

(Stock Code: 930)

# Extract of Certain Corporate and Financial Information regarding the Group

An investment in our securities is subject to the following risks that you should consider carefully, together with the other information contained herein, prior to investing in our securities.

# **RISKS RELATING TO US**

## We may be unable to complete our expansion program on schedule or at all

In October 2003, we commenced a major expansion program to develop a largescale aluminum rolled products and extrusion manufacturing facility in Zhaoqing, Guangdong Province. Our expansion program involves various risks, including engineering, construction, financing, regulatory and operational risks that may delay or prevent the successful completion or operation of the facilities or significantly increase our costs.

We may be adversely affected because:

- we may not be able to complete our expansion program on time or within budget;
- delays in completion and commercial operation could increase the financing costs associated with the expansion program and could cause our forecasted project budget to be exceeded;
- our new aluminum rolled products manufacturing facility and expanded aluminum extrusion facilities may not operate at designed capacity or may cost more to operate than we expect;
- we may not be able to obtain adequate working capital or other financing to complete construction of and to commence commercial operations of our new facilities; or
- we may have disputes with our cooperative partner, the Management Commission at Zhaoqing High Technology Industry Development Zone.

Any one or more of the above factors could adversely affect our business, financial condition, results of operations or liquidity position.

### We have no prior experience constructing or managing such facilities

We have no prior experience constructing or managing facilities of the size contemplated by our expansion program, and are undertaking the general contracting of the construction using various consultants and PRC contractors. Further, although a substantial portion of the equipment we are acquiring is covered by limited performance guarantees, generally there are no overall project completion guarantees. No outside party has guaranteed the performance, including the projected manufacturing capacity, of the expansion project as would be the case in a "turn-key" project. We cannot assure you that we will be able to successfully complete construction of the facilities, installation of the equipment and commencement of commercial operations according to our schedule, or at all.

### We have no experience with aluminum rolled products

We have no prior experience constructing, operating, maintaining or repairing an aluminum rolled products manufacturing facility. The manufacturing processes and machinery required to make high-quality aluminum rolled products are complex and require a high degree of expertise. We may be unable to operate the machinery used to manufacture aluminum rolled products in the manner necessary to produce high-quality finished products, or at all.

# **RISK FACTORS**

#### We have purchased a significant amount of used mill equipment

We have purchased a used hot finishing mill and 5-stand cold mill to lower the costs associated with our aluminum rolled products manufacturing facility. Although we have conducted due diligence with third parties prior to purchasing this mill equipment, it was sold on an "as-is, where-is" basis and does not carry warranties against latent defects. In the event that the mill equipment is defective, the cost of repairs and related lack of manufacturing capacity during repair may have an adverse impact on our financial condition and results of operations. No assurances can be given that such used mill equipment does not contain defects or that we would be able to repair such mill equipment at a reasonable cost or at all in the event that it does contain latent defects.

### The mill equipment may not arrive on schedule or at all

We have purchased the various parts of the mill equipment from different physical locations overseas and such equipment is scheduled to be delivered to the PRC in multiple shipments. No assurances can be given that the mill equipment will arrive on schedule or at all. In the event that the mill equipment does not arrive as scheduled, our installation schedule may be adversely impacted, thereby extending our timetable for the commencement of initial operations and adversely impacting our financial condition and results of operations. In the event that any mill equipment fails to arrive or is lost or damaged during shipment, we may be unable to complete the expansion project on schedule, or at all.

#### The infrastructure is new and has not been used for manufacturing purposes

In connection with our expansion program, we have entered into contracts with PRC civil engineering companies to construct the necessary utilities and infrastructure to deliver water and electricity to the site. The local government has also agreed to supply electricity at certain rates and in specified quantities. Although a portion of this infrastructure has been built and government assurances have been received, we may not be able to complete the remainder of the necessary infrastructure and the government may be unable to supply us with a stable source of electrical power.

# Domestic and overseas demand for aluminum rolled products may be lower than we anticipate and capacity in the PRC is likely to increase

We expect that our expansion project will provide us with approximately 400,000 metric tons of annual aluminum rolled products manufacturing capacity. Domestic or overseas demand for aluminum rolled products may be lower than we currently anticipate as a result of many factors, such as changes in consumer preferences and the availability of other materials or higher aluminum prices. Lower than expected end-user demand, or the lack of an expanding domestic market for aluminum rolled products, could have an adverse impact on our financial condition and results of operations. A number of PRC-based companies have announced plans to add rolled products capacity which will increase competition and supply.

#### Regulatory Approvals

We will be required to obtain various approvals from governmental regulatory authorities in the PRC in connection with our expansion program. No assurance can be given that we will be able to obtain the necessary approvals. Failure to receive or delays in receiving the required regulatory approvals could delay or prevent the completion of, or increase the cost of, our expansion program.

Failure to complete and operate our expansion program or other future expansion programs at the expected costs within the periods expected by us could have a material adverse effect on our business, financial condition and results of operations.

# Our interests may conflict with those of our joint venture partners and the minority shareholders of AAG

#### Nanhua and Hongjia

We cooperate with our two PRC joint venture partners in connection with the operation of our Nanhua and Hongjia factories. Such factories represent a substantial portion of our aluminum extrusion business. Our aluminum rolled products manufacturing business will be conducted through a WFOE, which is wholly-owned by a joint venture incorporated in Samoa and in which we have a 60.0% equity interest. Our joint ventures have relied on financial support from us, and we expect they will continue to place reliance on us in the future.

### Indalex

Our strategic partner, Indalex, a leading North American aluminum extruder, has a 25% ownership stake in Asia Aluminum Group Limited, AAG, our subsidiary that owns our operating subsidiaries engaged in the aluminum extrusion business. Under the terms of the AAG shareholders' agreement with Indalex, Indalex has the right to participate in the management of AAG through the creation of a joint working party and AAG cannot, without the prior approval of Indalex, make any decisions over certain important corporate matters concerning AAG and its subsidiaries, including, among other things, changing the nature or scope of AAG's business, incurring borrowings in excess of an aggregate of HK\$10 million, allowing AAG or its subsidiaries to guarantee the obligations of an entity that is not a subsidiary of AAG, allowing AAG or its subsidiaries to pledge all or any material part of their respective assets, and incurring capital expenditures in excess of HK\$15 million. To the extent that there are any conflicts of interest between Indalex and us, we cannot assure you that we will be able to resolve them in a manner that will be in our best interests or the best interests of our creditors. If we and Indalex are unable to agree on these corporate matters, this results in a "deadlock" situation under the AAG shareholders' agreement which triggers the ability of Indalex to exercise a "put" option to sell its 25% stake in AAG back to us. Indalex has a "put" option to sell its 25% stake in AAG back to us if either our Chairman, Mr. Kwong Wui Chun, no longer holds at least 35% of our outstanding equity, we cease to own at least 60% of AAG or we materially breach the terms of the AAG shareholders' agreement. The "put" option price would be determined with reference to the open market value of the AAG shares as agreed to by the parties or, if we fail to agree, as determined by an international firm of accountants. See "Business – Strategic Alliance with Indalex." Exercise of the "put" option by Indalex would require a substantial cash outlay by us.

Under the terms of the AAG shareholders' agreement with Indalex, Indalex currently has a "call" option to acquire our entire interest in AAG in the event that we materially breach the terms of the AAG shareholders' agreement. Under the "call" option, the price to be paid by Indalex for the AAG shares would be their open market value as agreed by the parties or, if they fail to agree, as determined by an international firm of accountants. If the "call" option were triggered by a material breach of the shareholders' agreement, then the price would be equal to 95% of the open market value of the AAG shares.

If Indalex exercises the "call" option, we might be unable to remain in the aluminum extrusion business. Given that shares of AAG are not publicly traded, there can be no assurance that the open market value of the AAG shares could be determined or that the price paid by Indalex would adequately compensate us for the loss of our stake in AAG.

There can be no assurance that any of the events that would trigger Indalex's call or put options will not occur. If Indalex exercises its "put" option or we make a Voluntary Purchase of AAG Shares, we will be required to make a substantial cash outlay. Our inability to secure additional financing on terms acceptable to us, or at all, to pay for additional costs from the exercise of Indalex's "put" option could have a material adverse effect on our financial condition, results of operations and liquidity position. For a description of the AAG shareholders' agreement and our strategic alliance with Indalex, see "Business – Strategic Alliance with Indalex."

On November 11, 2004, Melrose Plc, a company listed on the Alternative Investment Market of the London Stock Exchange, launched a hostile takeover bid for Novar Plc ("Novar"), the London Stock Exchange listed parent company of Indalex. Subsequent to this hostile takeover bid, Novar's board of directors approved an acquisition offer from Honeywell International Inc. ("Honeywell"), a company listed on the New York Stock Exchange. If this acquisition is successful and there is a change of control at Indalex, we cannot assure you that the new management would continue Indalex's current relationship with us or have similar interests to ours regarding the operations of AAG and its subsidiaries. Any new management at Indalex could result in disputes with us regarding important corporate matters concerning AAG and its operating subsidiaries. If this occurred, we would be unable to make timely decisions regarding certain matters concerning our aluminum extrusion business which could have a material adverse effect on our business, financial condition and results of operations. Furthermore, if we were unable to agree with Indalex on certain matters, Indalex could exercise a "put" option under the AAG shareholders' agreement. Exercise of the "put" option would require a substantial cash outlay by us which could have a material adverse effect on our financial condition, results of operations and liquidity position.

The acquisition for Novar may disrupt our business in a number of ways. For example, the attention and results of Indalex's management may be diverted from its business operations, it may be difficult for AAG to obtain Indalex's approval to take decisions regarding important corporate matters and/or Honeywell may contest or oppose decisions taken by Indalex relating to our business. As a result, we may be unable to make timely decisions regarding our business, or implement decisions once made. Any of these factors could have a material adverse effect on our business, financial condition and results of operations.

Our joint venture partners and the minority shareholders of AAG may:

- have economic or business interests or goals that are inconsistent with ours;
- take actions contrary to our instructions or requests or contrary to our policies and objectives;
- be unable or unwilling to fulfill their obligations under the relevant joint venture agreements;
- have financial difficulties; or
- have disputes with us.

A serious dispute with our joint venture partners or the minority shareholders of AAG or the early termination of our cooperation arrangements or agreements with them could adversely affect our business, financial condition, results of operations and liquidity position.

### We may not effectively manage our exposure to aluminum price volatility

The principal raw material for our aluminum extrusion products is aluminum ingots. Like the prices of other commodities, aluminum ingot prices are subject to volatility based on international supply and demand. Since July 1,1999, the London Metal Exchange, or LME, spot price for aluminum has reached a high of US\$1,880 per metric ton and a low of US\$1,150 per metric ton.

We generally charge our customers on a "cost-plus" basis, under which the selling price for our aluminum products is based on a processing fee plus the LME spot price for aluminum ingots prevailing on either the order date or the date of delivery to the customer (which typically is the invoice date). For larger contracts that may involve several orders over a period of 12 months or more, our customers may elect the spot price of aluminum ingots based on the order dates over that period or the invoice dates. To mitigate the effect of price fluctuations between the date on which the raw materials for an order are purchased and the invoice date, we will generally either ensure that we have sufficient aluminum stock on the order date (in inventory or through additional purchases) or enter into aluminum forward or future contracts on the LME. We attempt to hedge substantially all of our commodity price risk in this way, but do not seek trading gains by taking speculative positions.

Hedging requires expertise and entails risks, including risks of counterparty default and litigation. In the future, there can be no assurance that we will successfully manage our commodity price risk, that suitable hedging contracts on commercially acceptable terms will continue to be available to us or that we will not maintain larger unhedged positions. Moreover, we are not hedged against sustained aluminum price increases, which may reduce overall demand for our products. To the extent that we are unable to hedge our exposure to fluctuations in the price of aluminum ingots, our operating expenses may increase, thereby adversely impacting our financial condition, results of operations and liquidity position. For a more detailed discussion of the impact of aluminum prices and our pricing and hedging policies, see "Management's Discussion and Analysis of Financial Condition and Results of Operations – Market Risk – Aluminum Price Risk."

Under our hedging strategy, if our customers refuse to pay for the raw materials at the price set forth in their contracts, default on payment or negotiate billing concessions from us, we will be forced to absorb part or all of the increased costs in aluminum which could adversely affect our financial results. For example, in the first half of the fiscal year ended June 30, 2004, the sudden increase in aluminum ingot prices caused some of our customers who had elected to pay based on the price for aluminum prevailing on the invoice date, to be unwilling or unable to pay for the raw materials based on this price. In certain situations, we offered billing concessions to these customers resulting in an adverse effect on our margins in the first half of the fiscal year ended June 30, 2004. After January 2004, we began to encourage our customers to elect to pay the spot price for aluminum ingots prevailing on the order date to reduce the risk that the customer would be unwilling or unable to pay if aluminum ingot prices increased after placing the order but prior to the invoice date.

# The interests of our major shareholder may not always coincide with those of our shareholders

As our founder, largest shareholder and chairman, Mr. Kwong has significant influence over the outcome of any corporate transaction or other matters submitted to the Board of Directors or the shareholders for approval. Mr. Kwong also has the power to cause a change in our control. The interests of Mr. Kwong may differ from the interests of our other shareholders and creditors. To the extent that there are any conflicts of interest between Mr. Kwong and the other shareholders or creditors, there can be no assurance that Mr. Kwong will exercise his influence over us in a manner that will be in the best interests of our other shareholders or creditors.

Mr. Kwong has committed to invest his personal funds in our new aluminum rolled products manufacturing facility. However, no assurance can be given that he will exercise his influence over the WFOE that controls the aluminum rolled product facility in a manner that will be consistent with our interests.

# We depend upon our key management personnel and our Chairman

Our success and growth depends on our ability to identify, attract, hire, train and retain suitably skilled and qualified employees, including key management personnel with the requisite industry expertise. In particular, we depend on the reputation, industry expertise and contacts of our Chairman, Mr. Kwong. We do not carry key person insurance on any of our management personnel, including Mr. Kwong. The loss of Mr. Kwong or other members of senior management or key employees could have a material adverse effect on our business if we are unable to find suitable replacements in a timely manner. Competition for such personnel is intense, and any failure to recruit and retain the necessary personnel or the loss of a significant number of employees at any time could harm our business and prospects.

#### We may be unable to obtain adequate financing to fund our capital requirements

We expect that over the next several years, a substantial portion of our cash flow will be used to pay principal and interest with respect to our indebtedness and to finance our planned capital expenditures. We may need to incur additional financing in order to fund our capital expenditures program. We cannot assure you that we will be successful in obtaining such financings at a reasonable cost or at all. If we are unable to obtain adequate supplier or other third-party financing for planned capital expenditures or otherwise source such additional financing through other arrangements, we may have to abandon, delay or postpone certain of our planned capital expenditures. Our inability to finance our planned capital expenditures could adversely affect our existing business and results of operations.

We plan to spend approximately US\$317.9 million in fiscal year 2005 and US\$140.9 million in fiscal year 2006 in capital expenditures. See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Capital Expenditure." We may need to increase our capital expenditures to fund increased project costs associated with our Zhaoqing facility, to pursue other business opportunities or to respond to competitive pressures or the need to invest in new technology. Consequently, we may need to arrange additional financing beyond that required by our current capital expenditure forecasts. We cannot assure you that such additional financing will be available to us on reasonable terms or at all. In addition, we may not be permitted under certain of our other financing arrangements to incur such additional indebtedness.

### We are dependent on our aluminum ingot suppliers

Aluminum ingots are the principal raw materials we use. We currently purchase aluminum ingots from domestic and international aluminum companies and traders, including the Aluminum Corporation of China Limited, or Chalco, Qingtongxia Aluminum Company, Gerald Metals, Inc. and Glencore International AG. If the required aluminum ingots cannot be purchased or otherwise obtained as scheduled or on terms acceptable to us, our business operations may be materially and adversely affected.

# Our operations are energy-intensive and our results of operations may be materially adversely affected if energy costs were to rise, or if our energy supplies were interrupted

We consume substantial amounts of energy in cast house and smelting operations and we will consume significantly more energy for our new aluminum rolling operations in Zhaoqing. We currently obtain all of our electricity from the public electricity network in Nanhai. This public network has experienced short and infrequent periods of blackout or brownout that disrupted the supply of electricity to our factories. The factors that affect our energy costs and supply reliability tend to be specific to each of our facilities. A number of factors could materially adversely affect our results of operations including:

- significant increases in costs of supplied electricity or fuel oil related to transportation;
- interruptions in energy supply due to equipment failure or other causes; and
- the inability to negotiate economical terms for electricity supply with the local PRC government authorities.

If energy costs were to rise, or if energy supplies or the local government's ability to supply and deliver electricity to our sites were disrupted, our financial condition and results of operations could be adversely affected.

# We do not possess and have not applied for formal land use right certificates in respect of our land and facilities located in Nanhai, Guangdong Province of the PRC

We lease the collectively-owned land located in Nanhai, Guangdong Province in the PRC, which has not been duly registered in accordance with the new local regulation

concerning the lease of such land. All of our aluminum extrustion manufacturing facilities, administrative offices and staff headquarters are located on collectively-owned land in Nanhai. From June 24, 2003, a new local regulation issued by Guangdong Provincial Government concerning the right to lease and use collectively-owned land states that before collectively-owned land is leased, it must be registered in accordance with the relevant regulations pertaining to the administration of state land and resources. According to the opinions of our PRC legal counsel, there is no legal obstacle for the lessors to complete the registration of the collectively-owned land used by us. Therefore we fully expect that the lessors will fulfill such required registration in accordance with the new local regulation. However, if the lessors fail to fulfill such registration, the validity of the lease contracts between the lessors and us shall be adversely affected.

# The end-use markets for certain of our aluminum extrusion and rolled products are highly competitive and customers are willing to accept substitutes for our products

The end-use markets for certain aluminum extrusion and rolled products are highly competitive. Aluminum competes with other materials, such as steel, plastics and glass, among others, for various applications, including in the beverage/food cans and automotive end-use markets. In the past, customers have demonstrated a willingness to substitute other materials for aluminum. The willingness of customers to accept substitutes for aluminum products could have a material adverse effect on our business, results of operations and prospects. Moreover, the market for aluminum rolled products in the PRC continues to develop. No assurances can be given that consumers will continue to demand such products or that the market will develop in a manner similar to overseas markets.

# The seasonal nature of some of our customers' industries could have a material adverse effect on our results of operations

The construction industry and the consumption of beer and soft drinks are sensitive to climatic conditions. As a result, demand for aluminum rolled products in the construction industry and for can feedstock is seasonal. Our quarterly financial results could fluctuate as a result of climatic changes, and a prolonged series of cold summers in the different areas in which we conduct business could have a material adverse affect on our results of operations.

### The majority of our bank and credit facilities are uncommitted and repayable on demand

As is common in the PRC and Hong Kong, our H.K. dollar and Renminbi bank and credit facilities, including short-term loans and trade financing, are uncommitted and are repayable on demand. As of June 30, 2004, we had aggregate short-term and uncommitted banking and credit facilities of HK\$1,115.4 million and RMB780.8 million of which HK\$417.5 million and RMB506.8 million, respectively, were drawn down. Our creditors may terminate our banking and credit facilities or require repayment from us at any time. We cannot assure you that we will be able to arrange additional financing on terms acceptable to us or that additional financing will be available to us. An inability to secure additional financing or the repayment of our banking and credit facilities would require a substantial cash outlay by us and could have a material adverse effect on our financial condition, results of operations and liquidity position.

# RISKS RELATING TO THE ALUMINUM INDUSTRY IN THE PRC

# We operate in a highly-competitive industry

The aluminum extrusion industry in the PRC is highly competitive. We compete with approximately 600 PRC aluminum extruders, primarily small-and medium-sized private and state-owned companies. The PRC aluminum extrusion industry as a whole faces over-capacity, with total annual production capacity in China of approximately 2.4 million metric tons and total annual demand of approximately 2.3 million metric tons for 2004. As a result, the industry is undergoing consolidation. While our strategy focuses on the less competitive precision aluminum extrusion market in China, industry consolidation may lead to the emergence of larger aluminum extruders better equipped to compete with us in the precision market sector. In addition, existing large firms engaged in upstream aluminum production may seek to expand into the downstream sector, and established international aluminum companies may set up joint ventures in China, either with the large upstream PRC companies or with one or more of China's small-or medium-sized aluminum extruders. Both international aluminum companies and the large upstream PRC companies may have certain advantages over us, including greater financial and technical resources, greater economies of scale, broader name recognition and more established relationships in certain markets. Increased competition may force us to lower prices, lead to a drop in orders and ultimately may have a material adverse impact on our business, results of operations and prospects.

From time to time as a result of the timing of intake of large orders and existing available capacity, we have outsourced a small portion of orders to other PRC aluminum extruders. Although we plan to expand our aluminum extrusion capacity as part of our expansion program, if we cannot successfully expand our production capacity and maintain product leadership, we risk losing market share to our competitors.

The PRC's entry into the WTO may result in increased foreign competition in the PRC, including an increased number of alliances between foreign companies and domestic competitors, and revisions to regulations designed to protect domestic enterprises. Such increased foreign competition could adversely impact our financial condition and results of operations.

### Our operations are subject to seasonal variations

The aluminum extrusion industry in China is subject to seasonal variations in activity. Activity levels tend to decline in the winter months, partly because of the Chinese New Year holidays. Furthermore, many of our customers operate in cyclical industries, such as construction. Cold weather tends to slow construction activity, and many construction sites in northern China shut down completely in freezing temperatures. Many PRC aluminum extruders shut down operations for several weeks during winter. As a result of such factors, period to period comparisons may not be meaningful.

## The heavy equipment we operate is subject to operational hazards

The aluminum extrusion presses, aluminum rolled products machinery and handling equipment constitute heavy and potentially dangerous equipment. Ancillary equipment used to produce aluminum extrusion and rolled products includes furnaces, large presses, pressure molds, furnaces and forklifts. Any significant accident caused by such equipment could interrupt our operations and result in legal and regulatory liabilities. Insurance coverage related to accidents resulting from the proper or improper use of such equipment may be inadequate to offset losses arising from claims related to such accidents. Moreover, any equipment involved in an accident or malfunction may be damaged or destroyed thereby adversely impacting our financial condition or results of operations.

### Present or future environmental laws in the PRC may adversely affect our business

Our business is subject to certain PRC laws and regulations relating to environmental and safety matters. The discharge of waste and pollutants into the environment may give rise to liabilities that may require us to incur costs to remedy such discharge. In addition, while we believe we are currently in compliance with all material applicable environmental laws, we cannot assure you that any environmental laws adopted in the future will not materially increase our operating and other expenses.

### **RISKS RELATING TO THE PRC**

### The political and economic situation in the PRC may affect our business

For the fiscal year ended June 30, 2004, approximately 80% of our turnover was derived from the PRC and a majority of our products sold in the PRC were used in

construction projects, primarily large infrastructure projects commissioned by provincial governments and landmark property developments. The demand for aluminum products in the PRC is closely linked with the living standard and economic growth of the PRC.

