result, domestic production and market of industrial products has gradually returned to normal and the price of aluminum and alumina has recovered to the level before the outbreak of COVID-19. However, the control of COVID-19 globally seems still indefinite, which increases the risk of global economic recession and uncertainty of PRC economy in a longer term. The Company will continuously monitor and assess the development of the COVID-19. Impairment test for financial and non-financial assets has been carried out with key assumptions and factors been considered for necessary revisions as the result of the COVID-19 outbreak. The liquidity risk, including the basis of going concern, has also been assessed up to date of authorisation of this financial statements (Note 37).

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ALUMINUM CORPORATION OF CHINA LIMITED
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For the years ended December 31, 2018, 2019 and 2020

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5 REVENUE AND SEGMENT INFORMATION

(a) Revenue

Revenue recognized during the year is as follows:

	For the year ended December 31		
	2018 (Restated)	2019 (Restated)	2020
Revenue from contracts with customers (net of value-added tax)			
Sale of goods	179,785,704	188,752,179	184,077,018
Rendering of services	325,055	1,145,304	1,587,246
	<u>180,110,759</u>	<u>189,897,483</u>	<u>185,664,264</u>
Revenue from other sources			
Rental income	240,153	317,915	329,989
	<u>180,350,912</u>	<u>190,215,398</u>	<u>185,994,253</u>

(i) Disaggregated revenue information

	For the year ended December 31, 2020						Total
	Alumina segment	Primary Aluminum segment	Energy Segment	Trading	Corporate and other operating segments	Inter- segment elimination	
Type of goods or services							
Sales of goods	42,295,806	51,729,483	7,184,216	151,540,471	449,058	(69,122,016)	184,077,018
Rendering of services	—	—	—	3,768,342	—	(2,181,096)	1,587,246
Total revenue	<u>42,295,806</u>	<u>51,729,483</u>	<u>7,184,216</u>	<u>155,308,813</u>	<u>449,058</u>	<u>(71,303,112)</u>	<u>185,664,264</u>
Geographical markets							
Mainland China	42,295,806	51,729,483	7,184,216	146,666,981	449,058	(71,303,112)	177,022,432
Outside of mainland China	—	—	—	8,641,832	—	—	8,641,832
Total revenue from contracts with customers	<u>42,295,806</u>	<u>51,729,483</u>	<u>7,184,216</u>	<u>155,308,813</u>	<u>449,058</u>	<u>(71,303,112)</u>	<u>185,664,264</u>
Timing of revenue recognition							
Goods transferred at a point in time	42,295,806	51,729,483	7,184,216	151,540,471	449,058	(69,122,016)	184,077,018
Services transferred over time	—	—	—	3,768,342	—	(2,181,096)	1,587,246
Total revenue from contracts with customers	<u>42,295,806</u>	<u>51,729,483</u>	<u>7,184,216</u>	<u>155,308,813</u>	<u>449,058</u>	<u>(71,303,112)</u>	<u>185,664,264</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
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5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(a) Revenue (Continued)

(i) Disaggregated revenue information (Continued)

The following table shows the amounts of revenue recognized in the current reporting period that were included in the contract liabilities at the beginning of the reporting period:

	For the year ended December 31, 2019 (Restated)						Total
	Alumina segment	Primary Aluminum segment	Energy Segment	Trading	Corporate and other operating segments	Inter-segment elimination	
Type of goods or services							
Sales of goods	43,690,995	49,043,864	7,335,347	156,158,740	492,624	(67,969,391)	188,752,179
Rendering of services	—	—	—	2,724,083	—	(1,578,779)	1,145,304
Total revenue	43,690,995	49,043,864	7,335,347	158,882,823	492,624	(69,548,170)	189,897,483
Geographical markets							
Mainland China	43,690,995	49,043,864	7,335,347	153,106,808	492,624	(69,548,170)	184,121,468
Outside of mainland China	—	—	—	5,776,015	—	—	5,776,015
Total revenue from contracts with customers	43,690,995	49,043,864	7,335,347	158,882,823	492,624	(69,548,170)	189,897,483
Timing of revenue recognition							
Goods transferred at a point in time	43,690,995	49,043,864	7,335,347	156,158,740	492,624	(67,969,391)	188,752,179
Services transferred over time	—	—	—	2,724,083	—	(1,578,779)	1,145,304
Total revenue from contracts with customers	43,690,995	49,043,864	7,335,347	158,882,823	492,624	(69,548,170)	189,897,483
						2019	2020
Revenue recognized that was included in contract liabilities at the beginning of the reporting period:							
— Sale of goods						1,543,164	1,565,285
— Others						36,158	73,541
						1,579,322	1,638,826

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ALUMINUM CORPORATION OF CHINA LIMITED
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5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

- (a) Revenue (Continued)
- (ii) Performance obligations

Information about the Group's performance obligations is summarised below:

Revenue from sales of products (including sales of the other materials)

The performance obligation is satisfied upon delivery of the industrial products and payment is generally due within 30 to 90 days from delivery, except for new customers, where advance is normally required.

Sales of goods were made in a short period of time and the performance obligation was mostly satisfied in one year or less at the end of each year, thus the Group applied the expedient of not to disclose the transaction price allocated to unsatisfied performance obligation.

Rendering of services

The performance obligation is satisfied over time as services are rendered and payment is generally due upon completion of the relevant services.

Amounts expected to be recognized as revenue for remaining contract performance obligation:

	For the year ended December 31	
	2019	2020
Within one year	1,638,826	1,399,340
After one year	125,758	182,859
	<u>1,764,584</u>	<u>1,582,199</u>

The remaining performance obligations expected to be recognized in more than one year relate to rendering of services that are to be satisfied within 1 – 10 years. All the other remaining performance obligations are satisfied in one year or less at the end of each year.

ALUMINUM CORPORATION OF CHINA LIMITED
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5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information

The executive presidents committee of the Company have been identified as the chief operating decision makers. The committee is responsible for the review of the internal reports in order to allocate resources to operating segments and assess their performance.

The committee considers the business from a product perspective comprising alumina, primary aluminum and energy for the Group's manufacturing business, which are identified as separate reportable operating segments. In addition, the Group's trading business is identified as a separate reportable operating segment. The Group's reportable operating segments also include corporate and other operating segments.

The committee assesses the performance of operating segments based on profit or loss before income tax in related periods. The manner of assessment used by the committee is consistent with that applied to the consolidated financial information for the year ended December 31, 2019. Management has determined the reportable operating segments based on the reports reviewed by the committee that are used to make strategic decisions.

The Group's five reportable operating segments are summarised as follows:

- The alumina segment, which consists of mining and purchasing bauxite and other raw materials, refining bauxite into alumina, and selling alumina both internally to the Group's aluminum enterprises and trading enterprises and externally to customers outside the Group. This segment also includes the production and sale of multi-form alumina bauxite.
- The primary aluminum segment, which consists of procuring alumina and other raw materials, supplemental materials and electricity power, smelting alumina to produce primary aluminum which is sold to the Group's trading enterprises and external customers, including Chinalco and its subsidiaries. This segment also includes the production and sale of carbon products and aluminum alloy and other aluminum products.
- The trading segment, which consists of the trading of alumina, primary aluminum, aluminum fabrication products, other non-ferrous metal products, coal products and raw materials and supplemental materials and logistics and transport services to internal manufacturing plants and external customers. The products are sourced from fellow subsidiaries and international and domestic suppliers of the Group. Sales of products manufactured by the Group's manufacturing business are included in the total revenue of the trading segment and are eliminated with the segment revenue of the respective segments which supplied the products to the trading segment.
- The energy segment mainly includes coal mining, electricity generation by thermal power, wind power and solar power, new energy related equipment manufacturing business. Sales of coals are mainly to the Group's internal and external coal consuming customers; electricity is sold to regional power grid corporations.
- Corporate and other operating segments, which mainly include management of corporate, research and development activities and others.

Prepaid current income tax and deferred tax assets are excluded from segment assets, and income tax payable and deferred tax liabilities are excluded from segment liabilities. All sales among the reportable operating segments were conducted on terms mutually agreed among group companies, and have been eliminated upon consolidation.

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	Year ended December 31, 2020						
	Alumina	Primary aluminum	Energy	Trading	Corporate and other operating segments	Inter-segment elimination	Total
Total revenue	42,382,097	51,889,084	7,184,216	155,392,357	449,611	(71,303,112)	185,994,253
Inter-segment revenue	(29,436,854)	(11,458,500)	(243,788)	(30,058,138)	(105,832)	71,303,112	—
Sales of self-produced products (Note (i))	—	—	—	21,492,083	—	—	—
Sales of products sourced from external suppliers	—	—	—	103,842,136	—	—	—
Revenue from external customers	12,945,243	40,430,584	6,940,428	125,334,219	343,779	—	185,994,253
Segment profit /(loss) before income tax	1,427,294	2,023,168	(77,235)	555,864	(1,705,175)	(68,699)	2,155,217
Income tax expense	—	—	—	—	—	—	(582,188)
Profit for the year	—	—	—	—	—	—	1,573,029

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)
For the years ended December 31, 2018, 2019 and 2020
(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	Year ended December 31, 2020						Total
	Alumina	Primary aluminum	Energy	Trading	Corporate and other operating segments	Inter-segment elimination	
Other items							
Finance income	42,912	58,437	36,333	72,632	16,607	—	226,921
Finance costs	(826,521)	(1,364,606)	(995,572)	(170,937)	(1,062,892)	—	(4,420,528)
Share of profits and losses of joint ventures	75,405	—	35,308	5,011	64,778	—	180,502
Share of profits and losses of associates	4,930	(35,328)	(17,905)	38,683	155,357	—	145,737
Depreciation of right-of-use assets	(364,655)	(234,387)	(96,967)	(21,075)	(50,469)	—	(767,553)
Depreciation and amortization (excluding the depreciation of right-of-use assets)	(2,934,949)	(2,937,761)	(1,943,524)	(23,287)	(71,281)	—	(7,910,802)
(Losses)/gain on disposal of property, plant and equipment	(15,274)	456,925	3,989	2,147	652	—	448,439
Realized loss on futures, forward and option contracts, net	—	—	—	675,442	(152,064)	—	523,378
Other income	21,549	11,087	55,561	33,207	18,147	—	139,551
Impairment loss on property, plant and equipment	(23,135)	(388,755)	—	(4,951)	—	—	(416,841)
Unrealized (losses)/gains on futures contracts, net	—	—	—	(27,705)	17,311	—	(10,394)
Gain on disposal of subsidiaries	—	—	—	—	11,305	—	11,305
Changes for impairment of inventories	(121,286)	103,524	(15,642)	2,184	981	—	(30,239)
Provision for impairment of receivables	(58,778)	(14,417)	(108,059)	(414,342)	(383,238)	—	(978,834)
Dividends from other financial assets measured at fair value	—	—	—	—	82,794	—	82,794
Investments in associates	88,356	539,058	396,454	1,565,235	6,584,307	—	9,173,410
Investments in joint ventures	1,076,085	—	334,763	43,258	1,920,447	—	3,374,553
Additions during the year:							
Intangible assets	2,157	3,546	—	1,413	266	—	7,382
Right-of-use assets	12,001	—	59,010	2,875	2,893	—	76,779
Property, plant and equipment (Note (ii))	<u>2,317,271</u>	<u>1,069,086</u>	<u>881,810</u>	<u>328,033</u>	<u>25,119</u>	<u>—</u>	<u>4,621,319</u>

(i) The sales of self-produced products include sales of self-produced alumina amounting to RMB12,465 million, sales of self-produced primary aluminum amounting to RMB8,784 million, and sales of self-produced other products amounting to RMB243 million.

(ii) The additions to property, plant and equipment under sale and leaseback contracts are not included.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	Year ended December 31, 2019 (Restated)						Total
	Alumina	Primary aluminum	Energy	Trading	Corporate and other operating segments	Inter-segment elimination	
Total revenue	43,899,982	49,089,019	7,345,971	158,935,656	492,940	(69,548,170)	190,215,398
Inter-segment revenue	(29,573,401)	(11,694,382)	(236,136)	(27,877,188)	(167,063)	69,548,170	—
Sales of self-produced products (Note (i))	—	—	—	24,380,771	—	—	—
Sales of products sourced from external suppliers	—	—	—	106,677,697	—	—	—
Revenue from external customers	14,326,581	37,394,637	7,109,835	131,058,468	325,877	—	190,215,398
Segment profit /(loss) before income tax	844,848	687,246	403,479	958,007	(987,704)	213,085	2,118,961
Income tax expense	—	—	—	—	—	—	(628,376)
Profit for the year							<u>1,490,585</u>

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)
For the years ended December 31, 2018, 2019 and 2020
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5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	Year ended December 31, 2019 (Restated)						Total
	Alumina	Primary aluminum	Energy	Trading	Corporate and other operating segments	Inter-segment elimination	
Other items							
Finance income	61,644	53,252	35,093	105,664	5,540	—	261,193
Finance costs	(651,238)	(1,328,730)	(1,064,769)	(224,292)	(1,652,512)	—	(4,921,541)
Share of profits and losses of joint ventures	86,245	—	(22,272)	3,767	202,375	—	270,115
Share of profits and losses of associates	(6,319)	11,621	(32,660)	36,579	39,546	—	48,767
Depreciation of right-of-use assets	(495,693)	(338,975)	(146,139)	(45,541)	(49,477)	—	(1,075,825)
Depreciation and amortization (excluding the depreciation of right-of-use assets)	(2,830,153)	(3,235,356)	(1,488,077)	(79,365)	(81,467)	—	(7,714,418)
(Losses)/gains on disposal of property, plant and equipment and intangible assets	(576,669)	833,288	(3,982)	7,271	(224)	—	259,684
Realized gain on futures, forward and option contracts, net	—	—	60,671	—	—	—	60,671
Other income	21,252	716	11,382	47,666	3,595	—	84,611
Impairment on property, plant and equipment	(8,742)	(247,112)	—	(3,500)	—	—	(259,354)
Unrealized gain on futures, forward and option contracts, net	—	—	—	(9,851)	—	—	(9,851)
Gain on disposal of subsidiaries	118	—	3,014	2,738	255,317	—	261,187
Changes for impairment of inventories	69,740	166,331	34,136	(19,076)	—	—	251,131
Reversal of/(provision for) impairment of receivables, net of bad debts recovered	6,837	1,088	(53,227)	(122,420)	(3,294)	—	(171,016)
Dividends from other financial assets measured at fair value	—	—	1,000	—	96,775	—	97,775
Investments in associates	83,424	574,385	362,757	2,021,964	6,469,871	—	9,512,401
Investments in joint ventures	1,076,085	—	79,199	298,991	1,931,307	—	3,385,582
Additions during the year:							
Intangible assets	209,366	949,013	(5,062)	1,869	200	—	1,155,386
Right-of-use assets	1,080,285	131,797	8,411	27,365	—	—	1,247,858
Property, plant and equipment (Note (ii))	6,490,041	2,381,644	1,454,659	132,841	165,832	—	10,625,017

(i) The sales of self-produced products include sales of self-produced alumina amounting to RMB13,330 million, sales of self-produced primary aluminum amounting to RMB10,689 million, and sales of self-produced other products amounting to RMB362 million.

(ii) The additions to property, plant and equipment under sale and leaseback contracts are not included.

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	Year ended December 31, 2018 (Restated)						Total
	Alumina	Primary aluminum	Energy	Trading	Corporate and other operating segments	Inter-segment elimination	
Total revenue	44,150,937	53,802,172	7,235,273	142,532,936	667,235	(68,037,641)	180,350,912
Inter-segment revenue	(29,392,495)	(12,457,863)	(198,337)	(25,775,920)	(213,026)	68,037,641	—
Sales of self-produced products (Note (i))	—	—	—	34,564,441	—	—	—
Sales of products sourced from external suppliers	—	—	—	82,192,575	—	—	—
Revenue from external customers	14,758,442	41,344,309	7,036,936	116,757,016	454,209	—	180,350,912
Segment profit/(loss) before income tax	3,496,381	(929,298)	26,020	748,495	(1,267,146)	198,103	2,272,555
Income tax expense	—	—	—	—	—	—	(826,366)
Profit for the year							<u>1,446,189</u>

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	Year ended December 31, 2018 (Restated)						Total
	Alumina	Primary aluminum	Energy	Trading	Corporate and other operating segments	Inter-segment elimination	
Other items							
Finance income	100,125	54,458	15,744	136,603	185,392	—	492,322
Finance costs	(399,344)	(1,131,622)	(1,047,285)	(367,003)	(1,937,438)	—	(4,882,692)
Share of profits and losses of joint ventures	37,377	8	(225,377)	9,010	(20,470)	—	(199,452)
Share of profits and losses of associates	(1,141)	17,102	(52,368)	19,375	56,367	—	39,335
Depreciation of right-of-use assets	(39,027)	(41,175)	(9,335)	(18,615)	—	—	(108,152)
Depreciation and amortization (excluding the depreciation of right-of-use assets)	(2,846,051)	(2,954,801)	(1,962,081)	(108,069)	(82,963)	—	(7,953,965)
Gains/(losses) on disposal of property, plant and equipment and intangible assets	53,116	15,211	24,780	20,036	(12,045)	—	101,098
Realized gain on futures, forward and option contracts, net	(716)	—	2,855	47,601	(9,248)	—	40,492
Other income	57,777	38,220	29,858	6,718	2,794	—	135,367
Impairment on property, plant and equipment	—	—	(7,450)	(39,034)	—	—	(46,484)
Unrealized gain on futures, forward and option contracts, net	—	—	—	100,967	—	—	100,967
Gain on disposal of subsidiaries	7,671	—	—	—	(4,154)	—	3,517
Changes for impairment of inventories	(54,463)	(273,796)	(7,884)	(17,802)	—	—	(353,945)
Reversal of/(provision for) impairment of receivables, net of bad debts recovered	19,320	(9,406)	(23,327)	(84,922)	(9,621)	—	(107,956)
Dividends from other financial assets measured at fair value	—	—	1,000	—	108,914	—	109,914
Loss on disposal of associates	—	—	(1,904)	—	—	—	(1,904)
(Losses)/gain on previously held equity interest remeasured at an acquisition-date fair value	—	—	(3,177)	—	751,263	—	748,086
Investments in associates	89,734	558,759	2,064,425	131,691	3,518,853	—	6,363,462
Investments in joint ventures	989,840	—	435,867	77,211	1,890,431	—	3,393,349
Additions during the year:							
Intangible assets	99,089	753	2,754	514	194	—	103,304
Right-of-use assets	2,786	—	—	52	—	—	2,838
Property, plant and equipment (Note (ii))	2,564,003	4,602,580	1,610,442	102,956	143,839	—	9,023,820

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

-
- (i) The sales of self-produced products include sales of self-produced alumina amounting to RMB16,561 million, sales of self-produced primary aluminum amounting to RMB13,517 million, and sales of self-produced other products amounting to RMB4,486 million.
 - (ii) The additions to property, plant and equipment under sale and leaseback contracts are not included.

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

As of December 31, 2020	As of December 31, 2020					Corporate and other operating segments	Total
	Alumina	Primary aluminum	Energy	Trading			
Segment assets	87,409,820	62,050,175	39,671,083	20,520,759	44,594,935	254,246,772	
Reconciliation:							
Elimination of inter-segment receivables						(60,582,399)	
Other eliminations						(360,498)	
Corporate and other Unallocated assets:						—	
Deferred tax assets						1,481,235	
Prepaid income tax						116,574	
Total assets						194,901,684	
Segment liabilities	48,883,452	39,204,713	26,197,235	12,815,610	55,475,215	182,576,225	
Elimination of inter-segment payables						(60,582,397)	
Corporate and other Unallocated liabilities:						—	
Deferred tax liabilities						1,437,087	
Income tax payable						299,053	
Total liabilities						123,729,968	

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

	As of December 31, 2019 (Restated)					Corporate and other operating segments	Total
	Alumina	Primary aluminum	Energy	Trading			
Segment assets	90,584,165	63,155,573	38,886,172	17,496,224	49,658,116	259,780,250	
Reconciliation:						—	
Elimination of inter-segment receivables						(58,151,596)	
Other eliminations						(106,985)	
Corporate and other unallocated assets:						—	
Deferred tax assets						1,522,729	
Prepaid income tax						93,093	
Total assets						203,137,491	
Segment liabilities	47,247,335	38,588,473	26,582,436	9,376,820	66,771,364	188,566,428	
Elimination of inter-segment payables						(58,151,596)	
Corporate and other unallocated liabilities:						—	
Deferred tax liabilities						1,712,739	
Income tax payable						252,454	
Total liabilities						132,380,025	

The Group mainly operates in Mainland China. Geographical information on operating segments is as follows:

	For the year ended December 31		
	2018 (Restated)	2019 (Restated)	2020
Segment revenue from external customers			
– Mainland China	171,134,353	184,439,383	177,352,421
– Outside of Mainland China	9,216,559	5,776,015	8,641,832
	<u>180,350,912</u>	<u>190,215,398</u>	<u>185,994,253</u>
		December 31, 2019 (Restated)	December 31, 2020
Non-current assets (excluding financial assets and deferred tax assets)			
– Mainland China		147,876,838	142,671,962
– Outside of Mainland China		2,668,533	2,890,338
		<u>150,545,371</u>	<u>145,562,300</u>

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

5 REVENUE AND SEGMENT INFORMATION (CONTINUED)

(b) Segment information (Continued)

For the year ended December 31, 2020, revenues of approximately RMB46,262 million (2019: RMB40,567 million, 2018: RMB32,852 million) were derived from entities directly or indirectly owned or controlled by the PRC government including Chinalco. These revenues are mainly attributable to the alumina, primary aluminum, energy and trading segments. There were no individual customers that contributed 10% or more of the Group's revenue during the years ended December 31, 2018, 2019 and 2020.