Between 1978 and 2003, China's GDP increased from approximately RMB362 billion to approximately RMB11,669 billion. We cannot assure you, however, that such growth will be sustained in the future. The PRC economy differs from the economies of most developed countries in many respects, including structure, government involvement, level of development, economic growth rate, control of foreign exchange, allocation of resources and balance of payment position. For the past two decades, the PRC government has implemented economic reform measures emphasizing utilization of market forces in the development of the PRC economy. However, since early 2004, the PRC government has implemented certain measures in order to prevent the PRC economy from overheating. These measures may cause a decrease in the level of economic activity, including demand for aluminum products and may have an adverse impact on economic growth in the PRC. If China's economic growth slows down or if the Chinese economy experiences a recession, the growth or demand for aluminum products, especially higher margin products such as multi-coated paint products, may also slow down or stop and our business, financial condition and results of operations will be adversely affected.

Demand for our products and our business, financial condition and results of operations may be adversely affected by:

- political instability or changes in social conditions in the PRC;
- changes in laws and regulations or the interpretation of laws and regulations;
- measures which may be introduced to control inflation or deflation;
- changes in the rate or method of taxation;
- imposition of additional restrictions on currency conversion and remittances abroad; and
- reduction in tariff protection and other import restrictions.

In addition, while we expect that major events, such as the 2008 Olympic Games in Beijing and the 2010 World Exposition in Shanghai, will spur demand for constructionrelated aluminum products, we cannot assure you that we will receive orders related to such events or that additional construction-intensive events will be planned in the future.

# Changes in PRC government regulations and policies could adversely affect our business operations

Our operations, like those of other PRC non-ferrous metals companies, are subject to regulation by the PRC government. These controls affect aspects of our operations, such as the pricing of our main products, energy expense, industry-specific taxes and fees, business qualifications, capital investment and environmental and safety standards. As a result, we may face significant constraints on our ability to implement our business strategies, to develop or expand our business operations or to maximize our profitability. Our business may also be adversely affected by future changes in policies of the PRC government applicable to the nonferrous metals industry. The PRC government underwent substantial reforms after the National People's Congress meeting in March 2003. It is not clear how these reforms will affect business conditions in China generally or our business in particular.

# Most of our turnover is denominated in Renminbi, which is not freely convertible for capital account transactions and may be subject to exchange rate volatility

We have substantial requirements for foreign currency, including the purchase of imported equipment and materials and the payment of dividends and indebtedness. We

receive most of our turnover in Renminbi. Under the PRC's foreign exchange regulations, payments of current account items, including profit distributions, interest payments and expenditures from trade, may be made in foreign currencies without prior approval subject to procedural requirements. Strict foreign exchange controls continue for capital account transactions, however, which require registration with the State Administration for Foreign Exchange and restrict the repayment of loan principal, the return of direct capital investment and investments in negotiable securities. We cannot assure you that sufficient amounts of foreign currency will be available to enable us to meet our foreign currency obligations, whether to service or repay indebtedness not denominated in Renminbi or to remit profits out of the PRC. In addition, our subsidiaries incorporated in the PRC may not be able to obtain sufficient foreign currency to pay dividends to us, repay intercompany loans or to satisfy their other foreign currency requirements. Since foreign exchange transactions under the capital account are still subject to limitations and require approval from the State Administration for Foreign Exchange, this could affect our subsidiaries' ability to obtain foreign exchange through debt or equity financing, including by means of loans or capital contributions from us. We also cannot provide assurance that the PRC government will not impose further restrictions on the convertibility of the Renminbi.

Prior to 1994, Renminbi experienced a significant net devaluation against most major currencies, and, during certain periods, significant volatility in the market-based exchange rate. Since 1994, the Renminbi to U.S. dollar exchange rate has largely stabilized. However, there can be no assurance that the value of the Renminbi will remain stable. Any fluctuation in the value of the Renminbi against the U.S. dollar may have a material impact on our results of operations. In particular, any devaluation of the Renminbi may increase the amount of Renminbi we need to service our foreign currency obligations.

# The legal system in the PRC is less developed than in certain other countries and laws may not be interpreted and enforced in a consistent manner

The PRC legal system is based on statutory law. Under this system, prior court decisions may be cited as persuasive authority but do not have binding precedential effect. Since 1979, the PRC government has begun to promulgate a comprehensive system of laws and has introduced many new laws and regulations to provide general guidance on economic and business practices in the PRC and to regulate foreign investment. Progress has been made in the promulgation of laws and regulations dealing with economic matters such as corporate organization and governance, foreign investment, commerce, taxation and trade. The promulgation of new changes to existing laws and the abrogation of local regulations by national laws could have a negative impact on our business and prospects and those of our joint ventures. In addition, as these laws, regulations and legal requirements are relatively recent, their interpretation and enforcement may involve significant uncertainty. The interpretation of PRC laws may be subject to policy changes that reflect domestic political changes. As the PRC legal system develops, the promulgation of new laws, changes to existing laws and the preemption of local regulations by national laws may have a material adverse effect on our prospects, financial condition and results of operations.

# Changes in tax incentives may adversely affect our business and results of operations

New Sino-foreign joint ventures or wholly foreign owned enterprises, WFOEs, are exempt from income tax for the first two years after becoming profitable and are provided with a 50% reduction in the rate of profit tax for the following three years. Two of our PRC-based operating subsidiaries are currently in the tax relief period pursuant to such regulations, and our acquisition and expansion plans assume that any future PRC joint ventures or WFOEs, including the aluminum rolled products manufacturing WFOE, would be eligible for similar tax incentives. There can be no assurance, however, that such tax incentives will be available in the future or that existing tax incentives will not be altered or revoked, which would have a material adverse effect on our prospects, financial condition and results of operations.

# SELECTED CONSOLIDATED FINANCIAL AND OTHER DATA

The following table presents our selected financial and other data. The selected financial data as of and for each of the fiscal years ended June 30, 2000, 2001, 2002, 2003 and 2004 is derived from our consolidated financial statements for those years, which have been audited by Ernst & Young, independent accountants and which have been disclosed. The financial statements have been prepared and presented in accordance with HK GAAP, which differ in certain material respects from U.S. GAAP. For a discussion of these differences, see "Summary of Certain Differences Between HK GAAP and U.S. GAAP." The selected financial data below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements mentioned above and the notes to those statements.

		As of and for the Fiscal Year Ended June 30,					
	2000	2001	2002	2003	2004	2004	
	HK\$	HK\$	HK\$	HK\$	HK\$	US\$	
		(in thousands, except per share data)					
Consolidated Profit and Loss Account Data:							
Turnover Cost of sales and services	1,748,115	2,061,929	1,965,696	2,358,026	2,938,482	376,728	
provided	(1,372,561)	(1,627,837)	(1,515,446)	(1,821,766)	(2,240,164)	(287,200)	
Gross profit Selling distribution and	375,554	434,092	450,250	536,260	698,318	89,528	
administrative costs	(121,542)	(174,598)	(152,185)	(186,179)	(209,476)	(26,856)	
and expenses <sup>(1)</sup>	(9,675)	92,339	(44,629)	96,630	40,035	5,133	
Profit from operating	244 337	351 833	253 436	446 711	528 877	67 805	
activities					520,077		
Net profit attributable to shareholders	162,221	195,450	131,409	240,519	222,523	28,529	
Basic earnings per share	10.01	0.00	<b></b> 0	0.00		1.00	
(cents)	10.21	9.02	5.78	9.83	7.78	1.00	
Diluted earnings per share (cents)	9.99	8.41	5.31	9.47	7.52	0.96	
× /							
Consolidated Balance Sheet Data:							
Cash, cash equivalents	410.000	000 010	1 050 505	1 051 004	<b>0 7</b> 00, 400	250.000	
and short-term deposits	419,308	982,919	1,250,535	1,871,024	2,799,488	358,909	
Non-current assets	542,596	603.311	831,207	1.020.872	1,430,306	183,373	
Total assets	1,866,905	2,597,934	3,635,169	4,138,892	5,619,853	720,494	
Current liabilities	(615,798)	(731,799)	(1,030,154)	(1,584,375)	(1,587,232)	(203,491)	
Non-current liabilities Total liabilities and	(12,420)	(386,396)	(362,294)	(375)	(584,351)	(74,917)	
minority interests	(690,891)	(1,388,731)	(1,892,204)	(2,138,735)	(2,790,392)	(357,743)	
Capital and reserves	1,176,014	1,209,203	1,742,965	2,000,157	2,829,461	362,751	
Other Financial Data:							
EBITDA <sup>(2)</sup>	288,563	286,912	372,150	484,503	626,361	80,303	
EBITDA margin	16.5%	13.9%	18.9%	20.5%	21.3%	21.3%	

# SELECTED CONSOLIDATED FINANCIAL AND OTHER DATA

- (1) Other revenue, gains and expenses includes other revenue and gains, gains on disposal of discontinued operations, gain on partial disposal of interests in subsidiaries, expenditure on acquisition of certain business database and provision for bad and doubtful debts.
- EBITDA for any period consists of profit from operating activities before extraordinary gains and (2)expenditures (which includes gains on disposal of discontinued operations, gain on partial disposal of interests in subsidiaries and expenditure on the acquisition of a certain business database) plus depreciation expenses. EBITDA is not a standard measure under HK GAAP. EBITDA is a widely used financial indicator of a company's ability to service and incur debt. EBITDA should not be considered in isolation or construed as an alternative to cash flows, net income or any other measure of performance or as an indicator of our operating performance, liquidity, profitability or cash flows generated by operating, investing or financing activities. EBITDA does not account for taxes, interest expense or other nonoperating cash expenses. In evaluating EBITDA, we believe that investors should consider, among other things, the components of EBITDA such as turnover and operating expenses and the amount by which EBITDA exceeds capital expenditures and other charges. We have included EBITDA because we believe it is a useful supplement to cash flow data as a measure of our performance and our ability to generate cash flow from operations to cover debt service and taxes. EBITDA presented herein may not be comparable to similarly titled measures presented by other companies. Investors should not compare our EBITDA to EBITDA presented by other companies because not all companies use the same definition. Interest expense includes amounts capitalized.

The following discussion should be read in conjunction with "Selected Consolidated Financial and Other Data" and our consolidated financial statements, including the notes thereto, which have been previously disclosed. Our consolidated financial statements were prepared in accordance with HK GAAP, which differ in certain material respects from U.S. GAAP. See "Summary of Certain Differences Between HK GAAP and U.S. GAAP." References to "2002", "2003" and "2004" refer to our fiscal years ended June 30, 2002, 2003 and 2004, respectively.

# **OVERVIEW**

We are the largest manufacturer of aluminum extrusion products in the PRC and one of the largest aluminum extruders in Asia as measured by capacity, with an annual extrusion capacity of approximately 150,000 metric tons and extrusion output of 123,041 metric tons for 2004. We design, manufacture and sell and distribute customized aluminum extrusion products and process aluminum panels. To complement our principal extrusion business, we also produce a small volume of stainless steel products and provide design and testing services for aluminum products to our customers.

# **Factors Affecting Our Performance**

Over the past three years, our turnover and gross profit have improved, reflecting the expansion of our capacity over the same period and increased regional and global demand for aluminum extrusion products. Our business, financial condition and results of operations are affected by a number of factors, including:

- *China's economic development.* We believe that demand for aluminum products is closely linked to the rising standard of living in China and China's overall continued economic development. Between 1978 and 2003, China's GDP grew at a compound annual growth rate of 9.4%, ranking China as one of the fastest-growing economies in the world. China's GDP totaled RMB11,669 billion (US\$1,409.9 billion) in 2003 and RMB5,877 billion (US\$710.1 billion) for the six months ended June 30, 2004. We believe that the growing number of large-scale construction projects, particularly commercial office and infrastructure projects associated with China's economic development, has led to increased demand for our precision aluminum extrusion products in recent years. To a lesser extent, we have benefited from increased demand for consumer durables, which incorporate aluminum products, as standards of living in the PRC have improved.
- *Product and customer mix.* Our results of operations are affected by the volume and mix of our products, as well as our customer mix and the types of projects utilizing our products. We generate significantly higher processing fees and margins on our products with highly-customized profiles, sophisticated die designs and high-quality surface finishes, due primarily to the additional die fees charged and the increased price per unit charged for complex profiles. High-end aluminum extrusion products are produced to strict tolerances for projects like the Beijing National Grand Theatre and we generally earn higher processing fees and margins for such projects, and for commercial office projects, as these projects usually require high-quality surface coating and, in some cases, complex profiles. While general infrastructure projects and transportation applications generally use lower-margin products relative to commercial office and other high-end applications, we believe these projects tend to be less susceptible to market cyclicality than commercial office projects.
- *Capacity, expansion and new facilities.* Our turnover and gross profit have increased as we have expanded our capacity over the last several years, and we intend to continue to expand our capacity to meet increased demand. We have budgeted US\$458.8 million in the aggregate for 2005 and 2006 to add aluminum extrusion and other capacity, including aluminum rolled products capacity. We expect that our expanded extrusion facilities will commence

commercial operations by the middle of calendar year 2005, our rolled products facilities (including the cold and hot rolling mill facilities) will be completed by the end of calendar year 2006 and that we will begin to ship rolled products during the first half of calendar year 2007. As our expansion plan proceeds, we expect to benefit from our large economies of scale and improved line efficiency.

- *Effect of price volatility of raw materials.* We price our products using a cost-plus pricing policy that is intended to limit the impact of fluctuations in the cost of raw materials. Despite this policy, fluctuations may continue to impact the demand for our products. In some instances, if the cost of raw materials rises significantly, particularly if such increase occurs suddenly, our margins may be adversely affected.
- *Income taxes.* In exchange for establishing operations in the PRC, corporate entities are commonly granted "tax holidays," or a limited period beginning in the first profit-making year, during which the entity is exempt from paying enterprise income taxes in the PRC. Our PRC subsidiaries are, or have been, entitled to PRC enterprise income tax holidays for the two years commencing with their first profit-making year of operation and are entitled to a 50% reduction in income tax for the following three years. During any given fiscal year, certain of our subsidiaries may reach the end of their tax exemption or tax reduction periods, thereby incurring enterprise income tax liabilities in connection with their operations for the first time.

## TURNOVER

Our total turnover increased by 24.6% in 2004 compared to 2003. Turnover represents sales of goods as invoiced to customers, net of returns and discounts. Turnover from sales of goods is usually recognized when products are invoiced at delivery, which may occur in several stages over the course of several months during a large project. Our turnover is derived from sales of aluminum extrusion products, aluminum panels, stainless steel products and providing design and testing services of aluminum products to our customers.

Our turnover is affected by several interrelated factors, including the LME spot prices for aluminum ingots, overall demand for aluminum products, demand for highquality profiles and integrated product combinations, the processing fees we charge our customers, volume, competition, seasonality, production capacity and plant utilization. We generally price our processing fees at a premium to those charged by smaller PRC aluminum extruders, compared to whom we believe we have a competitive advantage with respect to, among other things, order quality, size, complexity, customization and speed of delivery. Turnover varies by season, with winter declines attributable to the Chinese New Year holiday and construction delays due to cold weather.

Aluminum extrusion products accounted for 84.9% of our total turnover for 2004. Aluminum extrusion products consist of anodized, powder-coated, single-coated paint and multi-coated paint products, of which anodized products accounted for the largest share. Fluctuations in the relative proportion of our turnover that each product line represents are generally driven by the types of projects we undertake during any particular period. For example, transportation products, such as container boxes, require large volumes of anodized products, thereby increasing the contribution of anodized products to our overall turnover. We attempt to maximize the use of our aluminum extrusion production capacity for production of high-margin multi-coated paint profiles. During periods of lower demand for such profiles, however, we shift production to lower-margin profiles to ensure full deployment of our facilities.

Aluminum panels accounted for 2.5% of our total turnover for 2004. As part of our goal of offering a diverse mix of products, we intend to continue to produce aluminum panels.

The stainless steel products segment accounted for 12.0% of our total turnover for 2004. Our margins for stainless steel products have declined in recent periods due primarily to increased price competition. In response to this decline, we have re-dedicated facilities from the production of stainless steel products to our aluminum extrusion business. However, we maintain a small stainless steel capacity in order to handle mixed-order contracts.

Historical turnover from other business segments, including design and testing services, e-commerce business operations and environmental protection products, has been nominal.

While the relative contributions of each of our geographic markets fluctuate each year, our primary market is the PRC (excluding Hong Kong), which accounted for 80.4% of our total turnover for 2004, followed by North America (10.4%), Hong Kong (4.8%) and other Asian markets (4.1%). The historical fluctuations in the relative contributions of our geographic segments are in part a result of the number of large-scale construction and infrastructure projects in each market, and in part as a result of our strategic efforts to focus on a particular market, such as the North American market.

We are seeking to diversify our revenue sources by increasing our sales in the North American market. Through our strategic alliance with Indalex, as well as our own direct sales efforts, we have recently increased our sales volume in North America. Due primarily to the significantly lower costs for labor, land and other overhead in the PRC, we believe we enjoy a price advantage in the United States compared to our U.S. competitors, even after taking into account freight costs and tariffs of 3.5% to 5.0% on products we export to the United States.

Substantial over-capacity exists in the extrusion market in the PRC for basic extrusion product lines that do not require highly-customized profiles, sophisticated die designs and multi-coated finishes produced in large volumes. As a result, we have focused to a large extent on the higher margin segments of the market.

We charge our customers on a "cost-plus" basis, under which the selling price for our aluminum products is based on a processing fee plus the LME spot price for aluminum ingots prevailing on either the order date or the date of delivery to the customer (which is typically the invoice date). The processing fee varies according to the complexity of the profile, the number of profiles to be produced and other commercial factors.

For larger contracts that may involve several orders over a period of 12 months or more, our customers may elect the spot price for aluminum ingots based on either the order dates over that period or the invoice dates. Prior to January 2004, a significant majority of our customers elected to pay the spot price for aluminum ingots prevailing on the invoice date. After January 2004, we began to encourage our customers to elect to pay the spot price for aluminum ingots prevailing on the order date to reduce the risk that the customer would be unwilling or unable to pay if aluminum ingot prices increased after placing the order, but prior to the invoice date.

With the acquisition of controlling stakes in our Nanhua and Hongjia joint ventures in 2001 and upgrades to our existing facilities, our total annual extrusion capacity increased from approximately 80,000 metric tons as of June 30, 2001, to approximately 150,000 metric tons as of June 30, 2004. Our aluminum extrusion capacity reached approximately 120,000 metric tons by December 2001, approximately 140,000 metric tons by January 2003 and approximately 150,000 metric tons by May 2004. Following the completion of our expansion plan, we expect to have an aggregate annual aluminum extrusion capacity of approximately 300,000 metric tons, and a further 50,000 metric tons of reserve capacity which we will use to maintain capacity levels as we relocate existing extrusion capacity from Nanhai to Zhaoqing.

# **OPERATING EXPENSES**

# Cost of sales and services provided

Cost of sales and services provided consists primarily of the cost of aluminum ingots and other raw materials. Raw materials, of which aluminum ingots comprised the largest component, represented 77.9% of cost of sales in 2004, followed by utilities expense (6.3%), depreciation of machinery and equipment directly involved in production (4.5%), paint and chemicals (6.7%), and salaries and wages (2.1%) and other cost of sales (2.5%). Cost of goods and services sold fluctuates primarily based on changes in the LME spot price for aluminum and sales volume. We determine cost of inventories using the weighted average cost method.

We source a portion of our aluminum ingot requirements (approximately 30% in 2004) from outside the PRC and the balance domestically. Domestic and LME aluminum prices usually move in tandem. We pay less for aluminum sourced in the PRC than for imported aluminum, the price of which reflects tariffs and international transportation costs. We do not rely exclusively on aluminum sourced domestically because international deliveries are often more reliable. We maintained an inventory of raw materials totaling HK\$137.6 million as of June 30, 2004. Substantially all of our aluminum ingot inventory is committed to existing orders. Generally, we seek to maintain one month of inventory for our raw materials.

We believe that through our combination of cost-plus pricing and hedging, the amounts recognized for purchases of aluminum ingots and charged to customers for such raw materials are roughly equivalent. Any increase in our total turnover due to an increase in aluminum ingot prices above the price paid for raw materials between the date upon which we purchase aluminum ingots and the date upon which we invoice our customers generally equals the increase in cost of sales attributable to the loss on the hedge. Conversely, any decrease in our turnover due to a decrease in aluminum prices from the price paid for raw materials generally equals the increase in our turnover attributable to the gain on the hedge. Because turnover derived from aluminum and the cost of aluminum, plus related hedging gains and losses, largely cancel each other out, we believe changes in gross profit and gross profit margin are a better measure of our results of operations than changes in turnover and cost of sales, which can fluctuate due to movements in aluminum ingot spot prices. However, the correlation between cost of sales for aluminum and turnover derived from the aluminum is not exact, for a number of reasons, including our recording of cost of sales using the weighted average cost method that we use to value our inventory and the timing of our entering into hedging contracts once an order becomes binding.

# Selling and distribution costs

Selling and distribution costs include advertising and promotion expenses relating to our products, export charges, staff costs and sales commissions and other selling expenses. Selling and distribution costs are expected to increase as we expand our business.

# Administrative expenses

Administrative expenses include staff costs, depreciation, legal and professional fees, office expenses, directors' remuneration, rental expenses, travel expenses and corporate image advertising and promotion expenses. Administrative costs are expected to increase as we expand our business.

# **Finance costs**

Finance costs include interest incurred on bank loans, overdrafts, finance leases, convertible bonds and other loans. These costs fluctuate between periods due primarily to our level of outstanding indebtedness and variable interest rates on bank loans.

# Tax

Tax primarily consists of tax payable in the PRC by our PRC operating subsidiaries. Because we operate as an overseas company for Bermuda regulatory purposes, we are not subject to Bermuda income tax. We have not generated assessable profits from our operations in Hong Kong because revenue for most of our Hong Kong-related projects is booked in the PRC. Our PRC subsidiaries are, or have been, entitled to an exemption from paying PRC enterprise income tax for the two years commencing with their first profitmaking year of operation and are entitled to a 50% reduction in income tax for the following three years. The reduced PRC tax rate is generally 12%. Because the taxable income of our PRC subsidiaries is determined using generally accepted accounting principles in the PRC ("PRC GAAP") and is adjusted for the PRC tax incentives, calculations of our effective tax rate based on "profit before tax" shown in our consolidated financial statements will differ from PRC tax rates.

# Other revenue and gains

We earn other revenues, principally from interest income, realized and unrealized gains and losses on forward contracts and the sales of scrap materials from the manufacturing process.

# **RESULTS OF OPERATIONS**

The following table sets forth for the periods indicated certain expense items in the Company's consolidated income statement as percentages of our total turnover:

	For the Fisca	,	
	2002	2003	2004
Cost of sales and services provided	77.1%	77.3%	76.2%
Gross profit	22.9	22.7	23.8
Selling and distribution costs	2.0	2.4	2.6
Administrative expenses	5.8	5.5	4.5
Expenditure on acquisition of certain business database	3.7	-	-
Provision for bad and doubtful debts	1.6	0.6	0.8
Profit from operating activities	12.9	18.9	18.0
Finance costs	2.2	1.7	2.0
Profit before tax	10.7	17.2	15.8
Tax	3.7	3.7	4.9
Minority interests	0.4	3.4	3.3
Net profit attributable to shareholders	6.7%	10.2%	7.6%

The following table sets forth, for the periods indicated, our total turnover by business segment and as a percentage of total turnover:

	For the Fiscal Year Ended June 30,					
	200	2	2003		2004	
	HK\$ (in millions)	% of total turnover	HK\$ (in millions)	% of total turnover	HK\$ (in millions)	% of total turnover
Aluminum extrusion products	1,698.2	86.4%	1,828.0	77.5%	2,493.6	84.9%
Aluminum panels	108.6	5.5	153.1	6.5	74.9	2.5
Stainless steel products	133.2	6.8	361.5	15.3	353.1	12.0
Design and testing services	21.4	1.1	15.4	0.7	16.9	0.6
Other <sup>(1)</sup>	4.3	0.2				
Total	1,965.7	100.0%	2,358.0	100.0%	2,938.5	100.0%

(1) Comprised of website operations and related e-business of trading of non-ferrous metal products on the Internet.

We also evaluate our operating performance based on our segment results, which are derived from our profit from operating activities before unallocated expenses, interest and unallocated gains. The following table sets forth our segment results for the periods indicated.

	For the Fiscal Year Ended June 30,			
	2002	2003	2004	
	HK\$	HK\$	HK\$	
	(in millions)	(in millions)	(in millions)	
Aluminum extrusion products	162.2	245.8	437.6	
Aluminum panels	51.7	79.5	30.9	
Stainless steel products	2.7	23.7	11.6	
Design and testing services	17.7	12.8	14.1	
Other <sup>(1)</sup>	(4.3)	(4.5)	(2.1)	
Total	230.0	357.3	492.1	

(1) Comprised of website operations and related e-business of trading of non-ferrous metal products on the Internet.

### 2004 Compared to 2003

*Turnover.* Turnover increased from HK\$2,358.0 million in 2003 to HK\$2,938.5 million in 2004, or 24.6%. Turnover increased primarily because of an increase in sales volume and a 18.7% increase in the average selling price of aluminum extrusion products.

Turnover in the aluminum extrusion products segment increased from HK\$1,828.0 million in 2003 to HK\$2,493.6 million in 2004 primarily as a result of our increased capacity, which allowed us to produce larger quantities of products, as well as a shift in production to higher-margin extrusion products during 2004. Turnover also increased due to higher average prices for aluminum. Average selling prices increased from approximately HK\$15,620 per metric ton in 2003 to HK\$20,005 per metric ton in 2004, or 28.1%. The rise in average selling prices was also due to an increase in the percentage of sales from higher-margin extrusion products that command higher prices, as well as the increase in aluminum prices.

Turnover in the aluminum panels segment decreased from HK\$153.1 million in 2003 to HK\$74.9 million in 2004, or 51.1%, primarily because of a 50.4% decrease in sales volume and 1.4% decrease in average selling price. Sales volume for aluminum panels decreased significantly primarily because of our decision to lower production in this segment in response to increased competition resulting in downward pressure on average selling prices for aluminum panels.

Turnover in the stainless steel products segment remained relatively stable, decreasing slightly from HK\$361.6 million in 2003 to HK\$353.1 million in 2004, or 2.3%, primarily because of a 1.3% decrease in sales volume and 1.1% decrease in average selling price.

*Cost of Sales and Services Provided.* Cost of sales and services provided increased from HK\$1,821.8 million in 2003 to HK\$2,240.2 million in 2004, or 23.0%. Cost of sales increased primarily because of our increased sales volumes and associated increased manufacturing costs as well as higher average aluminum prices in 2004.

*Gross Profit.* Gross profit increased from HK\$536.3 million in 2003 to HK\$698.3 million in 2004, or 30.2%, while the Company's gross profit margin increased from 22.7% to 23.8%. In the first half of 2004, our margins were affected by the sudden increase in global prices for aluminum. Many of our customers work on large projects and set their budgets at the beginning of the calendar year and are generally able to manage fluctuations in aluminum prices over the course of the year. However, as such increases occurred at the end of the calendar year 2003, many of our customers were unable to manage the sudden

price increases. In order to enhance our relationship with key customers, we made a strategic decision to share the impact of such price increases with certain customers, thereby reducing our margins in the first half of 2004.

Prior to January 2004, a significant majority of our customers elected to pay the spot price for aluminum ingots prevailing on the invoice date. After January 2004, we began to encourage our customers to elect to pay the spot price for aluminum ingots prevailing on the order date to reduce the risk that the customer would be unwilling or unable to pay if aluminum ingot prices increased after placing the order, but prior to the invoice date. In the second half of 2004, our margins increased significantly, resulting in higher margins overall for 2004 (23.8%), compared to 2003 (22.7%). Increases in the gross profit margins for aluminum extrusion products were partly offset by decreases in the gross profit margin for aluminum panels and stainless steel products.

*Gain on Partial Disposal of Interests in Subsidiaries.* The Company recognized a gain on the disposal of interests in subsidiaries of HK\$52.4 million in 2003. No such gain was recognized in 2004. The gain represented deferred consideration paid by Indalex to the Company for the sale of a stake in our extrusion business. See "Business – Strategic Alliance with Indalex".

*Other Revenue.* Other revenue increased from HK\$58.6 million in 2003 to HK\$64.1 million in 2004, or 9.4%, primarily because of a HK\$3.7 million increase in gains on trading of forward contracts and a HK\$1.4 million increase in interest income.

*Selling and Distribution Costs.* Selling and distribution costs were equal to approximately 2.6% of turnover in 2004 compared to approximately 2.4% of total turnover in 2003. Selling and distribution costs increased from HK\$55.8 million in 2003 to HK\$76.8 million in 2004, or 37.6%, primarily because of a HK\$20.8 million increase in shipping and transportation charges resulting from the increase in turnover to North America.

Administrative Expenses. Administrative expenses were equal to approximately 4.5% of total turnover in 2004 compared to 5.5% of total turnover in 2003. Administrative expenses remained flat in 2004 and only slightly increased from HK\$130.4 million in 2003 to HK\$132.7 million in 2004, or 1.8%.

*Provision for Bad and Doubtful Debts.* Provision for bad and doubtful debts increased from HK\$14.4 million in 2003 to HK\$24.0 million in 2004, or 66.7%, primarily because of a one-time provision of HK\$10.0 million for overdue debts of a distributor in North America in 2004.

*Finance Costs.* Finance costs increased from HK\$40.7 million in 2003 to HK\$59.1 million in 2004, or 45.2%, primarily because of a HK\$7.0 million increase in arrangement fees on syndicated loans and a HK\$11.4 million increase in bank loan interest.

*Tax.* Tax increased from HK\$86.3 million in 2003 to HK\$143.2 million in 2004, or 65.9%, primarily because of an increase in our operating profits. Because our subsidiaries are taxed on an entity by entity basis, our effective tax rate in the aggregate is lower when our operating profits are distributed evenly across our subsidiaries. In contrast, when operating profits are concentrated in a small number of our subsidiaries, our effective tax rate is higher. Our effective tax rate was 30.9% in 2004, compared to 21.3% in 2003 reflecting a concentration of profits in certain of our subsidiaries. In addition, we recognized a HK\$52.4 million gain representing the deferred consideration paid by Indalex in 2003, which was non-taxable. If this non-taxable gain had been excluded, the effective tax rate would have been 24.4% in 2003.

*Minority Interests.* Minority interests, which represent the interests of joint-venture partners in the Company's operating subsidiaries, increased from HK\$79.1 million in 2003 to HK\$97.2 million in 2004, or 22.8%, primarily because of the increase in the net profit of AAG in 2004. AAG is the holding company for all of our extrusion businesses.

*Net Profit Attributable to Shareholders.* Net profit attributable to shareholders decreased from HK\$240.5 million in 2003 to HK\$222.5 million in 2004, or 7.5%. Net profit attributable to shareholders was higher in 2003 due to the effect of the one-time non-taxable gain on the deferred consideration paid by Indalex in 2003 with respect to the sale of a stake in our extrusion business. Excluding this non-taxable gain, our net profit attributable to shareholders in 2003 would have been HK\$188.1 million and there would have been an increase of 18.2% in net profit attributable to shareholders in 2004 compared to 2003.

## 2003 Compared to 2002

*Turnover.* Turnover increased from HK\$1,965.7 million in 2002 to HK\$2,358.0 million in 2003, or 20.0%. Turnover increased primarily because of an increase in sales volume that was due to the inclusion of full year results from our Nanhua and Hongjia joint ventures which increased our aggregate manufacturing capacity and, accordingly, our sales volume.

Turnover in the aluminum extrusion products segment increased from HK\$1,698.2 million in 2002 to HK\$1,828.0 million in 2003, or 7.6%, primarily as a result of the inclusion of full year results from our Nanhua and Hongjia joint ventures which increased our aggregate manufacturing capacity and, accordingly, our sales volume. Average selling prices declined, however, from HK\$16,922 per metric ton in 2002 to HK\$15,620 per metric ton in 2003, or 7.7%, primarily because of a decline in aluminum prices from 2002 to 2003.

Turnover in the aluminum panels segment increased from HK\$108.6 million in 2002 to HK\$153.1 million in 2003, or 41.0%, primarily because of an increase in sales volume due to increased demand in 2003.

Turnover in the stainless steel products segment increased from HK\$133.2 million in 2002 to HK\$361.5 million in 2003, or 171.4%, primarily because of an increase in sales volume due to a higher use of stainless steel products in certain projects in 2003.

*Cost of Sales and Services Provided.* Cost of sales and services provided increased from HK\$1,515.4 million in 2002 to HK\$1,821.8 million in 2003, or 20.2%, primarily because of increased costs arising from our increased capacity and consequent increase in sales volume.

*Gross Profit.* Gross profit increased from HK\$450.3 million in 2002 to HK\$536.3 million in 2003, or 19.1%, due to an increase in our sales volume. Our gross profit margin decreased slightly from 22.9% in 2002 to 22.7% in 2003, primarily because of the inclusion of full year results from our Nanhua and Hongjia joint ventures, both of which produce lower-margin products.

*Gain on Disposal of Discontinued Operations.* We recognized a gain on the disposal of discontinued operations of HK\$8.7 million in 2002 related to the disposal of our interest in Hamington, a company which is engaged in the business of design and development of technologies for applications in environmental protection products, in August 2001. No such gain was recognized in 2003.

*Gain on Partial Disposal of Interests in Subsidiaries.* We recognized a gain on the partial disposal of interests in subsidiaries of HK\$52.4 million in 2003 compared to a gain of HK\$20.0 million in 2002. In accordance with a contractual arrangement underlying the disposal of a 26.2% equity interest in AAG, Indalex agreed that AAG attained certain financial thresholds in 2002, entitling us to additional consideration from Indalex of HK\$52.4 million in 2003. In 2002, AAH transferred a 4.75% equity interest in AAG to Xing Yu Aluminum Company Limited and Jia Hong Aluminum Company Limited, as part of the consideration in establishing our Nanhua and Hongjia joint ventures. The HK\$20.0 million represented the gain on this partial disposal of interest in AAG. See "Business – Strategic Alliance with Indalex".

*Other Revenue and Gains.* Other revenue and gains increased from HK\$31.3 million in 2002 to HK\$58.6 million in 2003, or 87.2% primarily because of a HK\$28.9 million increase in gains on trading of forward contracts.

*Selling and Distribution Costs.* Selling and distribution costs were equal to approximately 2.4% of turnover for 2003 and approximately 2.0% of turnover for 2002. Selling and distribution costs increased from HK\$38.3 million in 2002 to HK\$55.8 million in 2003, or 45.6%. The increase was mainly due to a HK\$9.3 million increase in advertising and promotion expenses and a HK\$6.6 million increase in shipping and transportation charges.

Administrative Expenses. Administrative expenses were equal to approximately 5.5% of turnover for 2003 and approximately 5.8% of turnover for 2002. Administrative expenses increased from HK\$113.9 million in 2002 to HK\$130.4 million in 2003, or 14.5%, primarily as a result of increased administrative expenses arising from the inclusion in 2003 of full year results from our Nanhua and Hongjia joint ventures in addition to costs related to an increase in management personnel.

*Expenditure on Acquisition of Certain Business Database.* We recorded a one-time expenditure on the acquisition of a business database of HK\$73.6 million in 2002. No such expenditure was recorded in 2003. The expenditure represents the cost of acquiring lists of customers, products and suppliers in connection with our acquisition of controlling stakes in the Nanhua and Hongjia joint ventures. Under HK GAAP, such amounts cannot be capitalized as goodwill.

*Provision for Bad and Doubtful Debts.* Provision for bad and doubtful debts decreased from HK\$31.1 million in 2002 to HK\$14.4 million in 2003, or 53.7%, primarily because of adequate provision already made in previous years.

*Finance Costs.* Finance costs decreased from HK\$42.4 million in 2002 to HK\$40.7 million in 2003, or 3.9%, primarily because of the increase in trust receipt loan interest following the increased utilization of trust receipt loans.

*Tax.* Tax increased from HK\$72.8 million in 2002 to HK\$86.3 million in 2003, or 18.6%, primarily because of our increase in operating profits. Our effective tax rate was 21.3% in 2003, compared to 34.5% in 2002, reflecting the inclusion in our operating profits of a one-time expenditure on the acquisition of a business database in 2002, which was not tax-deductible, and the increase in 2003 in a non-taxable gain on the partial disposal of interests in subsidiaries.

*Minority Interests.* Minority interests increased from HK\$6.9 million in 2002 to HK\$79.1 million in 2003, primarily because of the increase in net profit of AAG in 2003. Minority interests in 2002 were lowered by the sharing of the expenditure on the acquisition of a business database of HK\$73.6 million in 2002.

*Net Profit Attributable to Shareholders.* Net profit attributable to shareholders increased from HK\$131.4 million in 2002 to HK\$240.5 million in 2003, or 83.0%.

# LIQUIDITY AND CAPITAL RESOURCES

Our primary cash requirements are to fund our capital expenditures, including upgrading and expanding existing manufacturing facilities, our expansion plan for our expanded extrusion facilities and rolled products facilities at Zhaoqing, investments in acquired businesses, and to finance our working capital requirements. Historically, we have funded our operations through operating cash flows, trade facilities, bank loans, finance and operating leases, equity offerings and placements of convertible bonds.

As of June 30, 2004, we had available undrawn bank facilities and cash and cash equivalents of HK\$906.2 million and HK\$2,799.5 million, respectively. Our H.K. dollar and Renminbi bank and credit facilities, including short-term loans, trade finance facilities and syndicated loans, are uncommitted facilities and are repayable on demand. See "Risk Factors – Risks Relating to Us – The majority of our bank and credit facilities are uncommitted and repayable on demand." As of June 30, 2004, we had aggregate banking and credit facilities consisting of short-term loans, overdrafts, trade financing and finance leases of HK\$2,430.6 million, of which HK\$1,524.4 million was drawn down. These facilities carried an average weighted interest rate of 4.2% for the fiscal year ended June 30, 2004. As of June 30, 2004, these facilities were secured by tangible fixed assets with a net book value of HK\$13.7 million and bank deposits of HK\$153.3 million. The majority of our indebtedness is denominated in H.K. dollars, U.S. dollars and Renminbi, while the majority of our cash and cash equivalents and operating cash flows are denominated in Renminbi. The Renminbi is not freely convertible into other currencies. See "Risk Factors – Risks Relating to the PRC."

We service our debt primarily through cash generated from operations. As of June 30, 2004, our cash and bank balances totaled HK\$2,595.9 million. Taking into consideration, our cash position, internally-generated funds, financing activities and available banking facilities, we believe we have adequate financial resources to sustain our working capital requirements and future expansion plans and meet our foreseeable debt repayment obligations.

# **Cash Flows**

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

	For the Fiscal Year Ended June 30,		
	2002	2003	2004
	(H		
Cash flows from operating activities:			
Profit from operating activities before			
working capital changes <sup>(1)</sup>	328.1	490.3	643.1
Net change in working capital <sup>(2)</sup>	64.5	64.4	(150.7)
Other <sup>(3)</sup>	(128.2)	(130.0)	(181.1)
Net cash flows from operating activities	264.4	424.7	311.3
Cash flows used in investing activities	(45.6)	(558.9)	(573.5)
Cash flows from financing activities	48.8	192.3	1,159.0
Net increase in cash and cash equivalents	267.6	58.1	896.8

(1) Represents profit from operating activities as adjusted for interest income, depreciation of fixed assets, provision for bad and doubtful debts, net loss on disposal/write-off of fixed assets, write-off of amounts due from a related company, gain on partial disposal of discontinued operations, and gain on partial disposal of interests in subsidiaries.

(2) Represents decrease/(increase) in trade receivables, increase in inventories, decrease/(increase) in prepayment, deposits and other receivables, increase in amounts due from related companies, increase in trade payables, increase/(decrease) in trust receipt loans, net increase/(decrease) in amounts due to minority shareholders and increase in accrued liabilities and other payables.

(3) Represents interest paid, interest element on finance lease rental payments, arrangement fees on bank and other loans, Hong Kong profits tax paid and Mainland China corporate income tax paid.

# **Cash Flows From Operating Activities**

Profit from operating activities in 2004 before working capital changes increased by 31.2% from HK\$490.3 million in 2003 to HK\$643.1 million in 2004. This increase was offset by changes in working capital in 2004 arising from an increase in inventories in line with our business growth and a decrease in trust receipt loans as a larger share of our material purchases in China did not need to be made using trust receipt loans. We also paid additional arrangement fees on new bank loans in 2004 as well as increased PRC corporate income taxes due to an increase in operating profits. As a result, we recorded net cash from operating activities of HK\$311.3 million for 2004 compared to net cash from operating activities of HK\$424.7 million for 2003, a decrease of 26.7%.

Profit from operating activities in 2003 before working capital changes increased by 49.5% from HK\$328.1 million in 2002 to HK\$490.3 million in 2003. Working capital and other cash paid remained relatively unchanged between 2002 and 2003 while cash generated from operating activities increased significantly between 2002 and 2003. As a result, we recorded net cash from operating activities of HK\$424.7 million for 2003 compared to net cash from operating activities of HK\$264.4 million for 2002, an increase of 60.7%.

### **Cash Flows from Investing Activities**

We recorded net cash outflows from investing activities of HK\$573.5 million for 2004 compared to net cash outflows from investing activities of HK\$558.9 million in 2003, an increase of 2.6%. Cash outflows from investing activities in 2004 consisted primarily of HK\$295.9 million in advances to jointly-controlled entities and HK\$157.0 million in purchases of fixed assets. Cash outflows from investing activities in 2003 consisted primarily of increases in non-pledged time deposits with original maturities of more than three months of HK\$562.4 million, paid deposits of HK\$116.3 million and purchases of fixed assets of HK\$171.0 million. This was partially offset by the proceeds from the disposal of subsidiaries of HK\$255.0 million and proceeds from the partial disposal of interests in subsidiaries of HK\$52.4 million. We increased our time deposits in order to fund our expansion plans in Zhaoqing.

We recorded net cash outflows from investing activities of HK\$558.9 million for 2003 compared to net cash outflows from investing activities of HK\$45.6 million in 2002, an increase of 1,125.9%. Cash outflows from investing activities in 2002 consisted primarily of HK\$208.8 million in purchases of fixed assets and a HK\$53.5 million increase in pledged deposits. This was partially offset by a HK\$199.7 million receipt of sales proceeds from the disposal of subsidiaries. For 2002, there were no paid deposits or increases in non-pledged time deposits with original maturities of more than three months, thereby contributing to lower net cash outflows as compared to 2003.

## **Cash Flows from Financing Activities**

We recorded net cash inflows from financing activities of HK\$1,159.0 million for 2004 compared to net cash inflows from financing activities of HK\$192.3 million for 2003, an increase of 502.7%. Cash inflows from financing activities in 2004 consisted primarily of HK\$1,141.0 million in new bank loans, a HK\$517.9 million placement of new shares, and the exercise of options and warrants amounting to HK\$187.5 million. This was partially offset by a HK\$548.0 million repayment of bank loans and a payment of HK\$117.2 million in dividends. Cash inflows from financing activities in 2003 consisted primarily of HK\$152.2 million in new bank loans, a capital contribution by minority interests of HK\$107.4 million, and the exercise of options and warrants amounting to HK\$75.2 million. This was partially offset by a HK\$11.1 million repayment of bank loans and a payment of HK\$116.4 million in dividends.

We recorded net cash inflows from financing activities of HK\$192.3 million for 2003 compared to net cash inflows from financing activities of HK\$48.8 million for 2002, an increase of 294.1%. Cash inflows from financing activities in 2002 consisted primarily of

HK\$49.0 million in new bank loans, capital contributed by minority interests of HK\$131.6 million and the exercise of options and warrants amounting to HK\$29.3 million. This was partially offset by a payment of HK\$120.0 million in dividends. Cash inflows from financing activities was greater in 2003 primarily because of an increase in new bank loans and an increase in the exercise of warrants as well as a lower amount of dividends paid compared to 2002.

# Indebtedness

The following table sets forth information regarding our indebtedness as of June 30, 2004:

	Amount	Ma	turity by Period	
	Outstanding	12 months	1-3 years	3-5 years
		(HK\$ mil	llions)	
Trust receipt loans	417.5	417.5	_	-
Interest bearing bank and other loans	477.2	477.2	-	-
Finance leases	1.1	0.5	0.6	-
Transferable term loan	583.7		583.7	
Total	1,479.5	895.2	584.3	

CSD was not a consolidated subsidiary of ours as of June 30, 2004. As of that date, CSD and its subsidiary had no indebtedness other than shareholders' loans, which are not repayable prior to the repayment of the CSD Intercompany Note.

On July 9, 2003 we entered into a facility agreement in connection with a US\$75 million syndicated transferable term loan facility. See "Description of Other Material Indebtedness."

Our trust receipt loans are generally short-term floating rate loans and are denominated in U.S. dollars and H.K. dollars. Our interest-bearing bank and other loans are short-term fixed rate loans denominated in Renminbi. Our finance leases are fixed rate leases denominated in H.K. dollars, while our US\$75 million syndicated loan is a long-term floating rate loan.

We had outstanding corporate guarantees of the indebtedness of a minority equity holder totaling HK\$10.8 million as of June 30, 2004. We have also granted a tax indemnity to Indalex. See the notes to our consolidated financial statements.

# **Operating Leases**

We lease land and buildings for our manufacturing facilities in the PRC under operating leases that expire between 2011 and 2016 and lease our offices in Hong Kong from our Chairman under operating leases expiring in 2004. As of June 30, 2004, we had commitments of HK\$102.7 million for future minimum lease payments in respect of property, plant and equipment under non-cancelable operating leases, of which HK\$8.2 million, HK\$30.9 million and HK\$63.6 million fell due within one year, in the second to fifth years inclusive and over five years, respectively.

# **Finance Leases**

As of June 30, 2004, we had commitments of HK\$1.1 million for future minimum lease payments in respect of motor vehicle under non-cancelable finance leases, of which HK\$0.5 million fell due within one year and HK\$0.6 million fell due in the second to fifth years inclusive.

# **CAPITAL EXPENDITURE**

The following table sets forth our capital expenditures for the three years ended June 30, 2004:

	Fo	ne 30,	
	2002	<b>2003</b> (HK\$ millions)	2004
Aluminum extrusion	318.5	149.1	155.9
Aluminum panels	0.5	6.5	0.7
Stainless steel products	0.1	20.4	1.5
Total	319.1	176.0	158.0

The following table sets forth information regarding our planned expenditures for the next two years:

	For the year ended June 30,		
	<b>2005</b> (HK\$ millio	2006 ons)	
Aluminum extrusion	893.5	122.9	
Aluminum rolled products	1,586.1	976.3	
Total	2,479.6	1,099.1	

We intend to fund the remainder of our commitments relating to the expansion of our aluminum extrusion facilities and the eventual relocation of our existing aluminum extrusion operations from Nanhai to Zhaoqing, Guangdong Province primarily through internal resources of cash and bank balances in addition to cash generated from our operating activities. We currently project that we will spend approximately US\$114.6 million and US\$15.8 million in fiscal years 2005 and 2006, respectively, on the expansion of our aluminum extrusion facilities.