6 INTANGIBLE ASSETS

	<u>Goodwill</u>	<u>Mining rights</u>	<u>Mineral exploration rights</u>	<u>Others</u>	<u>Total</u>
Year ended December 31, 2020					
Opening net carrying amount	3,510,892	7,972,911	1,001,332	1,279,325	13,764,460
Additions	—	—	—	7,382	7,382
Disposals	—	(277,715)	—	—	(277,715)
Impairment	—	—	—	(416)	(416)
Amortization	—	(412,599)	—	(46,883)	(459,482)
Business combination	—	—	—	89	89
Transfer from property, plant and equipment (Note 7)	—	149,544	—	284,743	434,287
Currency translation differences	(1,035)	(6,308)	(12,958)	—	(20,301)
Closing net carrying amount	<u>3,509,857</u>	<u>7,425,833</u>	<u>988,374</u>	<u>1,524,240</u>	<u>13,448,304</u>
As of December 31, 2020					
Cost	3,509,857	9,876,722	988,374	1,932,329	16,307,282
Accumulated amortization and impairment	—	(2,450,889)	—	(408,089)	(2,858,978)
Net carrying amount	<u>3,509,857</u>	<u>7,425,833</u>	<u>988,374</u>	<u>1,524,240</u>	<u>13,448,304</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

6 INTANGIBLE ASSETS (CONTINUED)

	<u>Goodwill</u>	<u>Mining rights and others</u>	<u>Mineral exploration rights</u>	<u>Others</u>	<u>Total</u>
Year ended December 31, 2019 (Restated)					
Opening net carrying amount	3,510,633	7,682,383	1,113,959	572,390	12,879,365
Additions	—	467,640	—	687,746	1,155,386
Reclassification	—	115,871	(115,871)	—	—
Disposals	—	—	—	(9)	(9)
Amortization	—	(294,766)	—	(44,172)	(338,938)
Transfer from property, plant and equipment (Note 7)	—	—	—	63,370	63,370
Currency translation differences	259	1,783	3,244	—	5,286
Closing net carrying amount	<u>3,510,892</u>	<u>7,972,911</u>	<u>1,001,332</u>	<u>1,279,325</u>	<u>13,764,460</u>
As of December 31, 2019					
Cost	3,510,892	10,016,634	1,001,332	1,640,081	16,168,939
Accumulated amortization and impairment	—	(2,043,723)	—	(360,756)	(2,404,479)
Net carrying amount	<u>3,510,892</u>	<u>7,972,911</u>	<u>1,001,332</u>	<u>1,279,325</u>	<u>13,764,460</u>

For the years ended December 31, 2018, 2019 and 2020, the amortization expenses of intangible assets recognized in profit or loss were analysed as follows:

	For the year ended December 31		
	<u>2018</u> <u>(Restated)</u>	<u>2019</u> <u>(Restated)</u>	<u>2020</u>
Cost of sales	265,108	294,766	371,616
General and administrative expenses	30,793	44,172	87,866
	<u>295,901</u>	<u>338,938</u>	<u>459,482</u>

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

6 INTANGIBLE ASSETS (CONTINUED)

As of December 31, 2020, the Group has pledged intangible asset with a net carrying value amounting to RMB0.96 million (December 31, 2019: RMB757 million) for bank and other borrowings as set out in Note 24 to the financial statements.

As of December 31, 2020, the Group was in the process of applying for the certificates of mining rights with a carrying value amounting to RMB40 million (December 31, 2019: RMB51 million). There have been no litigations, claims or assessments against the Group for compensation with respect to the use of these rights to date. As of December 31, 2020, the carrying value of these rights only represented approximately 0.02% of the total asset value of the Group (December 31, 2019: approximately 0.02%). Management considers that it is probable that the Group can obtain the relevant ownership certificates from the appropriate authorities. The directors of the Company are of the opinion that the Group has the rights to use the above mining rights, and that there is no material adverse impact on the overall financial position of the Group.

Impairment testing of goodwill

The lowest level within the Group at which goodwill is monitored for internal management purposes is the operating segment before aggregation. Therefore, goodwill is allocated to the Group's CGUs and groups of CGUs that are expected to benefit from the synergies of the relevant business combination. A summary of goodwill allocation is presented below:

	December 31, 2020		December 31, 2019	
	Alumina	Primary aluminum	Alumina	Primary aluminum
Qinghai Branch	—	217,267	—	217,267
Guangxi Branch	189,419	—	189,419	—
Lanzhou Aluminum Co., Ltd	—	1,924,259	—	1,924,259
PT. Nusapati Prima ("PTNP")	14,963	—	15,998	—
Shanxi Huaxing	1,163,949	—	1,163,949	—
	<u>1,368,331</u>	<u>2,141,526</u>	<u>1,369,366</u>	<u>2,141,526</u>

The recoverable amount of a CGU is determined based on value-in-use calculations. These calculation of VIU use pre-tax cash flow projections based on financial budgets approved by management covering a five-year period. Cash flows beyond the 5-year period are extrapolated using the estimated growth rate of 2% (2019: 2%) not exceeding the long-term average growth rate for the businesses in which the CGU operates. Other key assumptions applied in the impairment testing include future prices of aluminum and alumina and the discount rate. Management determined these key assumptions based on past performance and their expectations on market development. Furthermore, the Group adopts a pre-tax rate of 12.62% (2019: 12.62%) that reflects specific risks related to CGUs and groups of CGUs as the discount rate. The assumptions above are used in analysing the recoverable amounts of CGUs and groups of CGUs within operating segments. These estimates and judgments may be affected by unexpected changes in the future market or economic conditions.

Based on their assessment, there was no impairment of goodwill as of December 31, 2020 and December 31, 2019.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

7 PROPERTY, PLANT AND EQUIPMENT

	Buildings	Machinery	Transportation facilities	Office and other equipment	Construction in progress	Total
Year ended December 31, 2020						
Opening net carrying amount at 1 Jan 2020 (Restated)	40,777,331	49,487,287	429,581	354,825	12,359,952	103,408,976
Reclassifications and internal transfers	3,301,076	7,114,160	809,433	47,546	(11,272,215)	—
Transfer to intangible assets (Note 6)	—	—	—	—	(434,287)	(434,287)
Transfer from right-of-use assets and non-current assets*	—	1,982,812	—	—	—	1,982,812
Transfer to investment properties (Note 8)	(78,135)	—	—	—	—	(78,135)
Transfer to other non-current assets	—	—	—	—	(38,430)	(38,430)
Transfer to right-of-use assets (Note 20)	(140,254)	—	—	—	(744,887)	(885,141)
Additions	296,395	182,427	48,607	10,659	4,083,231	4,621,319
Business combination	1,290	52,357	(18)	(28)	—	53,601
Government grants	(1,646)	(40,676)	—	—	—	(42,322)
Disposals	(120,386)	(173,789)	(27,145)	(918)	(58,659)	(380,897)
Depreciation	(1,689,768)	(5,315,869)	(96,999)	(49,534)	—	(7,152,170)
Impairment loss	(80,641)	(326,444)	(125)	(558)	(9,073)	(416,841)
Currency translation differences	(103)	(183)	(27)	(19)	—	(332)
Closing net carrying amount	<u>42,265,159</u>	<u>52,962,082</u>	<u>1,163,307</u>	<u>361,973</u>	<u>3,885,632</u>	<u>100,638,153</u>
As of December 31, 2020						
Cost	63,188,254	114,359,882	2,844,604	869,252	4,005,995	185,267,987
Accumulated depreciation and impairment	<u>(20,923,095)</u>	<u>(61,397,800)</u>	<u>(1,681,297)</u>	<u>(507,279)</u>	<u>(120,363)</u>	<u>(84,629,834)</u>
Net carrying amount	<u>42,265,159</u>	<u>52,962,082</u>	<u>1,163,307</u>	<u>361,973</u>	<u>3,885,632</u>	<u>100,638,153</u>

* This includes the right-of-use assets recognized previously under sale and leaseback contracts of RMB1,664 million that were reclassified from property, plant and equipment, upon initial adoption of IFRS 16. After the expiration of those contracts, they were recognized as property, plant and equipment.

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(Amounts expressed in thousands of RMB unless otherwise stated)

7 PROPERTY, PLANT AND EQUIPMENT (CONTINUED)

	<u>Buildings</u>	<u>Machinery</u>	<u>Transportation facilities</u>	<u>Office and other equipment</u>	<u>Construction in progress</u>	<u>Total</u>
As of December 31, 2019 (Restated)						
Opening net carrying amount	38,748,649	47,847,491	537,300	159,291	12,315,564	99,608,295
Reclassifications and internal transfers	3,869,147	5,125,998	(29,181)	207,546	(9,173,510)	—
Government grants	(7,211)	(69,012)	—	—	—	(76,223)
Transfer to right-of-use assets	(107,368)	(495)	—	—	—	(107,863)
Transfer to intangible assets (Note 6)	—	—	—	—	(63,370)	(63,370)
Transfer to investment properties (Note 8)	(179,564)	—	—	—	—	(179,564)
Transfer from right-of-use assets	—	1,674,260	—	—	—	1,674,260
Additions	576,107	636,555	47,527	12,944	9,351,884	10,625,017
Disposal of subsidiaries	(85,851)	(73,432)	(3,270)	(239)	—	(162,792)
Disposals	(79,280)	(378,817)	(19,672)	(939)	(70,201)	(548,909)
Depreciation	(1,852,041)	(5,121,970)	(103,126)	(23,639)	—	(7,100,776)
Impairment losses	(105,346)	(153,394)	(14)	(185)	(415)	(259,354)
Currency translation differences	89	103	17	46	—	255
Closing net carrying amount	<u>40,777,331</u>	<u>49,487,287</u>	<u>429,581</u>	<u>354,825</u>	<u>12,359,952</u>	<u>103,408,976</u>
As of December 31, 2019						
Cost	60,216,498	101,630,516	2,284,564	830,866	12,511,787	177,474,231
Accumulated depreciation and impairment	(19,439,167)	(52,143,229)	(1,854,983)	(476,041)	(151,835)	(74,065,255)
Net carrying amount	<u>40,777,331</u>	<u>49,487,287</u>	<u>429,581</u>	<u>354,825</u>	<u>12,359,952</u>	<u>103,408,976</u>

For the years ended December 31, 2018, 2019 and 2020, depreciation expenses recognized in profit or loss were analysed as follows:

	For the year ended December 31		
	<u>2018</u> (Restated)	<u>2019</u> (Restated)	<u>2020</u>
Cost of sales	7,296,290	6,930,180	6,991,119
General and administrative expenses	202,792	163,989	155,916
Selling and distribution expenses	6,605	6,607	5,135
	<u>7,505,687</u>	<u>7,100,776</u>	<u>7,152,170</u>

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

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7 PROPERTY, PLANT AND EQUIPMENT (CONTINUED)

As of December 31, 2020, the Group was in the process of applying for the ownership certificates of buildings with a net carrying value of RMB7,616 million (December 31, 2019: RMB7,315 million). There has been no litigations, claims or assessments against the Group for compensation with respect to the use of these buildings as of the date of approval of these financial statements.

As of December 31, 2020, the carrying value of the above buildings only represented approximately 3.65% of the Group's total asset value (December 31, 2019: 3.60% (restated)). Management considers that it is probable that the Group will be able to obtain the relevant ownership certificates from the appropriate authorities. The directors of the Company are of the opinion that the Group has the rights to use the above property, plant and equipment, and that there is no material adverse impact on the overall financial position of the Group.

For the year ended December 31, 2020, interest expenses of RMB124 million (2019: RMB289 million, 2018: RMB518 million) arising from borrowings attributable to the construction of property, plant and equipment during the year were capitalized at annual rates ranging from 4.00% to 6.68% (2019: 4.00% to 6.96%, 2018: 4.54% to 7.00%), and were included in additions to property, plant and equipment.

As of December 31, 2020, the Group has pledged property, plant and equipment at a net carrying value amounting to RMB5,191 million (December 31, 2019: RMB4,946 million) for bank and other borrowings as set out in Note 24 to the financial statements.

As of December 31, 2020, the carrying value of temporarily idle property, plant and equipment of the Group was RMB750 million (December 31, 2019: RMB952 million).

Impairment testing for property, plant and equipment

When any indicators of impairment are identified, property, plant and equipment are reviewed for impairment based on each CGU. The CGU is an individual plant or entity. The carrying values of these individual plants or entities were compared to the recoverable amounts of the CGUs, which were based predominantly on value-in-use. Value-in-use calculations use pre-tax cash flow projections based on financial budgets approved by management covering a five-year period. Cash flows beyond the five-year period are extrapolated using the same cash flow projections of the fifth year. Other key assumptions applied in the impairment testing include the future prices of aluminum and alumina and the discount rate. Management determined these key assumptions based on past performance and their expectations on market development. Further, the Group adopts a pre-tax rate of 10.16% (2019: 10.16%) that reflects specific risks related to the CGUs as discount rate. These estimates and judgments may be affected by unexpected changes in the future market or economic conditions.

In addition to the CGUs for which impairment was tested based on value-in-use, the Group also assessed the recoverable amounts for property, plant and equipment to be disposed or abandoned soon, and recognized impairment losses of RMB417 million in 2020 (2019: RMB259 million, 2018: RMB46 million).

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8 INVESTMENT PROPERTIES

	<u>Buildings</u>	<u>Land use rights</u>	<u>Total</u>
Year ended December 31, 2020			
Opening net carrying amount	414,168	1,089,098	1,503,266
Additions	—	—	—
Transfer from property, plant and equipment (Note 7)	78,135	—	78,135
Transfer from right-of-use assets (Note 20)	—	45,885	45,885
Disposals	—	(1,005)	(1,005)
Depreciation	(10,814)	(13,591)	(24,405)
Closing net carrying amount	<u>481,489</u>	<u>1,120,387</u>	<u>1,601,876</u>
As of December 31, 2020			
Cost	601,850	1,221,710	1,823,560
Accumulated depreciation and impairment	(120,361)	(101,323)	(221,684)
Net carrying amount	<u>481,489</u>	<u>1,120,387</u>	<u>1,601,876</u>
	<u>Buildings</u>	<u>Land use right</u>	<u>Total</u>
Year ended December 31, 2019			
Opening net carrying amount	235,974	920,032	1,156,006
Additions	44,063	—	44,063
Transfer from property, plant and equipment (Note 7)	179,564	—	179,564
Transfer from right-of-use assets (Note 20)	—	239,765	239,765
Disposal	(36,949)	(52,537)	(89,486)
Depreciation	(8,484)	(18,075)	(26,559)
Impairment loss	—	(87)	(87)
Closing net carrying amount	<u>414,168</u>	<u>1,089,098</u>	<u>1,503,266</u>
As of December 31, 2019			
Cost	508,705	1,159,343	1,668,048
Accumulated depreciation and impairment	(94,537)	(70,245)	(164,782)
Net carrying amount	<u>414,168</u>	<u>1,089,098</u>	<u>1,503,266</u>

**ALUMINUM CORPORATION OF CHINA LIMITED
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8 INVESTMENT PROPERTIES (CONTINUED)

The Group's investment properties consist of land use rights held for rental income and buildings leased to third parties under operating leases.

As of December 31, 2020, the Group was in the process of applying for the ownership certificates of investment properties with a net carrying value of RMB59 million (December 31, 2019: RMB255 million). There have been no litigations, claims or assessments against the Group for compensation with respect to the use of these rights to date. As of December 31, 2020, the carrying value of these investment properties only represented approximately 0.03% of the total asset value of the Group (December 31, 2019: 0.13%). Management considers that it is probable that the Group can obtain the relevant ownership certificates from the appropriate authorities. The directors of the Company are of the opinion that the Group has the rights to use the above investment properties, and that there is no material adverse impact on the overall financial position of the Group.

As of December 31, 2020, the fair value of the buildings was approximately RMB926 million (December 31, 2019: RMB1,071 million) which was estimated based on the market price of comparable buildings in the nearby area. The directors of the Company estimated that the fair value of the land use right was approximately RMB1,296 million (December 31, 2019: RMB1,269 million), which was determined based on the transaction prices for similar lands nearby.

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9 INVESTMENTS IN JOINT VENTURES AND ASSOCIATES

(a) Investments in joint ventures

Movements in investments in joint ventures are as follows:

	<u>2020</u>	<u>2019</u>
As of January 1	3,385,582	3,393,349
Capital injections	4,333	50,000
Disposal	—	(114,604)
Share of profits for the year	180,502	270,115
Share of changes in reserves	1,491	8,746
Dividends declared	(197,355)	(222,024)
Impairment	—	—
As of December 31	<u><u>3,374,553</u></u>	<u><u>3,385,582</u></u>

As of December 31, 2020, all joint ventures of the Group were unlisted.

As of December 2020, particulars of the Group's material joint venture is as follows:

Name	Effective equity interest held					
	Place of establishment and operation	Registered and paid-in capital	Principal activities	Ownership interest	Voting power	Profit sharing
Guangxi Huayin Aluminum Co., Ltd. *("Guangxi Huayin") (廣西華銀鋁業有限公司)	PRC/Mainland China	2,441,987	Manufacturing	33%	33%	33%

* Guangxi Huayin, which is considered a material joint venture of the Group, is accounted for using the equity method.

The English names represent the best effort by management of the Group in translating the Chinese names of the companies as they do not have official English names.

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ALUMINUM CORPORATION OF CHINA LIMITED
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9 INVESTMENTS IN JOINT VENTURES AND ASSOCIATES (CONTINUED)

(a) Investments in joint ventures (Continued)

The following table illustrates the summarised financial information in respect of Guangxi Huayin:

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Cash and cash equivalents	247,680	261,447
Other current assets	970,096	1,222,290
Current assets	1,217,776	1,483,737
Non-current assets	5,361,592	5,249,101
Financial liabilities	750,000	1,106,593
Other current liabilities	772,700	960,077
Current liabilities	1,522,700	2,066,670
Non-current liabilities	580,419	414,299
Net assets	4,476,249	4,251,869
Reconciliation to the Group's interest in the joint venture:		
Proportion of the Group's ownership	33.00%	33.00%
Group's share of net assets of the joint venture	1,477,162	1,403,117
Carrying amount of the investment	1,477,162	1,403,117

	<u>For the year ended December 31</u>		
	<u>2018</u>	<u>2019</u>	<u>2020</u>
Revenue	5,173,801	5,226,893	4,631,737
Gross profit	979,991	1,303,254	800,965
Interest income	6,365	9,781	7,388
Depreciation and amortization	509,556	525,109	531,512
Interest expenses	77,438	63,351	51,855
Profit before income tax	504,875	621,315	195,189
Income tax	78,827	79,300	21,152
Other comprehensive income	—	—	—
Total comprehensive income for the year	426,048	542,015	174,037
Dividend received	132,000	198,000	99,000

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9 INVESTMENTS IN JOINT VENTURES AND ASSOCIATES (CONTINUED)

(a) Investments in joint ventures (Continued)

The following table illustrates the aggregate financial information of the Group's joint ventures that are not individually material:

	<u>2020</u>	<u>2019</u>
Share of the joint ventures' profits for the year	121,120	91,250
Share of the joint ventures' total comprehensive income	121,120	91,250
Aggregate carrying amount of the Group's investments in joint ventures	<u>1,897,391</u>	<u>1,870,538</u>

There were no material contingent liabilities relating to the Group's interests in the joint ventures and the joint ventures themselves.

(b) Investments in associates

Movements in investments in associates are as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
As of January 1	9,512,401	6,363,462
Investment to Yunnan Aluminum	—	1,491,736
Investment to Heqing Yixin Aluminum Industry Co.,Ltd. (鶴慶溢鑫鋁業有限公司) ("Yixin Aluminum")	—	941,160
Capital injections, other than to Yunnan Aluminum and Yixin Aluminum	—	729,368
Subsidiaries changed into associates	7,473	16,283
Capital reduction	(14,850)	(20,250)
Share of profits for the year	145,737	48,767
Dividends declared	(480,397)	(50,314)
Share of changes in reserves	3,046	(7,811)
As of December 31	<u>9,173,410</u>	<u>9,512,401</u>

As of December 31, 2020, except for Yunnan Aluminum, all associates of the Group were unlisted.

As of December 31, 2020, no associate was individually material to the Group except for Yunnan Aluminum.

As of December 31, 2020, particulars of the Group's material associate is as follows:

Name	Effective equity interest held					
	Place of establishment and operation	Registered and paid-in capital	Principal activities	Ownership interest	Voting power	Profit sharing
Yunnan Aluminum	PRC/Mainland China	3,128,207	Manufacturing	10.04%	10.04%	10.04%

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9 INVESTMENTS IN JOINT VENTURES AND ASSOCIATES (CONTINUED)

(b) Investments in associates (Continued)

Yunnan Aluminum, which is considered a material associate of the Group, is accounted for using the equity method.

The English names represent the best effort by management of the Group in translating the Chinese names of the companies as they do not have official English names.

The following table illustrates the summarised financial information in respect of Yunnan Aluminum:

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Cash and cash equivalents	1,186,778	4,052,271
Other current assets	4,848,942	5,081,477
Current assets	6,035,720	9,133,748
Non-current assets	39,960,249	35,706,818
Financial liabilities	5,632,439	8,502,318
Other current liabilities	11,728,170	12,012,348
Current liabilities	17,360,609	20,514,666
Non-current liabilities	10,658,126	7,254,037
Net assets	17,977,234	17,071,863
Non-controlling interests	2,504,346	2,213,934
Reconciliation to the Group's interest in the associate:		
Proportion of the Group's ownership	10.04%	10.04%
Group's share of net assets of the associate	1,553,478	1,491,736
Carrying amount of the investment	1,553,478	1,491,736
	For the year ended December 31	
	<u>2019</u>	<u>2020</u>
Revenue	24,283,623	29,567,864
Gross profit	3,241,005	4,084,535
Interest income	46,865	35,345
Depreciation and amortization	1,381,066	1,571,308
Interest expenses	945,786	649,600
Profit before income tax	596,546	1,032,497
Income tax	51,340	122,384
Other comprehensive income	28,183	(36,602)
Total comprehensive income for the year	573,389	873,511
Dividend received	—	—

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9 INVESTMENTS IN JOINT VENTURES AND ASSOCIATES (CONTINUED)

(b) Investments in associates (Continued)

The following table illustrates the aggregate financial information of the Group's associates that are not individually material:

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
Share of the associates' profits	83,518	48,767
Share of the associates' total comprehensive income	83,518	48,767
Aggregate carrying amount of the Group's investments in the associates	<u>7,619,932</u>	<u>8,020,665</u>

There were no material contingent liabilities relating to the Group's interests in the associates and the associates themselves.

As of December 31, 2020, the Group had pledged investments in associates amounting to RMB396 million (December 31, 2019: RMB539 million) as set out in Note 24 to the financial statements.

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10 OTHER FINANCIAL ASSETS MEASURED AT FAIR VALUE

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Listed equity investments, at fair value		
Dongxing securities Co., Ltd.(東興證券股份有限公司)	8,812	8,853
Unlisted equity investments, at fair value		
Sanmenxia Dachang Mining Co., Ltd.(三門峽達昌礦業有限公司)	20,921	20,905
Inner Mongolia Ganqimaodu Port Development Co., Ltd.(內蒙古甘其毛都港務發展股份有限公司)	16,669	30,410
Yinchuan Economic and Technological Development Zone Investment Holding Co., Ltd. (銀川經濟技術開發區投資控股有限公司)	17,234	20,000
China Color International Alumina Development Co., Ltd.(中色國際氧化鋁開發有限公司)	6,636	6,614
Luoyang Jianyuan Mining Co., Ltd. (洛陽建元礦業有限公司)	4,975	4,960
NingXia Electric Power Trading Center Co., Ltd(寧夏電力交易中心有限公司)	4,305	—
Ningxia Ningdian Logistics Transportation Co., Ltd.(寧夏寧電物流運輸有限公司)	1,640	1,640
Chinalco Innovative Development Investment Company Limited (“Chinalco Innovative”) (中鋁創新開發投資有限公司)	329,234	365,681
Size Industry Investment Fund (Note)	980,498	1,653,251
Fangchenggang Chisha Pier Co., Ltd.(防城港赤沙碼頭有限公司)	700	700
Xingxian Shengxing Highway Investment Management Co., Ltd. (興縣盛興公路投資管理有限公司)	135,079	126,237
	<u>1,517,891</u>	<u>2,230,398</u>
	<u>1,526,703</u>	<u>2,239,251</u>

The above equity investments were irrevocably designated at fair value through other comprehensive income as the Group considers these investments to be strategic in nature.

Note:

During the year ended December 31, 2020, Size Industry Investment Fund repaid capital of RMB700 million, and dividend income of RMB82 million. The remaining capital balance was all repaid in February 2021.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

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11 DEFERRED TAX

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current income tax assets against current income tax liabilities and when the deferred taxes relate to the same tax authority.

The movements in deferred tax assets and liabilities during the year ended December 31, 2020 without taking into consideration the offsetting of balances within the same tax jurisdiction, are as follows:

Movements in deferred tax assets:

	<u>Provision for impairment</u>	<u>Accrued expenses</u>	<u>Tax losses</u>	<u>Unrealized profit at consolidation</u>	<u>Others</u>	<u>Total</u>
As of December 31, 2018	385,843	242,370	616,237	169,876	182,370	1,596,696
Business combination under common control	71	270	—	—	5	346
As of January 1, 2019 (Restated)	385,914	242,640	616,237	169,876	182,375	1,597,042
Acquisition of subsidiaries	190	(31)	—	—	7	166
Credit/(charged) to profit or loss	59,218	(33,214)	(40,047)	(521)	(2,955)	(17,519)
As of December 31, 2019	<u>445,322</u>	<u>209,395</u>	<u>576,190</u>	<u>169,355</u>	<u>179,427</u>	<u>1,579,689</u>
As of January 1, 2020	445,322	209,395	576,190	169,355	179,427	1,579,689
Acquisition of subsidiaries	—	—	—	—	36	36
Credit/(charged) to profit or loss	65,196	(99,810)	(105,811)	56,731	51,116	(32,578)
As of December 31, 2020	<u>510,518</u>	<u>109,585</u>	<u>470,379</u>	<u>226,086</u>	<u>230,579</u>	<u>1,547,147</u>

Movements in deferred tax liabilities:

	<u>Interest capitalization</u>	<u>Fair value changes of financial assets</u>	<u>Depreciation and amortization</u>	<u>Fair value adjustments arising from acquisition of subsidiaries</u>	<u>total</u>
As of January 1, 2019	43,832	5,606	32,489	1,784,919	1,866,846
Exchange realignment	—	—	—	416	416
Credited to other comprehensive income	—	14,642	—	—	14,642
Charged to profit or loss	(5,825)	(12,517)	(8,616)	(85,247)	(112,205)
As of December 31, 2019	<u>38,007</u>	<u>7,731</u>	<u>23,873</u>	<u>1,700,088</u>	<u>1,769,699</u>
As of January 1, 2020	38,007	7,731	23,873	1,700,088	1,769,699
Exchange realignment	—	—	—	(1,406)	(1,406)
Charged to other comprehensive income	—	(3,066)	—	—	(3,066)
Acquisition of subsidiaries	—	—	—	1,274	1,274
Credited/(charged) to profit or loss	(12,167)	4,235	13,234	(268,804)	(263,502)
As of December 31, 2020	<u>25,840</u>	<u>8,900</u>	<u>37,107</u>	<u>1,431,152</u>	<u>1,502,999</u>

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11 DEFERRED TAX (CONTINUED)

The temporary differences associated with investments in the Group's associates and joint ventures, for which a deferred tax liability has not been recognized in the periods presented, aggregate to RMB317 million (2019: RMB827 million), considering dividends from investments in associates and joint ventures are exempted from the PRC income tax and the Group has no plan to dispose any of these investees in the foreseeable future.

For presentation purposes, certain deferred tax assets and liabilities have been offset in the consolidated statement of financial position. The following is an analysis of the deferred tax balances of the Group for financial reporting purposes:

	<u>December 31, 2020</u>	<u>December 31, 2019</u> <u>(Restated)</u>
Net deferred tax assets	1,481,235	1,522,729
Net deferred tax liabilities	<u>1,437,087</u>	<u>1,712,739</u>

As of December 31, 2020, the Group has not recognized deferred tax assets of RMB1,514 million (December 31, 2019: RMB1,467 million) in respect of accumulated tax losses amounting to RMB6,593 million (December 31, 2019: RMB6,210 million) arising in Mainland China that can be carried forward for offsetting against future taxable income, and deferred tax assets of RMB2,032 million (December 31, 2019: RMB2,287 million) in respect of deductible temporary differences amounting to RMB8,848 million (December 31, 2019: RMB9,160 million) as it was considered not probable that those assets would be realized.

As of December 31, 2020, the expiry profile of these tax losses not recognized for deferred tax assets was analysed as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Expiring in		
2020	—	690,646
2021	213,992	958,188
2022	795,012	1,211,002
2023	882,156	997,376
2024	2,110,447	2,353,070
2025	<u>2,591,903</u>	<u>—</u>
	<u>6,593,510</u>	<u>6,210,282</u>

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12 OTHER NON-CURRENT ASSETS

	December 31, 2020	December 31, 2019 (Restated)
Financial assets		
— Long-term receivables	127,754	128,673
Prepayment for mining rights	809,722	813,822
Long-term prepaid expenses	654,291	650,062
Deferred losses for sale and leaseback transactions*	396,368	766,546
Others	1,177,785	849,819
	<u>3,038,166</u>	<u>3,080,249</u>
	<u>3,165,920</u>	<u>3,208,922</u>

* As disclosed in Note 20, the Group entered into several sale and leaseback agreements which constitute finance leases in previous years. The deferred losses arising from the sale are classified as other non-current assets and were amortized over the useful lives of the assets leased back.

As of December 31, 2020 and December 31, 2019, long-term receivables were denominated in RMB and non-interest-bearing.

13 INVENTORIES

	December 31, 2020	December 31, 2019 (Restated)
Raw materials	7,450,822	6,825,871
Work-in-progress	7,290,838	7,847,599
Finished goods	4,830,076	4,501,633
Spare parts	789,136	842,734
Packaging materials and others	25,709	57,870
	<u>20,386,581</u>	<u>20,075,707</u>
Less: provision for impairment of inventories	(529,827)	(560,066)
	<u>19,856,754</u>	<u>19,515,641</u>

Movements in the provision for impairment of inventories are as follows:

	December 31, 2020	December 31, 2019
As of January 1	560,066	811,197
Provision for impairment of inventories	1,492,153	1,503,406
Disposal of subsidiary	—	(772)
Reversal arising from increase in net realizable value	(170,766)	(340,134)
Written off upon sales of inventories	(1,351,626)	(1,413,631)
As of December 31	<u>529,827</u>	<u>560,066</u>

As of December 31, 2020 and December 31, 2019, no inventories were pledged for any borrowings.

ALUMINUM CORPORATION OF CHINA LIMITED
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14 TRADE RECEIVABLES AND NOTES RECEIVABLE

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
Trade receivables	5,680,558	5,290,178
Less: impairment	(933,563)	(715,597)
	<u>4,746,995</u>	<u>4,574,581</u>
Notes receivable	4,546,223	2,844,637
	<u>9,293,218</u>	<u>7,419,218</u>

As of December 31, 2020, other than trade and notes receivables amounting to RMB 685 million denominated in USD (December 31, 2019: RMB1,111 million which were denominated in USD), all other trade and notes receivables were denominated in RMB.

Trade and notes receivables due from the Group's joint ventures and associates amounted to RMB800 million (December 31, 2019: RMB788 million) and RMB17 million (December 31, 2019: RMB0.03 million), respectively, which are payable on credit terms comparable to those offered to the major customers of the Group.

As of December 31, 2020, the Group pledged notes receivable amounting to RMB1,499 million (December 31, 2019: RMB667 million) as set out in Note 24 to the financial statements.

Trade receivables and notes receivable are non-interest-bearing and generally with credit terms of 3 to 12 months. Certain of the Group's sales were on advance payments or documents against payment. In some cases, these terms are extended for qualifying long-term customers that have met specific credit requirements. As of December 31, 2020, the ageing analysis of trade receivables based on invoice date was as follows:

	<u>For the year ended December 31</u>	
	<u>2020</u>	<u>2019</u> (Restated)
Within 1 year	2,978,123	2,923,616
Between 1 and 2 years	1,031,050	742,477
Between 2 and 3 years	183,288	377,836
Over 3 years	1,488,097	1,246,249
	<u>5,680,558</u>	<u>5,290,178</u>
Less: loss allowance for impairment	(933,563)	(715,597)
	<u>4,746,995</u>	<u>4,574,581</u>

ALUMINUM CORPORATION OF CHINA LIMITED
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14 TRADE RECEIVABLES AND NOTES RECEIVABLE (CONTINUED)

An impairment analysis is performed at each reporting date using a provision matrix to measure expected credit losses. The provision rates are based on days past due for groups of various customer segments with similar loss patterns (i.e., by geographical region, product type, customer type and rating, and coverage by letters of credit or other forms of credit insurance). The calculation reflects the probability-weighted outcome, the time value of money and reasonable and supportable information that is available at the reporting date about past events, current conditions and forecasts of future economic conditions. The Group also assesses impairment loss individually if there is evidence of significant increases in credit risk at an individual level.

Set out below is the information about the credit risk exposure on the Group's trade receivables using a provision matrix:

	As of December 31, 2020		
	Gross carrying amount	Expected credit losses	Expected credit losses loss rate(%)
Alumina and primary aluminum			
Within 1 year	245,345	7,104	2.90
Between 1 and 2 years	126,165	12,084	9.58
Between 2 and 3 years	13,153	2,325	17.68
Over 3 years	108,590	103,207	95.04
	<u>493,253</u>	<u>124,720</u>	<u>/</u>
Trading			
Within 1 year	401,267	9,753	2.43
Between 1 and 2 years	1,132	110	9.72
Between 2 and 3 years	—	—	—
Over 3 years	4,660	4,635	99.46
	<u>407,059</u>	<u>14,498</u>	<u>/</u>
Energy			
Within 1 year	231,232	1,204	0.52
Between 1 and 2 years	33,024	1,710	5.18
Between 2 and 3 years	28,177	4,806	17.06
Over 3 years	47,084	44,493	94.50
	<u>339,517</u>	<u>52,213</u>	<u>/</u>
Corporate and other operating segments			
Within 1 year	22,600	1,774	7.85
Between 1 and 2 years	2,339	635	27.15
Between 2 and 3 years	13,320	5,010	37.61
Over 3 years	1,593	1,346	84.49
	<u>39,852</u>	<u>8,765</u>	<u>/</u>
	<u>1,279,681</u>	<u>200,196</u>	
Individually assessed trade receivables	4,400,877	733,367	
	<u>5,680,558</u>	<u>933,563</u>	

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14 TRADE RECEIVABLES AND NOTES RECEIVABLE (CONTINUED)

Set out below is the information about individually assessed trade receivables:

	As of December 31, 2020		
	Gross carrying amount	Expected credit losses	Expected credit losses loss rate (%)
State Grid Ningxia Electric Power Company	2,077,715	5,704	0.27
China Aluminum ZiBo International Trading Co., Ltd.	727,682	—	—
Zhuhai Hongfan nonferrous metal Chemical Co., Ltd.	270,419	270,419	100.00
Wiseson Resources (Singapore) PTE., Ltd.	266,345	266,345	100.00
Aluminum Industry Co., Ltd., Luoyang, Henan	247,163	10,005	4.05
Xinjiang Jiarun Resources Holdings Co., Ltd.	230,189	—	—
Inner Mongolia Power (Group) Co., Ltd.	214,471	506	0.24
Guizhou Jinpingguo Aluminum Rod Co., Ltd.	111,138	65,946	59.34
Others	255,755	114,442	44.75
	<u>4,400,877</u>	<u>733,367</u>	<u>/</u>

The Group has no individual provision for impairment of notes receivables. The Group measures the provision for loss on the basis of expected credit losses. The Group considers that notes receivables are not exposed to significant credit risk and has limited default risk.

Movements in the loss allowance for impairment of trade receivables are as follows:

	December 31, 2020	December 31, 2019 (Restated)
As of January 1	715,597	659,261
Impairment loss	403,633	237,504
Write off	(122,786)	(98,554)
Reversal	(64,661)	(83,095)
Others	1,780	481
As of December 31	<u>933,563</u>	<u>715,597</u>

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15 OTHER CURRENT ASSETS

	December 31, 2020	December 31, 2019 (Restated)
Financial assets		
— Deposits paid to suppliers	558,073	501,918
— Dividends receivable	412,736	58,092
— Receivables from disposal of assets	20,950	1,969,833
— Entrusted loans and loans receivable from third parties	1,530,452	1,544,070
— Entrusted loans and loans receivable from related parties	1,264,423	1,309,095
— Interest receivables	39,531	40,936
— Recoverable reimbursement for freight charges	283,460	223,884
— Receivable of electricity price adjustment	494,595	619,206
— Receivable from disposal of aluminum capacity quota	538,655	—
— Other financial assets	1,064,763	1,093,480
	6,207,638	7,360,514
Less: impairment allowance	(2,224,511)	(1,696,735)
	3,983,127	5,663,779
Advances to employees	17,043	17,207
Deductible input value added tax receivables	1,379,288	2,424,648
Prepaid income tax	116,574	93,093
Prepayments to related parties for purchases	79,435	229,324
Prepayments to suppliers for purchases and others	725,776	635,363
Others	49,598	118,100
	2,367,714	3,517,735
Less: impairment allowance	(1,621)	(2,715)
	2,366,093	3,515,020
Total other current assets	6,349,220	9,178,799

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15 OTHER CURRENT ASSETS (CONTINUED)

As of December 31, 2020, except for amounts included in other current assets amounting to RMB152 million, which were denominated in USD (December 31, 2019: other current assets amounting to RMB37 million denominated in USD), remaining amounts in other current assets were denominated in RMB.

As of December 31, 2020, except for entrusted loans and loans receivable (December 31, 2019: except for entrusted loans and loans receivable) which were interest-bearing assets, all amounts in other current assets were non-interest-bearing (December 31, 2019: all non-interest-bearing).

As of December 31, 2020, the ageing analysis of financial assets included in other current assets was as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
Within 1 year	2,386,289	1,443,338
Between 1 and 2 years	142,887	882,798
Between 2 and 3 years	191,228	151,974
Over 3 years	3,487,234	4,882,404
	<u>6,207,638</u>	<u>7,360,514</u>
Less: provision for impairment	(2,224,511)	(1,696,735)
	<u>3,983,127</u>	<u>5,663,779</u>

Movements in the provision for impairment in other current assets are as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
At beginning of year	1,699,450	1,744,503
Impairment loss	656,873	42,897
Write off	(113,180)	(62,318)
Reversal	(17,011)	(26,290)
Others	—	658
	<u>2,226,132</u>	<u>1,699,450</u>

Financial assets included in other current assets at amortized cost are subject to impairment under the general approach and they are classified within the following stages for measurement of ECLs.

<u>As of December 31, 2020</u>	<u>Gross carrying amount</u>	<u>Expected credit losses</u>
Stage 1 - 12 months expected credit loss	2,218,891	5,961
Stage 2 - life time expected credit loss	578,213	14,966
Stage 3 - life time expected credit loss with credit-impaired	<u>3,410,534</u>	<u>2,203,584</u>
	<u>6,207,638</u>	<u>2,224,511</u>

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15 OTHER CURRENT ASSETS (CONTINUED)

<u>As of December 31, 2019 (Restated)</u>	<u>Gross carrying amount</u>	<u>Expected credit losses</u>
Stage 1 - 12 months expected credit loss	1,524,602	—
Stage 2 - life time expected credit loss	4,097,994	82,070
Stage 3 - life time expected credit loss with credit-impaired	1,737,918	1,614,665
	<u>7,360,514</u>	<u>1,696,735</u>

16 CASH AND CASH EQUIVALENTS AND RESTRICTED CASH

	<u>December 31, 2020</u>	<u>December 31, 2019 (Restated)</u>
Restricted cash	1,056,037	1,305,781
Cash and cash equivalents	9,631,152	7,778,853
	<u>10,687,189</u>	<u>9,084,634</u>

Reconciliation to the consolidated statement of cash flow:

The above figures reconcile to the amount of cash and cash equivalent shown in the consolidated statement of cash flows at the end of the financial year as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019 (Restated)</u>
Balances shown in the consolidated balance sheet	9,631,152	7,778,853
Bank overdrafts	(899,955)	—
Balances per consolidated statement of cash flows	<u>8,731,197</u>	<u>7,778,853</u>

Restricted cash mainly represented deposits held for use in issued notes payable and letters of credit.

As of December 31, 2020, cash and cash equivalent and restricted cash of the Group were denominated in the following currencies:

	<u>December 31, 2020</u>	<u>December 31, 2019 (Restated)</u>
RMB	9,581,174	7,878,530
USD	1,095,713	1,195,720
HKD	2,763	4,423
EUR	2,055	1,943
Others	5,484	4,018
	<u>10,687,189</u>	<u>9,084,634</u>

Cash at banks earns interest at floating rates based on daily bank deposit rates. The bank balances, time deposits and restricted cash are deposited with credit worthy banks with no recent history of default.

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17 SHARE CAPITAL

As of December 31, 2019 and December 31, 2020, all issued shares were registered and fully paid. Both A shares and H shares rank pari passu with each other.

The number of the Company's authorised and issued ordinary shares was 17,022,672,951 at par value of RMB1.00 per share as of December 31, 2020.

18 RESERVES

The amounts of the Group's reserves and the movements therein for the current and prior years are presented in the consolidated statement of changes in equity of the financial statements.

19 INTEREST-BEARING LOANS AND BORROWINGS

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Long-term loans and borrowings		
Lease liabilities (Note 20)	7,086,151	8,369,262
Medium-term notes and bonds (Note (b))		
— Unsecured	18,975,379	16,736,755
Long-term bank and other loans (Note (a))		
— Secured (Note (f))	9,216,299	13,254,721
— Guaranteed (Note (e))	4,846,446	3,948,400
— Unsecured	28,951,819	21,632,766
	<u>43,014,564</u>	<u>38,835,887</u>
Total long-term loans and borrowings	69,076,094	63,941,904
Current portion of lease liabilities (Note 20)	(828,272)	(1,358,654)
Current portion of medium-term notes and bonds	(7,100,711)	—
Current portion of long-term bank and other loans	(3,629,014)	(3,339,687)
	<u>(11,557,997)</u>	<u>(4,698,341)</u>
Non-current portion of long-term loans and borrowings	<u>57,518,097</u>	<u>59,243,563</u>

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19 INTEREST-BEARING LOANS AND BORROWINGS (CONTINUED)

	<u>December 31, 2020</u>	<u>December 31, 2019 (Restated)</u>
Short-term loans and borrowings		
Bank and other loans (Note (c))		
— Secured (Note (f))	863,738	465,000
— Guaranteed (Note (e))	50,000	—
— Unsecured*	19,824,292	20,773,166
	<u>20,738,030</u>	<u>21,238,166</u>
Short-term bonds, unsecured (Note (d))	2,411,256	9,331,488
Gold leasing arrangements	—	7,018,609
Current portion of lease liabilities (Note 20)	828,272	1,358,654
Current portion of medium-term notes	7,100,711	—
Current portion of long-term bank and other loans	3,629,014	3,339,687
	<u>13,969,253</u>	<u>21,048,438</u>
Total short-term borrowings and current portion of long-term loans and borrowings	<u><u>34,707,283</u></u>	<u><u>42,286,604</u></u>

As of December 31, 2020, except for loans and borrowings of the Group amounting to RMB15 million (December 31, 2019: RMB17million) and RMB1,312 million (December 31, 2019: RMB4,006 million) which were denominated in JPY and USD, respectively, all loans and borrowings were denominated in RMB.

As of December 31, 2020, included in the Group's interest-bearing loans and borrowings are amounts due to subsidiaries of Chinalco RMB4,229 million (December 31, 2019: RMB4,181 million), as set out in Note 36(b). There were no interest-bearing loans and borrowings obtained from joint ventures and associates as of December 31, 2020 and 2019.

As of December 31, 2020, Shangdong Huayu Alloy Materials Co. Ltd. ("Shangdong Huayu"), a subsidiary of the Company did not repay short-term secured bank loans with principal amount of RMB583 million, which resulted in an event of default. In October 2020, the lending bank has applied to and obtained approval from the Intermediate Court of Linyi City, Shandong Province ("Linyi Court") of enforcing their rights through selling Shandong Huayu's transferrable quota eligible for production of 135,000 tons aluminum products in the PRC through public tender. Yunnan Aluminum, an associate of the Group, has successfully awarded the tender at a consideration of RMB 539 million. The consideration in cash was received by Linyi Court before the year end, which will be transferred to the lending banks for repayment of the bank loans.

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19 INTEREST-BEARING LOANS AND BORROWINGS (CONTINUED)

Note:

(a) Long-term bank and other loans

(i) The maturity of long-term bank and other loans is set out below:

	Loans from banks and other financial institutions		Other loans		Total of long-term bank and other loans	
	December 31 2020	December 31 2019	December 31 2020	December 31 2019	December 31 2020	December 31 2019
Within 1 year	3,626,564	3,337,202	2,450	2,485	3,629,014	3,339,687
Between 1 and 2 years	6,700,237	7,523,290	2,450	2,485	6,702,687	7,525,775
Between 2 and 5 years	15,630,739	9,151,573	7,350	7,455	15,638,089	9,159,028
Over 5 years	17,042,324	18,806,428	2,450	4,969	17,044,774	18,811,397
	<u>42,999,864</u>	<u>38,818,493</u>	<u>14,700</u>	<u>17,394</u>	<u>43,014,564</u>	<u>38,835,887</u>

(ii) Other loans were provided by local bureaus of the Ministry of Finance to the Group. The weighted average annual interest rate of long-term bank and other loans for the year ended December 31, 2020 was 4.9% (2019: 5.2%).