We currently project that we will spend approximately US\$203.3 million, US\$125.2 million and US\$35.0 million in fiscal years 2005, 2006 and 2007, respectively, on the construction of our aluminum rolled products facilities.

For a more detailed discussion of our expansion plans, see "Business – Our Expansion Program".

# CONTRACTUAL OBLIGATIONS AND COMMITMENTS

The following table sets forth our contractual obligations and commitments to make future payments under contracts and commitments as of June 30, 2004:

	As of June 30, 2004 Payment Due by Period				
		Less than			After
	Total	1 year	1-3 Years	3-5 Years	5 Years
		;)			
Short-term bank and other loans	894.7	894.7	_	_	_
Long-term bank and other loans	583.7	_	583.7	_	-
Finance lease obligations	1.1	0.5	0.6	_	-
Other capital commitments	1,005.4	881.1	124.3		
Total contractual obligations	2,484.9(1)	1,776.3	708.6		_

(1) Includes contractual obligations of jointly-controlled entities and excludes capital contributions to subsidiaries and the shareholders' loan to CSD.

Under the terms of the AAG shareholders' agreement with Indalex, Indalex has a "put" option to sell its 25% stake in AAG back to us upon the occurrence of certain events or if we fail to reach an agreement over certain important corporate matters concerning AAG and its subsidiaries. The "put" option price would be determined with reference to the open market value of the AAG shares as agreed to by the parties or, if we fail to agree, as determined by an international firm of accountants.

# MARKET RISK

Our operations are located primarily in the PRC, and we are exposed to the effects of changes in financial markets and economic conditions both in the PRC and internationally.

## **Aluminum Price Risk**

We are exposed to risks related to price fluctuations for aluminum ingots. For the fiscal year ended June 30, 2004, raw materials, of which aluminum ingots comprised the largest component, represented approximately 77.9% of our cost of sales and services provided. We engage in hedging transactions to manage our exposure to fluctuation in the price of aluminum ingots but do not seek trading gains by taking speculative positions. We charge our customers on a "cost-plus" basis, under which the selling price for our aluminum products is based on a processing fee plus the LME spot price for aluminum ingots prevailing on either the order date or the date of delivery to the customer (which is typically the invoice date). To mitigate the effect of price fluctuations between the date on which the raw materials for an order are purchased and the invoice date, we will generally either ensure that we have sufficient aluminum stock on the order date (in inventory or through additional purchases) or enter into aluminum forward or future contracts on the LME. For larger contracts that may involve several orders over a period of 12 months or more, our customers may elect the spot price for aluminum ingots based on the order dates over that period or the invoice dates. A significant majority of our customers elected to pay the spot price for aluminum ingots prevailing on the invoice date. After January 2004, we began to encourage our customers to elect to pay the spot price for aluminum ingots prevailing on the order date to reduce the risk that the customer would be unwilling or unable to pay if aluminum ingot prices increased after placing the order, but prior to the invoice date. See "Risk Factors – Risks Relating to Us – We may not effectively manage our exposure to aluminum price volatility".

When "cost-plus" pricing is used, if the customer selects the invoice date, we hedge against price decreases by selling forwards and futures. If the customer selects the order date, we purchase sufficient aluminum inventory on such date. When cost-plus pricing is not used, we hedge any open position against price increases by buying forwards and futures. We usually enter into hedging contracts when we purchase aluminum for an order. While we have traded aluminum forwards and futures in the past, our current policy is to hedge only as necessary to cover open positions created, or reasonably expected to be created, by purchases of aluminum to fulfill customer orders. We generally do not maintain open positions above 1,000 metric tons of aluminum. Our hedging policy does not protect us from any reduced demand for our products caused by sustained aluminum price increases, nor does it protect us from customer defaults resulting from unanticipated fluctuations in aluminum prices. See "Risk Factors – Risks Relating to Us".

### Foreign Currency Exchange Risk

We are exposed to exchange rate risk. Our reporting currency is the H.K. dollar. A majority of our net operating revenue is denominated in RMB, although the price of aluminum ingots, which forms a significant component of our revenues, is based on the U.S. dollar. Moreover, certain of our obligations under contracts related to the purchase

and installation of aluminum hot rolling and cold rolling equipment are denominated in U.S. dollars, Japanese yen and Euros. See "Description of Principal Agreements". On October 5, 2004, we entered into a series of foreign exchange option agreements with The Hongkong and Shanghai Banking Corporation Limited to hedge a substantial portion of our exposure to fluctuations of the Euro as against the U.S. dollar. Such contracts allow us to purchase Euros at conversion rates ranging between  $\leq 1.00 = US \leq 1.2300$  and  $\leq 1.00 = US \leq 1.2323$  and are of varying duration.

As of June 30, 2004, we had HK\$417.5 million of H.K. dollar trade finance facilities and RMB506.8 million of Renminbi trade finance facilities and loan facilities outstanding, and US\$75.0 million of U.S. dollar syndicated term loans and finance leases outstanding. The value of the H.K. dollar and the RMB are effectively linked to the U.S. dollar and therefore there have not historically been substantial fluctuations between these currencies. However, there can be no assurance that this linkage will continue. We closely monitor exchange rate risk and consider using appropriate financial instruments to hedge any exposure. We do not currently engage in hedging to manage currency risk. There can be no assurance that any future hedging activities in which we may engage will protect us from fluctuations in exchange rates.

# **Interest Rate Risk**

We are exposed to interest rate risk. As of June 30, 2004, we had borrowed HK\$1,474.6 million under floating interest rate credit facilities, of which HK\$890.9 million were payable within one year and HK\$583.7 million were payable within three years. We closely monitor interest rate risk and consider using appropriate financial instruments to hedge any exposure. We do not currently engage in hedging to manage interest rate risk. There can be no assurance that any future hedging activities in which we may engage will protect us from fluctuations in interest rates.

# **CRITICAL ACCOUNTING POLICIES**

Critical accounting policies are defined as those that are reflective of significant judgments and uncertainties and that potentially yield materially different results under different assumptions and conditions.

Our consolidated financial statements have been prepared in accordance with HK GAAP. Our principal accounting policies are set forth in Note 3 to our consolidated financial statements. HK GAAP requires that we adopt accounting policies and make estimates that our directors believe are most appropriate in the circumstances for the purposes of giving a true and fair view of our results and financial condition. However, different policies, estimates and assumptions in critical areas could lead to materially different results. The critical accounting policies adopted and estimates made in preparation of our financial statements are identified as follows:

*Inventories.* Inventories, which consist primarily of expendable raw materials, are stated at cost, and are expensed when consumed in operations. Cost is determined on a weighted average basis. Gross margins could vary if we used a different accounting policy to determine the cost of our inventories. For instance, in an inflationary environment for aluminum ingots, adoption of the "first-in, first-out" method would tend to minimize cost of goods sold expenses and maximize gross margin. Aluminum ingot prices have been rising steadily since October 2002 and are subject to sudden and dramatic adjustments in spot prices.

*Trade Receivables.* We are required to estimate the collectibility of our trade receivables and notes receivable. A considerable amount of judgment is required to assess the ultimate realization of these receivables, including the current credit-worthiness of each customer. Significant changes in required reserves may occur in the future due to changes in our assessment of our customers' credit-worthiness and other macroeconomic factors.

# **CORPORATE STRUCTURE**

The following chart shows our simplified corporate structure, including two newlyformed subsidiaries established to operate our new aluminum extrusion and rolled products manufacturing facility in Zhaoqing, Guangdong Province as of December 12, 2004.



- (1) On May 9, 2003, we formed a joint venture company in Samoa, China Steel Development Company Limited, which is the owner of our aluminum rolled products manufacturing WFOE. Under the joint venture agreement, our equity and committed debt investments in China Steel Development Company Limited total US\$600,000 and HK\$810 million, respectively, representing our 60% equity interest in China Steel Development Company Limited. The remaining 40% interest, funded through capital contributions and shareholders' loans, is 20%-owned by Mr. W. C. Kwong, and our joint venture partners, a former supplier and distributor, each of which own 10%. So long as the current shareholding structure remains unchanged, China Steel Development Company Limited may have up to seven directors and we have the right to appoint up to four of the seven directors. In September 2003, Asia Aluminum (China) Company Limited was established as a WFOE in the PRC with China Steel Development Company Limited as its 100% owner. Asia Aluminum (China) Company Limited has the same board composition as China Steel Development Company Limited and has a term of 50 years.
- (2) In the second half of 2001, we formed two joint venture entities in the PRC, Foshan Nanhua Aluminum Company Limited, or the Nanhua factory, and Foshan Nanhai Hongjia Aluminum Company Limited, or the Hongjia factory, each of which is 60%-owned by us. Our equity investments in the Nanhua factory and Hongjia factory total US\$10.2 million and US\$7.98 million, respectively. The remaining 40% equity interests in these two factories is owned by the joint venture partners, in each case the former manager of the respective factories. For each of the entities, we have the right to appoint four of the six directors, including the vice chairman. Both joint ventures have a term of 30 years. Although we have the right to exercise management control over the Nanhua factory and Hongjia factory, we have retained the former managers that operated each factory before the establishment of the joint ventures.

### **OVERVIEW**

We are the largest manufacturer of aluminum extrusion products in the PRC and one of the largest aluminum extruders in Asia as measured by capacity, with an annual extrusion capacity of approximately 150,000 metric tons and extrusion output of approximately 123,041 metric tons for the fiscal year ended June 30, 2004. We design, manufacture and sell customized aluminum extrusion products and process aluminum panels. To complement our principal extrusion business, we also produce a small volume of stainless steel products and provide design and testing services for aluminum products. For the fiscal year ended June 30, 2004, our turnover totaled HK\$2,938.5 million, representing an increase of 24.6% as compared to the prior year.

In October 2003, we commenced construction of a large-scale expansion project in Zhaoqing, Guangdong Province, designed to produce high-quality aluminum rolled products and to increase our aluminum extrusion capacity. We estimate that our annual capacity to produce aluminum rolled products and aluminum extrusion projects will be approximately 400,000 metric tons and 300,000 metric tons, respectively, by the end of 2006. Our goal is to rank among the leading aluminum rolled and extrusion products manufacturers in the world. Following the completion of this expansion, we intend to relocate our existing aluminum extrusion operations from Nanhai and to consolidate such operations at the Zhaoqing facility.

As of June 30, 2004, our customer base included more than 300 customers worldwide. Our primary market is the PRC, which accounted for approximately 80% of our total turnover for the fiscal year ended June 30, 2004. Our largest aluminum extrusion customers include international engineering firms, such as Far East Aluminum Works, HK and Permasteelisa Spa, which have successfully bid for prominent infrastructure and landmark property development projects in the PRC, Hong Kong, the United States and other countries in the Asia-Pacific region. Our customized extrusion products have been used in airports, major PRC government buildings and prominent structures such as the Beijing National Grand Theatre, the Sands Casino in Macau and Two International Finance Centre, Hong Kong's tallest building. For the fiscal year ended June 30, 2004, the majority of our total turnover was related to construction projects and the balance consisted of transportation, interior decoration and consumer and industrial products.

We operate five factories, primarily producing aluminum extrusion products, in Nanhai, Guangdong Province. Due to strong demand for aluminum extrusion products in the heavily-industrialized Guangdong Province, Nanhai serves as a regional hub for nonferrous metals trading and manufacturing.

In June 2001, we formed a strategic alliance with Indalex, a wholly-owned subsidiary of Novar plc and the second-largest aluminum extruder in North America. Indalex holds a 25% equity interest in our principal operating subsidiary, AAG, providing us with an extensive North American distribution network from which to develop our own sales channels. In addition, we have benefited from technology transfers and the secondment of highly-trained engineers from Indalex.

We were founded in 1992 by our chairman and largest shareholder, Mr. Kwong Wui Chun, and our ordinary shares are listed on the Hong Kong Stock Exchange.

### **COMPETITIVE STRENGTHS**

Our competitive strengths include:

• Low-cost producer of high-quality aluminum extrusion products. Based in the PRC, we enjoy significant cost savings compared to our international competitors. We believe our lower labor expenses, electricity costs, land acquisition costs, environmental compliance costs and pension costs provide us with significant advantages in the global market. We believe we can compete effectively in the domestic and international markets.

- *Market-leading position in the PRC.* We are a market leader for high-quality aluminum extrusion products in the PRC. Moreover, we believe that we are the largest manufacturer of aluminum extrusion products in the PRC and one of the largest aluminum extruders in Asia as measured by capacity. Given the highly-fragmented nature of the PRC's aluminum extrusion industry and the lack of advanced manufacturing equipment for the production of high-quality aluminum extrusion products, we expect to leverage our increasing economies of scale to maintain a leading position.
- *Customized solutions for unique projects and applications.* We provide one-stop customized aluminum extrusion solutions, integrating specific customer requirements during the early stages of project planning and product design. Our strong research and development team and in-field designers combine to create high-quality aluminum extrusion products that meet exacting specifications.
- Development of our aluminum rolled products manufacturing facility. We have assembled a team of experienced engineers, equipment suppliers, contractors and project managers to supervise and build our new rolled products facility. Based on commitments contained in our signed contracts and contracts under negotiation, we expect to ship rolled products during the first half of 2007.
- *Diversified client base.* As of June 30, 2004, our customer base consisted of more than 300 customers. Our top five customers by turnover accounted for less than 30% of our total turnover for the fiscal year ended June 30, 2004, and no single customer accounted for more than 10% of our total turnover during such period.
- Strategic alliance with Indalex. Our strategic alliance with Indalex, the secondlargest aluminum extruder in North America, provides access to Indalex's extensive distribution channels in North America and has served as a foundation to develop our own channels in that region. In addition, Indalex has provided technical support and engineers to assist with our product and manufacturing capabilities.
- *Experienced management team and strong employee base.* We have a seasoned and highly-qualified management team led by Mr. Kwong, our chairman and founding shareholder. Mr. Kwong has worked in the aluminum industry in the PRC for over 30 years and currently serves as the chairman of Guangdong Foshan Nanhai Non-ferrous Metals Association. We have chosen experienced senior management and have built an experienced group of employees trained in the aluminum industry.

# **BUSINESS OPPORTUNITIES**

We believe we are well-positioned to benefit from the following factors:

• Strong and growing consumption of aluminum products in the PRC. As a downstream manufacturer of high-quality, high-value aluminum products, we are well-positioned to benefit from increased demand for aluminum products in the PRC. China's increased aluminum consumption has been driven by growth in economic activity and increases in consumer purchasing power. Significant levels of foreign direct investment, PRC government investment in infrastructure, lower prices for consumer durables and increased exports have further accelerated the demand for aluminum.

Greater penetration of aluminum use in major end-markets is also a key factor for the increase in China's consumption of aluminum. We expect that demand for aluminum in the construction segment to increase with ongoing infrastructure investment, housing reforms, large-scale projects such as the 2008 Beijing Olympics and the PRC government's policies to promote development in Western China. An increase in residential construction activity has also led to increased demand for consumer durables both of which benefit our existing and planned businesses. We expect that as China continues to industrialize, the development of China's automobile industry, investments in transportation infrastructure and rising disposable income should further increase aluminum consumption.

- Limited supply of high-value aluminum products in China. We believe we are among the few domestic manufacturers capable of producing high-value aluminum extrusion products. The extrusion industry in China is highly fragmented and the majority of domestic extrusion companies lack the expertise and equipment required to manufacture products in the high-value segment. The majority of rolled products currently manufactured in the PRC are often unsuitable for processing in modern rolling mills or as input metal for aluminum can manufacturing equipment. As a result, China remains a net importer of aluminum rolled products due to a deficit of domestically manufactured rolled products capable of meeting technically demanding product or processing standards. We believe our ability to develop a new rolled products facility, despite the implementation of austerity measures by the PRC government, gives us an advantage on other new entrants to this sector.
- Increased global competitiveness of aluminum products manufactured in China. According to CRU, exports of aluminum extrusion products from China rose sharply in 2002 and 2003. Australia and North America accounted for approximately 42% of extrusion exports from China in 2003, with significant sales to the construction end-market. The cost competitiveness of extrusion products manufactured in China, increases in product quality and efforts by producers in China to establish overseas distribution have contributed to this increase in exports.

We believe the majority of exporters of rolled products from China currently use low-value materials and compete principally on price. With the manufacturing equipment we intend to install in our new rolled products facility, we expect that we will able to produce rolled products comparable in quality to China's current imports. We also believe that high freight costs, import duties and long lead times will place these overseas suppliers at a disadvantage to domestic producers of high-quality rolled products in China.

# STRATEGY

Our strategy is to build on our competitive strengths to capitalize on our business opportunities and become the leading manufacturer of aluminum extrusion and rolled products in the PRC and to increase our sales to customers outside the PRC. The following items represent key elements of our strategy:

- Investing in additional aluminum extrusion capacity to meet the increased demand for our products. In response to the strong growth in demand for aluminum extrusion products from our customers domestically and overseas, we are expanding our annual extrusion capacity from 150,000 metric tons to 300,000 metric tons. We have ordered additional high-quality extrusion equipment, which we are installing at our new manufacturing facility in Zhaoqing. Commercial production at the new facility is expected to begin by the middle of 2005. To further improve the efficiency of our extrusion production lines, we intend to consolidate our existing aluminum extrusion operations with our new extrusion operations at Zhaoqing.
- Extending our production capabilities to high-quality aluminum rolled products to enable us to address a broader range of end markets. We believe we will be one of

the first manufacturers in the PRC to produce high-quality aluminum rolled products suitable for a variety of uses, including beverage cans, lithographic sheet, plates for the automotive and shipping industries and for specialized transportation applications. We estimate that substantially all of the PRC's high-end aluminum rolled product demand is satisfied through imports. Through a combination of high-quality products manufactured to exacting tolerances and a lower cost structure than our international competitors, we believe we are well-positioned to gain significant market share through import substitution. We intend to become one of the largest domestic manufacturer of these products supplying the high-growth market for rolled products in the PRC and other markets in Asia.

- Focusing on high-value, customized aluminum products to enhance our profitability and strengthen our customer relationships. We intend to maximize the percentage of our aluminum extrusion production devoted to specialized, high-quality extrusion products that have been custom-designed and manufactured to meet our customers' needs. We believe that such products generally yield higher prices and margins than products based on standardized designs and are less susceptible to competition. Our new extrusion capacity will allow us to significantly increase our overall shipments of high-value, customized products. Once completed, we expect that our advanced machinery for aluminum rolled products will allow us to produce high-quality and consistent aluminum rolled products for the domestic and international markets, complementing our existing extrusion business.
- Enhancing the stability of our business by diversifying our geographical distribution, product mix and customer base. Through our strategic alliance with Indalex and our efforts to establish relationships with other overseas distributors, we seek to achieve a balance between our PRC and overseas customers, with a particular focus on North America. As the PRC market matures, we intend to further broaden the customers and applications for our extrusion products across our end-markets, reducing the concentration of large-scale construction projects and increasing the contribution from products sold to consumers. We believe our expansion into aluminum rolled products will further diversify our customer base, product applications and end-markets.
- Improving the efficiency and operating costs of our operations by completing our expansion project and consolidating our existing facilities. We anticipate that completion of our large-scale aluminum rolled and extrusion products manufacturing facility in Zhaoqing will allow us to increase our annual capacity, to consolidate our aluminum extrusion operations and to achieve efficiencies stemming from our size and reduced operating expenses. We anticipate that after completion of this project, our total aluminum rolled and extrusion product capacity will be approximately 700,000 metric tons per year.

# OUR PRODUCTS

# **Aluminum Extrusion Products**

We are principally engaged in the design, manufacture, sale and distribution of anodized, paint-coated and powder-coated aluminum extrusion products. For the fiscal year ended June 30, 2004, sales of aluminum extrusion products accounted for 84.9% of our total turnover. Our aluminum extrusion products include:

- construction materials, such as curtain wall sections, sliding window and casement window sections, storm doors, window blinds, fence pickets and cladding pads;
- consumer durables, such as furniture, bathroom fixtures, ladders, storage facilities, frames and sport facilities;

- transportation applications, such as containers, auto parts, bus stops and platform screen doors;
- media applications, such as outdoor furniture, display panels and kiosks;
- interior decoration materials, such as internal walls, ceiling panels, louvers, fixed light panels and display cases;
- general shape sections, such as pipes, tubes and channels; and
- industrial sections, such as radiators and boxes.

We coat our anodized aluminum extrusion products with thin layers of anodizing films in a variety of colors for the purpose of protecting the surface from atmospheric rust corrosion. Paint-coated aluminum extrusion products are coated with thin layers of paint to create a surface that resists chipping, cracking, abrasion, erosion and impact. We produce paint-coated aluminum extrusion products in customized colors to specifications required by our customers. We believe that high-quality paint-coated aluminum extrusion products are gaining popularity in the PRC due to the rising standards of domestic architectural designs. In 2003, we also installed a powder-coating production line in one of our factories. The powder-coating process adds a fine layer of powder over the profile to create a finished surface with more design features than anodized surfaces, but at a lower cost than paint-coated profiles.

To assist our customers in the design and customization of aluminum products, we maintain a dedicated design team. Our design team works with project design houses, architects, engineers and consultants to develop product ideas and integrated solutions in response to project demands. We manufacture and test sample products to ensure that the finished product will have the desired strength and technical specifications to meet each customer's needs. For large projects, the design team will assist a customer in the development of a bid for a project tender, which normally results in our designation as the aluminum supplier in the bid materials.

### **Aluminum Panels**

Currently, we purchase aluminum panels from third parties for further processing. We process aluminum curtain wall sections and panels, which are used in an extensive range of external and internal wall claddings, column claddings, beam panels, ceiling panels, doors and frames, advertising panels and lift wall panels. We have an annual processing capacity of 900,000 square meters of aluminum panels. For the fiscal year ended June 30, 2004, the processing of aluminum panels contributed 2.5% of our total turnover.

### **Stainless Steel Products**

We manufacture cold rolled stainless steel tubes to various specifications for use as handrails, pipes and tubes in industrial and building applications. Currently, we have an annual manufacturing capacity of approximately 20,000 metric tons. Turnover from stainless steel products has declined in recent periods due primarily to increased price competition. In response to this heightened competition, which we believe will continue to intensify, we have shifted our manufacturing resources from the production of stainless steel products to aluminum extrusion products. We intend to continue to maintain some stainless steel capacity so that we can satisfy mixed-order contracts that require stainless steel products.

### **Design and Testing Center**

We operate a curtain wall testing center that provides testing services, including dynamic water tests, seismic response tests and vertical and horizontal displacement tests. This facility offers water penetration performance and air permeability analysis. In addition, we conduct testing services for our own products as well as products manufactured by third parties. For the fiscal year ended June 30, 2004, the design and testing center revenues represented 0.6% of our total turnover.