(b) Medium-term notes and bonds

Outstanding medium-term bonds of the Group as of December 31, 2020 are summarised as follows:

	Face value (RMB)/maturity	Effective interest rate	December 31, 2020	December 31, 2019
2018 Medium-term notes	2,000,000/2021	5.84%	1,998,802	1,992,339
2019 Medium-term bonds	2,000,000/2024	4.31%	1,985,264	1,982,228
2018 Medium-term bonds	1,100,000/2021	4.66%	1,099,284	1,098,218
2018 Medium-term bonds	900,000/2023	5.06%	898,807	898,315
2018 Medium-term bonds	1,400,000/2021	4.30%	1,398,160	1,397,319
2018 Medium-term bonds	1,600,000/2023	4.57%	1,597,071	1,596,192
2019 Medium-term bonds	2,000,000/2022	3.84%	1,999,196	1,998,604
2019 Medium-term bonds	1,000,000/2022	3.50%	1,997,265	1,997,097
2019 Medium-term bonds	900,000/2023	4.99%	999,623	999,462
2020 Medium-term bonds	900,000/2023	3.04%	897,972	—
2020 Medium-term bonds	500,000/2025	3.31%	499,853	—
2020 Medium-term bonds	1,000,000/2023	3.07%	999,617	—
2018 Hong Kong Medium-term bonds	2,785,840/2021	5.25%	2,604,465	2,776,981
			<u>18,975,379</u>	<u>16,736,755</u>

Medium-term notes and bonds were issued for capital expenditure and operating cash flows purposes, as well as for the purpose of re-financing of bank loans.

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19 INTEREST-BEARING LOANS AND BORROWINGS (CONTINUED)

(c) Short-term bank and other loans

Other loans were entrusted loans provided by state-owned companies to the Group.

The weighted average annual interest rate of short-term bank and other loans for the year ended December 31, 2020 was 3.46% (2019: 4.29%).

(d) Short-term bonds

Outstanding short-term bonds as of December 31, 2020 are summarised as follows:

	Face value (RMB)/maturity	Effective interest rate	December 31, 2020	December 31, 2019
Ningxia short-term bonds	300,000/2020	3.97%	—	300,000
Short-term bonds	1,000,000/2020	2.45%	—	1,008,161
Short-term bonds	2,000,000/2020	2.63%	—	2,013,127
Short-term bonds	3,000,000/2020	2.00%	—	3,008,384
Short-term bonds	3,000,000/2020	2.30%	—	3,001,816
Short-term bonds	500,000/2021	1.40%	501,781	—
Short-term bonds	1,000,000/2021	2.30%	1,002,925	—
Short-term bonds	500,000/2021	1.20%	500,553	—
Short-term bonds	400,000/2021	2.46%	405,997	—
			<u>2,411,256</u>	<u>9,331,488</u>

All the above short-term bonds were issued for working capital needs.

(e) Guaranteed interest-bearing loans and borrowings

Details of the interest-bearing loans and borrowings in which the Group received guarantees are set out as follows:

Guarantors	December 31, 2020	December 31, 2019
Long-term loans		
Yinyi Fengdian, Neimenggu, Alashan (Note (iv))	144,000	150,000
Ningxia Energy (Note (i))	1,134,400	1,274,400
Yinxing Energy (Note (i))	19,000	46,000
Baotou Aluminum Limited Company (包頭鋁業有限公司) and Baotou Communications Investment Group Limited Company (包頭交通投資集團有限公司) (Note (ii))	1,137,500	1,250,000
The Company and Hangzhou Jinjiang Group Limited Company (“Hangzhou Jinjiang”, 杭州錦江集團有限公司) (Note (iii))	—	10,000
Hangzhou Jinjiang (Note (v))	—	123,500
Qingzhen Industrial Investment Co., Ltd. (清鎮市工業投資有限公司) (Note (v))	—	47,250
Guizhou Industrial Investment Group Co., Ltd. (貴州產業投資集團有限公司) (Note (v))	—	47,250
The Company	<u>2,411,546</u>	<u>1,000,000</u>
	<u>4,846,446</u>	<u>3,948,400</u>
Short-term loans		
Ningxia Energy (Note (i))	50,000	—
	<u>4,896,446</u>	<u>3,948,400</u>

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19 INTEREST-BEARING LOANS AND BORROWINGS (CONTINUED)

(e) Guaranteed interest-bearing loans and borrowings (Continued)

Notes:

- (i) The guarantor is a subsidiary of the Company.
 - (ii) The guarantors are a subsidiary of the Company and a third party respectively.
 - (iii) The guarantors are the Company and a third party respectively.
 - (iv) The guarantors are subsidiaries of the Company.
 - (v) The guarantor is a third party.
- The English names represent the best effort by management of the Group in translating the Chinese names of the Companies as they do not have any official English names.
- (f) The assets pledged for secured bank and other borrowings were set out in Note 24 to the financial statements.

20 LEASE

The Group as a lessee

The Group has lease contracts for various items of plant and machinery, motor vehicles and other equipment used in its operations. Lump sum payments were made upfront to acquire the leased land from the owners with lease periods of 20 to 30 years, and no ongoing payments will be made under the terms of these land leases. Leases of plant and machinery generally have lease terms between 3 and 5 years, while motor vehicles generally have lease terms between 2 and 5 years. Other equipment generally has lease terms of 12 months or less and/or is individually of low value. Generally, the Group is restricted from assigning and subleasing the leased assets outside the Group. There are several lease contracts that include extension and termination options and variable lease payments, which are further discussed below.

(a) Right-of-use assets

The carrying amounts of the Group's right-of-use assets and the movements during 2020 and 2019 are as follows:

	<u>Buildings</u>	<u>Machinery</u>	<u>Land use rights</u>	<u>Total</u>
As of January 1, 2020	287,255	3,756,305	11,846,877	15,890,437
Additions	15,023	8,831	52,925	76,779
Transfer from property, plant and equipment (Note 7)	—	—	885,141	885,141
Contract modification	(12,317)	—	(43,496)	(55,813)
Transfer to property, plant and equipment	—	(1,663,686)	—	(1,663,686)
Transfer to investment properties (Note 8)	—	—	(45,885)	(45,885)
Disposals	—	—	(15,792)	(15,792)
Depreciation	(54,792)	(321,464)	(391,297)	(767,553)
Impairment loss	—	(15,790)	—	(15,790)
As of December 31, 2020	<u>235,169</u>	<u>1,764,196</u>	<u>12,288,473</u>	<u>14,287,838</u>

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(Amounts expressed in thousands of RMB unless otherwise stated)

20 LEASE (CONTINUED)

The Group as a lessee (Continued)

(a) Right-of-use assets (Continued)

	<u>Buildings</u>	<u>Machinery</u>	<u>Land use rights</u>	<u>Total</u>
As of January 1, 2019	396,499	6,128,291	11,452,061	17,976,851
Additions	21,203	11,606	1,215,049	1,247,858
Transfer to investment properties (Note 8)	—	—	(239,765)	(239,765)
Transfer to property, plant and equipment (Note 7)	—	(1,674,260)	—	(1,674,260)
Government grants	—	(107,441)	—	(107,441)
Contract modification	(45,507)	—	(137,358)	(182,865)
Disposals	—	—	(52,668)	(52,668)
Depreciation	(84,940)	(601,891)	(388,994)	(1,075,825)
Impairment losses	—	—	(1,448)	(1,448)
As of December 31, 2019	<u>287,255</u>	<u>3,756,305</u>	<u>11,846,877</u>	<u>15,890,437</u>

As of December 31, 2020, the Group was in the process of applying for the certificates of land use rights with a carrying amount of RMB1,109 million (December 31, 2019: RMB74 million). There has been no litigations, claims or assessments against the Group for compensation with respect to the use of land parcels to date. As of December 31, 2020, the carrying value of these land parcels only represented approximately 0.57% of the total asset value of the Group (December 31, 2019: 0.04%). Management considers that it is probable that the Group can obtain the relevant ownership certificates from the appropriate authorities. The directors of the Company are of the opinion that the Group has the right to use the above land, and that there is no material adverse impact on the overall financial position of the Group.

As of December 31, 2020, the Group has pledged land use rights at a net carrying value amounting to RMB1,232 million (December 31, 2019: RMB373 million) for bank and other borrowings as set out in Note 24 to the financial statements.

(b) Lease liabilities

The carrying amount of lease liabilities (included under interest-bearing bank and other borrowings) and the movements during the year are as follows:

	<u>Year ended December 31, 2020</u>
Carrying amount at January 1	8,369,262
New leases	54,109
Lease modification	(55,814)
Accretion of interest recognized during the year	466,796
Payments	(1,748,202)
Carrying amount at December 31	<u>7,086,151</u>
Analyzed into:	
Current portion	828,272
Non-current portion	<u>6,257,879</u>

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20 LEASE (CONTINUED)

The Group as a lessee (Continued)

(c) The amounts recognized in profit or loss in relation to leases are as follows:

	<u>December 31, 2020</u>
Interest on lease liabilities	466,796
Depreciation charge of right-of-use assets	767,553
Expense relating to short-term leases	214,204
Expense relating to leases of low-value assets	39,130
	<u>1,487,683</u>
Total amount recognized in profit or loss	<u>1,487,683</u>

(d) The total cash outflow for leases is disclosed in Notes 35(c), respectively, to the financial statements.

The Group as a lessor

Rental income recognized by the Group during the year was RMB330 million (2019: RMB318 million, 2018: RMB240 million), details of which are included in Note 5 to the financial statements. In the opinions of the directors, the undiscounted lease payments receivable by the Group in future periods under non-cancellable operating leases are not material.

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21 OTHER NON-CURRENT LIABILITIES

	<u>December 31, 2020</u>	<u>December 31, 2019</u> <u>(Restated)</u>
Financial liabilities		
— Long-term payables for mining rights	1,014,169	1,108,075
— Other financial liabilities	22,748	45,412
	<u>1,036,917</u>	<u>1,153,487</u>
Obligations in relation to early retirement schemes (Note (i))	217,864	427,783
Deferred government grants	182,221	245,916
Deferred gain relating to sales and leaseback agreements	58,844	125,707
Contract liabilities (Note 5)	182,859	125,758
Provision for rehabilitation	316,812	131,248
Others	152,041	10,721
	<u>1,110,641</u>	<u>1,067,133</u>
	<u>2,147,558</u>	<u>2,220,620</u>

Note:

(i) Obligations in relation to early retirement schemes

From 2014, certain subsidiaries and branches implemented early retirement benefit schemes which allow qualified employees to early retire on a voluntary basis. The Group undertakes the obligations to pay the early retired employees' living expenses for no more than five years in the future on a monthly basis according to the early retirement benefit schemes, together with social insurance and housing fund pursuant to the regulation of the local Social Security Office. Living expenses, social insurance and the housing fund are together referred to as "the Payments". The payments are forecasted to increase by 3% per annum with reference to the inflation rate and adjusted based on the average death rate in China. The payments are discounted by the treasury bond rate of December 31, 2020. As of December 31, 2020, the current portion of the payments within one year was reclassified to "Other payables and accrued liabilities".

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21 OTHER NON-CURRENT LIABILITIES (CONTINUED)

As of December 31, 2020, obligations in relation to retirement benefits under the Group's early retirement schemes are as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
As of January 1	843,253	1,295,453
Provision made during the year (Note 30)	53,339	210,428
Interest costs	11,582	18,260
Payment during the year	(410,840)	(680,888)
As of December 31	<u>497,334</u>	<u>843,253</u>
Non-current	217,864	427,783
Current (Note 22)	279,470	415,470
	<u>497,334</u>	<u>843,253</u>

22 OTHER PAYABLES AND ACCRUED LIABILITIES

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
Financial liabilities		
— Payable for capital expenditures	4,677,705	6,832,365
— Interest payable	533,382	494,341
— Payables withheld as guarantees and deposits	1,748,356	1,346,361
— Dividends payable by subsidiaries to non-controlling shareholders	289,791	518,360
— Consideration payable for investment projects	23,740	141,740
— Current portion of payables for mining rights	460,101	372,824
— Others	1,254,375	1,085,516
	<u>8,987,450</u>	<u>10,791,507</u>
Output value-added tax on pending	271,963	210,283
Taxes other than income taxes payable*	797,251	696,407
Accrued payroll and bonus	71,486	21,902
Staff welfare payables	323,180	258,654
Current portion of obligations in relation to early retirement schemes (Note 21)	279,470	415,470
Contribution payable for pension insurance	22,935	20,386
Others	273	999
	<u>1,766,558</u>	<u>1,624,101</u>
	<u>10,754,008</u>	<u>12,415,608</u>

* Taxes other than income taxes payable mainly comprise accruals for value-added tax, resource tax, city construction tax and education surcharge.

As of December 31, 2020, except for other payables and accrued liabilities of the Group amounting to RMB92 million and RMB0.16 million which were denominated in USD and HKD, respectively (December 31, 2019: RMB825 million and RMB0.25 million which were denominated in USD and HKD, respectively), all other payables and accrued liabilities were denominated in RMB.

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23 TRADE AND NOTES PAYABLES

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
Trade payables	9,972,937	7,882,265
Notes payable	5,467,922	4,726,541
	<u>15,440,859</u>	<u>12,608,806</u>

As of December 31, 2020, except for trade and notes payables of the Group amounting to RMB35 million which were denominated in USD (December 31, 2019: RMB52 million denominated in USD), all trade and notes payables were denominated in RMB (December 31, 2019: all denominated in RMB).

The ageing analysis of trade and notes payables is as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u> (Restated)
Within 1 year	14,923,453	12,170,016
Between 1 and 2 years	210,587	229,221
Between 2 and 3 years	119,587	30,718
Over 3 years	187,232	178,851
	<u>15,440,859</u>	<u>12,608,806</u>

The trade and notes payables are non-interest-bearing and are normally settled within one year.

24 PLEDGE OF ASSETS

The Group has pledged various assets as collateral against certain secured borrowings as set out in Note 19. As of December 31, 2020, a summary of these pledged assets was as follows:

	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Property, plant and equipment (Note 7)	5,191,185	4,946,338
Right-of-use assets (Note 20)	1,232,491	373,048
Intangible assets (Note 6)	960	757,269
Notes receivable (Note 14)	1,499,260	667,190
Investments in associates (Note 9)	395,610	538,787
	<u>8,319,506</u>	<u>7,282,632</u>

As of December 31, 2020, in addition to the loans and borrowings which were secured by the above assets, the current portion of long-term loans and borrowings amounting to RMB912 million (December 31, 2019: RMB1,209 million), and the non-current portion of long-term loans and borrowings amounting to RMB5,976 million (December 31, 2019: RMB10,265 million) were secured by the contractual right to charge users for electricity generated in the future.

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25 EXPENSE BY NATURE

	For the year ended December 31		
	2018 (Restated)	2019 (Restated)	2020
Purchase of inventories in relation to trading activities	85,443,397	104,928,962	102,515,791
Raw materials and consumables used, and changes in work-in-progress and finished goods	43,203,349	35,573,467	32,987,302
Power and utilities	17,651,304	16,755,424	16,766,950
Depreciation of right-of-use assets (Note 20)	—	1,075,825	767,553
Depreciation and amortization (other than depreciation of right-of-use assets) expenses	8,062,117	7,714,418	7,910,802
Employee benefit expenses (Note 30)	7,484,385	7,773,170	7,872,005
Repairs and maintenance	1,760,016	1,867,160	1,595,880
Transportation expenses and logistic cost	4,688,761	3,420,360	4,079,157
Inventory impairment loss	2,247,588	1,163,272	1,321,387
Taxes other than income tax expense (Note (i))	937,892	1,431,587	1,600,996
Packaging expenses	261,626	277,785	294,359
Auditors' remuneration			
-The Company's auditor			
-Audit services	25,329	25,444	18,170
-Non-audit services	1,370	2,388	700
-Other auditors	4,153	5,505	12,436
Others	2,445,657	2,641,954	1,875,928
	<u>174,216,944</u>	<u>184,656,721</u>	<u>179,619,416</u>

Note:

- (i) Taxes other than income tax expense mainly comprise surcharges, land use tax, property tax and stamp duty.

26 NET IMPAIRMENT LOSSES ON FINANCIAL ASSETS

	For the year ended December 31		
	2018 (Restated)	2019 (Restated)	2020
Impairment losses on trade and notes receivables (Note 14)	44,078	154,409	338,972
Impairment losses on other current assets (Note 15)	63,878	16,607	639,862
	<u>107,956</u>	<u>171,016</u>	<u>978,834</u>

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27 OTHER INCOME

For the year ended December 31, 2020, government grants amounting to RMB140 million (2019 (Restated): RMB85 million, 2018: RMB135 million) were recognized as income for the year to facilitate the Group's development. There are no unfulfilled conditions or contingencies attached to the grants.

28 OTHER GAINS, NET

	For the year ended December 31		
	2018 (Restated)	2019 (Restated)	2020
Gain on disposal of subsidiaries (Note 40)	3,517	261,187	11,305
Realized and unrealized gains on futures, forward and option contracts, net (Note (1))	141,459	50,820	512,984
Gain on disposal of property, plant and equipment and intangible assets, net (Note (2))	272,098	259,684	448,439
Gain on acquisition of associates	—	557,965	—
Gain on previously held equity interests remeasured at acquisition-date fair value	748,086	—	—
Gain on disposal of investment in a joint venture	(1,904)	159,514	—
Others	(238,156)	(41,661)	(68,856)
	<u>925,100</u>	<u>1,247,509</u>	<u>903,872</u>

Notes:

- (1) The Group does not apply hedge accounting for these futures, forward and option contracts.
- (2) During the year, the transactions contributed to the gain on disposal of aluminum capacity quota and property, plant and equipment mainly include the following:
 - (a) The aluminum capacity quota of Shandong Huayu has been disposed of, and the Group recognized the disposal gain of RMB539 million from the difference between the transfer price and carrying amount of the assets (Note 19).
 - (b) The fixed assets related to the aluminum production line of Fushun Aluminum Co., Ltd. have been disposed of, and the Group recognized the disposal loss of RMB66 million from the difference between the transfer price and carrying amount of the assets.

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29 FINANCE INCOME/FINANCE COSTS

An analysis of finance income/finance costs is as follows:

	For the year ended December 31		
	2018	2019	2020
	(Restated)	(Restated)	
Finance income-interest income	(492,322)	(261,193)	(226,921)
Interest expense	5,202,835	4,665,537	3,986,264
Less: Interest expense capitalized in property, plant and equipment (Note 7)	(517,589)	(289,499)	(123,571)
Interest expense, net of capitalized interest	4,685,246	4,376,038	3,862,693
Interest on lease liability and amortization of unrecognized finance expenses	205,335	547,820	481,512
Exchange losses/(gains), net	(7,889)	(2,317)	76,323
Finance costs	4,882,692	4,921,541	4,420,528
Finance costs, net	4,390,370	4,660,348	4,193,607
Capitalization rate during the year (Note 7)	4.54% to 7.00%	4.00% to 6.96%	4.00% to 6.68%

30 EMPLOYEE BENEFIT EXPENSE

An analysis of employee benefit expenses is as follows:

	For the year ended December 31		
	2018	2019	2020
	(Restated)	(Restated)	
Salaries and bonuses	4,671,230	4,939,758	5,322,387
Housing fund	417,721	488,574	532,842
Staff welfare and other expenses*	1,910,184	2,035,931	1,955,447
Employment expense in relation to early retirement schemes (Note 21)	447,660	210,428	53,339
Employment expenses in relation to termination benefits	37,590	98,479	7,990
	7,484,385	7,773,170	7,872,005

*Staff welfare and other expenses include staff welfare, staff union expenses, staff education expenses and unemployment insurance expenses etc.

Employee benefit expenses include remuneration payables to directors, supervisors and senior management as set out in Note 31.