# MANUFACTURING PROCESS

# **Aluminum Extrusion**

The following diagram sets forth our aluminum extrusion manufacturing process:



Our aluminum extrusion manufacturing process has been developed through over ten years' experience operating in the PRC. The aluminum extrusion manufacturing process includes several key steps:

- *Smelting*. During smelting, aluminum ingots and a small quantity of other auxiliary materials, such as silicon and magnesium, are heated together to 600-700°C in an electrical or natural gas-powered furnace to form aluminum alloy billets of homogenous composition. After automated testing to ensure a uniform product, the molten metal is poured into billet molds and cut into different sizes based on the dimensions required to make the aluminum profiles. Although we produce aluminum alloy billets to satisfy unique customer specifications, most customer orders require one of several common aluminum alloy billet types. We typically maintain small inventories of commonly-used aluminum alloy billets to decrease the time required to complete customer orders.
- *Mold design and manufacture.* We produce molds in our dedicated die casting workshop using rough tool steel mold forms that we purchase from outside suppliers. With the aid of computerized mold-making equipment from Japan, the precision molds are created by heating the tool steel. It usually takes one to two weeks to manufacture a mold based on simple specifications and can take longer for complex designs. In some cases, the customer provides the specifications for the profile and we manufacture the mold to match such specifications. However, our designers frequently work with the architects and construction firms, particularly for large-scale architectural and construction projects, to design the specifications for the profiles needed for the specific application. We usually produce profile samples for customer approval before beginning full-scale extrusion. After use, we store molds for commonly-ordered products. Worn and obsolete molds are sold to third parties for scrap value.
- *Extrusion*. The extrusion process is complex, involving interaction between the extrusion press and handling equipment and the material's high-temperature properties. Aluminum extrusion products are formed by forcing a heated aluminum alloy billet through a die opening to produce a profile to consistent specifications. We produce aluminum profiles using conventional direct extrusion where the aluminum alloy billet is pushed through the die by ram pressure generated by an extrusion press. Specialized handling equipment removes the aluminum profiles from the extrusion press and, while maintaining the profile shape, ensures that such profiles are heated to the appropriate treatment temperature to increase their hardness and strength. Heat treatment is followed by quenching in water or a glycol solution to lower the temperature of the profile and aging to facilitate hardening to room temperature.
- *Surface coating.* After extrusion, we treat the surface of the semi-finished plain aluminum extrusion products with a thin layer of anodizing film, paint or powder to protect the surface from atmospheric rust corrosion and, in the case of paint and powder coating, to increase surface resistance against chipping, cracking, abrasion and erosion. Through this process, we can create many distinctive products with attractive finishes for a wide variety of applications.

The finished products are packaged, according to customer specifications, for transportation to our warehouse facilities in Nanhai. Substantially all of our aluminum extrusion products are delivered to customers with a paper wrapping. Once packaged, the finished products are transported from our factories to the warehouse facility by independent transportation companies. The timing of the production process is closely monitored to avoid late delivery of orders and extra storage time for completed orders awaiting delivery. For most customer orders, we estimate that it takes 20-30 days to complete production from submission of the design specification to delivery of the finished product.
We employ quality control measures during the manufacturing process. Given the exacting specification for aluminum profiles, these quality control measures are automated with computers providing information to the employees regarding the performance of the factory equipment. To minimize waste and material costs, we recycle rejected work-in-progress. To monitor the resistance of the finished products to atmospheric corrosion, our quality control department conducts a final inspection on the overall quality of the finished product. We conduct sample inspections on finished products before packaging and delivery.

Our quality control department also prepares various daily quality control reports related to the production process. These daily quality control reports are distributed to the corresponding production departments for their review and reference. We prepare monthly quality control reports for review by the general manager.

# **Aluminum Rolled Products**

Aluminum rolled products manufacturing involves melting, hot rolling and cold rolling processes.

- *Melting*. Using larger furnaces than those used for the production of aluminum alloy billets, smelters dedicated to aluminum rolled products production scan the molten metal constantly to ensure uniform composition. The molten aluminum alloy is cast into slabs to be used as the input for the hot rolling process.
- *Hot rolling.* The hot rolling process includes pressing the aluminum alloy slab using heavy metal rollers, each weighing approximately 100 metric tons, and a production line that can extend for over 500 meters. Hot rolling can be performed using a single-stand of rollers, but such technique requires multiple passes before the desired thickness has been achieved. Some factories use "continuous casting" technology to gain the required thickness in one pass. This method requires less capital investment and less energy, but generally produces lower-quality products. Hot rolled coils have thicknesses ranging from two to eight millimeters thick and can be used for beverage containers, transportation, shipping, automobile and aerospace applications.
- *Cold rolling.* After hot rolling, the cold rolling process is used to produce thinner aluminum sheets from the hot rolled coil. The cold rolling process is similar to hot rolling except that the process is conducted at room temperature. Cold rolled coil is usually 0.25 millimeters, but can be up to six millimeters in thickness and can be used for beverage can, lithographic sheet, transportation and aerospace applications.

# MANUFACTURING FACILITIES

We have expanded our manufacturing facilities through both investment and acquisitions during the past few years. For the fiscal year ended June 30, 2004, we estimate that we outsourced a small portion of our orders, primarily those based on simple designs, to other PRC aluminum extruders. As of June 30, 2004, our annual aluminum extrusion manufacturing capacity totaled approximately 150,000 metric tons. As part of our expansion program in Zhaoqing, we plan to increase our annual aluminum extrusion manufacturing capacity by an additional 150,000 metric tons. See "Our Expansion Program."

Since 1998, we have expanded our annual aluminum extrusion manufacturing capacity by 70,000 metric tons. The following table sets forth information regarding our manufacturing facilities as of June 30, 2004:

Name	Products	<b>Floor area</b> (square meters)	Workforce	Annual capacity	Certification
Guangdong Asia Aluminum Factory Co., Ltd.	Aluminum extrusion	250,000	1,500	60,000 metric tons	ISO9001 ISO9002
Foshan Nanhai Xinya Aluminum & Stainless Steel Co. Ltd.	Aluminum extrusion and stainless steel	80,000	690	35,000 metric tons aluminum extrusion 20,000 metric tons stainless steel	ISO9001
Foshan Nanhai Panasia Metal Spraying Co., Ltd.	Fabrication of extrusic and panel products, paint coating service testing services	on 20,000 es,	392	900,000 m <sup>2</sup> for aluminum panels 400,000 m <sup>2</sup> for paint coating services	ISO9001
Foshan Nanhai Hongjia Aluminum Company Limited	Aluminum extrusion	120,000	842	25,000 metric tons	ISO9002
Foshan Nanhua Aluminum Company Limited	Aluminum extrusion	55,000	700	30,000 metric tons	ISO9002

We operate five aluminum extrusion factories located in Foshan, Guangdong Province, China. We lease the land for our manufacturing facilities from independent third parties and our joint venture partners. Such leases have a term of 20 to 29 years expiring between 2011 and 2031. See "Risk Factors – Risks Relating to Us – We do not possess and have not applied for formal land use right certificates in respect of our land and facilities located in Nanhai, Guangdong Province of the PRC."

We import our aluminum extrusion equipment primarily from Japan and Taiwan, and our surface treatment equipment primarily from the United States, Germany, Switzerland, Japan and Italy.

# OUR EXPANSION PROGRAM

In October 2003, we entered into a joint venture agreement for a major expansion program to construct a six square-kilometer manufacturing facility in Zhaoqing, Guangdong Province. The primary components of the expansion program include:

	Existing Capacity	Expanded Capacity (in metric tons)	Total Capacity
Aluminum extrusion	150,000	200,000	300,000(1
Aluminum rolled products	-	400,000	400,000

(1) We estimate our total aluminum extrusion capacity during and after our expansion program to be 300,000 metric tons, due to the gradual relocation of certain extrusion presses to our new manufacturing facility in Zhaoqing and the routine decommissioning of equipment in the ordinary course of business.

After the completion of these steps, we intend to expand the facility to include aluminum slab smelting facility for the manufacture of aluminum rolled products.

Together with a consortium, known as SMS/TMGE, (comprised of SMS Group, a major global supplier of flat product rolling mills, and TMGE Automation Systems LLC, itself a joint-venture between Toshiba Mitsubishi-Electric Industrial Systems Corp. and General Electric, and engineers and technicians who we have recruited from a number of

major Canadian-, European- and U.S.-based companies), we are managing the construction and coordination of the expansion program. Our aluminum extrusion facilities, powder coating workshop and anodizing workshop will be owned and run by Zhaoqing Asia Aluminum Factory Company Limited and our aluminum rolled products manufacturing facilities will be owned and run by Asia Aluminum (China) Company Limited. Both entities are our subsidiaries in the PRC.

We believe that, when completed, our aluminum rolled products manufacturing capabilities will be among the most advanced in China. In addition, we believe that the expansion project will increase the efficiency of our current aluminum extrusion production process through its economies of scale and stream-lined manufacturing lines. The following diagram shows our anticipated use of the property:



The Zhaoqing local government has approved our plan to develop the site, which is situated along the Bei Jiang river, providing access to the Pearl River Delta. Our subsidiary, Asia Aluminum (China) Company Limited, has obtained certificates evidencing its land use rights in connection with 2,334,750 square meters of land at the site. We are in the process of obtaining certificates evidencing our land use rights with respect to other portions of the site and expect to receive such certificates as necessary to allow our development plans to continue. In addition to the equipment and facilities we are constructing at the site, we plan to develop a dedicated port facility to accommodate ships of up to 5,000 tons dead weight. We entered into a series of contracts to purchase additional aluminum extrusion equipment and aluminum hot and cold rolling equipment during 2003 and 2004 and are managing the civil engineering aspects of the project through contracts with experienced PRC contractors. In line with our expansion plans, we intend to enter into additional contracts at various stages during the expansion process.

#### **Aluminum Extrusion Expansion**

Upon completion, our expansion program will have approximately 250,000 square meters of floor space, with eight workshops totaling 220,000 square meters and one furnace facility of 30,000 square meters, for the production of aluminum extrusion products. Civil engineering work, including site leveling and piling work, was completed in August 2004. Construction of the factory buildings for housing the aluminum extrusion facilities, together with roads, utilities supply, transformer station and waste treatment infrastructure, began in September 2004. We anticipate completion of the construction related to the aluminum extrusion facilities to be completed by April 2005.

We have entered into contracts with UBE to provide aluminum extrusion equipment for the new facilities. Equipment began arriving at the site in December 2004. We expect three 2,750 ton UST extrusion presses and 132,000 ton UST extrusion presses to be delivered from December 2004 through June 2005. Under the contract with UBE, installation of the aluminum extrusion equipment is scheduled to begin in December 2004. We anticipate that installation of each aluminum extrusion line will take approximately two weeks with an additional four weeks for testing and trial runs. We estimate that these aluminum extrusion facilities will commence commercial production by the middle of 2005. In addition, we intend to construct a dies workshop which will be owned and operated by a PRC company, Phoenix Guangdong Dies Manufacturing Company Limited, jointly-owned by us and an Italian company.

#### **Aluminum Rolled Products Project**

We intend to construct a facility using power rolling manufacturing equipment for sales to domestic and overseas markets. Upon completion of our expansion, we will have approximately 495,000 square meters of floor space devoted to the processing of aluminum rolled products. We have entered into contracts with SMS/TMGE for delivering two major plant items: (i) the hot mill consisting of the hot roughing mill and hot finishing mill; (ii) the 5-stand cold mill; and (iii) furnaces and casting facilities. The hot roughing mill was newly purchased while the hot finishing mill was purchased second-hand from a major metals company in the United States. We expect the 5-stand cold mill to be erected in early 2006 while the hot mill will be completed by the end of 2006. The 5-stand cold mill is a second-hand mill originally belonging to Kaiser, which is capable of producing aluminum sheets at fine gauges necessary to produce canned stock. The 5-stand cold mill uses a more efficient and lower cost manufacturing process than that employed by the single-stand cold mill typically found in the PRC.

We have signed contracts with SMS Group/TMGE for refurbishing and upgrading the hot finishing mill and the 5-stand cold mill. Under the contract for the 5-stand cold mill, installation of the 5-stand cold mill equipment is scheduled to begin in early 2006. We anticipate that installation, testing and trial phases of the 5-stand cold rolling mill lines will take approximately six months. Under the current project schedule, we estimate that the hot rolling mill facilities will be completed by the end of 2006. Shipments from the hot rolling mill are expected to begin by during the first half of 2007. In addition, we intend to enter into further contracts in order to complete our expansion plans, including the purchase of steel drums onto which thinner gauge aluminum is wound, a finishing plant, furnaces and casting facilities and a design contract with an engineering firm.

We currently project that we will spend approximately US\$203.3 million, US\$125.2 million and US\$35.0 million in fiscal years 2005, 2006 and 2007, respectively, on the aluminum rolled products facilities and approximately US\$114.6 million and US\$15.8 million in fiscal years 2005 and 2006, respectively, on the aluminum extrusion facilities.

As we believe it is common for international large-scale industrial projects of this type, our expansion plans are not effected through turn-key arrangements, but rather are effected through a series of separate contracts covering various aspects of the expansion plan and supported by performance guarantees in such contracts. We believe that this approach will result in significantly lower overall production costs and faster completion and start-up periods than if we had utilized full turn-key engineering, procurement and construction contractors. However, certain parts of the overall projects have been contracted as traditional "EPC" contracts, despite the absence of an overall turn-key solutions provider. For a technical description of our aluminum rolled products facilities, see "Appendix A – Report of PB Power."

On October 15, 2004, we entered into a non-binding Memorandum of Understanding with Marubeni Corporation, or Marubeni, a major exporter of aluminum products based in Japan. Due to the restricted supply of high-quality aluminum rolled products in Japan, Marubeni indicated its intention to commence marketing our aluminum rolled products for distribution to countries in Asia and the Middle East. Pursuant to the Memorandum of Understanding, Marubeni began approaching its trading customers in late October 2004. The pricing terms for aluminum rolled products that may be distributed through Marubeni in the future have not yet been agreed.

#### SUPPLY

#### **Aluminum Ingots**

The principal raw material for our aluminum extrusion production is aluminum ingots. We purchase aluminum ingots from both domestic and overseas suppliers including Chalco, Qingtongxia Aluminum Company, Gerald Metals, Inc. and Glencore International AG. To minimize the rejection rate for finished products, we purchase raw materials only from suppliers with established reputations and trading records. In addition, our quality control department utilizes advanced testing equipment to test the aluminum content for samples of incoming aluminum ingots. For the year ended June 30, 2004, we sourced approximately 30% of our aluminum ingot supply from overseas suppliers. We also make spot purchases from the international spot market. We are usually able to obtain 60-day credit terms with international suppliers and 30-day credit terms with domestic suppliers. We seek to hedge substantially all of our aluminum ingot price exposure either through making the actual purchase of aluminum ingots on the same date as the raw material pricing date under our customer contracts or through the purchase of futures contracts on the open market. See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Operating Expenses."

Currently, we purchase substantially all of our aluminum in the form of aluminum ingots, which we cast into aluminum alloy billets. We may in the future purchase aluminum alloy billets directly from suppliers for our use or purchase supplies of molten aluminum to cast into aluminum alloy billets.

#### **Other Raw Materials and Electricity**

The principal raw materials for the manufacture of stainless steel tubes are stainless steel coils, which are rolls of stainless steel strips coiled together. We purchase stainless steel coils from PRC suppliers. For the fiscal year ended June 30, 2004, stainless steel accounted for 93% of our cost of sales for stainless steel. For our existing aluminum panel processing operations, we purchase aluminum panels from suppliers such as China Southwest Aluminum Group Limited and Alcan Inc.

We purchase chemicals used in the anodizing and paint coating process such as solvent, sulfuric acid, paint and powder from international suppliers with factories in the PRC, such as Imperial Chemical Industries, plc, BASF Group, Akzo-Noble Coatings, Inc. and PPG Industries, Inc.

Our operations require a considerable amount of electricity. Currently, we purchase all of our electricity from the local power grid. During previous periods of high electricity prices and low diesel fuel prices, we have generated a portion of our electricity requirements through our own diesel-powered generators. We do not have plans to expand our power generation facilities and rely on the local power grid to provide stable and consistent energy supply to conduct our operations. See "Risk Factors – Risks Relating to Us – Our operations are energy-intensive and our results of operations may be materially adversely affected if energy costs were to rise, or if our energy supplies were interrupted."

# SALES AND DISTRIBUTION

As of June 30, 2004, our client base included more than 300 customers worldwide. Our largest customers include Indalex, Procter & Gamble, Permasteelisa S.p.A., China International Marine Containers (Group) Co., Ltd. and Singamas Container Holdings Limited. Our top five customers by turnover accounted for less than 30% of our total turnover for the fiscal year ended June 30, 2004, and no single customer accounted for more than 10% of our total turnover during the same period.

We generally adopt a "cost-plus" approach in pricing our products based on the LME spot price for aluminum on the delivery date to our customers plus a processing fee. PRC sales are generally ex-factory, which means we do not bear delivery costs. Normally, we invoice our customers at delivery. See "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Approximately 80% of our sales are in the PRC. We retain 80 distributors across China and a growing direct sales team. The representative offices' responsibilities include monitoring the distributors, identifying major construction projects and contacting architects and state design houses about potential projects. Contracts for the construction of major projects are normally awarded following a tendering process. Invitations to tender for public sector contracts are advertised in the government journal and the press. We believe we have well-established relationships with the PRC's leading state design houses, construction groups and engineering consultants. Our liaison offices are able to participate early in the process by advising the state design house and engineering consultants on the design and specifications of the aluminum products needed for each project. The state design house and engineering consultants will then designate us as the official supplier in their proposal.

We also sell to Hong Kong, other Asian markets and North America. Apart from authorized distributors handling sales in Hong Kong, Singapore, Australia, North America and Germany, we also operate an export sales department in Hong Kong to serve key overseas industrial manufacturers and consumer marketing firms. As part of our strategic alliance with Indalex, we use Indalex's extensive distribution network in North America. The following table summarizes our sales in major regions for the fiscal years ended June 30, 2003 and 2004:

	]	For the Fiscal Year	Ended June 30,	
	200	)3	2004	
		% of total		% of
	Turnover	turnover	Turnover	turnover
		(HK\$ in millions, exc	cept percentages)	
PRC	1,860.6	79.0%	2,362.8	80.4%
HongKong	249.1	10.6	142.3	4.9
Asia Pacific	104.8	4.4	119.6	4.1
North America	133.0	5.6	306.7	10.4
Other	10.5	0.4	7.1	0.2
Total	2,358.0	100.0%	2,938.5	100.0%

# STRATEGIC ALLIANCE WITH INDALEX

We have, through our subsidiary AAG, established a strategic alliance with Indalex, the second-largest aluminum extruder in North America. Indalex provides technical assistance to us and access to their extensive distribution channels to increase sales into North America. We believe that we enjoy pricing advantages compared to our North American competitors because of our significantly lower costs in the PRC for labor, land and other overhead.

We entered into a supply agreement with Indalex in September 2000 pursuant to which Indalex retained us as its exclusive supplier of extrusion products in PRC while we retained Indalex as our exclusive distributor in the United States and Canada.

Under the Indalex supply agreement, Indalex provided technical support to us, including granting us the right to use certain trademarks, know-how and other technical and proprietary information solely to manufacture, label and package products ordered by Indalex, and agreed to send experienced technical personnel to our facilities upon reasonable request. In April 2004, we entered into a new supply agreement with Indalex for the supply of aluminum extrusion products by us to Indalex on a non-exclusive basis. The agreement commenced on January 1, 2004 and will be renewed for successive three-year terms unless otherwise terminated by the parties. Under the supply agreement Indalex shall purchase 4,500, 20,000, 30,000 and 18,000 metric tons of aluminum extrusion products from us for the six months ended June 30, 2004, for fiscal years 2005 and 2006 and for the six months ended December 31, 2006, respectively.

In June 2001, we disposed of 26.2% of the shares of AAG to Indalex for a consideration of HK\$419.2 million. Indalex's equity stake in AAG was subsequently diluted to 25% when Xing Yu Aluminum Company Limited and Jia Hong Aluminum Company Limited, the founders of Nanhua and Hongjia, acquired a minority stake in AAG in March 2002.

The agreement for the sale and purchase of the AAG shares also provided for purchase price adjustments, under which Indalex committed to pay additional consideration in the amount of HK\$26.2 million, HK\$52.4 million and HK\$26.2 million subject to AAG's achievement of specified operational and financial targets in fiscal years 2001, 2002 and 2003, respectively. Indalex has paid us HK\$52.4 million based on our 2002 performance. We do not expect to receive any additional payments from Indalex. In connection with the sale of the shares, a deed of tax indemnity was also signed pursuant to which we undertake to indemnify Indalex in respect of any tax liabilities arising from any income, profits or gains earned, accrued or received by AAG and its subsidiaries to the extent that any tax liability was not paid or provided for at the appropriate time as a result of the use by AAG or its subsidiaries of any tax policies or accounting practices that did not comply with applicable law or published practice in force.

According to the AAG shareholders' agreement between us and Indalex dated June 8, 2001, Indalex has the right to participate in the management of AAG through a joint working party, which consists of two representatives appointed by us and two appointed by Indalex. Indalex is also entitled to appoint one out of seven directors of AAG. So long as Indalex holds a minimum of 10% of the shares in AAG, AAG's board of directors shall not, without the prior approval of Indalex, make any decision over certain important corporate matters concerning AAG and its subsidiaries, including, among other things, amending constitutional documents, changing the nature or scope of AAG's business, incurring borrowings (except normal trade credit or trade facilities entered into in the ordinary course of business) in excess of HK\$10 million and incurring capital expenditures in excess of HK\$15 million.

Under the terms of the AAG shareholders' agreement with Indalex, Indalex has a "put" option to sell its entire interest in AAG to us in the event of

- our Chairman, Mr. Kwong Wui Chun, ceasing to hold at least a 35% stake in us;
- we cease to hold at least a 60% stake in AAG;
- deadlock over corporate decision regarding AAG; or
- our material breach of the terms of the AAG shareholders' agreement.

The "put" option price would be determined with reference to the open market value of the AAG shares as agreed by the parties or, if they fail to agree, as determined by an international firm of accountants. The price would increase to 110% of the "put" option price if the put right is triggered by our material breach of the AAG shareholders' agreement. See "Risk Factors – Risks Relating to Us."

Indalex also has a "call" option to acquire our entire remaining interest in AAG in the event of our material breach of the AAG shareholders' agreement. If triggered, then the price would be equal to 95% of the open market value of AAG.

#### **EMPLOYEES**

As of October 31, 2004, we employed 4,400 full time employees in Hong Kong and the PRC, including 780 administrative staff and 3,620 technicians and production staff. As of June 30, 2002 and 2003, our total number of employees was approximately 4,500 and 4,400, respectively. We review our remuneration policies for employees on an annual basis. Our standard remuneration package includes medical insurance, Mandatory Provident Fund scheme for the employees located in Hong Kong, bonuses and share options. Our employees are not organized through a labor union nor do we have any collective bargaining agreement with our employees.

Our employees in the PRC are members of a central pension scheme operated by the relevant local municipal government. The subsidiaries in the PRC are required to contribute approximately 14% to 20% of their covered payroll to the central pension scheme to fund the retirement benefits. Adequate provision for the contribution has been made in the accounts in accordance with the rules of the central pension scheme. In addition to the

pension insurance, we maintain other social insurance for our staff in the PRC as implemented in the relevant region where our subsidiaries and WFOEs are located, including medical insurance, unemployment insurance and working injury insurance.