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31 DIRECTORS' AND SUPERVISORS' REMUNERATION

(a) Directors' and supervisors' remuneration

Directors' and supervisors' remuneration for the year, disclosed pursuant to the Listing Rules, section 383(1)(a), (b), (c) and (f) of the Hong Kong Companies Ordinance and Part 2 of the Companies Regulation (Disclosure of Information about Benefits of Directors), is as follows:

	December 31, 2018	December 31, 2019	December 31, 2020
Fees	756	780	683
Basic salaries, housing fund, other allowances and benefits in kind	1,849	4,665	4183
Pension costs	234	513	20
	<u>2,839</u>	<u>5,958</u>	<u>4,886</u>

The remuneration of each director and supervisor of the Company for the year ended December 31, 2020 is set out below:

Names of directors and supervisors	Fees	Salaries	Discretionary bonuses	Pension costs	total
Executive Directors:					
Lu Dongliang (Note (i))	—	—	—	—	—
He Zhihui (Note (ii))	—	866	—	37	903
Jiang Yinggang (Note (iii))	—	562	—	31	593
Zhu Runzhou	—	894	—	44	938
	<u>—</u>	<u>2,322</u>	<u>—</u>	<u>112</u>	<u>2,434</u>
Non-executive Directors:					
Ao Hong	—	—	—	—	—
Wang Jun (Note (iv))	50	—	—	—	50
Chen Lijie	211	—	—	—	211
Lie-A-Cheong Tai-Chong, David	211	—	—	—	211
Hu Shihai	211	—	—	—	211
	<u>683</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>683</u>
Supervisors:					
Ye Guohua	—	—	—	—	—
Ou Xiaowu (Note (v))	—	134	—	7	141
Shan shulan	—	—	—	—	—
Guan Xiaoguang	—	770	—	44	814
Yue Xuguang	—	770	—	44	814
Total	<u>—</u>	<u>1,674</u>	<u>—</u>	<u>95</u>	<u>1,769</u>

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31 DIRECTORS' AND SUPERVISORS' REMUNERATION (CONTINUED)

(a) Directors' and supervisors' remuneration (Continued)

The remuneration of each director and supervisor of the Company for the year ended December 31, 2019 is set out below:

<u>Names of directors and supervisors</u>	<u>Fees</u>	<u>Salaries</u>	<u>Discretionary bonuses</u>	<u>Pension costs</u>	<u>total</u>
Executive Directors:					
Lu Dongliang (Note (i))	—	—	—	—	—
He Zhihui (Note (ii))	—	885	—	73	958
Jiang Yinggang (Note (iii))	—	889	—	88	977
Zhu Runzhou	—	833	—	88	921
	<u>—</u>	<u>2,607</u>	<u>—</u>	<u>249</u>	<u>2,856</u>
Non-executive Directors:					
Ao Hong	—	—	—	—	—
Wang Jun (Note (iv))	150	—	—	—	150
Chen Lijie	210	—	—	—	210
Lie-A-Cheong Tai-Chong, David	210	—	—	—	210
Hu Shihai	210	—	—	—	210
	<u>780</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>780</u>
Supervisors:					
Ye Guohua	—	—	—	—	—
Ou Xiaowu (Note (v))	—	—	—	—	—
Shan shulan	—	—	—	—	—
Guan Xiaoguang	—	710	—	88	798
Yue Xuguang	—	770	—	88	858
Wu Zuoming	—	578	—	88	666
Total	<u>—</u>	<u>2,058</u>	<u>—</u>	<u>264</u>	<u>2,322</u>

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31 DIRECTORS' AND SUPERVISORS' REMUNERATION (CONTINUED)

(a) Directors' and supervisors' remuneration (Continued)

The remuneration of each director and supervisor of the Company for the year ended December 31, 2018 is set out below:

<u>Names of directors and supervisors</u>	<u>Fees</u>	<u>Salaries</u>	<u>Discretionary bonuses</u>	<u>Pension costs</u>	<u>total</u>
Executive Directors:					
Yu Hehui	—	—	—	—	—
Lu Dongliang (Note (i))	—	—	—	—	—
Jiang Yinggang (Note (iii))	—	762	—	90	852
Zhu Runzhou	—	438	—	54	492
	<u>—</u>	<u>1,200</u>	<u>—</u>	<u>144</u>	<u>1,344</u>
Non-executive Directors:					
Ao Hong	—	—	—	—	—
Liu Caiming	—	—	—	—	—
Wang Jun (Note (iv))	150	—	—	—	150
Chen Lijie	202	—	—	—	202
Lie-A-Cheong Tai-Chong, David	202	—	—	—	202
Hu Shihai	202	—	—	—	202
	<u>756</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>756</u>
Supervisors:					
Liu Xiangmin	—	—	—	—	—
Wang Jun	—	—	—	—	—
Wu Zuoming	—	649	—	90	739
Total	<u>—</u>	<u>649</u>	<u>—</u>	<u>90</u>	<u>739</u>

ALUMINUM CORPORATION OF CHINA LIMITED
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For the years ended December 31, 2018, 2019 and 2020

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31 DIRECTORS' AND SUPERVISORS' REMUNERATION (CONTINUED)

(a) Directors' and supervisors' remuneration (Continued)

Notes:

- (i) On May 14, 2020, Mr. Lu Dongliang has resigned as chairman and executive director of the Company.
- (ii) On October 21, 2020, Mr. He Zhihui has resigned as an executive director and president of the Company.
- (iii) On August 31, 2020, Mr. Jiang Yinggang has passed away due to illness.
- (iv) Since May 2020, Mr. Wang Jun has issued a voluntary waiver of director's remuneration to the Company who has voluntarily waived his remuneration as a result of his service as a director of the Board of the Company.
- (v) On October 22, 2020, Mr. Ou Xiaowu resigned as a supervisor of the Company and was reassigned to the Company as the deputy secretary of the party committee and the secretary of the disciplinary committee.

The remuneration of the directors and supervisors of the Company fell within the following band:

	Number of individuals		
	December 31, 2018	December 31, 2019	December 31, 2020
Nil to RMB1,000,000	12	14	14

During the year, no options were granted to the directors or the supervisors of the Company (2019: Nil, 2018: Nil).

During the year, no emoluments were paid to the directors or the supervisors of the Company (among which included the five highest paid employees) as an inducement to join or upon joining the Company or as compensation for loss of office (2019: Nil, 2018: Nil).

Director Wang Jun waived his director's remuneration with effect from May 2020.

**ALUMINUM CORPORATION OF CHINA LIMITED
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31 DIRECTORS' AND SUPERVISORS' REMUNERATION (CONTINUED)

(b) Five highest paid individuals

During the year ended December 31, 2020, the five highest paid employees of the Group include three directors (2019: three directors, 2018: one director) whose remuneration is reflected in the analysis presented above. The remuneration payable to the remaining two individuals during 2020 (2019: two, 2018: three) is as follows:

	<u>December 31, 2018</u>	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Basic salaries, housing fund, other allowances and benefits in kind	1,305	1,670	1,620
Discretionary bonuses	—	—	—
Pension costs	165	137	8
	<u>1,470</u>	<u>1,807</u>	<u>1,628</u>

The number of the remaining three highest paid individuals during 2020 (2019: two, 2018: two) whose remuneration fell within the following band is as follows:

	<u>Number of employees</u>		
	<u>December 31, 2018</u>	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Nil to RMB1,000,000	2	2	3

32 INCOME TAX EXPENSE

	<u>December 31, 2018 (Restated)</u>	<u>December 31, 2019 (Restated)</u>	<u>December 31, 2020</u>
Current income tax expense	759,111	723,062	813,112
Deferred tax benefit	67,255	(94,686)	(230,924)
	<u>826,366</u>	<u>628,376</u>	<u>582,188</u>

In general, the Group's PRC entities are subject to PRC corporate income tax at the standard rate of 25% (2019: 25%, 2018: 25%) on their respective estimated assessable profits for the year. Certain branches and subsidiaries of the Company located in the western regions of the PRC are granted tax concessions including a preferential tax rate of 15% (2019: 15%, 2018: 15%).

A reconciliation of the tax expense applicable to profit before tax at the statutory rates for the countries in which the Company and the majority of its subsidiaries are domiciled to the tax expense at the effective tax rates, and a reconciliation of the applicable rates to the effective tax rates, are as follows:

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

32 INCOME TAX EXPENSE (CONTINUED)

	<u>December 31, 2018</u> (Restated)	<u>December 31, 2019</u> (Restated)	<u>December 31, 2020</u>
Profit before income tax	2,272,555	2,118,961	2,155,217
Tax expense calculated at the statutory tax rate of 25% (2019: 25%, 2018: 25%)	568,139	529,740	538,804
Tax effects of:			
Preferential income tax rates applicable to certain branches and subsidiaries	(268,665)	(464,912)	(357,016)
Impact of change in income tax rate	23,425	4,594	(52,177)
Tax losses with no deferred tax assets recognized	434,103	588,267	477,876
Deductible temporary differences with no deferred tax assets recognized	384,072	41,695	146,276
Utilization of previously unrecognized tax losses and deductible temporary differences	(52,962)	(18,105)	(73,779)
Tax incentive in relation to deduction of certain expenses	(62,172)	(50,921)	(42,958)
Expenses not deductible for tax purposes	54,959	56,448	52,261
Non-taxable income	(252,500)	(173,686)	—
Write-off of unrecoverable deferred tax assets previously recognized	183,195	187,432	41,757
Profits and losses attributable to joint ventures and associates	40,029	(79,720)	(70,577)
Recognition of deferred tax assets related to deductible temporary differences and tax losses previously not recognized	(233,940)	(3,868)	(61,987)
Adjustments in respect of current income tax of previous periods	8,683	11,412	(16,292)
Income tax expense	<u>826,366</u>	<u>628,376</u>	<u>582,188</u>
Effective tax rate	<u>36%</u>	<u>30%</u>	<u>27%</u>

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

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33 EARNINGS PER SHARE ATTRIBUTABLE TO OWNERS OF THE COMPANY

	For the year ended December 31		
	2018	2019	2020
	(Restated)	(Restated)	
Profit attributable to owners of the Company (in thousands of RMB)	709,397	853,102	741,004
Other equity instruments' distribution reserved (in thousands of RMB)	(129,282)	(219,249)	(261,168)
Profit attributable to ordinary shares holders of the Company	<u>580,115</u>	<u>633,853</u>	<u>479,836</u>
Number of ordinary shares in issue (thousands) as of January 1	14,903,798	14,903,798	17,022,673
Effect of equity exchange arrangement	1,938,916	—	—
Issuance of share capital (thousands) (Note 17)	—	2,118,875	—
Weighted average number of ordinary shares in issuance	<u>16,842,714</u>	<u>17,022,673</u>	<u>17,022,673</u>
Basic earnings per share (RMB)	<u>0.034</u>	<u>0.037</u>	<u>0.028</u>

The Group had no potentially dilutive ordinary shares in issuance during the years ended December 31, 2018, 2019 and 2020, thus the diluted earnings per share were the same as basic earnings per share.

34 DIVIDENDS

According to the articles of association of the Company, the Company considers the maximum limit of profit appropriation to its shareholders is the lowest of:

- (i) the sum of the net profit less statutory surplus reserve and the opening retained earnings for the current period in accordance with IFRSs;
- (ii) the sum of the net profit less statutory surplus reserve and the opening retained earnings for the current period in accordance with the PRC Accounting Standards for Business Enterprises; and
- (iii) the amount limited by the Company Law of the PRC.

According to the resolution of the Board of Directors dated March 23, 2021, the directors did not propose any final dividend for the year ended December 31, 2020.

ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

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35 NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS

(a) Reconciliation of profit before taxation to cash generated from operations

	Notes	For the year ended December 31		
		2018 (Restated)	2019 (Restated)	2020
Cash flows generated from operating activities				
Profit before income tax		2,272,555	2,118,961	2,155,217
Adjustments for:				
Share of profits of joint ventures	9(a)	199,452	(270,115)	(180,502)
Share of profits of associates	9(b)	(39,335)	(48,767)	(145,737)
Depreciation of property, plant and equipment	7	7,505,687	7,100,776	7,152,170
Depreciation of investment properties	8	22,229	26,559	24,405
Depreciation of right-of-use assets	20	—	1,075,825	767,553
Amortization of land use rights		108,152	—	—
Amortization of intangible assets	6	295,901	338,938	459,482
Amortization of prepaid expenses included in other non-current assets		130,148	248,145	274,745
Gain on write-off and disposal of property, plant and equipment and intangible assets, net		(101,098)	(243,622)	(319,796)
Impairment loss on property, plant and equipment		46,484	259,354	416,841
Impairment loss of investment properties		—	87	—
Impairment loss of intangible assets		—	—	416
Impairment loss of right-of-use assets	20	—	1,448	15,790
Impairment loss of inventory		2,247,588	1,163,272	1,321,387
Impairment loss of trade and notes receivables		44,078	154,409	338,972
Impairment loss of other current assets		63,878	16,607	639,862
Realized and unrealized gains on futures, option and forward contracts	28	(141,459)	(50,820)	(512,984)
Gain on previously held equity interest remeasured at acquisition-date fair value		(748,086)	—	—
Gain on disposal of subsidiaries	28	(3,517)	(261,187)	(11,305)
Gain on disposal of investment in a joint venture and associates	28	1,904	(159,514)	—
Gain on acquisition of associates	28	—	(557,965)	—
Dividends from other financial assets measured at fair value	28	(109,914)	(97,775)	(82,794)
Government subsidies		(158,109)	(112,141)	(29,933)
Finance cost	29	4,882,692	4,921,541	4,420,528
Change in special reserve		6,605	(23,085)	12,524
Others		75,381	(11,558)	21,342

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ALUMINUM CORPORATION OF CHINA LIMITED
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35 NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

(a) Reconciliation of profit before taxation to cash generated from operations (Continued)

	Notes	For the year ended December 31		
		2018	2019 (Restated)	2020
Changes in working capital:				
Decrease/(increase) in inventories		(1,051,617)	(234,203)	(1,668,260)
Increase in trade and notes receivables		(2,559,274)	(1,169,339)	(3,867,944)
Decrease/ (increase) in other current assets		852,918	(377,246)	(414,247)
Decrease in restricted cash		530,284	859,507	249,744
(Increase)/decrease in other non-current assets		425,739	547,856	(70,637)
Increase/(decrease) in trade and notes payables		18,669	(1,405,565)	3,009,490
Increase/(decrease) in other payables and accrued liabilities		(951,554)	(560,910)	1,879,398
(Decrease)/increase in other non-current liabilities		105,386	(206,354)	(177,045)
Cash generated from operations		13,971,767	13,043,119	15,678,682
PRC corporate income taxes paid		(950,091)	(551,446)	(797,336)
Net cash generated from operating activities		<u>13,021,676</u>	<u>12,491,673</u>	<u>14,881,346</u>
Major non-cash transactions of investing activities and financing activities				
Investment in a joint venture used gallium business		—	352,848	—
Acquisition of minority interests for nil consideration		—	149,322	—
Endorsement of notes receivables accepted from sale of goods or services for purchase of property, plant and equipment		2,384,046	1,504,162	2,276,782
Acquisition of other financial assets measured at fair value through other comprehensive income by exchanging equity in a subsidiary		—	350,911	—
Equity exchange arrangement		10,735,214	—	—
Finance lease		113,601	—	—
Acquisition of business		70,087	—	42,230
		<u>13,302,948</u>	<u>2,357,243</u>	<u>2,319,012</u>

ALUMINUM CORPORATION OF CHINA LIMITED
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For the years ended December 31, 2018, 2019 and 2020

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35 NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

(b) Reconciliation of liabilities arising from financing activities

The table below details changes in the Group's liabilities from financing activities, including both cash and non-cash changes. Liabilities arising from financing activities are liabilities for which cash flows was, or future cash flows will be, classified in the Group's consolidated statements of cash flows as cash flows from financing activities

	Financial liabilities included in other current payables and accrued expenses	Interest bearing loans and borrowings	Total
As of January 1, 2020 (Restated)	10,791,507	101,530,167	112,321,674
Net cash generated from operating activities	1,988	—	1,988
Net cash flows generated from/(used in) investing activities	(2,154,660)	546,995	(1,607,665)
Proceeds from issuance of short- term bonds and medium-term notes, net of issuance costs	—	25,870,716	25,870,716
Distribution of senior perpetual securities	—	(421,416)	(421,416)
Repayments of medium-term notes and short- term bonds	—	(30,638,813)	(30,638,813)
Repayments of gold leasing arrangement	—	(6,921,860)	(6,921,860)
Drawdown of short-term and long- term bank borrowings and other loans	—	46,021,404	46,021,404
Repayments of short-term and long-term bank borrowings and other loans	—	(43,111,460)	(43,111,460)
Principal portion of lease payment	—	(1,748,202)	(1,748,202)
Dividends paid by subsidiaries to non- controlling shareholders	2,474	—	2,474
Amortization of unrecognized finance expenses and interest expense	—	487,249	487,249
Interest paid	258,864	21,650	280,514
Reclassification	87,277	899,955	987,232
Net foreign exchange differences	—	(311,005)	(311,005)
Net cash (used in)/generated from financing activities	348,615	(9,851,782)	(9,503,167)
As of December 31, 2020	8,987,450	92,225,380	101,212,830

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35 NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

(b) Reconciliation of liabilities arising from financing activities (Continued)

	Financial liabilities included in other current payables and accrued expenses	Interest bearing loans and borrowings	Total
As of January 1, 2019 (Restated)	9,286,462	101,772,876	111,059,338
Net cash generated from operating activities	497,927	—	497,927
Net cash generated from investing activities	622,995	7,157,695	7,780,690
Proceeds from gold leasing arrangement	—	6,921,860	6,921,860
Proceeds from issuance of short- term bonds and medium-term notes, net of issuance costs	—	37,964,489	37,964,489
Repayments of senior perpetual securities	—	(352,648)	(352,648)
Repayments of medium-term notes and short- term bonds	—	(22,400,000)	(22,400,000)
Repayments of gold leasing arrangement	—	(1,607,905)	(1,607,905)
Drawdown of short-term and long- term bank borrowings and other loans	—	40,669,197	40,669,197
Repayments of short-term and long-term bank borrowings and other loans	—	(66,105,388)	(66,105,388)
Principal portion of lease payments	—	(3,032,106)	(3,032,106)
Dividends paid by subsidiaries to non- controlling shareholders	(23,715)	—	(23,715)
Amortization of unrecognized finance expenses and interest expense	—	487,249	487,249
Interest paid	235,310	22,631	257,941
Reclassification	162,120	—	162,120
Net foreign exchange differences	10,408	32,217	42,625
Net cash (used in)/generated from financing activities	384,123	(7,400,404)	(7,016,281)
As of December 31, 2019 (Restated)	<u>10,791,507</u>	<u>101,530,167</u>	<u>112,321,674</u>

**ALUMINUM CORPORATION OF CHINA LIMITED
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35 NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

(c) Total cash outflow for leases

The total cash outflow for leases included in the statement of cash flows is as follows:

	<u>For the year ended December 31, 2020</u>
Within operating activities	253,334
Within financing activities	1,748,202
	<u>2,001,536</u>

36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES

The Company is controlled by Chinalco, its parent company and a state-owned enterprise established in Mainland China. Chinalco itself is controlled by the PRC government, which also owns a significant portion of the productive assets in Mainland China. In accordance with IAS 24 Related Party Disclosures, government-related entities and their subsidiaries, directly or indirectly controlled, jointly controlled or significantly influenced by the PRC government are defined as related parties of the Group. On that basis, related parties include Chinalco and its subsidiaries (other than the Group), other government-related entities and their subsidiaries (“other state-owned enterprises”), other entities and corporations over which the Company exercise significant influence and key management personnel of the Company and Chinalco as well as their close family members.

For the purposes of the related party transaction disclosures, the directors of the Company consider that meaningful information in respect of related party transactions has been adequately disclosed.

In addition to the related party information and transactions disclosed elsewhere in the consolidated financial statements, the following is a summary of significant related party transactions in the ordinary course of business between the Group and its related parties during the year.

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(a) Significant related party transactions

	Notes	For the year ended December 31		
		2018	2019	2020
Sales of goods and services rendered:				
Sales of materials and finished goods to:				
Chinalco and its subsidiaries	(i)			
Associates of Chinalco	(ix)	11,320,015	13,612,817	13,986,223
Joint ventures		897,642	514,414	520,485
Associates		4,462,670	5,676,548	6,694,824
Non-controlling shareholder of a subsidiary and its subsidiaries		2,626,780	3,812,565	9,232,432
		—	—	42,298
		<u>19,307,107</u>	<u>23,616,344</u>	<u>30,476,262</u>
Sales of utility to:				
Chinalco and its subsidiaries	(ii)			
Associates of Chinalco	(ix)	620,552	687,290	1,104,542
Joint ventures		15,719	4,062	3,268
Associates		186,672	263,436	470,984
		24,309	35,650	18,568
		<u>847,252</u>	<u>990,438</u>	<u>1,597,362</u>
Provision of engineering, construction and supervisory services to:				
Chinalco and its subsidiaries		5,981	—	—
Joint ventures		—	—	—
Associates		1,725	—	—
		<u>7,706</u>	<u>—</u>	<u>—</u>

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(a) Significant related party transactions (Continued)

	Notes	For the year ended December 31		
		2018	2019	2020
Sales of goods and services rendered: (Continued)				
Rental revenue of land use rights and buildings from:	(vi)			
Chinalco and its subsidiaries	(ix)	31,551	52,571	39,284
Associates of Chinalco		—	65	237
Joint ventures		1,545	1,967	1,426
Associates		1,511	775	365
		<u>34,607</u>	<u>55,378</u>	<u>41,312</u>
Purchases of goods and services:				
Purchases of engineering, construction and supervisory services from:	(iii)			
Chinalco and its subsidiaries	(ix)	2,088,338	2,949,866	1,755,092
Associates of Chinalco		—	—	265
Joint ventures		2,100	69,332	—
Associates		405,993	218,616	12,233
		<u>2,496,431</u>	<u>3,237,814</u>	<u>1,767,590</u>
Provision of social services and logistics services by:	(v)			
Chinalco and its subsidiaries	(ix)	312,062	309,180	475,532
		<u>312,062</u>	<u>309,180</u>	<u>475,532</u>
Purchases of primary and auxiliary materials, equipment and finished goods from:				
Chinalco and its subsidiaries	(iv)	3,513,420	8,161,223	6,266,563
Associates of Chinalco	(ix)	18,917	18	2,586
Joint ventures		8,182,251	2,647,234	5,501,158
Associates		2,108,072	1,893,449	10,576,907
Non-controlling shareholder of a subsidiary and its subsidiaries		—	—	30,101
		<u>13,822,660</u>	<u>12,701,924</u>	<u>22,377,315</u>
Purchases of utility services from:	(ii)			
Chinalco and its subsidiaries	(ix)	992,827	763,812	650,921
Associates of Chinalco		96,510	100,835	85,469
Joint ventures		26,269	280,523	443,290
Associates		77,432	8,326	—
		<u>1,193,038</u>	<u>1,153,496</u>	<u>1,179,680</u>
Purchases of other services by:	(vii)			
A joint venture		226,280	272,220	373,655
		<u>226,280</u>	<u>272,220</u>	<u>373,655</u>
Rental expenses/lease liabilities payments for buildings and land use rights charged by:	(vi)			
Chinalco and its subsidiaries	(ix)	501,866	499,191	661,888
		<u>501,866</u>	<u>499,191</u>	<u>661,888</u>

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(a) Significant related party transactions (Continued)

	Notes	For the year ended December 31		
		2018	2019	2020
Other significant related party transactions:				
Borrowing from subsidiaries of Chinalco	(viii), (ix)	<u>6,525,000</u>	<u>3,890,000</u>	<u>1,925,000</u>
Interest expense on borrowings, discounted notes and factoring arrangement from subsidiaries of Chinalco		<u>143,415</u>	<u>141,991</u>	<u>87,985</u>
Investment in subsidiaries of Chinalco		<u>—</u>	<u>2,137,608</u>	<u>—</u>
Disposal of aluminum capacity quota to a subsidiary of Chinalco		<u>—</u>	<u>800,000</u>	<u>—</u>
Disposal of assets under a sale and leaseback contract to a subsidiary of Chinalco	(x)	<u>224,000</u>	<u>500,000</u>	<u>—</u>
Finance lease under a sale and leaseback contract from a subsidiary of Chinalco	(x), (ix)	<u>224,000</u>	<u>558,924</u>	<u>—</u>
Trade receivable factoring arrangement from a subsidiary of Chinalco	(ix)	<u>470,101</u>	<u>136,656</u>	<u>—</u>
Discounted notes receivable to a subsidiary of Chinalco	(viii)	<u>756,000</u>	<u>679,517</u>	<u>36,750</u>
Provision of financial guarantees to a joint venture		<u>12,450</u>	<u>12,450</u>	<u>—</u>

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(a) Significant related party transactions (Continued)

All transactions with related parties were conducted at prices and on terms mutually agreed by the parties involved, which are determined as follows:

- (i) Sales of materials and finished goods comprised sales of alumina, primary aluminum, copper and scrap materials. Transactions entered into are covered by general agreements on a mutual provision of production supplies and ancillary services. The pricing policy is summarised below:
 - 1. The price prescribed by the PRC government (“state-prescribed price”) is adopted;
 - 2. If there is no state-prescribed price, state-guidance price is adopted;
 - 3. If there is neither state-prescribed price nor state-guidance price, then the market price (being price charged to and from independent third parties) is adopted; and
 - 4. If none of the above is available, then the adoption of a contractual price (being reasonable costs incurred in providing the relevant services plus not more than 5% of such costs is adopted).
- (ii) Utility services, including electricity, gas, heat and water, are provided at the state-prescribed price.
- (iii) Engineering, project construction and supervisory services were provided for construction projects. The state-guidance price or prevailing market price (including the tender price where by way of tender) is adopted for pricing purposes.
- (iv) The pricing policy for purchases of primary and auxiliary materials (including bauxite, limestone, carbon, cement and coal) is the same as that set out in (i) above.
- (v) Social services and logistics services provided by Chinalco Group cover public security, fire services, education and training, school and hospital services, cultural and physical education, newspaper and magazines, broadcasting and printing as well as property management, environmental and hygiene, greenery, nurseries and kindergartens, sanatoriums, canteens and offices, public transport and retirement management and other services. Provisions of these services are covered by the Comprehensive Social and Logistics Services Agreement. The pricing policy is the same as that set out in (i) above.
- (vi) Pursuant to the Land Use Right Lease Agreements entered into between the Group and Chinalco Group, operating leases for industrial or commercial land are charged at the market rent rate. The Group also entered into a building rental agreement with Chinalco Group and paid rents based on the market rate for its lease of buildings owned by Chinalco.
- (vii) Other services are environmental protection operation services. The prevailing market price is adopted for pricing purposes.
- (viii) Chinalco Finance Company Limited (“Chinalco Finance”) (中鋁財務有限責任公司), a wholly-owned subsidiary of Chinalco and a non-bank financial institution established in the PRC, provides deposit services, credit services and miscellaneous financial services to the Group. The terms for the provision of financial services to the Group are no less favourable than those of the same type of financial services provided by Chinalco Finance to Chinalco and other members of its group or those of the same type of financial services that may be provided to the Group by other financial institutions.
- (ix) These related party transactions also constitute connected transactions or continuing connected transactions as defined in Chapter 14A of the Listing Rules.