#### INSURANCE

We maintain insurance coverage against risks of loss or damage to our assets, including owned or leased real estate, raw materials, work-in-progress, finished products, automobiles and vehicles, machinery and aluminum products quality insurance. We also carry insurance against the risk of destruction of property or assets through fire. We do not carry business interruption insurance. Significant damage to our aluminum extrusion factories would have a material adverse effect on our business and results of operations.

As of June 30, 2004, we have not experienced any significant loss or damage to our aluminum extrusion facilities. In 2002, 2003 and 2004, we paid an aggregate of US\$327,000, US\$388,000 and US\$439,000, respectively, in insurance policy premiums.

#### LITIGATION AND REGULATORY MATTERS

From time to time, we are involved in legal proceedings concerning matters arising in connection with the conduct of our business. We are not currently involved in, and have not recently been involved in, any legal or arbitration proceedings that we believe would be likely to have a material effect on our financial condition or results of operations.

In April 2000, the Hong Kong Stock Exchange formally reprimanded Mr. Kwong, our Chairman, and Mr. Tse and Mr. Hung, our executive directors at the time, for failing to disclose loans made to an associate of a connected person of us in the prospectus used in connection with the offer of our shares to the public in Hong Kong and our listing on The Stock Exchange of Hong Kong in April 1998, or if not by then immediately upon our listing, as required by the Hong Kong Stock Exchange's Listing Rules. The loans that constituted a connected transaction were used for the purchase of raw materials by a subsidiary now 69.5%-owned by us. Mr. Tse and Mr. Hung resigned from their executive director positions in July 2001 and August 2003, respectively.

In July 2002, the SFC fined Mr. Zhong, one of our executive directors, for failing to report to the Hong Kong Stock Exchange certain share options granted to him as our employee within five business days following his appointment as a director as required by the Securities (Disclosure of Interests) Ordinance.

Subsequent to these incidents, we have hired a full-time corporate secretary to monitor compliance with the Hong Kong Stock Exchange's Listing Rules and other applicable rules and regulations by us and our directors. We believe that we and our officers and directors are currently in compliance with all such requirements.

#### **ENVIRONMENTAL MATTERS**

We are subject to PRC national environmental laws and regulations and also environmental regulations promulgated by the local governments where we operate. These laws and regulations include limitations on waste discharge, land repair, emissions disposal and mining control. For example, national regulations promulgated by the PRC government set discharge standards for emissions into the air and water. The PRC national government promulgates schedules of discharge fees for various waste substances. These schedules usually provide for discharge fee increases for each incremental increase of the amount of discharge up to a specified level set by the PRC government or the local government. For any discharge exceeding the specified level, the relevant PRC government agencies may order any of our facilities to rectify certain behavior causing environmental damage, and subject to national government approval, the local government has authority to order any of our facilities to close for failure to comply with the existing regulations.

Our primary aluminum production process generates fluorides, pitch fume and dust. It is illegal to release these products into the atmosphere without first processing them. Once processed, the amount of pollutants that can be released is subject to national or local discharge limits. Each of our primary aluminum smelters has its own waste treatment facilities on site or has developed other methods to dispose of the industrial waste water.

The following description summarizes selected provisions of certain principal agreements related to our expansion program to construct a new aluminum rolled products hot rolling and cold rolling manufacturing facility with an annual capacity of 400,000 metric tons and associated infrastructure necessary to conduct our expanded business. This description is a summary and should not be considered to be a full statement of the terms and conditions of such agreements.

# HOT FINISHING MILL – ASSET PURCHASE AGREEMENTS

On November 1, 2003, we entered into an Asset Purchase Agreement with ACE Horizon Enterprises Limited, a company formed in the British Virgin Islands, to purchase a 4-stand aluminum hot finishing mill and related handling equipment for a total consideration of US\$37.0 million. On November 18, 2003, we entered into an Asset Purchase Agreement with Smart Develop Resources Limited, a company formed in the British Virgin Islands, to purchase DC motors and additional handling equipment for the aluminum hot finishing mill for a total consideration of US\$30.0 million. These two Asset Purchase Agreements are referred to herein collectively as the "Purchase Agreements."

Diligence performed. he hot finishing mill has been purchased from the United States, where it was previously operated by Reynolds Metals Company at its McCook, Illinois facility. The mill was purchased by Commonwealth Aluminum Co., or Commonwealth, and we reviewed its inspection records prior to purchasing the hot finishing mill. We also received advice regarding the quality of the mill from SMS Demag Inc., or SMS.

*Payment terms*. The terms of the Purchase Agreements require payment of a 10% deposit with the remaining balance to be paid at a future date. Since entering into such agreements, we have paid US\$14.95 million under the former agreement and US\$7.0 million under the latter agreement as of November 26, 2004. Through agreement with the sellers, we have extended the final payment date to April 30, 2005 for each of the Purchase Agreements.

*Delivery schedule.* Under each of the Purchase Agreements, the sellers have agreed to clean, paint, repair, package and transport the equipment to a port in the PRC as directed by us. Given the weight and size of the equipment, it will be shipped by the sellers in several shipments. We estimate that the hot finishing mill equipment will begin to arrive in the PRC in May 2005 and that deliveries of the equipment will be completed by July 2006.

*Warranties.* Assuming no material change from the date of each Purchase Agreement, the hot finishing mill equipment is sold on an "as-is, where-is" basis with no additional warranties granted by the seller. We were allowed to conduct an inspection of such equipment prior to purchase; residual defects associated with such equipment are risks borne by us.

# HOT ROLLING MILL – INSTALLATION CONTRACT

On November 23, 2004, we entered into a Contract for Aluminum Hot Rolling Mill, or the "Hot Rolling Contract," with SMS Demag Aktiengesellschaft ("SDE"), SMS and TM GE Automation Systems LLC ("TMGE" and together with SDE and SMS, the "Consortium") for various services and equipment to be provided in connection with reconditioning our used hot rolling mill equipment, integrating our new hot roughing mill and providing performance guarantees for the commissioning of the hot rolling mill for an aggregate consideration of approximately US\$60.0 million. The Consortium has agreed to erect the hot rolling mill, to commission the facilities and to complete performance tests before handover.

*Payment terms.* The Hot Rolling Contract requires deposit payments for equipment only to each member of the Consortium with progressive deposit payments to be made according to a schedule, which is based on the schedule of delivery in accordance with the terms of the contract.

In addition, we are obligated to pay certain other amounts to the members of the Consortium after delivery of certain technical design documentation and software. Payments for technical services are payable according to a fixed schedule based on the date upon which services are first provided.

*Delivery schedule.* Commissioning of the hot rolling mill is scheduled to be completed 24 months after the effective date of the Hot Rolling Agreement, which we anticipate will be in December 2006. Under the terms of the agreement, the Consortium agrees to complete the project no later than 18 months after the effective date.

*Warranties.* In the event that the hot rolling mill fails to meet the performance guarantees contained in the Hot Rolling Agreement, the Consortium agrees to work with us to determine the source of the problem. However, in the event that the performance guarantees are not met on time, the Consortium agrees to pay liquidated damages not to exceed 5% of the total contract price. Software, equipment and spare parts delivered under the Hot Rolling Agreement carry separate warranty terms. In addition, parts supplied by the Consortium during the project will be warranted for 18 months from the date of completion of the final acceptance certificate. During the course of the agreement, the Consortium will supply certain training to our employees regarding the operation and maintenance of the equipment as necessary.

*Force majeure and other provisions.* Upon the occurrence of certain force majeure events, including our failure to maintain the necessary PRC government approvals for the project, the Consortium is relieved of its responsibilities to perform its obligations under the Hot Rolling Agreement.

#### **Cold Rolling Mill – Asset Purchase Agreements**

On April 30, 2003, we entered into an Asset Sale Agreement with ACS International, Inc., a New York corporation, or "ACS," for the purchase of cold rolling mill equipment for US\$36.5 million. On August 18, 2003, we entered into a second Asset Sale Agreement with ACS for the purchase of cold rolling mill auxiliary equipment and spare parts for US\$36.55 million (together with the April 30, 2003 agreement, the "ACS Agreements").

*Diligence performed.* Prior to executing the ACS Agreements, we performed due diligence in connection with the cold rolling mill, including conducting a review of the last six months of operating records from the previous operator, performing quality assessments with SMS and deciding how to recondition the cold rolling mill for redeployment at our expansion site. Based on this due diligence process, the cold rolling mill was assessed to be in good condition and minimal refurbishment was recommended.

*Payment terms*. The terms of the ACS Agreements require a 41% deposit with the balance to be paid at a future date. Since entering into such agreements, we have paid all amounts owed under the ACS Agreements in full.

*Delivery schedule.* Under each of the ACS Agreements, the seller has agreed to clean, paint, repair, package and transport the equipment to a port in the PRC as directed by us. We estimate that the cold mill equipment will begin to arrive in the PRC in February 2005 and that deliveries will be completed by June 2005.

*Warranties*. Assuming no material change from the date of each agreement, the cold mill equipment is sold on an "as-is, where-is" basis with no additional warranties granted by the seller. We were allowed to conduct an inspection of such equipment prior to purchase; residual defects associated with such equipment are risks borne by us.

#### COLD ROLLING MILL – INSTALLATION CONTRACT

On June 7, 2004, we entered into a Contract for Aluminum Cold Rolling Mill (the "Cold Mill Contract") with SMS and TMGE for various services and equipment to be provided in connection with reconditioning our used cold rolling mill equipment and

providing performance guarantees for the commissioning of the cold rolling mill for an aggregate consideration of approximately US\$17.6 million.

*Payment terms*. The terms of the Cold Mill Contract require that fixed progress payments be made to SMS and TMGE based on a time schedule that we believe relates to the value of deliveries from such parties. Under the Cold Mill Contract, we have the right to delay payment if equipment delivery is delayed. As of November 3, 2004, we have paid approximately US\$3.4 million under the Cold Mill Contract.

*Installation schedule*. Under the Cold Mill Contract, SMS and TMGE have agreed to have the cold rolling mill available in early 2006 for performance testing.

*Warranties.* SMS and TMGE have provided warranties that the equipment that we have purchased will meet certain performance targets only to the extent that either SMS or TMGE have inspected and repaired such equipment under our direction. No warranty period is specified in the Cold Mill Contract for such performance guarantees. In the event that the cold rolling mill fails to meet the performance guarantees, SMS and TMGE agree to work with us to determine the source of the problem. However, in the event that the performance guarantees are not met on time, they agree to pay liquidated damages not to exceed 5% of the total contract price. In addition, parts supplied by the Consortium during the project will be warranted for 18 months from the date of completion of the final acceptance certificate. During the course of the agreement, the Consortium will supply certain training to our employees regarding the operation and maintenance of the equipment as necessary.

## **INDALEX SUPPLY AGREEMENT**

On April 29, 2004, we entered into a supply agreement with Indalex in connection with our supply of aluminum extrusion products to Indalex on a non-exclusive basis. Commencing on January 1, 2004, the supply agreement expires on December 31, 2006, but renews automatically for additional three-year terms unless otherwise terminated by the parties. The price for aluminum extrusion products supplied under the supply agreement is determined with reference to the LME spot price for aluminum ingots plus a processing fee based on factors such as the complexity of the manufacturing process.

Under the supply agreement, we may invoice Indalex for the price of the products on or at any time after delivery and Indalex shall pay us the price within 60 days of the invoice. Title to and risk of loss of the products will pass to Indalex upon delivery by us to carriers designated by Indalex. Indalex has the right to reject any products if the products failed to meet applicable specifications or are otherwise defective or faulty at the time of delivery.

#### JOINT VENTURE AGREEMENTS

On April 25, 2001, we entered into a joint venture agreement, which has been amended from time to time, with Guangdong Nanhua Aluminum Factory Co., Ltd. to form a joint venture in the PRC, Foshan Nanhua Aluminum Company Limited. On April 25, 2001, we entered into a joint venture agreement, which has been amended from time to time, with Nanhai Hongjia Aluminum Stainless Steel Co., Ltd. to form a joint venture in the PRC, Foshan Nanhai Hongjia Aluminum Company Limited.

Pursuant to the joint venture agreements, we invested US\$10.2 million in Foshan Nanhua Aluminum Company Limited and US\$7.98 million in Nanhai Hongjia Aluminum Stainless Steel Company Limited in exchange for a 60% equity interest in both of the joint ventures, with the remaining 40% owned by our joint venture partners. Both of the joint ventures have a term of 30 years and the parties may extend the term by agreeing on such extension not less than six months prior the expiration. The joint ventures distribute profits to us and our joint venture partners in accordance with equity ownership percentages. However, no such distribution shall be made unless any loss of the prior fiscal year has been fully covered.

The board of directors of each of the joint ventures consists of six directors, of which we have the right to appoint four including the vice chairman. A majority of the board of directors may determine important matters regarding such joint venture, except that the following matters must be determined by unanimous decision by the directors participating in the board meeting:

- amendments to the articles of incorporation or creation of important corporate governance rules;
- increase in the registered share capital or adjustment to equity ownership;
- consolidation with any other business organizations;
- liquidation upon dissolution or expiration.

The parties have agreed to first negotiate any dispute arising under this joint venture agreement. If such dispute cannot be resolved, they have agreed to submit it to arbitration.

We are managed by a board of directors comprised of not less than two directors. Directors are appointed either by our shareholders at a general meeting or by the Board of Directors subject to authorization by the shareholders in a general meeting either to fill a vacancy or as an additional Director. Any Director so appointed shall retain office until the next annual general meeting, at which time he or she shall be eligible for re-election.

## **BOARD OF DIRECTORS**

The following table sets forth certain information with respect to our directors as of December 8, 2004.

Name	Age	Title
Mr. KWONG Wui Chun Dr. CHAN Yiu Tsuan, Benby Mr. ZHONG Jianqiu Mr. MA Tsz Chun <sup>(1)</sup> Mr. YAU Wing Keung, Frankie <sup>(1)</sup> Mr. CHOU Shun, Alan <sup>(1)</sup>	49 43 41 39 45 46	Chairman Deputy Chairman Executive Director Independent non-executive Director Independent non-executive Director Independent non-executive Director

<sup>(1)</sup> Member of the Audit Committee.

A description of the business experience and present employment of each of the directors is provided below.

*Mr. Kwong Wui Chun*, aged 49, is our chairman and founder. He oversees our operations and is responsible for formulating and monitoring our overall corporate strategic plans and business development. Prior to our establishment in September 1992, he had over 24 years of experience in the trading of non-ferrous metals and the manufacturing of non-ferrous metal products in Hong Kong and the PRC. Mr. Kwong has an extensive understanding of the metal trading mechanism and regulatory framework, especially in the non-ferrous metals sector in the PRC. He is active in industry and public services and is currently the chairman of the Guangdong Nanhai Non-ferrous Metals Association. Mr. Kwong's business address is 12th Floor, Railway Plaza, 39 Chatham Road South, Tsimshatsui, Kowloon, Hong Kong.

Dr. Chan Yiu Tsuan, Benby, aged 43, is our deputy chairman and chief executive officer. He is responsible for formulating and monitoring our overall strategic plans and policies. Prior to joining us in December 2001, he had more than 18 years of experience in international banking, specializing in trade and commodity finance, corporate finance, investment banking and structured trade finance. He held senior positions with major international banks and had been stationed in the PRC for over seven years. Mr. Chan graduated from the University of Hong Kong with a Bachelor's Degree in Social Sciences and received his Doctorate in Philosophy in Business Administration from the Empresarial University. He also holds a Diploma in Chinese Law from the University of East Asia, a Diploma in China Investment and Trade from the Peking University, a Diploma in Appreciation of Historical Relics from the Beijing Normal University, a Master's Degree in Business Administration from the Open University of Hong Kong and a Master's Degree in International Relations from the Flinders University of Australia. He is also a fellow member of the Hong Kong Institute of Directors, the Hong Kong Institute of Marketing and the Chartered Management Institute. Dr. Chan's business address is 12th Floor, Railway Plaza, 39 Chatham Road South, Tsimshatsui, Kowloon, Hong Kong.

*Mr. Zhong Jianqiu*, aged 41, is our executive director. He is responsible for the overall management of our production facilities and daily operations. He also serves as the managing director of our subsidiary, Foshan Nanhai Xinya Aluminum & Stainless Steel Co. Ltd. Mr. Zhong joined us in 1996 and has more than 20 years of experience in industries related to aluminum extrusion products. His business address is Middle Road, Guijiang Highway, Nanhai, Guangdong, The People's Republic of China.

*Mr. Ma Tsz Chun*, aged 39, is a practicing certified public accountant with more than 15 years' experience in finance and accounting. He is a member of the Hong Kong Institute of Certified Public Accountants, the Association of Chartered Certified Accountants, the Institute of Chartered Secretaries and Administrators and the Hong Kong Securities Institute. He holds a Master's Degree in Business Administration and a Professional Diploma in Accountancy. Before starting his own practice, he was a senior audit manager for an international accounting firm. Mr. Ma's business address is Room 2201, 22nd Floor, Tung Wai Commercial Building, 109-111 Gloucester Road, Wanchai, Hong Kong.

*Mr. Yau Wing Keung, Frankie*, aged 45, is a director of a China-based investment and corporate finance conglomerate. Mr. Yau has 20 years' extensive working experience in the banking and finance industry. Previously, he held key positions at various leading financial institutions and top investment banks in Hong Kong, Australia, Shanghai and Beijing. Mr. Yau graduated from the University of Hong Kong with a Bachelor's Degree in Social Sciences. His business address is 21st Floor, New World Tower 1, 18 Queen's Road Central, Hong Kong.

*Mr. Chou Shun, Alan,* aged 46, is a director of a consultancy company engaging in marketing activities in China. Mr. Chou has over 22 years' extensive working experience in the banking and finance industry in the Greater China region. Previously, he held key positions at various leading international financial institutions and top investment banks in Hong Kong and China. Mr. Chou graduated from the York University in Canada with a Bachelor's Degree in Arts in 1980 and holds a Bachelor's Degree in Business Administration from the University of Windsor in Canada. His business address is Unit 7, 7th Floor, Block B, Hi-Tech Industrial Centre, 491-501 Castle Peak Road, Tsuen Wan, New Territories.

## SENIOR MANAGEMENT

The following table sets forth certain information with respect to our senior management as of December 8, 2004. The business address for all members of our senior management is 12th Floor, Railway Plaza, 39 Chatham Road South, Tsimshatsui, Kowloon, Hong Kong.

Name	Age	Title
Mar I All Mar China Cilliant	41	
Mr. LAU Yu Ching, Gilbert	41	Chief Financial Officer
Mr. NG Min Kiong, Amin	43	Director of Investment
Mr. NG Tze For, Benjamin	43	Director of Strategic Planning
Ms. LAU Nga Man, Ćynthia	36	Financial Controller
Ms. YEE Kit Lin, Anita	41	Company Secretary
Mr. LAM Sek Lok, Benny	49	Import Manager
Mr. TSANG Koon Ying	49	Head of the Technical Department
Mr. METTENBERGER, Bernard W.	61	Chief Engineer
Mr. CROOKS, Robert G.	53	Project Engineer

A description of the business experience and present position of our senior management is provided below.

*Mr. Lau Yu Ching, Gilbert,* aged 41, is our chief financial officer with responsibility for corporate finance functions. Mr. Lau holds a Bachelor's Degree in Statistics from the University of Western Ontario, Canada. He is an associate member of the Association of Chartered Certified Accountants and the Hong Kong Institute of Certified Public Accountants. Prior to joining us in May 1996 as the financial controller overseeing the accounting and financial management of our operations in the PRC, he had more than six years of experience in auditing.

*Mr. Ng Min Kiong, Amin,* aged 43, is our director of investment with responsibility for project finance-related matters. He holds a Bachelor's Degree in Business Management from De La Salle University of the Philippines and a Master's Degree in Business Management from the Richard Ivey School of Business of the University of Western Ontario,

Canada. Prior to joining us in April 2004, he worked in the international banking sector for over 16 years.

*Mr. Ng Tze For, Benjamin*, aged 43, is our director of strategic planning and is responsible for the formulation of our overall strategy, plan implementation and investor relations. He holds a Bachelor's Degree in Business Administration from the Chinese University of Hong Kong and a Master's Degree in Business Administration from the City University of Hong Kong. Prior to joining us in January 2002, he had worked in the international banking sector, specializing in finance and financial planning, for over 16 years.

*Ms. Lau Nga Man, Cynthia*, aged 36, is our financial controller and is responsible for the accounting and financial management of our Hong Kong operations. Ms. Lau graduated from the Hong Kong Polytechnic University with a Professional Diploma in Management Accountancy. She is an associate member of the Chartered Institute of Management Accountants and the Hong Kong Institute of Certified Public Accountants. Prior to joining us in June 2001, she had worked for two listed companies and a multinational company in Hong Kong for eight years and an international accounting and auditing firm in Hong Kong for three years.

*Ms. Yee Kit Lin, Anita*, aged 41, is our company secretary and is responsible for our corporate secretarial affairs. She graduated from the Hong Kong Polytechnic University with a Professional Diploma in Company Secretaryship and Administration in 1985. She is an associate member of the Institute of Chartered Secretaries and Administrators and the Hong Kong Institute of Company Secretaries. Prior to joining us in May 2001, she had worked for an international accounting firm in Hong Kong for more than seven years and for two Hong Kong-listed companies, as company secretary, for more than eight years.

*Mr. Lam Sek Lok, Benny*, aged 49, is our import manager and is responsible for sourcing all raw materials for our manufacturing plants. Prior to joining us in 1997, he had worked for an industrial firm for more than 12 years as a base metals and minerals trader.

*Mr. Tsang Koon Ying*, aged 49, is the head of our technical department and is responsible for the engineering, research and development and product development of our manufacturing plants. Prior to joining us in 1997, he had worked in the construction industry for over 30 years in a variety of capacities. He is a committee member of China Building Specification of Curtain Wall and member of Hong Kong Institute of Steel Construction.

*Mr. Mettenberger, Bernard W.*, aged 61, is our chief engineer with responsibility for the design, engineering and supply of experienced teaching staff for operators, quality assurance and metallurgy and the management of our rolled products manufacturing facility. He has over 40 years of experience in steel and aluminum plant maintenance, operation and construction, principally in the United States. Mr. Mettenberger served as Engineering and Maintenance Manager for Bohai Aluminum Extrusion and Foil Plant in China from 1997 to 1999. Prior to joining us, he served as the plant engineer for Wise Alloys, one of the three largest producers of aluminum can stock in North America. He received an engineering degree from Ohio State University in 1966 and a degree in business administration from Faulkner University in 1990.

*Mr. Crooks, Robert G.*, aged 53, is our project engineer with responsibility for managing and coordinating the site construction for our aluminum rolled products manufacturing facility. He has over 30 years of experience in industrial plant manufacturing, procurement, construction and refurbishment with a large number of major steel and aluminum projects in China and worldwide. He received a Bachelor of Arts degree from the University of Pittsburgh in 1980.

#### AUDIT COMMITTEE

To comply with requirements of the Listing Rules of the Hong Kong Stock Exchange, we have established an audit committee for the purpose of reviewing and providing supervision on our financial reporting process and internal controls. The audit committee is currently comprised of three independent non-executive directors, namely Mr. Ma Tsz Chun, Mr. Yau Wing Keung, Frankie and Mr. Chou Shun, Alan.