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(a) Significant related party transactions (Continued)

- (x) As disclosed in Note 20, the Group has entered into several sale and leaseback contracts with Chalco Financial Leasing Co., Ltd..
 - (xi) As disclosed in Note 39, the Group acquired Henan Zhongzhou Logistics and Chongqing Xinan Transportation from Chinalco's subsidiaries.
 - (xii) As disclosed in Note 28, in May 2019, the Group entered into transactions with its fellow subsidiaries including the disposals of subsidiaries and disposal of aluminum capacity quota. These transactions constituted related party transactions.
- * The English names represent the best effort made by management of the Group in translating the Chinese names of the Companies as they do not have any official English names.

(b) Balances with related parties

Other than those disclosed elsewhere in the consolidated financial statements, the outstanding balances with related parties at the year end are as follows:

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Cash and cash equivalents deposited with		
A subsidiary of Chinalco*	3,285,093	3,561,997
Trade and notes receivables		
Chinalco and its subsidiaries	1,054,168	760,138
Associates of Chinalco	6,034	56,107
Joint ventures	788,183	743,369
Associates	25	107
	<u>1,848,410</u>	<u>1,559,721</u>
Provision for impairment of receivables	(17,815)	(74,668)
	<u><u>1,830,595</u></u>	<u><u>1,485,053</u></u>

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(b) Balances with related parties (Continued)

* On August 26, 2011, the Company entered into an agreement with Chinalco Finance, pursuant to which, Chinalco Finance agreed to provide deposit services, credit services and other financial services to the Group. On August 24, 2012, April 28, 2015, October 26, 2017 and April 27, 2020, the Company renewed the financial service agreement with Chinalco Finance with a validation term of three years ending on October 25, 2023.

	<u>December 31, 2019</u> (Restated)	<u>December 31, 2020</u>
Other current assets		
Chinalco and its subsidiaries	421,805	268,321
Joint ventures	1,503,505	1,416,094
Associates	47,743	433,453
Non-controlling shareholder of a subsidiary and its subsidiaries	—	1,200
Provision for impairment of other current assets	(30,509)	(422,089)
	<u>1,942,544</u>	<u>1,696,979</u>
Other non-current assets		
Associates	<u>111,845</u>	<u>111,845</u>
Interest-bearing loans and borrowings:		
Subsidiaries of Chinalco (including lease liabilities)	<u>9,857,187</u>	<u>8,887,422</u>
Trade and notes payables		
Chinalco and its subsidiaries	334,840	437,732
Associates of Chinalco	917	1,511
Joint ventures	527,744	561,508
Associates	9,789	10,562
	<u>873,290</u>	<u>1,011,313</u>
Other payables and accrued liabilities		
Chinalco and its subsidiaries	1,810,514	2,193,782
Associates of Chinalco	17,056	1,019
Associates	80,012	28,424
Joint ventures	73,823	3,940
	<u>1,981,405</u>	<u>2,227,165</u>
Contract liabilities:		
Chinalco and its subsidiaries	29,210	17,460
Associates of Chinalco	—	13,453
Associates	223	79
Joint ventures	56,010	519
Non-controlling shareholder of a subsidiary and its subsidiaries	—	656
	<u>85,443</u>	<u>32,167</u>

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36 SIGNIFICANT RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

(b) Balances with related parties (Continued)

As of December 31, 2020, included in long-term loans and borrowings and short-term loans and borrowings were from other state-owned enterprises amounting to and RMB31,245 million (December 31, 2019: RMB42,553 million) and RMB18,543 million (December 31, 2019: RMB29,781 million), respectively.

The terms of all balances with the exception of the entrusted loans were unsecured and were in accordance with terms as set out in the respective agreements or as mutually agreed between the parties concerned.

(c) Compensation of directors, supervisors and senior management

	<u>December 31, 2018</u>	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Fees	756	780	683
Basic salaries, housing fund, other allowances and benefits in kind	3,953	6,945	6,081
Pension costs	482	715	30
	<u>5,191</u>	<u>8,440</u>	<u>6,794</u>

(d) Commitments with related parties

As of December 31, 2020 and 2019, except for the other capital commitments disclosed in Note 43(b) to these financial statements, the Group had no significant commitments with related parties.

37 FINANCIAL AND CAPITAL RISK MANAGEMENT

37.1 Financial risk management

The Group's activities expose it to a variety of financial risks, including market risk (including foreign currency risk, interest rate risk and commodity price risk), credit risk and liquidity risk. The Group's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize the potential adverse effects on the Group's financial performance.

Risk management is carried out by the treasury management department (the "Group Treasury") under policies approved by the Board of Directors of the Company. The Group Treasury identifies, evaluates and hedges financial risks through close cooperation with the Group's operating units.

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.1 Financial risk management (Continued)

(a) Market risk

(i) Foreign currency risk

The Group's foreign currency risk arose from transaction conducted in currency other than the functional currency of the group entities. The Group's foreign currency risk primarily arises from foreign currency deposits, trade receivables, trade payables, advances paid to suppliers, and short-term and long-term loans denominated in United States dollars ("USD"), Euro ("EUR"), Japanese yen ("JPY"), and Hong Kong dollars ("HKD"). Related exposures are disclosed in Notes 16, 14, 23, 15, and 19 to the financial statements, respectively. The Group Treasury closely monitors the international foreign currency market on the change of exchange rates and takes these into consideration when investing in foreign currency deposits and borrowing loans. As of December 31, 2020, the Group only had significant exposure to USD.

As of December 31, 2020, if RMB had strengthened/weakened by 5% against USD with all other variables held constant, the profit for the year would have been approximately RMB82 million higher/lower (2019: RMB95 million lower/higher), mainly as a result of foreign exchange gains and losses arising from translation of USD denominated borrowings, other payables and medium/term notes. Profit was less sensitive to the fluctuation in the RMB/USD exchange rates in 2020 than in 2019, mainly due to the decrease in the USD denominated other payables and medium/ term notes.

As the assets and liabilities denominated in other foreign currencies other than USD were relatively minimal to the total assets and liabilities of the Group, the directors of the Company are of the opinion that the Group was not exposed to significant foreign currency risk arising from other assets and liabilities denominated in currency other than the functional currency of the group entities as of December 31, 2020 and 2019.

(ii) Interest rate risk

As of December 31, 2020, as the Group had no significant interest-bearing assets except for bank deposits (Note 16) and entrusted loans (Note 19).

Most of the bank deposits are maintained in savings and time deposit accounts in the PRC. The interest rates are regulated by the People's Bank of China and the Group Treasury closely monitors the fluctuation on such rates periodically. The interest rates of entrusted loans are fixed. As the interest rates applied to the entrusted loans were fixed, the directors of the Company are of the opinion that the Group was not exposed to any significant interest rate risk for its financial assets held as of December 31, 2020 and 2019.

The interest rate risk for the Group's financial liabilities primarily arises from interest-bearing loans. Loans borrowed at floating interest rates expose the Group to cash flow interest rate risk. The Group enters into debt obligations to support general corporate purposes including capital expenditures and working capital needs. The Group Treasury closely monitors market interest rates and maintains a balance between variable rate and fixed rate borrowings in order to reduce the exposures to the interest rate risk described above.

As of December 31, 2020, if interest rates had been 100 basis points (December 31, 2019: 100 basis points) higher/lower for bank and other loans borrowed at floating interest rates with all other variables held constant, net profit for the year would have been RMB430 million lower/higher (2019: RMB451 million), respectively, mainly as a result of the higher/ lower interest expense on floating rate borrowings.

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.1 Financial risk management (Continued)

(a) Market risk (Continued)

(ii) Interest rate risk (Continued)

The fair value interest rate risk of the Group mainly arises from medium/term notes and short/term bonds issued at fixed rates. As the fluctuation of comparable interest rates of corporate bonds with similar terms was relatively low, the directors of the Company are of the opinion that the Group was not exposed to any significant fair value interest rate risk for its fixed interest rate borrowings held as of December 31, 2020 and 2019.

(iii) Commodity price risk

The Group uses futures and option contracts to reduce its exposure to fluctuations in the price of primary aluminum and other products. The Group uses the futures contract for offsetting other than speculation. With reference to the hedging of primary aluminum, production company hedges the output of primary aluminum and trading company hedges the quantities of buyout and self-supporting.

The Group uses mainly futures contracts and option contracts traded on the Shanghai Futures Exchange and London Metal Exchange (“LME”) to hedge against fluctuations in primary aluminum prices. As of December 31, 2020, the fair values of the outstanding futures contracts amounting to RMB17 million (December 31, 2019: RMB3 million) and RMB27 million (December 31, 2019: RMB1 million) were recognized in financial assets and financial liabilities at fair value through profit or loss, respectively. As of December 31, 2020, the Company did not hold any option contracts (December 31, 2019: the Company did not hold any option contracts).

As of December 31, 2020, if the commodity futures prices had increased/ decreased by 3% (December 31, 2019: 3%) and all other variables held constant, profit for the year would have changed by the amounts shown below:

Primary aluminum	December 31, 2019 Decrease/increase RMB40 million	December 31, 2020 Decrease/increase RMB5 million
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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.1 Financial risk management (Continued)

(b) Credit risk

Credit risk arises from balances with banks and financial institutions, trade and notes receivables, other current and non-current receivables as well as credit exposures of customers, including outstanding receivables and committed transactions.

The Group maintains substantially all of its bank balances and cash and short-term investments in several major state-owned banks in the PRC. With strong support from the PRC government to these state-owned banks, the directors of the Company are of the opinion that there is no significant credit risk on such assets being exposed to losses.

The Group applies the simplified approach to most of its trade receivables to provide for expected credit losses prescribed by IFRS 9, which permits the use of the lifetime expected loss provision for trade receivables. The Group has made individual assessment for trade receivables from clients with top rating and those receivables with pledged assets separately and impairment provisions are made.

To measure the expected credit losses of trade receivables other than those assessed individually as mentioned above, trade receivables have been grouped based on shared credit risk characteristics and the days past due. The expected credit loss model also incorporates forward-looking information.

For other current and non-current receivables, the Group considers the probability of default upon initial recognition of an asset and whether there has been a significant increase in credit risk on an ongoing basis throughout each reporting period. To assess whether there is a significant increase in credit risk the company compares the risk of a default occurring on the asset as of the reporting date with the risk of default as of the date of initial recognition. It considers available reasonable and supportive forwarding-looking information. Especially the following indicators are incorporated:

- internal credit rating
- external credit rating
- actual or expected significant adverse changes in business, financial or economic conditions that are expected to cause a significant change to the borrower's ability to meet its obligations
- actual or expected significant changes in the operating results of individual clients
- significant changes in the expected performance and behaviour of the clients

The Group measures expected credit loss rates on the basis of a loss rate approach by segmenting its portfolio into appropriate groupings based on shared credit risk characteristics. At the end of each year, the Group updates its historical loss information with forward-looking information. As the historical credit loss rates were comparatively stable and no significant changes were expected to the forward-looking information after the consideration of reasonable and supportable forecasts of comparatively stable customer relationship and customers' credit ratings, the expected credit loss rates remained consistent during 2020.

The table below shows the credit quality and the maximum exposure to credit risk based on the Group's credit policy, which is mainly based on past due information unless other information is available without undue cost or effort, and year-end staging classification as of December 31, 2020. The amounts presented are carrying amounts for financial assets and the exposure to credit risk for the financial guarantee contracts.

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.1 Financial risk management (Continued)

(b) Credit risk (Continued)

	<u>Stage 1</u>	<u>Stage 2</u>	<u>Stage 3</u>	<u>Simplified</u>	<u>Total</u>
Trade receivables	—	—	—	4,746,995	4,746,995
Financial assets in other current assets	2,212,930	563,247	1,206,950	—	3,983,127
Restricted cash	1,056,037	—	—	—	1,056,037
Notes receivables	—	—	—	4,546,223	4,546,223
Cash and cash equivalents	9,631,152	—	—	—	9,631,152
Financial assets in other non-current assets	127,754	—	—	—	127,754
Total	<u><u>13,027,873</u></u>	<u><u>563,247</u></u>	<u><u>1,206,950</u></u>	<u><u>9,293,218</u></u>	<u><u>24,091,288</u></u>

The carrying amounts of short-term investments and these receivables included in Notes 12, 14, 15 and 16 represent the Group's maximum exposure to credit risk in relation to its financial assets.

The directors of the Company are of the opinion that the Group was not exposed to any significant concentration of credit risk as at December 31, 2020 and 2019.

(c) Liquidity risk

Cash flow forecast is performed in the operating entities of the Group and aggregated by the Group Treasury. The Group Treasury monitors rolling forecasts of the Group's liquidity requirements to ensure it has sufficient cash to meet operational needs while maintaining sufficient headroom on its undrawn committed borrowing facilities at all times so that the Group does not breach borrowing limits or covenants (where applicable) on any of its borrowing facilities. This forecast takes into consideration of the Group's debt financing plans, covenant compliance, compliance with internal balance sheet ratio targets and, if applicable, external regulatory or legal requirements, for example, currency restrictions.

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.1 Financial risk management (Continued)

(c) Liquidity risk (Continued)

Management also monitors rolling forecasts of the Group's liquidity reserve on the basis of expected cash flows.

The table below analyses the maturity profile of the Group's financial liabilities as of the end of the reporting period. The amounts disclosed in the table are the contractual undiscounted cash flows.

	<u>Within 1 year</u>	<u>1 to 2 years</u>	<u>2 to 5 years</u>	<u>Over 5 years</u>	<u>Total</u>
As of December 31, 2020					
Lease liabilities, including current portion	1,151,332	473,410	1,263,824	9,708,710	12,597,276
Long-term bank and other loans, including current portion	3,629,014	6,702,687	15,638,089	17,044,774	43,014,564
Medium-term notes and bonds, including current portion	7,109,960	3,000,000	6,900,000	2,000,000	19,009,960
Short-term bonds	2,400,000	—	—	—	2,400,000
Gold leasing arrangement	—	—	—	—	—
Short-term bank and other loans	20,738,030	—	—	—	20,738,030
Interest payables for loans and borrowings	2,935,356	2,105,844	4,046,106	2,039,075	11,126,381
Financial liabilities at fair value through profit or loss	26,684	—	—	—	26,684
Financial liabilities included in other payables and accrued liabilities, excluding accrued interest	8,454,068	—	—	—	8,454,068
Financial liabilities included in other non-current liabilities	—	194,609	74,367	767,941	1,036,917
Trade and notes payables	15,440,859	—	—	—	15,440,859
	<u>61,885,303</u>	<u>12,476,550</u>	<u>27,922,386</u>	<u>31,560,500</u>	<u>133,844,739</u>
	<u>Within 1 year</u>	<u>1 to 2 years</u>	<u>2 to 5 years</u>	<u>Over 5 years</u>	<u>Total</u>
As of December 31, 2019					
(Restated)					
Finance lease payables, including current portion	1,729,933	1,106,701	1,333,762	10,377,143	14,547,539
Long-term bank and other loans, including current portion	3,339,687	7,525,775	9,159,028	18,811,397	38,835,887
Medium-term notes and bonds, including current portion	—	7,285,840	9,500,000	—	16,785,840
Short-term bonds	9,300,000	—	—	—	9,300,000
Gold leasing arrangement	6,921,860	—	—	—	6,921,860
Short-term bank and other loans	21,238,166	—	—	—	21,238,166
Interest payables for borrowings	4,955,925	2,289,092	4,220,111	978,041	12,443,169
Financial liabilities at fair value through profit or loss	805	—	—	—	805
Financial liabilities included other payables and accrued liabilities, excluding accrued interest	10,297,166	—	—	—	10,297,166
Financial liabilities included in other non-current liabilities (note)	—	176,232	182,006	795,249	1,153,487
Trade and notes payables	12,608,806	—	—	—	12,608,806
	<u>70,392,348</u>	<u>18,383,640</u>	<u>24,394,907</u>	<u>30,961,830</u>	<u>144,132,725</u>

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments

(a) Financial instruments by category

Note: As disclosed in Note 21, as of December 31, 2020, the carrying value of financial liabilities included in other non-current liabilities was RMB1,037 million (December 31, 2019: RMB1,153 million).

The carrying amounts of each of the categories of financial instruments of the Group as of the end of the reporting period are as follows:

Financial assets

	At December 31, 2020				Total
	Financial assets at fair value through profit or loss-held for trading	Financial assets at amortized cost	Equity instruments at fair value through other comprehensive income	Debt instruments at fair value through other comprehensive income	
Current					
Trade receivables	—	4,746,995	—	—	4,746,995
Notes receivable	—	—	—	4,546,223	4,546,223
Financial assets at fair value through profit or loss	17,311	—	—	—	17,311
Restricted cash and term deposits	—	1,056,037	—	—	1,056,037
Cash and cash equivalents	—	9,631,152	—	—	9,631,152
Financial assets included in other current assets	—	3,983,127	—	—	3,983,127
Subtotal	17,311	19,417,311	—	4,546,223	23,980,845
Non-current					
Other financial assets measured at fair value	—	—	1,526,703	—	1,526,703
Other non-current assets	—	127,754	—	—	127,754
Subtotal	—	127,754	1,526,703	—	1,654,457
Total	17,311	19,545,065	1,526,703	4,546,223	25,635,302

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments (Continued)

(a) Financial instruments by category (Continued)

Financial liabilities

	As of December 31, 2020		
	Financial assets at fair value through profit or loss-held for trading	Financial liabilities at amortized cost	Total
Current			
Financial liabilities at fair value through profit or loss	26,684	—	26,684
Interest-bearing loans and borrowings	—	34,707,283	34,707,283
Payables and accrued liabilities (Note 22)	—	8,987,450	8,987,450
Trade and notes payables	—	15,440,859	15,440,859
Subtotal	26,684	59,135,592	59,162,276
Non-current			
Financial liabilities included in other non-current liabilities (Note 21)	—	1,036,917	1,036,917
Interest-bearing loans and borrowings	—	57,518,097	57,518,097
Subtotal	—	58,555,014	58,555,014
Total	26,684	117,690,606	117,717,290

Financial Assets

	As of December 31, 2019 (Restated)				
	Financial assets at fair value through profit or loss-held for trading	Financial assets at amortized cost	Equity instruments at fair value through other comprehensive income	Debt instruments at fair value through other comprehensive income	Total
Current					
Trade receivables	—	4,574,581	—	—	4,574,581
Notes receivables	—	—	—	2,844,637	2,844,637
Financial assets at fair value through profit or loss	3,503,175	—	—	—	3,503,175
Restricted cash and term deposits	—	1,305,781	—	—	1,305,781
Cash and cash equivalents	—	7,778,853	—	—	7,778,853
Financial assets included in other current assets	—	5,663,779	—	—	5,663,779
Subtotal	3,503,175	19,322,994	—	2,844,637	25,670,806
Non-current					
Other financial assets measured at fair value	—	—	2,239,251	—	2,239,251
Other non-current assets	—	128,673	—	—	128,673
Subtotal	—	128,673	2,239,251	—	2,367,924
Total	3,503,175	19,451,667	2,239,251	2,844,637	28,038,730

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments (Continued)

(a) Financial instruments by category (Continued)

Financial Liabilities

	As of December 31, 2019 (Restated)		
	Financial assets at fair value through profit or loss- held for trading	Financial liabilities at amortized cost	Total
Current			
Financial liabilities at fair value through profit or loss	805	—	805
Interest-bearing loans and borrowings	—	42,286,604	42,286,604
Payables and accrued liabilities (Note 22)	—	10,791,507	10,791,507
Trade and notes payables	—	12,608,806	12,608,806
Subtotal	805	65,686,917	65,687,722
Non-current			
Financial liabilities included in other non-current liabilities (Note 21)	—	1,153,487	1,153,487
Interest-bearing loans and borrowings	—	59,243,563	59,243,563
Subtotal	—	60,397,050	60,397,050
Total	805	126,083,967	126,084,772

(b) Fair value and fair value hierarchy

Fair value

The carrying amounts and fair values of the Group's financial instruments at amortized cost, other than those with carrying amounts that reasonably approximate to fair values and those carried at fair value, are as follows:

	Carrying amounts		Fair values	
	December 31, 2019	December 31, 2020	December 31, 2019	December 31, 2020
Financial assets				
Other non-current assets (Note 12)	128,673	127,754	111,935	117,537
Financial liabilities				
Financial liabilities included in other non-current liabilities (Note 21)	1,153,487	1,036,917	1,146,893	903,141
Long-term interest-bearing loans and borrowings, excluding lease liability (Note 19)	52,232,955	51,260,218	50,952,676	49,729,548
	53,386,442	52,297,135	52,099,569	50,632,689

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments (Continued)

(b) Fair value and fair value hierarchy (Continued)

Except for financial assets and financial liabilities mentioned above, management has assessed that the fair values of cash and cash equivalents, restricted cash and time deposits, trade and notes receivables, financial assets included in other current assets, entrusted loans, trade and notes payables, financial liabilities included in other payables and accrued liabilities, short-term and the current portion of interest-bearing loans and borrowings, interest payable and the current portion of long-term payables approximate to their carrying amounts largely due to the short term maturities of these instruments.

The fair values of the financial assets and liabilities are included at the amount at which the instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale.

The fair values of the financial assets included in other non-current assets and financial liabilities included in other non-current liabilities and long-term interest-bearing loans and borrowings have been calculated by discounting the expected future cash flows using rates currently available for instruments on with similar terms, credit risk and remaining maturities.

The Group's own non-performance risk for financial liabilities included in other non-current liabilities and long-term interest-bearing loans and borrowings as of December 31, 2020 was assessed to be insignificant.

Fair value hierarchy

The following tables illustrate the fair value measurement hierarchy of the Group's financial instruments:

Assets measured at fair value

As of December 31, 2020	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Financial assets at fair value through profit or loss:				
Futures contracts	17,311	—	—	17,311
Financial assets at fair value through other comprehensive income				
Notes receivable	—	—	4,546,223	4,546,223
Listed equity investments	8,812	—	—	8,812
Other unlisted investment	—	—	1,517,891	1,517,891
	<u>26,123</u>	<u>—</u>	<u>6,064,114</u>	<u>6,090,237</u>

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments (Continued)

(b) Fair value and fair value hierarchy (Continued)

Fair value hierarchy (Continued)

Assets measured at fair value (Continued)

As of December 31, 2019 (Restated)	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Financial assets at fair value through profit or loss:				
Futures contracts	3,175	—	—	3,175
Financial product	—	3,500,000	—	3,500,000
Financial assets at fair value through other comprehensive income				
Notes receivables	—	—	2,844,637	2,844,637
Listed equity investments	8,853	—	—	8,853
Other unlisted investment	—	—	2,230,398	2,230,398
	<u>12,028</u>	<u>3,500,000</u>	<u>5,075,035</u>	<u>8,587,063</u>

Liabilities measured at fair value

As of December 31, 2020	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Financial liabilities at fair value through profit or loss: futures contracts	26,684	—	—	26,684
	<u>26,684</u>	<u>—</u>	<u>—</u>	<u>26,684</u>

As of December 31, 2019	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Financial liabilities at fair value through profit or loss: futures contracts	805	—	—	805
	<u>805</u>	<u>—</u>	<u>—</u>	<u>805</u>

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments (Continued)

(b) Fair value and fair value hierarchy (Continued)

Fair value hierarchy (Continued)

Assets for which fair values are disclosed:

	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
As of December 31, 2020				
Loans and receivables:				
Financial assets included in other non-current assets	—	117,537	—	117,537

	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
As of December 31, 2019				
Loans and receivables:				
Financial assets included in other non-current assets	—	111,935	—	111,935

Liabilities for which fair values are disclosed:

	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
As of December 31, 2020				
Financial liabilities at amortized cost:				
Financial liabilities included in other non-current liabilities	—	903,141	—	903,141
Long-term interest-bearing loans and borrowings	—	49,729,548	—	49,729,548
	—	50,632,689	—	50,632,689

	Fair value measurement using			Total
	Quoted prices in active markets (Level 1)	Significant observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
As of December 31, 2019 (Restated)				
Financial liabilities at amortized cost:				
Financial liabilities included in other non-current liabilities	—	1,146,893	—	1,146,893
Long-term interest-bearing loans and borrowings	—	50,952,676	—	50,952,676
	—	52,099,569	—	52,099,569

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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)

37.2 Financial instruments (Continued)

(b) Fair value and fair value hierarchy (Continued)

Fair value hierarchy (Continued)

During the year ended December 31, 2020 the Group had no transfers of fair value measurements between Level 1 and Level 2 and no transfers into or out of Level 3 for both financial assets and financial liabilities (2019: Nil).

Below is a summary of significant unobservable inputs to the valuation of financial instruments as of December 31, 2020 and 2019:

	<u>Valuation Technique</u>	<u>Significant unobservable input</u>
Equity investments in Size Industry Investment Fund		
December 31, 2020	Discounted Cashflow Model	Discounted rate
Chinalco Innovative		
December 31, 2020	Market approach	Risk premium
Notes receivable		
December 31, 2020	Discounted Cashflow model	Discounted rate

**ALUMINUM CORPORATION OF CHINA LIMITED
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37 FINANCIAL AND CAPITAL RISK MANAGEMENT (CONTINUED)**37.3 Capital risk management**

The Group's capital management objectives are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, issue new shares or sell assets to reduce debts.

Consistent with other entities in the industry, the Group monitors capital on the basis of its gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is calculated as total liabilities (excluding deferred tax liabilities, income tax payable and deferred government grants) less restricted cash, time deposits and cash and cash equivalents. Total capital is calculated as equity, as shown in the consolidated statement of financial position, plus net debt less non-controlling interests.

The gearing ratio as of December 31, 2020 is as follows:

	<u>December 31, 2019</u> (Restated)	<u>December 31, 2020</u>
Total liabilities (excluding deferred tax liabilities, income tax payable and deferred government grants)	130,168,916	121,811,607
Less: Restricted cash, term deposits and cash and cash equivalents	9,084,634	10,687,189
Net debt	121,084,282	111,124,418
Total equity	70,757,466	71,171,716
Add: Net debt	121,084,282	111,124,418
Less: Non-controlling interests	<u>16,085,487</u>	<u>16,839,706</u>
Total capital attributable to owners of the parent	<u>175,756,261</u>	<u>165,456,428</u>
Gearing ratio	69%	67%

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38 NON - CONTROLLING INTERESTS

Other than the senior perpetual securities issued by a subsidiary of the Group that presented as non-controlling interests in the consolidated financial statements and disclosed in Note 41, details of the Group's subsidiaries that have material non-controlling interests are set out below:

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Percentage of equity interest held by non-controlling interests		
Ningxia Energy	29.18%	29.18%
Shanxi Zhongrun	56.61%	60.00%
Guizhou Huaren	60.00%	60.00%
Profit for the year allocated to non-controlling interests		
Ningxia Energy	240,504	48,040
Shanxi Zhongrun	69,701	147,747
Guizhou Huaren	198,016	420,737
Dividends distributed to non-controlling interests		
Ningxia Energy	76,469	—
Shanxi Zhongrun	—	—
Guizhou Huaren	—	—
Accumulated balances of non-controlling interests at the year ended		
Ningxia Energy	4,978,089	5,178,314
Shanxi Zhongrun	996,686	1,277,602
Guizhou Huaren	1,028,426	1,359,716

The following tables illustrate the summarised financial information of the above subsidiaries. The amounts disclosed are before any inter-company eliminations:

	<u>Ningxia Energy</u>	
	<u>2019</u>	<u>2020</u>
Revenue	6,695,724	6,932,708
Total expenses	6,314,098	6,768,073
Profit for the year	381,626	164,635
Total comprehensive income for the year	381,626	164,635
Current assets	5,081,743	6,037,632
Non-current assets	32,133,495	31,242,070
Current liabilities	8,688,475	9,779,461
Non-current liabilities	17,559,995	16,256,073
Net cash flows from operating activities	3,274,683	2,617,463
Net cash flows used in investing activities	(939,054)	(652,297)
Net cash flows used in financing activities	(2,611,597)	(1,792,661)
Effect of foreign exchange rate changes, net	—	—
Net increase/(decrease) in cash and cash equivalents	(275,968)	172,505

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38 NON- CONTROLLING INTERESTS (CONTINUED)

	Shanxi Zhongrun	
	2019	2020
Revenue	2,204,777	3,561,831
Total expenses	2,081,652	3,315,585
Profit for the year	123,125	246,246
Total comprehensive income for the year	123,125	246,246
Current assets	783,726	643,121
Non-current assets	4,010,818	4,138,211
Current liabilities	1,084,890	2,595,397
Non-current liabilities	2,093,735	45,365
Net cash flows from operating activities	234,014	418,528
Net cash flows used in investing activities	(402,636)	(188,504)
Net cash flows from/used in financing activities	307,452	(404,548)
Effect of foreign exchange rate changes, net	—	—
Net (decrease)/increase in cash and cash equivalents	138,830	(174,524)
	Guizhou Huaren	
	2019	2020
Revenue	5,982,665	6,094,811
Total expenses	5,677,075	5,393,582
Profit for the year	305,590	701,229
Total comprehensive income for the year	305,590	701,229
Current assets	1,034,442	1,610,363
Non-current assets	2,650,822	2,601,807
Current liabilities	1,164,346	1,003,650
Non-current liabilities	1,006,360	932,570
Net cash flows from operating activities	565,027	992,304
Net cash flows used in investing activities	(91,319)	(27,475)
Net cash flows used in financing activities	(354,187)	(612,892)
Effect of foreign exchange rate changes, net	—	—
Net increase in cash and cash equivalents	119,521	351,937

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39 BUSINESS COMBINATION

(a) Acquisition of Henan Zhongzhou Logistics

In April 2020, pursuant to the agreement entered into between Chalco Logistics Group Zhongzhou Co., Ltd. (“Chalco Logistics Zhongzhou”, “中鋁物流集團中州有限公司”, a subsidiary of Chalco Logistics), Henan Zhongzhou Logistics Co., Ltd. (“Henan Zhongzhou Logistics”, “河南中州物流有限公司”, a subsidiary of Zhongzhou Aluminum Factory prior to the transaction), Chalco Logistics Group Co., Ltd. (“Chalco Logistics”, “中鋁物流集團有限公司”, a subsidiary of the Company), Henan Zhongzhou Aluminum Factory Co., Ltd. (“Zhongzhou Aluminum Factory”, “河南中州鋁廠有限公司”, a subsidiary of Chinalco) and Chalco Zhongzhou Aluminum Industry Co., Ltd. (“Zhongzhou Aluminum Industry”, “中鋁中州鋁業有限公司”), Chalco Logistics Zhongzhou merged Henan Zhongzhou Logistics, which was a 100% owned subsidiary of Zhongzhou Aluminum Factory prior to the transaction, by issuing new shares of Chalco Logistics Zhongzhou to Zhongzhou Aluminum Factory.

(b) Acquisition of Chongqing Xinan Transportation

Pursuant to the agreement entered into between Chalco Logistics, Southwest Aluminum Industry (Group) Co., Ltd. (“Southwest Aluminum Industry”, “西南鋁業(集團)有限責任公司”, a subsidiary of Chinalco) and Chongqing Southwest Aluminum Transportation Co., Ltd. (“Southwest Aluminum Transportation”, “重慶西南鋁運輸有限公司”, a subsidiary of Southwest Aluminum Industry prior to the transaction), Chalco Logistics acquired Chongqing Xinan Transportation on June 30, 2020 by subscription of its 51% newly issued shares for a cash consideration of RMB8.189 million.

(c) Acquisition of Suzhou Zhongcai

On April 29, 2019, Chinalco Shanghai Company Limited (“Chinalco Shanghai”) (“中鋁上海有限公司”), a subsidiary of the Company, entered into an equity transfer agreement with Zhongse Technology Co., Ltd.* (“Zhongse Technology”) (“中色科技股份有限公司”) and Suzhou Research Institute of Non-ferrous Metals Co., Ltd.* (“Suzhou Research Institute”) (“蘇州有色金屬研究院有限公司”), pursuant to which, Chinalco Shanghai acquired 70% and 30% equity interests in Suzhou Zhongse Metal Materials Technology Co., Ltd.* (“Suzhou Zhongcai”) (“蘇州中色金屬材料科技有限公司”) from Zhongse Technology and Suzhou Research Institute, respectively. The consideration for the acquisition was RMB237 thousand, which was determined based on the appraisal value of the 100% equity interest in Suzhou Zhongcai. Chinalco Shanghai has paid the consideration in full as of June 30, 2019. The acquisition date was June 1, 2019, which was the date that the Group obtained control of Suzhou Zhongcai. Before and after the acquisition, both Suzhou Zhongcai and Chinalco Shanghai were controlled by Chinalco, and the control was not temporary. Thus, the acquisition of the 100% equity interest in Suzhou Zhongcai is considered to be a business combination under common control, other than significant influence or joint control.

The carrying amounts of the assets and liabilities of Suzhou Zhongcai as of the acquisition date and the comparative financial figures were as follows:

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39 BUSINESS COMBINATION (CONTINUED)

(c) Acquisition of Suzhou Zhongcai (Continued)

	December 31, 2018	June 1, 2019
Assets		
Property, plant and equipment	55,747	55,746
Land use rights	26,574	—
Right-of-use assets	—	26,318
Other current assets	2,561	2,229
Deferred tax assets	86	143
Trade and notes receivables	3,485	2,758
Cash and cash equivalents	183	136
Liabilities		
Deferred tax liabilities	111	—
Interest-bearing loans and borrowings	51,908	51,908
Other payables and accrued expenses	34,536	33,404
Trade and notes payables	1,664	1,564
Net assets	417	454
Non-controlling interests	—	—
Net assets acquired	—	454
Difference recognized in equity		(217)
Total purchase consideration		237

* The English names represent the best effort by management of the Group in translating the Chinese names of the Companies as they do not have any official English names.

(d) Acquisition of Guizhou Huaren

In May 2017, the Company, together with Hangzhou Jinjiang, Guizhou Investment and Qingzhen Investment jointly established Guizhou Huaren. The registered capital of Guizhou Huaren is RMB1,200 million, of which the Company holds 40% of equity interest in Guizhou Huaren, Hangzhou Jinjiang holds 30%, while each of the other two shareholders holds 15% equity interest, respectively. According to the article of association of Guizhou Huaren, the directors of the Company considered that the Company had significant influence over Guizhou Huaren, which was accounted for as an associate.

In December 2017, the Company and Hangzhou Jinjiang entered into an acting-in-concert agreement which became effective on January 1, 2018. According to the acting-in-concert agreement, Hangzhou Jinjiang agreed to exercise the board members' and shareholder's vote in concert with the Company. Accordingly, the directors of the Company considered that the Company obtains control over Guizhou Huaren and has consolidated Guizhou Huaren's financial position and performance into the Group's consolidated financial statements since January 1, 2018.

The fair value of identifiable assets and liabilities of Guizhou Huaren at the acquisition date are as follows:

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39 BUSINESS COMBINATION (CONTINUED)

(d) Acquisition of Guizhou Huaren (Continued)

	January 1, 2018
	Fair value
Assets	
Property, plant and equipment	2,194,095
Land use rights	109,320
Intangible assets	137
Other current assets	353,655
Inventories	220,718
Trade and notes receivables	250
Restricted cash	324,030
Cash and cash equivalents	673,587
Liabilities	
Deferred tax liabilities	(58,299)
Interest-bearing loans and borrowings	(1,680,000)
Contract liabilities	(2,562)
Other payables and accrued expenses	(345,562)
Trade and notes payables	(464,454)
Net assets	1,324,915
Non-controlling interests	794,949
Share of net assets acquired	529,966
Goodwill	—
Satisfied by:	
Cash	—
Fair value of previously held equity interest	529,966
	<u>529,966</u>

Details of the 40% equity interest held by the Company before the acquisition of Guizhou Huaren and the profit from the investment are as follows:

	January 1, 2018
Initial investment cost	480,000
Share of loss accumulated under the equity method	(18,347)
Book value of the investment in 40% equity of Guizhou Huaren on the acquisition date	461,653
Fair value of the investment in 40% equity of Guizhou Huaren on the acquisition date (Note)	529,966
Gain on previously held equity interest remeasured at acquisition-date fair value	<u>68,313</u>

Note: The fair value was determined by the valuation report issued by an independent qualified valuer.

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39 BUSINESS COMBINATION (CONTINUED)

(d) Acquisition of Guizhou Huaren (Continued)

An analysis of the cash flows in respect of the acquisition of Guizhou Huaren is as follows:

	<u>RMB'000</u>
Cash consideration	—
Cash and bank balances acquired	<u>673,587</u>
Net inflow of cash and cash equivalents included in cash flows from investing activities	<u>673,587</u>

The operating results and cash flows of Guizhou Huaren since the merger date to the end of the year are as follows:

	<u>RMB'000</u>
Revenue	4,282,88
Profit for the period	34,63
Net cash flows	<u>(490,68)</u>

* The English names represent the best effort by management of the Group in translating the Chinese names of the Companies as they do not have any official English names.

(e) Acquisition of Shanxi Zhongrun

In February 2017, the Company entered into a capital injection and enlargement agreement on Shanxi Zhongrun with Huarun (Coal) Group Co., Ltd.* (“Huarun (Coal) Group”) (華潤(煤業)集團有限公司), Shanxi Xishan Coal and Electricity Power Co., Ltd.* (“Xishan Coal Electricity”) (山西西山煤電股份有限公司) and Jin Energy Power Group Co., Ltd.* (“Jin Energy Power”) (晉能電力集團有限公司). After the capital contribution, the registered capital of Shanxi Zhongrun is RMB500 million, of which the Company holds 40% of equity interest in Shanxi Zhongrun while each of the other three shareholders holds a 20% equity interest, respectively. The Company can appoint two out of the five directors of the board of directors. According to the article of association of Shanxi Zhongrun and the agreement, the directors of the Company considered that the Company had significant influence over Shanxi Zhongrun, which was accounted for as an associate.

In December 2017, the Company and Huarun (Coal) Group entered into an acting-in-concert agreement which was effective on January 1, 2018. According to the acting-in-concert agreement, Huarun (Coal) Group agreed to exercise the board members' and shareholder's vote in concert with the Company. Accordingly, the directors of the Company considered that the Company obtains control over Shanxi Zhongrun and has consolidated Shanxi Zhongrun's financial position and performance into the Group's consolidated financial statements since January 1, 2018.

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39 BUSINESS COMBINATION (CONTINUED)

(e) Acquisition of Shanxi Zhongrun (Continued)

The fair value of identifiable assets and liabilities of Shanxi Zhongrun at the acquisition date are as follows:

	<u>January 1, 2018</u> <u>Fair value</u>
Assets	
Property, plant and equipment	2,292,483
Intangible assets	749
Other current assets	215,575
Inventories	15,473
Trade and notes receivables	4,135
Cash and cash equivalents	2,173,062
Liabilities	
Deferred tax liabilities	(41,581)
Interest-bearing loans and borrowings	(3,485,852)
Other payables and accrued expenses	(37,789)
Trade and notes payables	(13,778)
Net assets	1,122,477
Non-controlling interests	673,486
Share of net assets acquired	448,991
Goodwill	—
Satisfied by:	
Cash	—
Fair value of previously held equity interest	448,991
	<u>448,991</u>

Details of the 40% equity interest held by the Company before the acquisition of Shanxi Zhongrun and the profit from the investment are as follows:

	<u>January 1, 2018</u>
Initial investment cost	400,184
Share of loss accumulated under the equity method	(6,553)
Book value of the investment in 40% equity of Shanxi Zhongrun on the acquisition date	393,631
Fair value of the investment in 40% equity of Shanxi Zhongrun on the acquisition date (Note)	448,991
Gain on previously held equity interest remeasured at acquisition-date fair value	<u>55,360</u>

Note: The fair value was determined by the valuation report issued by an independent qualified valuer.

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39 BUSINESS COMBINATION (CONTINUED)

(e) Acquisition of Shanxi Zhongrun (Continued)

An analysis of the cash flows in respect of the acquisition of Shanxi Zhongrun is as follows:

	<u>RMB'000</u>
Cash consideration	—
Cash and bank balances acquired	2,173,062
Net inflow of cash and cash equivalents included in cash flows from investing activities	<u>2,173,062</u>

The operating results and cash flows of Shanxi Zhongrun since the acquisition date to December 31, 2018 are as follows:

	<u>RMB'000</u>
Revenue	645,214
Profit for the period	817
Net cash flows	<u>(2,137,166)</u>

* The English names represent the best effort by management of the Group in translating the Chinese names of the Companies as they do not have any official English names.

(f) Acquisition of Shanxi Huaxing

On December 31, 2017, the Company, Chalco Hong Kong and Baotou Communication Investment held 10%, 40% and 50% of the shares of Shanxi Huaxing, respectively. According to the articles of association of Shanxi Huaxing, the Group can exercise joint control over Shanxi Huaxing and therefore, which was accounted for as a joint venture accordingly.

In December 2018, the Company entered into an equity transfer agreement with Baotou Communication Investment. According to the agreement, the Company acquired 50% of Shanxi Huaxing's equity with a consideration at RMB2,665 million in cash. Upon completion of the transaction, the Group held a total of 100% of Shanxi Huaxing's shares. The directors of the Company considered that the Company obtains control over Shanxi Huaxing and has consolidated Shanxi Huaxing's financial position and performance into the Group's consolidated financial statements since the acquisition date of December 6, 2018.

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39 BUSINESS COMBINATION (CONTINUED)

(f) Acquisition of Shanxi Huaxing (Continued)

The fair value of identifiable assets and liabilities of Shanxi Huaxing at the acquisition date are as follows:

	December 6, 2018
	Fair value
Assets	
Property, plant and equipment	7,327,807
Intangible assets	728,067
Land use right	348,901
Deferred tax assets	8,094
Other non-current assets	60,336
Other current assets	102,396
Inventories	865,418
Trade and notes receivables	44,706
Restricted cash	203,350
Cash and cash equivalents	81,344
Liabilities	
Deferred tax liabilities	(722,349)
Interest-bearing loans and borrowings	(1,743,036)
Other non-current liabilities	(239,998)
Contract liabilities	(617,827)
Other payables and accrued expenses	(686,024)
Trade and notes payables	(1,594,724)
Net assets	4,166,461
Non-controlling interests	—
Share of net assets acquired	4,166,461
Goodwill	1,163,949
Satisfied by:	
Cash	2,665,205
Fair value of previously held equity interest	2,665,205
	<u>5,330,410</u>

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39 BUSINESS COMBINATION (CONTINUED)

(f) Acquisition of Shanxi Huaxing (Continued)

Details of the 50% equity interest held by the Group before the acquisition of Shanxi Huaxing and the profit from the investment are as follows:

	<u>December 6, 2018</u>
Initial investment cost	2,351,479
Share of loss accumulated under the equity method	(77,309)
Share of changes in reserves under the equity method	11,166
Cash dividends declared	(236,556)
Book value of the investment in 50% equity of Shanxi Huaxing on the acquisition date	2,048,780
Fair value of the investment in 50% equity of Shanxi Huaxing on the acquisition date <i>(Note)</i>	2,665,205
Gain on previously held equity interest remeasured at acquisition-date fair value	<u>616,425</u>

Note: The fair value was determined by the valuation report issued by an independent qualified valuer.