# **COMPENSATION OF DIRECTORS**

For the fiscal year ended June 30, 2004, the aggregate remuneration and benefits in kind paid and payable to the directors was approximately HK\$5.9 million. For the fiscal year ended June 30, 2004, we did not grant any share options to the directors in respect of their services to us. See "Share Options and Warrants."

## Share Options and Warrants

Pursuant to the share option scheme adopted on February 19, 1998 (the "Previous Scheme"), we have granted certain options to directors and employees to subscribe for shares subject to the terms and conditions stipulated therein. In order to comply with the new requirements of Chapter 17 of the Listing Rules of the Hong Kong Stock Exchange on granting options under share option schemes which took effect from September 1, 2001, the Previous Scheme was terminated and a new share option scheme (the "Existing Scheme") was adopted pursuant to ordinary resolutions passed by the shareholders at our annual general meeting held on December 7, 2001. Accordingly, since December 7, 2001 no further options could have been granted under the Previous Scheme. However, the existing rights of the grantees of the outstanding options granted under the Previous Scheme are not affected.

Pursuant to the Previous Scheme, the subscription price is equal to the higher of the nominal value of the shares or 80% of the average of the closing prices per share quoted on the Hong Kong Stock Exchange on the five trading days immediately preceding the date of grant of the share option. The total number of shares which may be issued upon exercise of all outstanding options granted under the Previous Scheme may not exceed 10% of the issued share capital from time to time.

Pursuant to the Existing Scheme, as incentives and rewards for their contribution to us, we may grant options to subscribe for shares to employees or officers of us or of our subsidiaries and suppliers, consultants and advisers. The total number of shares which may be issued upon the exercise of all outstanding options granted under the Existing Scheme may not exceed 10% of the shares issued and outstanding on December 9, 2002.

The exercise price of share options granted under the Existing Scheme will be at least the highest of (i) the closing price of the shares as stated in the Hong Kong Stock Exchange's daily quotations sheet on the date of the grant, (ii) the average of the closing prices of the shares as stated in the Hong Kong Stock Exchange's daily quotations sheet for the five business days immediately preceding the date of grant and (iii) the nominal value of a share.

The Existing Scheme will remain in force until December 6, 2011 unless otherwise terminated in accordance with the terms stipulated in the rules of the Existing Scheme.

As of June 30, 2004, the total share options outstanding under the Existing Scheme was 70,500,000 and there were no share options outstanding under the Previous Scheme.

On July 6, 2004, a total of 60,000,000 share options were granted to certain of our employees and to employees of our subsidiaries in recognition for their services to us. These share options are exercisable at an exercise price of HK\$0.81 per share until July 5, 2007.

From time to time, we issue bonus warrants to our shareholders. In April 2002, we made a new bonus issue of 230,495,088 warrants on the basis of one warrant for every ten ordinary shares held by our shareholders whose names appeared on our Register of Members on April 8, 2002. Each warrant entitled its holder to subscribe in cash for shares at a subscription price of HK\$0.77 each (subject to adjustments) and was exercisable at any time during the period from April 10, 2002 to April 9, 2004. Through April 9, 2004, a total of 229,013,770 shares were issued through the exercise of warrants.

## **Directors' Interests in Securities**

As of June 30, 2004, the interests and short positions of the directors in the shares and our underlying shares or our associated corporations in our share capital and its associated corporations, within the meaning of the Securities and Futures Ordinance of Hong Kong, as recorded in the register maintained by us pursuant to Part XV of the Securities and Futures Ordinance or as otherwise notified to us and the Hong Kong Stock Exchange pursuant to the Model Code for Securities Transactions by Directors of Listed Companies, were as follows:

Name of director	Number of shares and underlying shares held	Percentage of issued share capital
Mr. Kwong Wui Chun <sup>(1)</sup>	1,149,452,836	36.20%
Mr. Zhong Jianqiu	24,434,800	0.77%

(1) Mr. Kwong holds 231,930,836 shares in his personal capacity, 908,622,000 shares through Viewlink Assets Limited, a company incorporated in the British Virgin Islands and wholly-owned by Mr. Kwong, and 4,000,000 shares owned by Ms. Li Chuk Kuan, spouse of Mr. Kwong, and 4,900,000 share options granted by us to Ms. Li Chuk Kuan on January 25, 2002 and exercisable until January 24, 2005 at an exercise price of HK\$0.56 per share.

In addition to the above, certain directors have non-beneficial personal equity interests in certain subsidiaries incorporated in Hong Kong held for the benefit of us solely for the purpose of complying with the minimum shareholder requirement under the Hong Kong Companies Ordinance.

Except as disclosed above, none of the directors had any interests or short positions in our equity or debt securities or any of our associated companies as defined in the Part XV of the Securities and Futures Ordinance.

# **DESCRIPTION OF OTHER MATERIAL INDEBTEDNESS**

To fund our existing manufacturing facilities, our expansion plan for our expanded aluminum extrusion and aluminum rolled products facilities, investments in acquired businesses and to finance our working capital requirements, we and our subsidiaries have entered into loan agreements, facility letters, guarantee agreements and finance leases with various financial institutions and individuals. As of June 30, 2003 and 2004, our total indebtedness for interest-bearing bank and other loans totaled HK\$467.4 million and HK\$1,060.9 million, respectively. Approximately 0.7% of our existing indebtedness was secured by fixed assets, principally our buildings, plant and machinery located in the PRC as of June 30, 2004 compared to 1.5% as June 30, 2003. Set forth below is a summary of the material terms and conditions of these financing facilities, as well as certain intercompany indebtedness.

# SYNDICATED TERM LOAN

On July 9, 2003, we entered into a facility agreement as borrower in connection with a US\$75 million transferable term loan facility with a syndicate of 13 lenders (the "Term Loan") led by The Hongkong and Shanghai Banking Corporation Limited as agent. As of June 30, 2004, we had borrowed the entire US\$75 million principal amount under the Term Loan.

# Interest

Under the Term Loan, we may select an interest period by giving written notice to the agent no later than five business days before the commencement of that interest period. We may select an interest period of one, two, three or, subject to availability to all lenders, six months. If we fail to give notice of our selection with respect to an interest period, the duration of that interest period shall be one month. The Term Loan bears interest at the LIBOR rate in effect for each interest period plus 0.9% per annum. Interest is payable on the last day of each interest period. Following the occurrence and during the continuance of an event of default, the rate of interest for an interest period equals the LIBOR rate for such interest period plus 4.0%.

# **Maturity and Prepayment**

The Term Loan is due on July 9, 2006. We have the right to prepay all or part of the outstanding balance of the Term Loan on any interest payment date, or subject to the payment of the appropriate breakage costs, at any other time, upon not less than 14 business days' prior written notice to the agent containing the date and amount of the prepayment, provided that such prepayment is made together with accrued interest on the amount prepaid and any other sums then due and payable as of the date of prepayment. Any notice of prepayment given by us to the agent shall be irrevocable and we shall be bound to prepay in accordance with that notice.

# Covenants

Pursuant to the facility agreement, we agreed to the following financial covenants:

- our consolidated tangible net worth shall be at least HK\$1.5 billion;
- our consolidated total net borrowings shall not exceed 100% of its consolidated tangible net worth;
- EBITDA shall not be less than 3.5 times interest expenses;
- our consolidated total borrowings shall not exceed 125% of its consolidated tangible net worth;
- our consolidated current assets shall not be less than 200% of its consolidated current liabilities.

# **DESCRIPTION OF OTHER MATERIAL INDEBTEDNESS**

We have further agreed, among others, not:

- to create or agree to create or permit to arise or subsist any encumbrance on our present or future assets except certain permitted encumbrance;
- to sell, transfer, lend, license or otherwise dispose of the whole or any part of our material assets, subject to certain exceptions; or
- to make any material change to the nature of our business or the business of any of our subsidiaries, or to discontinue any such business.

#### **Events of Default**

The Term Loan contains certain customary events of default, the occurrence of which would allow the agent, or the majority lenders through the agent, to demand immediate repayment of the loan and any accrued interest and/or terminate the agreement. Upon the occurrence of an event of default, the majority lenders may request that the agent send us a notice declaring (i) the loan together with all interest, fees and other amounts payable shall be due and payable on demand and (ii) the continuing availability of the facility shall be at the discretion of the majority lenders.

# TRUST RECEIPT LOANS

AAMCL, the 100%-owned subsidiary of our 69.05%-owned subsidiary AAG, has entered into various loan agreements (the "Trust Receipt Loans") with various banks and financial institutions. As of June 30, 2004, the outstanding balance of the Trust Receipt Loans totaled approximately HK\$417.5 million.

#### **Interest Rates**

The principal amounts outstanding under the Trust Receipt Loans bear interest at variable rates, calculated based upon LIBOR, SIBOR, HIBOR, or Prime Rate, plus a certain additional interest rate margin per annum. Interest payments must be made on each interest payment date as provided in the facility agreement for each Trust Receipt Loan.

#### **Guarantees and Security**

Asia Aluminum Holdings Limited has entered into guarantee agreements with certain lenders in connection with the Trust Receipt Loans pursuant to which it has guaranteed all liabilities of the borrower under such Trust Receipt Loans. Further, certain Trust Receipt Loans are secured by pledges of goods and/or documents of title relating to the goods by the borrower.

#### **Covenants and Event of Default**

The Trust Receipt Loans and the related guarantees contain customary covenants and events of default for loans related to working capital financing. The lenders have the right to demand repayment at any time. In addition, the availability of these banking facilities to us are subject to annual review by the lenders.

## PRC LOANS

Certain of our subsidiaries, including our PRC subsidiaries, have entered into loan agreements (the "PRC Loans") with several PRC banks, financial institutions and individuals. As of June 30, 2004, the outstanding balance of the PRC Loans totaled approximately HK\$477.2 million.

## **Interest Rates**

The principal amounts outstanding under the PRC Loans bear interest at fixed rates, the weighted average of which is 7.2% per annum. Interest payments must be made on each interest payment date as provided in the facility agreement for each PRC Loan.

# **Guarantees and Security**

Asia Aluminum Holdings Limited entered into guarantee agreements with certain lenders in connection with certain of the PRC Loans (the "Guarantees") pursuant to which it guaranteed all liabilities of the borrower under such PRC Loans. Further, certain PRC Loans are secured by a pledge of bank deposit by the borrower.

# **Covenants and Event of Default**

The PRC Loans and related Guarantees contain customary covenants and events of default for loans related to working capital financing for companies operating in the PRC.

# **ORIX CORPORATION SUPPLY CONTRACT**

To centralize the financing of our aluminum extrusion equipment, AAMCL entered into a supply contract with Orix Corporation and Orix Trade International Corporation. Pursuant to this supply contract, Orix Corporation buys the machinery from various suppliers and resells it to us through Orix Trade International Corporation.

*Purchase Orders*. Under the terms of the supply agreement, any purchase order sent by us and received by Orix will be irrevocable and, at such time, we become required to purchase the machinery from Orix in accordance with the terms of such purchase order and the supply contract. Orix has absolute discretion to decide whether to accept or reject any purchase order, in whole or in part, upon written notice to us within five business days after its receipt of such purchase order.

*Delivery*. Pursuant to the supply contract, we will arrange for the delivery of the machinery at our own cost. We are not entitled to refuse machinery delivered under the supply contract. However, Orix has assigned to us any rights against the relevant supplier in connection with defective or nonconforming machinery after inspection or commissioning of such machinery, as well as any rights arising from such supplier's breach of its obligations.

*Payment*. The purchase price in relation to each shipment shall be specified in the related purchase order and is payable on a deferred basis. For each shipment, the full purchase price must be paid in U.S. dollars by us to Orix on a document against acceptance basis two years after the related commissioning date. We must pay interest, calculated on the basis of actual days elapsed during an interest period and a 360-day year, on each interest payment date to Orix. In relation to each shipment, the interest rate equals a base rate plus 2.75%. Any determination made by Orix as to the interest rate, the default rate, the interest amount, the purchase price and any other amount due will, in the absence of manifest error, be binding on us and Orix.

*Guarantee*. In connection with this financing relationship, Asia Aluminum Holdings Limited entered into a guarantee agreement on September 8, 2004 to guarantee AAMCL's obligations under the supply contract. We issued an unconditional and irrevocable guarantee to Orix for the due and punctual payment of all payment obligations under or pursuant to the supply contract. The guarantee will continue in full force and effect until the later to occur of (i) all amounts due from us thereunder have been paid in full and (ii) we no longer have any obligations remaining under the supply contract.

*Covenants*. Pursuant to the supply contract and the guarantee agreement, we have made certain undertakings and covenants for the benefit of Orix including, among others:

• to ensure that our obligations under the guarantee at all times rank at least pari passu with all of Asia Aluminum Holdings Limited's other unsecured and unsubordinated obligations;

# **DESCRIPTION OF OTHER MATERIAL INDEBTEDNESS**

- to not, subject to certain exceptions, create or agree to create or permit to arise or subsist any encumbrance on our present or future assets or any part of them;
- to not make any material change to the nature of any business carried on at the date of this guarantee agreement or to discontinue any such business or a material part of our business as a whole; and
- to maintain certain financial ratios.

# FINANCE LEASES

AAMCL has entered into two finance leases with IBA Credit Ltd. and C.E.C. Finance Ltd., respectively. As of June 30, 2004, we had commitments of HK\$1.1 million for future minimum lease payments for motor vehicle under non-cancelable finance leases, of which HK\$0.5 million fell due within one year and HK\$0.6 million fell due in the second to fifth years inclusively.

# EXISTING INTERCOMPANY INDEBTEDNESS

We make loans to AAMCL and AAG from time to time. As of September 30, 2004, AAMCL and AAG had outstanding loans of approximately US\$54.0 million and US\$92.3 million, respectively, from us. On December 6, 2004, we entered into agreements with them to amend and restate the terms and conditions on which previous loans were granted to them. Under the amended and restated terms, a revolving loan facility in the principal amount of up to US\$100.0 million is granted to each of AAMCL and AAG, with an initial maturity date of June 30, 2006 and renewable thereafter for successive one-year terms. Interest will accrue and be payable monthly on any amount outstanding at a rate per annum equivalent to the interest rate under certain of our other financings. Outstanding loans under the loan facilities may be repaid at any time without penalty with three days' prior notice and may be called at any time by us.

# INTERCOMPANY NOTE FROM CSD

We expect to enter into an intercompany note with CSD for the purchase, upgrade and installation of aluminum rolled products equipment for our aluminum rolled products facilities in Zhaoqing, Guangdong Province, and the construction of those facilities. Our ability to enter into such intercompany note is subject to the reporting, announcement and independent shareholders' approval requirements of the Hong Kong listing rules. In addition, CSD's ability to draw funds under this intercompany note until June 30, 2006 is subject to certain conditions related to our financings. The intercompany note will provide that we may only make withdrawals from the escrow account in accordance with the following conditions:

- no more than US\$100 million may be withdrawn prior to June 30, 2005;
- no more than US\$100 million may be withdrawn prior to December 31, 2005; and
- the remaining funds may be withdrawn after June 30, 2006.

The intercompany note will bear interest at a rate not less than 8.00% per annum, payable semi-annually in arrears. In the event that additional amounts or any other amounts become due under certain of our other financings, CSD will be liable for interest on the principal amount it has borrowed in an amount equal to such amounts due on the same principal amount under certain of our other financings. The maturity of the intercompany note will be December 23, 2011. From time to time, CSD must prepay principal amounts of loan in amounts equal to the aggregate principal amount which we are required to repurchase, redeem or repay.

#### **DISCLAIMER NOTICE**

This Report has been prepared expressly for the purpose of providing an objective and independent technical description of the proposed Asia Aluminum Holdings Limited (Asia Aluminum) Rolled Products Plant in the Guangdong region of China. It may not be used by Asia Aluminum or any other person for any other purpose without PB Power's prior written consent.

Neither PB Power nor any member or employee of PB Power will have any responsibility to any person other than to Asia Aluminum. This exclusion of liability covers all liabilities arising under contract or tort including, but not limited to, errors or omissions arising through negligence, howsoever caused.

Unless specifically stated otherwise in this report, this report is based upon information that has been supplied to PB Power by Asia Aluminum or arises from PB Power's visits to the project office and construction site in October 2004. Unless specifically stated otherwise in this report, PB Power has not attempted to verify or validate any of the information provided to it.

PB Power's scope of work is to provide a technical description, assessment, and understanding of the project. To understand the environment in which the project is undertaken, PB Power has had to gain an understanding of the commercial and contractual setting in which the project is undertaken. However, such understanding of the commercial and contractual setting is incidental to the project technical description and cannot be regarded as a complete or rigorous explanation of the commercial and contractual environment.

PB Power has made a number of assumption statements throughout the report and the report is accordingly subject to and qualified by those assumptions. In addition, PB Power has assumed that all opinions, information and statements of fact expressed to or provided to PB Power when made were, and continue to be, true, correct, accurate and not misleading in any way and in all respects, and are honestly held by the person or persons holding or expressing them, and that all documents furnished to PB Power are true and complete copies of the originals and all signatures are genuine.

PB Power confirms that this Report contains reference to all matters known to PB Power that are material to an understanding of the technical description of the Asia Aluminum aluminum Rolled Products Plant project. The Report may only be used as a complete document, which must include this disclaimer.

This report is based on information available to PB Power as of 3 December 2004 and PB Power reserves the right, but not the obligation, to amend this report should any further relevant information come to hand.

**PB** Power

December 2004

# **EXECUTIVE SUMMARY**

#### GENERAL

This Executive Summary must be read in conjunction with the complete PB Power report.

Asia Aluminum engaged PB Power to provide a technical description, assessment, and understanding of their new Rolled Products Plant (aluminum rolling mill), to be built as part of their new factory site in Zhaoqing, located in the Guangdong region of China. PB Power has spoken to key Asia Aluminum staff and contractors, reviewed the documentation made available, and undertaken a visit to the factory site (supplemented by progress updates from Asia Aluminum) to review progress to date.

Asia Aluminum's experience in the manufacture of aluminum extrusions products is being extended into further processing of ingots into rolled products, mainly sheet and plate. A significant portion of the production will be can stock (e.g. for beverage cans), which is currently not produced in China. Planning is well advanced for the construction of works to produce 400,000 tonnes of finished product per year. A future increase in capacity is possible within the plant with additional equipment.

#### PLANT DESCRIPTION

The Plant will cover a site approximately 900 m x 550 m. It is a new purpose-built plant for the production of rolled aluminum product and has been optimized for product flow. The Plant will consist of a Melt Shop, Hot Mill, Cold Mill, Finishing Plant, Roll Grinding, Utilities, and ancillary services. The site is serviced by roads, electricity in the form of a 500 kV power line and a shipping terminal on the adjacent river. A portion of the site imports and exports of aluminum will be via the shipping terminal with the remainder by road. Refer to Appendix A for a plan drawing of the proposed Rolled Products Plant site. The plant is to be constructed as part of an industrial park situated inside the Zhaoqing Hi-Tech Development Zone, which is designed to also attract other organizations. The scope of this report is limited to the Asia Aluminum Rolled Products Plant.

## **PROGRESS TO DATE**

At the time of writing this report the project was progressing through its early phases. Site work had begun with preparation of the ground and delivery of a small amount of plant. Asia Aluminum is arranging separate contracts for the supply, installation, and commissioning of each major item of plant, together with local contracts for foundation, building and infrastructure works. Two key equipment and upgrade contracts have been signed, these are the purchase and refurbishment/installation supervision contracts for a 5-stand cold tandem mill and finishing hot mill; and purchase/installation supervision of the new roughing mill. A contract for non-OEM plant and buildings design and project management is close to being signed. All other significant contracts have started the negotiation and quotation process but have yet to be finalized, and are subject to funding. At the time of writing this report, contracts valued at approximately US\$235 million have been signed, representing 50% of Asia Aluminum's total project estimate of US\$470 million. These signed contracts include key equipment contracts for the hot mill and 5-stand cold mill. The status of contracts is as follows:

Contract Status	<b>Contract Value</b> US\$ (million)	Percentage of Project Budget
Contracts signed	235	50
Contracts in negotiation	145	30.9
Contracts yet to start negotiation	64	13.6
Contingency	26	5.5
Total	470	100

# **EXECUTIVE SUMMARY**

At the time of writing this report the supply and installation of the hot mill appears to be on the critical path. As the supply of this equipment is one of the contracts now signed, there is a significant reduction in risk of not completing on time.

## **PROJECT KEY COMPANIES**

The key companies involved in delivery of the project to date are Asia Aluminum, SMS/TMGE, and JNE (*to be confirmed*).

- Asia Aluminum will be responsible for developing and directly letting all the major design, supply, installation, and construction contracts, which is common in other aluminum plant construction projects worldwide. Asia Aluminum is also undertaking the role of Engineer to the Contract, responsible for overall design, overall specifications, and review of design work undertaken by the designers. Asia Aluminum has assembled a team of Chinese and expatriate engineers with experience in aluminum rolling mills and associated equipment. This team will oversee the construction project and commissioning.
- SMS/TMGE is a consortium of SMS Demag/Toshiba/Mitsubishi/GE, responsible for delivering two major plant items: the hot mill (comprising of the hot roughing mill and the hot finishing mill) and 5-stand cold mill. The hot finishing mill and the 5-stand cold mill are second-hand mills purchased from the US and SMS/TMGE will refurbish/upgrade/modify them to reach modern mill standards. Asia Aluminum has undertaken a portion of the identified refurbishment work itself under instructions from SMS/TMGE. The hot roughing mill will be supplied new. Contracts for the 5-stand cold mill and the hot mill have been signed.
- JNE is in negotiation with Asia Aluminum for the role of designers for all non-OEM (original equipment manufacturer) plant and project manager. This covers building, foundations, pipework, cables, etc. They will be responsible for the detailed design and drawings, integrating all OEM equipment (mills, furnaces, boilers, cranes, etc) into a single factory, as well as project management of the entire project. A contract with JNE is near to signing at the time of writing.

# RISKS

A summary of risks identified to date has been tabulated in this report in Section 6.

# ENVIRONMENTAL

An environmental permit was issued for the Plant by the PRC government. The approval is for a plant with a total capacity of 400,000 tonnes per annum corresponding to the proposed plant design capacity. There is a general requirement to comply with PRC environmental criteria that will minimize generation of contaminated material, and use of raw materials, water and energy. Scrap aluminum will be recycled. A number of requirements are stated for discharges and measures need to be put in place to meet these requirements. All requirements specified in the permit or otherwise considered necessary to conform to good environmental practice should be achievable with readily available equipment, standard designs and appropriate operating practices. Details of the equipment and systems proposed have not yet been provided.

The Environmental Permit refers to an environmental impact report for a "400,000 tons Alloy products" project that had been submitted to the provincial technical centre and town environmental protection department. Asia Aluminum hold a copy of the environmental impact report however PB Power has not received a copy for review.

# **EXECUTIVE SUMMARY**

#### **CONTRACTS**

Asia Aluminum is arranging separate contracts for the supply, installation and commissioning of each major item of plant project management; design; supervision; together with local contracts for foundation, building and infrastructure works.

The project schedule (supplied by Asia Aluminum on 17 November 2004) shows the project commencing on 1 August 2004 with the completion date as 31 December 2006. This should be achievable for all plant in that the date generally accords with equipment delivery and commissioning periods ascertained by PB Power and with the commitments in the contracts for erection of the hot mill and cold mill, the key areas of the project.