An analysis of the cash flows in respect of the acquisition of Shanxi Huaxing is as follows:

	<u>RMB'000</u>
Cash consideration	(2,665,205)
Cash and bank balances acquired	81,344
Net inflow of cash and cash equivalents included in cash flows from investing activities	<u>(2,583,861)</u>

The operating results and cash flows of Shanxi Huaxing since the acquisition date to December 31, 2018 are as follows:

	<u>RMB'000</u>
Revenue	415,509
Profit for the period	110,917
Net cash flows	<u>(434)</u>

* The English names represent the best effort by management of the Group in translating the Chinese names of the Companies as they do not have any official English names.

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

39 BUSINESS COMBINATION UNDER COMMON CONTROL

(g) Acquisition of Shandong Aluminum Carbon Plant

On August 31, 2018, Chalco Shandong, a subsidiary of the Company, entered into an asset transfer agreement with Shandong Aluminum Plant, pursuant to which, Chalco Shandong acquired Shandong Aluminum Carbon Plant from Shandong Aluminum at a total consideration of RMB146 million. The consideration was determined based on the appraisal report issued by an independent qualified valuer. Chalco Shandong has paid all consideration as of December 31, 2018. In the opinion of the directors of the Company, Shandong Aluminum Carbon Plant constitutes a business. Before and after the acquisition, Chalco Shandong and Shandong Aluminum were controlled by Chinalco, and the control was not temporary. As such, the acquisition is considered to be a business combination under common control. The acquisition date was August 31, 2018, which is determined by the date of transfer of the assets.

The carrying amounts of the assets and liabilities of Shandong Aluminum Carbon Plant as of the transaction date and the comparative financial figures were as follows:

	December 31, 2017	August 31, 2018
Assets		
Property, plant and equipment	24,393	23,845
Inventories	51,104	46,150
Other current assets	418	411
Trade and notes receivables	23,052	44,522
Cash and cash equivalents	34,354	—
Liabilities		
Trade and notes payables	(12,235)	(24,011)
Contract liabilities	—	(1,432)
Other payables and accrued expenses	(38,415)	(1,542)
Net assets	82,671	87,943
Difference recognized in equity		58,319
Total purchase consideration		146,262

(h) Acquisition of Pingguo Aluminum Carbon Plant

On August 30, 2018, Guangxi Branch of the Company entered into an asset transfer agreement with Pingguo Aluminum, pursuant to which, Guangxi Branch of the Company acquired Pingguo Aluminum Carbon Plant from Pingguo Aluminum at a total consideration of RMB92 million. The consideration was determined based on the appraisal report issued by an independent qualified valuer. Guangxi Branch of the Company has paid all consideration as of December 31, 2018. In the opinion of the directors of the Company, the Pingguo Aluminum Carbon Plant constitutes a business. Before and after the acquisition, Guangxi Branch and Pingguo Aluminum were controlled by Chinalco, and the control was not temporary. As such, the acquisition is considered to be a business combination under common control. The acquisition date was August 30, 2018, which is determined by the date of transfer of the assets.

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

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(Amounts expressed in thousands of RMB unless otherwise stated)

39 BUSINESS COMBINATION UNDER COMMON CONTROL

(h) Acquisition of Pingguo Aluminum Carbon Plant (Continued)

The carrying amounts of the assets and liabilities of Pingguo Aluminum Carbon Plant as of the transaction date and the comparative financial figures were as follows:

	December 31, 2017	August 30, 2018
Assets		
Property, plant and equipment	35,201	127,315
Trade and notes receivables	12,143	—
Inventories	90,581	71,264
Liabilities		
Trade and notes payables	(69,521)	(117,749)
Net assets	68,404	80,830
Difference recognized in equity		11,218
Total purchase consideration		<u>92,048</u>

(i) Acquisition of Chibi Great Wall Carbon

On August 30, 2018, Chalco Mining, a subsidiary of the Company, entered into an equity transfer agreement with China Great Wall Aluminum and Henan Great Wall Zhongxin, pursuant to which, Chalco Mining acquired 57.69% and 19.96% equity interest in Red Chibi Great Wall from China Great Wall Aluminum and Henan Great Wall Zhongxin, respectively. The consideration for the acquisition was RMB202 million, which was determined based on the appraisal value of the 77.65% equity interest in Chibi Great Wall Carbon. As of December 31, 2018, Chalco Mining has paid the consideration in receivables amounting to RMB70 million and cash amounting to RMB132 million, respectively. The transaction date was August 30, 2018, which was the date that the Group obtained control of Chibi Great Wall Carbon. Before and after the acquisition, both Chibi Great Wall Carbon and Chalco Mining were controlled by Chinalco, and the control was not temporary. Thus, the acquisition of the 77.65% equity interest in Chibi Great Wall Carbon is considered to be a business combination under common control.

The carrying amounts of the assets and liabilities of Red Cliff Carbon as of the transaction date and the comparative financial figures were as follows:

	December 31, 2017	August 30, 2018
Assets		
Property, plant and equipment	271,604	379,618
Land use rights	26,124	25,731
Deferred tax assets	3,325	3,325
Inventories	59,035	65,440
Other current assets	11,095	18,608
Trade and notes receivables	32,880	53,392
Restricted Cash	15,700	—
Cash and cash equivalents	50,545	16,258
Liabilities		
Interest-bearing loans and borrowings	(228,500)	(233,000)
Contract liabilities	—	(1,816)
Trade and notes payables	(46,702)	(56,970)
Other payables and accrued expenses	(51,595)	(52,114)
Income tax payable	(2,927)	—
Other non-current liabilities	(69,640)	(65,901)

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

39 BUSINESS COMBINATION UNDER COMMON CONTROL

(i) Acquisition of Chibi Great Wall Carbon (Continued)

	December 31, 2017	August 30, 2018
Net assets	70,944	152,571
Non-controlling interests	(15,856)	(34,100)
Difference recognized in equity		83,497
Total purchase consideration		<u>201,968</u>

(j) Acquisition of Longhua Logistics

On August 30, 2018, China Aluminum Logistics Group Corporation Co., Ltd. (“China Aluminum Logistics Group”) (“中鋁物流集團有限公司”), a subsidiary of the Company, entered into an equity transfer agreement with Northeast Light Alloy Co., Ltd., pursuant to which, Chalco Aluminum Logistics acquired a 51% equity interest in East Light Logistics from Northeast Light Alloy Co., Ltd. The consideration for the acquisition was RMB3 million, which was determined based on the appraisal value of the 51% equity interest in East Light Logistics and China Aluminum Logistics Group has paid all consideration as of December 31, 2018. The transaction date was August 30, 2018, which was the date that the Group obtained control of East Light Logistics. Before and after the acquisition, both East Light Logistics and China Aluminum Logistics Group were controlled by Chinalco, and the control was not temporary. As such, the acquisition of the 51% equity interest in East Light Logistics is considered to be a business combination under common control.

The carrying amount of the assets and liabilities of East Light Logistics as of the transaction date and the comparative financial figures were as follows:

	December 31, 2017	September 17, 2018
Assets		
Property, plant and equipment	2,901	3,839
Inventories	127	2,207
Other current assets	200	608
Trade and notes receivables	6,704	6,828
Cash and cash equivalents	281	403
Liabilities		
Trade and notes payables	(2,062)	(4,647)
Contract liabilities	—	(1,504)
Income tax payable	(130)	—
Other payables and accrued expenses	(1,323)	(2,065)
Net assets	6,698	5,669
Non-controlling interests	(3,281)	(2,778)
Net assets acquired		2,891
Difference recognized in equity		413
Total purchase consideration		<u>3,304</u>

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ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

40 DISPOSAL OF SUBSIDIARIES

(a) Disposal of 75% equity of Shandong Shanlv Electronic Ltd.

In July 2020, the Group entered into a Capital Contribution Agreement with a third part on disposal of 75% equity interest of Shandong Shanlv Electronic Ltd.. A gain of RMB10.72 million from partial disposal of the subsidiary was recognized this year.

(b) Disposal of 100% equity of China Aluminum Nanhai Alloy

In January 2019, the Company entered into a Capital Contribution Agreement with Chinalco and its subsidiary Chinalco Innovative, pursuant to which the Company shall make a capital contribution to Chinalco Innovative in form of its 100% equity interests in China Aluminum Nanhai Alloy Co., Ltd. (“China Aluminum Nanhai Alloy”). After the transaction, the Company holds 19.4852% in Chinalco Innovative. As of the date of deemed disposal, the Company re-measured the equity of China Aluminum Nanhai Alloy to a fair value of RMB350 million and recognized the fair value gain of RMB258 million accordingly.

(c) Disposal of 40% equity interest of Inner Mongolia Fengrong and disposal of 60% equity interest of Ningxia Fenghao

On February 20, 2019, Chalco Energy Co., Ltd., a wholly-owned subsidiary of the Company, entered into equity transfer agreements with Chinalco Environment Protection Co., Ltd. on the partial disposal of 40% equity interests in Inner Mongolia Fengrong Co., Ltd. and 60% equity interests in Ningxia Fenghao Co., Ltd., respectively. A gain of RMB3,014 thousands from partial disposal of the two subsidiaries was recorded by the Group in the current period.

(d) Deregistration of Shanghai Kailin

Chalco Trade, a subsidiary of the Company, held 100% equity interest of Shanghai Chalco Kailin Aluminum Co., Ltd. * (上海中鋁凱林鋁業有限公司) (“Shanghai Kailin”). In July 2019, Shanghai Kailin was deregistered, from which the Company recorded a gain of RMB160 thousands.

(e) Disposal of Ruzhou Jinhua

Zhongzhou Aluminum, a subsidiary of the Company, held a 51% equity interest in Ruzhou Chinalco Jinhua Mining Co., Ltd. * (汝州中鋁金華礦業有限公司) (“Ruzhou Jinhua”). In July 2019, Zhongzhou Aluminum disposed all of its equity interests of Ruzhou Jinhua, and a gain of RMB113 thousands from the disposal was included in other gains during the year ended December 31, 2019.

(f) Disposal of Zhengzhou Chalco Longyu Mining Co., Ltd.

In August 2018, Chalco Trading, a subsidiary of the Company, agreed to transfer a 51% equity interest in Zhengzhou Chalco Longyu Mining Co., Ltd.* (“Longyu Mining”) (“鄭州中鋁龍宇礦業有限公司”) to a third party. As of the date of disposal, the Group recognized a gain of disposal of subsidiary of RMB8 million.

(g) Bankruptcy liquidation of Shanxi Huatai Carbon Co., Ltd.

In March 2018, Shanxi Jiexiu People’s Court accepted the liquidation petition filed by the Group’s subsidiary, Shanxi Huatai Carbon Co., Ltd.* (“山西華泰碳素有限責任公司”). Upon the liquidation, administrators took control over Shanxi Huatai Carbon Co., Ltd., and the directors of the Company considered that the Company lost control over Shanxi Huatai Carbon Co., Ltd. and therefore, ceased to consolidate Shanxi Huatai Carbon Co., Ltd. since then. The Group recognized a loss of RMB2 million for lost control over Shanxi Huatai Carbon Co., Ltd.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

40 DISPOSAL OF A SUBSIDIARY (CONTINUED)

(h) Bankruptcy liquidation of Hedong Carbon Co., Ltd.

In June 2018, Shanxi Hejin People's Court accepted the liquidation petition filed by the Group's subsidiary, Hedong Carbon Co., Ltd.* (“河東碳素”). Upon the liquidation, administrators took control over Hedong Carbon Co., Ltd., and the directors of the Company considered that the Company lost control over Hedong Carbon Co., Ltd. and therefore, ceased to consolidate Hedong Carbon Co., Ltd. since then. The Group recognized a loss of RMB2 million for lost control over Hedong Carbon Co., Ltd.

* The English name represents the best effort made by management of the Group in translating its Chinese name as it does not have any official English names.

41 OTHER EQUITY INSTRUMENTS

On October 27, 2015, the Company issued RMB2,000 million perpetual medium-term notes with an initial distribution rate at 5.50% (the “2015 Perpetual Medium-term Notes”). The proceeds from the issuance of the 2015 Perpetual Medium-term Notes were RMB2,000 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 5.50% per annum on the 2015 Perpetual Medium-term Notes have been made annually in arrears from October 29, 2015 and may be deferred at the discretion of the Company. The 2015 Perpetual Medium-term Notes have no fixed maturity date and the Group repaid the principal amounts together with any accrued, unpaid or deferred coupon distribution payments on October 29, 2020.

On October 31, 2016, Chalco Hong Kong Investment issued USD500 million senior perpetual securities with an initial distribution rate at 4.25% (the “2016 Senior Perpetual Securities”). The proceeds from the issuance of the 2016 Senior Perpetual Securities after the issuance costs were USD498 million (equivalent to RMB3,374 million). The proceeds were lent to the Company and any of its subsidiaries for general corporate use. Coupon payments of 4.25% per annum on the 2016 Senior Perpetual Securities have been made semi-annually on April 29 and October 29 in arrears from November 7, 2016 and may be deferred at the discretion of the Group. The first coupon payment date was April 29, 2017. The 2016 Senior Perpetual Securities have no fixed maturity date and are callable only at the Group's option on or after November 7, 2021 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. After November 7, 2021, the coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 2.931 percent, (b) the U.S. Treasury Rate, and (c) a margin of 5.00 percent per annum. While any coupon distribution payments are unpaid or deferred, the Group, the wholly-owned subsidiaries of Chalco Hong Kong as guarantors, and the Issuer cannot declare or pay dividends or make distributions or similar discretionary payments in respect of, or repurchase, redeem or otherwise acquire any securities of lower or equal rank.

On October 19, 2018, the Company issued RMB2,000 million perpetual medium-term notes with an initial distribution rate at 5.10% (the “2018 Perpetual Medium-term Notes”). The proceeds from the issuance of the 2018 Perpetual Medium-term Notes were RMB2,000 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 5.10% per annum on the 2018 Perpetual Medium-term Notes have been made annually in arrears from October 19, 2018 and may be deferred at the discretion of the Company. The 2018 Perpetual Medium-term Notes have no fixed maturity date and are callable only at the Group's option on October 23, 2021 or any coupon distribution date after October 23, 2021 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 2.61 percent, (b) the China Treasury Rate, and (c) a margin of maximum 500 Bps every five years after October 23, 2021. While any coupon distribution payments are unpaid or deferred, the Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

For the years ended December 31, 2018, 2019 and 2020

(Amounts expressed in thousands of RMB unless otherwise stated)

41 OTHER EQUITY INSTRUMENTS (CONTINUED)

On November 19, 2019, the Company issued RMB1,500 million perpetual medium-term notes with an initial distribution rate at 4.20% (the “2019 Perpetual Medium-term Notes”). The proceeds from the issuance of the 2019 Perpetual Medium-term Notes were RMB1,499 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 4.20% per annum on the 2019 Perpetual Medium-term Notes have been made annually in arrears from November 19, 2019 and may be deferred at the discretion of the Company. The 2019 Perpetual Medium-term Notes have no fixed maturity date and are callable only at the Group’s option on November 20, 2022 or any coupon distribution date after November 20, 2022 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 1.31 percent, (b) the China Treasury Rate, and (c) a margin of maximum 300 Bps every five years after November 20, 2022. While any coupon distribution payments are unpaid or deferred, the Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments.

On December 2, 2020, the Company issued RMB1,000 million perpetual medium-term notes with an initial distribution rate at 4.45% (the “2020 Perpetual Medium-term Notes”). The proceeds from the issuance of the 2020 Perpetual Medium-term Notes were RMB1,000 million. The proceeds were used for the repayment of interest-bearing loans and borrowings. Coupon payments of 4.45% per annum on the 2020 Perpetual Medium-term Notes have been made annually in arrears from December 2, 2020 and may be deferred at the discretion of the Company. The 2020 Perpetual Medium-term Notes have no fixed maturity date and are callable only at the Group’s option on December 3, 2022 or any coupon distribution date after December 3, 2022 at their principal amounts together with any accrued, unpaid or deferred coupon distribution payments. The coupon distribution rate will be reset to a percentage per annum equal to the sum of (a) the initial spread of 1.42 percent, (b) the China Treasury Rate, and (c) a margin of maximum 300 Bps every two years after December 3, 2022. While any coupon distribution payments are unpaid or deferred, the Company cannot declare or pay dividends to shareholders or decrease the share capital, or make material fixed asset investments.

According to the terms and conditions of the 2016 Senior Perpetual Securities, the 2018 Perpetual Medium-term Notes, the 2019 Perpetual Medium-term Notes and the 2020 Perpetual Medium-term Notes, the Group has no contractual obligations to repay their principal or to pay any coupon distributions. Thus in the opinion of the directors of the Company, they do not meet the definition of financial liabilities according to IAS 32 Financial Instruments: Presentation, and are classified as equity and subsequent distributions declared will be treated as distributions to equity owners.

**ALUMINUM CORPORATION OF CHINA LIMITED
NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)**

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(Amounts expressed in thousands of RMB unless otherwise stated)

42 CONTINGENT LIABILITIES

The Group is a defendant in a number of lawsuits arising in the ordinary course of business. While the outcomes of such lawsuits cannot be determined at present, management believes that any resulting liabilities will not have a material adverse effect on the financial position or operating results the Group.

43 COMMITMENTS

(a) Capital commitments

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Property, plant and equipment	4,041,857	1,437,354

(b) Other capital commitments

As of December 31, 2020, the commitments to make capital contributions to the Group's joint ventures and associates were as follows:

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Associates	33,800	351,800
Joint ventures	410,000	410,000
	<u>443,800</u>	<u>761,800</u>

44 EVENTS AFTER THE REPORTING PERIOD

- (a) On January 22, 2021, the Group completed an issuance of short-term bonds with a total face value of RMB2 billion at par value of RMB100.00 per unit which will mature in July 2021 for working capital needs and repayment of bank borrowings. The fixed annual coupon interest rate of these bonds is 2.75%.
- (b) On March 9, 2021, the Group completed an issuance of short-term bonds with a total face value of RMB2 billion at par value of RMB100.00 per unit which will mature in March 2021 for working capital needs and repayment of bank borrowings. The fixed annual coupon interest rate of these bonds is 2.45%.
- (c) On March 11, 2021, the Group completed an issuance of short-term bonds with a total face value of RMB2 billion at par value of RMB100.00 per unit which will mature in June 2021 for working capital needs and repayment of bank borrowings. The fixed annual coupon interest rate of these bonds is 2.65%.
- (d) On March 15, 2021, the Group completed an issuance of short-term bonds with a total face value of RMB2 billion at par value of RMB100.00 per unit which will mature in June 2021 for working capital needs and repayment of bank borrowings. The fixed annual coupon interest rate of these bonds is 2.75%.
- (e) On March 23, 2021, the Board of Directors of the Company approved a proposal to make up the accumulated loss of the Company with appropriation of statutory surplus reserve amounting to RMB 4.23 billion. This proposal is subject to further approval in the 2020 annual general meeting of the Company.

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**ALUMINUM CORPORATION OF CHINA LIMITED
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45 COMPARATIVE AMOUNT

Certain comparative amounts have been restated as a result of the business combinations under common control as disclosed in Note 39.

46 APPROVAL OF THE FINANCIAL STATEMENT

The financial statements were approved and authorised for issue by the Board of Directors on April 22, 2021.

List of Subsidiaries of Aluminum Corporation of China Limited as of December 31, 2020

A list of Aluminum Corporation of China Limited's principal subsidiaries is provided in Note 1 to consolidated financial statements included in this annual report following Item 19.

CERTIFICATION

I, ZHU Runzhou, certify that:

1. I have reviewed this annual report on Form 20-F of Aluminum Corporation of China Limited (the “Company”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the Company’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Company’s internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting; and
5. The Company’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company’s auditors and the audit committee of the Company’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Company’s internal control over financial reporting.

Date: April 22, 2021

By: /s/Zhu Runzhou

Name: Zhu Runzhou

Title: Executive Director and President

CERTIFICATION

I, WANG Jun, certify that:

1. I have reviewed this annual report on Form 20-F of Aluminum Corporation of China Limited (the “Company”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the Company’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Company’s internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting; and
5. The Company’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company’s auditors and the audit committee of the Company’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Company’s internal control over financial reporting.

Date: April 22, 2021

By: /s/Wang Jun

Name: Wang Jun

Title: Chief Financial Officer and Secretary to the Board

CERTIFICATION

In connection with the annual report on Form 20-F of Aluminum Corporation of China Limited (the “Company”) for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof, I, ZHU Runzhou, Executive Director and President of the Company, certify, pursuant to Rule 13a-14(b) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

- (1) The annual report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the annual report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: April 22, 2021
By: /s/Zhu Runzhou
Name: Zhu Runzhou
Title: Executive Director and President

The foregoing certification is being furnished solely pursuant to Rule 13a-14(b) under the Exchange Act and 18 U.S.C. Section 1350 and will not be deemed “filed” for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section.

CERTIFICATION

In connection with the annual report on Form 20-F of Aluminum Corporation of China Limited (the “Company”) for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof, I, WANG Jun, Chief Financial Officer and Secretary to the Board of the Company, certify, pursuant to Rule 13a-14(b) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

- (1) The annual report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the annual report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: April 22, 2021
By: /s/Wang Jun
Name: Wang Jun
Title: Chief Financial Officer and Secretary to the Board

The foregoing certification is being furnished solely pursuant to Rule 13a-14(b) under the Exchange Act and 18 U.S.C. Section 1350 and will not be deemed “filed” for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section.

April 22, 2021

Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Ladies and Gentlemen:

We have read Item 16F of the Annual Report on Form 20-F for the year ended December 31, 2020 of Aluminum Corporation of China Limited and are in agreement with the statements contained in the first, second, third and fourth paragraphs included on page 136. We have no basis to agree or disagree with other statements of the registrant contained therein.

/s/ Ernst & Young Hua Ming LLP

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ach-20201231_lab.xml

ach-20201231_pre.xml

ach-20201231_def.xml