A peak in foundation and building works is planned to occur during the 2005 wet season, a difficult time to carry out these activities. Particular attention is needed to completing the site roads and other critical infrastructure/buildings ahead of this time. Asia Aluminum plans to expedite the buildings construction to cover critical plant areas prior to the wet season starting.

#### BUDGET

PB Power has undertaken a high level review of the budget, selectively reviewing major items, and cross-checking against independently obtained prices. Refer to Section 11 for details on the sources of the price estimates of PB Power.

PB Power identified items that appear to have budget values materially different than expected based on information received by PB Power, or where major items appear not to be included in the budget.

For only the items of the budget identified, the total variance between Asia Aluminum's budget price and PB Power's estimates is approximately 8.5% of total budget of US\$470 million, with the estimate by PB Power's being higher.

The differences are due to the higher contingency estimate by PB Power and due to Asia Aluminum believing that through negotiation they can obtain prices lower than the estimates by PB Power.

The construction budget supplied by Asia Aluminum to PB Power was detailed to the major equipment level. Asia Aluminum's overall estimate for the Plant is US\$470 million, with their detailed budget at the time of writing the report totaling US\$470,990,000.

It is likely that Asia Aluminum can obtain prices lower than the PB Power comparison prices by obtaining competitive quotes, using Chinese manufactured equipment instead of internationally sourced equipment, or purchasing equipment second-hand.

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# 1. INTRODUCTION

# 1.1 General

Asia Aluminum Holdings Limited (Asia Aluminum) is constructing an aluminum Rolled Products Plant in the Guangdong region of China, situated close to Hong Kong. The Plant is to be constructed on a green field site as part of an industrial park located in the Hi-Tech Development Zone in the city of Zhaoqing.

This report has been prepared by PB Power, as an independent technical adviser, in order to provide an independent technical description of the project on behalf of Asia Aluminum as it prepares to seek financing for the project. This report describes the project, covering technical, environmental, contractual, and budget issues.

# **1.2 PB** Power Introduction

PB Power is part of Parsons Brinckerhoff group, the international engineering, construction and program management firm whose experience spans power, transportation, buildings and telecommunications.

Parsons Brinckerhoff is one of the world's leading planning, engineering, and program and construction management organizations and is among the oldest continuously operating engineering firms in the world.

From PB's headquarters in New York and over 200 offices worldwide more than 9,000 staff deliver a multidisciplinary service.

PB Power has extensive experience in undertaking due diligence, owners engineer, bankers engineer, planning, feasibility studies, project management, construction supervision, and detailed design roles for major international construction projects.

# 1.3 Review Team

PB Power's review team consisted of:

- Paul Reilly professional mechanical engineer (17 years experience) with hot and cold rolling mill experience in England and New Zealand, industry training at Munich (cold rolling mill technology).
- John Tiley professional civil engineer (30 years), specializing in construction management and contractual matters.
- Chris Lynch professional electrical engineer (20 years experience) with industrial experience in the aluminum industry as a consultant since 1995.
- Ainslie Just professional engineer/environmental scientist (20 years experience), with consulting expertise in the chemical, manufacturing, water, waste, mining, power and transport industries.

# 1.4 Scope of Review

PB Power has been engaged to undertake a review of the following with respect to the Plant:

- A technical description, assessment, and understanding of the project and Plant as planned at the time of writing this report.
- Work methods of Asia Aluminum with respect to the construction project.

- Project management approach of Asia Aluminum with respect to the construction project.
- Contract reviews.
- Key constituencies/stakeholders of the project.

Excluded from the review are comments on:

- Any plant outside the boundary of the Plant other than where there is a direct connection to the Plant (i.e. electrical supply).
- Appraisal of expected performance of the Plant and equipment when operated by Asia Aluminum's staff/contractors.
- Future performance of the construction project with respect to time and budget.

# 1.5 Review Methodology

PB Power collected statements and documents from Asia Aluminum as well as appointed and potential contractors/consultants to develop a description of the project. In this process risks were identified and included in the report.

# 1.6 Limitations

The following limitations are in addition to those expressed in the Disclaimer Notice.

## 1.6.1 General

A report of this nature is not a certification, warranty or guarantee. It is a report scoped in accordance with the instructions given and limited by the time and budget allowed. It is not possible to make a proper assessment of this document without a clear understanding of the terms of engagement and the scope of the instructions and directions given to PB Power who has prepared the report.

In this case, the time and budget permitted to perform PB Power's services necessarily means that the investigations undertaken, and the report, concentrate on major material items and issues.

# 1.6.2 Site Inspection

Where site inspections have been made, they have generally been limited in their scope to external visual inspections, review of documentation and technical discussions with plant personnel. No detailed testing or inspection was carried out. Except where expressly stated otherwise, the inspections PB Power has made, and the report, do not cover defects in inaccessible places, latent defects or defects that are not reasonably discoverable on a visual inspection.

# 1.6.3 Contracts and Other Legal Documents

The report may contain various remarks about and observations on legal documents and arrangements such as contracts, supply arrangements, leases, licenses and authorities. A consulting engineer can make remarks and observations about the technical aspects and implications of those documents and general remarks and observations of a non-legal nature about the contents of those documents. However, as a consulting engineer, PB Power is not qualified, cannot express and should not be taken as in any way expressing any opinion or conclusion about the legal status, validity, enforceability, effect, completeness or effectiveness of those arrangements or documents or whether what is provided for is effectively provided for. They are matters on which legal advice should be obtained.

#### 1.6.4 Information Made Available by Client

Unless and except to the extent that PB Power expressly indicates otherwise in the report, the comments, conclusions and recommendations of PB Power are provided strictly on the basis that the facts, findings and assumptions contained in the information provided or made available to PB Power (whether in writing, electronically, on-line, verbally or otherwise) are reliable, accurate, complete and adequate.

A number of documents have been supplied to PB Power in Chinese and have been translated by PB Power. PB Power has made comments in this report based on the PB Power translated versions of the documents. While best endeavors have been undertaken to translate accurately, PB Power provides no guarantee and accepts no liability on the accuracy of the translations.

#### 1.6.5 Cost/Budgetary Assessments and Market Conditions

Any opinion expressed by PB Power concerning predictions of cost are provided by PB Power on the basis of its experience as a consulting engineer, and represent PB Power's best judgement based upon its understanding of the commercial and contractual setting in which the project is undertaken and information that has been supplied to PB Power by Asia Aluminium. PB Power has no control over the cost of labour, materials, equipment or services to be furnished by others, or over third party contractors' methods of determining prices, competitive bidding or market conditions. PB Power does not warrant or guarantee the accuracy of any opinion expressed concerning predictions of cost or that proposals, bids or actual equipment supply and construction costs will not vary from any opinions provided by PB Power.

#### 2. **PROJECT OVERVIEW**

The Plant will roll aluminum alloys to produce a range of sheet and plate products for use in the construction, beverage, and other industries. The Plant will be fully integrated taking pure aluminum ingots then melting, alloying, casting, hot rolling, cold rolling, and finishing/packing. Production is planned to service the domestic Chinese market and export markets.

The Plant will have a designed capacity of 400,000 tonnes of finished product per year.

The construction period is 29 months with an effective start date of 1 August 2004. At the time of writing this report, the Rolled Products Plant project had commenced and is progressing through its early stages.

Asia Aluminum has put together a project team including of a Chief Engineer, Site Engineer and Consulting Engineer, all with significant experience in rolling mills. In addition they have engaged 30 engineers and are in the process of engaging a consulting firm to provide project management.

Asia Aluminum will contract directly for purchase of major equipment and materials, design consultants, site construction contractors, and equipment installation contractors. Although there is no head contract for this project this practice is in line with worldwide practices for other rolling mill projects.

At the time of writing this report, site work had begun with preparation of the ground and delivery of a small amount of plant. Purchase and refurbishment contracts have been signed for a second-hand 5-stand cold mill, a second-hand hot finishing mill; and a purchase contract has been signed for a new hot roughing mill. The second-hand mills will be extensively refurbished to be integrated into the new Plant.

Asia Aluminum plan to engage other key equipment suppliers, contractors, and consultants once funding arrangements are fixed.

The site will be serviced by roads, electricity in the form of a 500 kV power line and a shipping terminal on the adjacent river. A portion of the site imports and exports of aluminum are intended to be transported via the shipping terminal with the remainder sent by road.

The Zhaoqing Industrial Park will also eventually contain an Asia Aluminum owned extrusion plant installed under a separate project as well as other organizations. The scope of this report is limited to the Asia Aluminum Rolled Products Plant.

## 3. PROJECT KEY ASIA ALUMINUM STAFF

#### 3.1 Staff

Asia Aluminum has assembled an experienced project team for construction and operation of the new plant.

Mr. Mettenberger is the Chief Engineer with responsibility for: the design; engineering; and supply of experienced teaching staff for operators, quality assurance, and metallurgical aspects. He has over 40 years experience in steel and aluminum plant maintenance, operation and construction mainly in the United States. Mr. Mettenberger spent two years from 1997 to 1999 as Engineering and Maintenance Manager for Bohai Aluminum extrusion and foil plant in China. Prior to joining Asia Aluminum he was the plant engineer for Wise Alloys, one of the three largest producers of aluminum can stock in North America.

Mr. Crooks is the Project Engineer with the responsibility of managing and coordinating the site construction. He has over 30 years experience in industrial plant manufacturing, procurement, construction and refurbishment with a large number of major steel and aluminum projects in China and worldwide.

Mr. Zhou is the Consultant for the project with responsibility for providing advice for the design and construction of the project. He has 35 years experience in the field of aluminum production and production management. Mr. Zhou joined the team from one of the largest aluminum sheet manufacturers in China where he was the general manager. He is widely recognized as one of the few aluminum production and management experts in China.

Mr. He is the Deputy Chief Project Director for the project with responsibility for overall implementation of the plant construction and equipment installation. Previously he worked as Assistant General Manager at China NorthEast Light Alloy Ltd (the second largest aluminum sheet manufacturer in China).

Other engineering members of the team include Heads of the Hot Mill Division, Cold Mill Division, Electrical Division, and Automation and Control Division. Other non-engineering members include Heads of Finance, Accounting and Import-Export.

# 3.2 Asia Aluminum's Company Organizational Chart

The following Asia Aluminum's Company Organizational Chart is a translation undertaken by PB Power of a chart supplied by Asia Aluminum.



# 4. PROJECT KEY CONTRACTORS/CONSULTANTS AND ORGANIZATIONAL CHART

# 4.1 General

Appointment of one key contractor has been completed with the appointment of other key contractors and consultants pending.

Asia Aluminum plan to engage other key equipment suppliers, contractor, and consultants once funding arrangements are fixed.

Until all key appointments have been made and all roles clarified, PB Power cannot fully comment on the overall project organization completeness or risks. However Asia Aluminum's project organization structure is common to other worldwide construction projects.

The following is PB Power's interpretation of the information available to date, however exact roles for the organizations involved in this project are being clarified.

# 4.2 Asia Aluminum

Although Asia Aluminum is the client for this project, they will incorporate a number of project roles into their organization.

# 4.2.1 Description of Scope of Work

Asia Aluminum is directly contracting supply of equipment and materials, contractors, and consultants, which is a common method of managing large rolling mills projects worldwide.

Asia Aluminum is also acting as the Engineer to the Project.

# 4.2.2 Description of Responsibility

Asia Aluminum will be responsible for development of contracts and technical specifications, tendering, tender evaluation, letting contracts, contract payments, and contract coordination for all items of equipment purchased and all services.

In the role of Engineer to the Project, Asia Aluminum will develop the Plant layout design, high-level specifications, and will review the design work being undertaken by the design consultants.

#### 4.2.3 Risk Analysis

Asia Aluminum is taking on a number of potential risks:

- The need to have sufficient staff with sufficient experience to (a) develop a large number of contracts and associated technical specifications, and (b) accommodate the workload and engineering requirements of Engineer to the Project.
- Some of the process equipment will be purchased external to China with the possibility that much will come from International companies. There are differences between how contracts are written for Chinese companies and for International companies with the International company contracts more specific and prescriptive. Careful attention will be required to the contracts being written for International companies.
- Effective management of interfaces, e.g. between contracts, is critical to avoid future variations or delays.
- With many of the suppliers of equipment and the design consultants working in English there will be a considerable demand on technical translation services. Technical translation may be potentially more difficult than general translation, possibly requiring bilingual engineers.

Asia Aluminum has addressed these potential risks by:

- Recruiting experienced expatriate rolling mills engineers Mr Mettenberger as Chief Engineer and Mr Crooks as Construction Engineer. In addition Asia Aluminum has hired Mr Zhou, a rolling mills consultant, to provide technical advice, and has hired more than 30 local engineers and key support staff to date. More engineers and staff are planned to be added to meet with growing work load.
- Asia Aluminum has since 1992 been writing contracts for international companies as most of its extrusion equipment suppliers, export sales, and strategic partner (Indalex Aluminum, USA) are international companies. This should leave them well experienced in writing international contracts. In addition Asia Aluminum's expatriate engineers and experienced Hong Kong management support staff are also involved in writing contracts. Outside legal counsels (Richard Butler and Sidley Austin Brown &Wood) are also involved in all key contracts.
- All contracts will be reviewed by the Chief Engineer, Mr Mettenberger, and his team for consistency.
- Asia Aluminum will employ two technical translators and an additional two bilingual engineers who have demonstrated engineering competence in this type of work.

#### 4.3 SMS Demag and TMGE (SMS/TMGE)

SMS Demag and TMGE have formed a consortium to jointly supply the hot mill and 5-stand cold mill.

SMS/TMGE are at present working on three mill projects in China.

## 4.3.1 SMS Demag

*SMS* Demag is a significant supplier of flat product rolling mills in the world. They have strong experience in all areas of steel and aluminum processing. SMS Demag has supplied flat rolling aluminum mills through out the world, both new and refurbished aluminum mills, in particular for Alcan and Alcoa. Currently in China, SMS Demag is undertaking work for Maanshan, Benxi, Meishan, Tonghuo, Wuhan and Baosteel as well as numerous other projects through out the world. Total order intake for the metallurgical plant and rolling mill sector of SMS Demag is approx. US\$1.95 billion.

#### 4.3.2 TMGE

TMGE Automation Systems is a joint venture between Toshiba Mitsubishi-Electric Industrial Systems Corp. (TMEIC) and General Electric Company (GE Industrial Systems). TMGE Automation Systems provides control system and process solutions to worldwide customers in metals, paper, material handling and general industry.

TMEIC is a joint venture created in 2003 between Toshiba Corporation and Mitsubishi electric to integrate their industrial electric and automation systems, drive systems and power distribution systems. The annual sales of TMEIC are US\$1.3 billion.

In relation to rolling mills GE supplies, programs, and installs drive systems, control systems, and other electrical equipment with over 75 years of experience in the metal processing industry. GE sales are in excess of US\$130 billion per year.

Recent completed projects undertaken by TMGE include Benxi and Meishan Hot Strip Mill upgrades in China, Hangzhou high speed rod mill in China, Erdimer plate mill in Turkey, ILVA hot strip and plate mill in Italy, ISCOR Hot Strip mill in South Africa, Maanshan continuous galvanizing line in China, and Hylsa Cold Mill in Mexico and China Steel Cold Mill in Taiwan.

#### 4.3.3 Description of Scope of Work

SMS/TMGE has been engaged to supply the hot mill and the 5-stand cold mill.

The hot mill is made up of a new roughing mill and a second-hand hot finishing mill. The 5-stand cold mill is also a second-hand mill. Both mills have been purchased directly by Asia Aluminum and supplied to SMS/TMGE.

#### SMS/TMGE will:

- Specify modifications and upgrades to some equipment to be undertaken by Asia Aluminum.
- Undertake modification and upgrade of some equipment.
- Supply new equipment.
- Undertake manufacture of new equipment (co-manufacture).

- Supply personnel to supervise erection of mill.
- Supply personnel to assist mill startup, hot commissioning, and guarantee tests.

# 4.3.4 Exclusions from Scope of Work

Asia Aluminum will directly undertake a portion of the inspection and refurbishment work for the mills, including bearings, shape-roll, and chock refurbishment.

SMS/TMGE will not be involved in supplying services and/or equipment not directly associated with the two mills. This includes a high level plant automation and control system which is required to integrate control of the entire Rolled Products Plant. Asia Aluminum is negotiating with another contractor (Siemag) for a material handling control system in the entire plant including Hot and Cold Mills.

# 4.3.5 Description of Responsibility

SMS/TMGE responsibility covers the Hot Mill and the 5-stand cold mill only.

- SMS/TMGE will be responsible for equipment they modify (restricted to the modification only) and co-manufactured equipment.
- SMS/TMGE will be responsible for meeting the performance guarantees listed in the contracts providing certain conditions are met by Asia Aluminum.
- SMS/TMGE will not be responsible for any of the second-hand equipment that they did not modify or manufacture.
- SMS/TMGE will be responsible for supervision of erection.

# 4.3.6 Risk Analysis

From project history information, there is likely to be little technical risk associated with SMS/TMGE delivering plant that meets the agreed specifications.

Refer to Section 10.1.2.1 below for any risks identified in the signed contract with SMS/TMGE for the 5-stand cold mill.

#### 4.4 JNE (Joe Ng Engineering Ltd)

Asia Aluminum is in negotiations with JNE for provision of Design services for non-OEM plant, Erection Supervision services for non-OEM plant, and Project Management services for the entire project. At the time of writing, the contract for engaging JNE is under final negotiation with input relating to job scope and coordination from SMS/TMGE. Contract signature is expected shortly.

JNE is made up of a number of companies and it is believed that any contract would be with JNE Consulting Ltd.

JNE has a worldwide staff of 400 technical staff.

In addition to offices in the US and Canada, JNE has an office in Beijing.

JNE has undertaken projects with Alcoa, Alcan and Dofasco (steel rolling mills) as well as projects in other heavy industries in both China and North America. Currently, in China, JNE partners with SMS/TMGE on a steel mill project for Maanshan Iron and Steel Co., one of the largest steel companies in China. In the USA JNE is now working with SMS and TMGE on a hot mill project for Stelco Inc and another finishing mill for Steel Dynamics Inc.

JNE has had a close working relationship with SMS/TMGE over a number of earlier projects, which will be an advantage for this project.

#### 4.4.1 Description of Scope of Work

JNE will undertake three different roles in the project.

- 1. Design work for all non-OEM (original equipment manufacturer) equipment and for the integration of all OEM equipment into the Rolled Products Plant.
- 2. Supervision and inspection of non-OEM construction/installation work.
- 3. Project Management of the entire project.

#### 4.4.2 Description of Responsibility

Design responsibility will include foundations, floors, buildings, gas/ water/air/steam pipework, electrical cabling, communications cabling, crane columns/tracks, exhaust systems, and utilities (boilers, waste water treatment, compressors, etc) connections. Design responsibility will also include locating and mounting of OEM supplied equipment to achieve a fully integrated plant.

Supervision and inspections will include verifying that equipment offered by the contractor meets the design specifications, and verifying that the construction and installation work is performed to the design drawings and specifications.

Project management will include contracts control, contractor/ consultants control, budget control, and timeline control.

#### 4.4.3 Risk Analysis

Discussions with the owner of JNE indicated that the company had undertaken a significant number of successful projects similar to this one and also they had been recommended by SMS/TMGE to Asia Aluminum. This provides a measure of security on this project.

A project of this size and short construction period places a significant demand on manpower resources. JNE estimates that the peak manning requirement is in the order of 100 to 120 engineering and drafting staff, which is in-line with PB Power's expectations. Confirmation was sought on JNE's ability to both undertake this project technically and resource this project in parallel with their other commitments. In response to these issues:

• JNE has undertaken a number of significant projects providing civil, mechanical, and electrical engineering services as well as project management services. Recently they have undertaken several rolling mill projects in China providing civil/mechanical/ electrical design services covering buildings, foundations, pipework, cabling, and others, which is a similar scope to this project. JNE have stated that some of contract values for their work on these projects are greater than the value of the contract under negotiation with Asia Aluminum.
• JNE plan to subcontract some of the engineering services to an engineering firm from either Hong Kong or China to meet the peak manpower demand and have indicated that they can engage sufficient resources for this project.

As per normal practice, the agreement with JNE must contain a confidentiality agreement to protect Asia Aluminum's intellectual property.

## 4.5 PROJECT ORGANIZATIONAL CHART

The following is PB Power's interpretation of the Project Organizational Chart at the time of writing.



## 5 PROGRESS TO DATE

The following is a description of project progress at the time of writing this report.

The draft general arrangement of the Plant and high level specifications for all significant equipment is essentially completed, with finalizing underway.

The critical contracts for supply and for erection supervision of the 5-stand cold rolling mill, and of the corresponding contracts for the hot mill, are in place.

- The supply contract for the 5-stand cold mill became effective on 1 August 2004. Associated works, including civil design, foundations and buildings must commence as scheduled to allow the end date to be achieved. With no design or construction contracts yet in place, Asia Aluminum will be challenged to meet a mid-December start on the cold mill building, preceded by piling. Finalizing these contracts must have a high priority. However, as the 5-stand cold mill is not on the critical path for the project, a slight delay in construction of this plant will not affect the completion date of the project. Other works not yet contracted, which must take place in a suitable sequence to support the cold mill installation, have scheduled start dates that have either passed or are soon to occur. The remaining contracts will need to address recovery of any lost time which is currently in the range of 1-3 months.
- The supply and erection supervision contract for the hot mill was signed dated 23 November 2004. The contract states a period of 24 months for supply and installation to production of first coil, which is within the overall construction program. The contract schedule shows delivery of basic civil engineering documents will be complete by the end of January 2005, leaving an acceptable three months to prepare drawings for a construction start on the equipment foundations at the end of April 2005.

The site area has been leveled and access roads are in place, ready for construction work to commence.

Contracts for site preliminary works and the Government contract for supply of some infrastructure and utilities are signed. The government portion of the civil facilities (external to the Plant) is under construction. Asia Aluminum's portion is also under construction (water and sanitary facilities) as shared facilities with the Extrusion Plant.

Agreement has been reached with the government on installation of electrical supply equipment and supply of electricity at times and capacity to meet the construction and operational requirements.

Asia Aluminum has developed the overall project organizational structure, hired rolling mills experts for construction and operation, and taken on over 30 engineers and translators.

At present, contracts valued at approximately \$235 million have been signed, equating to 50% of the \$470 million budget. This includes the two key equipment purchase contracts, and the two SMS/TMGE supply, refurbishment, and erection supervision contracts for the hot mill and 5-stand cold mill. The overall status of all contracts is as follows:

Contract Status	<b>Contract Value</b> US\$ (million)	Percentage of Project Budget
Contracts signed	235	50
Contracts in negotiation	145	30.9
Contracts yet to start negotiation	64	13.6
Contingency	26	5.5
Total	470	100

At the time of writing this report the supply and installation of the hot mill appears to be on the critical path. As the supply and installation contracts are now signed there is a significant reduction in risk of not completing on time. Quotations have been received for other major equipment, including furnaces, and for contracts, including JNE, and negotiations are in progress.

The open position (no quotation yet) of the budget amounts to \$64 million (13.6%), out of which the largest item is the estimated \$20 million for a single-stand cold rolling mill.

## 6. SUMMARY OF KEY RISKS

Section

The Rolled Products Plant is a significant project; however with a suitable organizational structure, appropriate engineering, and diligent project management, the chances of success are high.

The following is a summary of project risks identified in the review to date, with the summary being compiled from risks identified in other sections of this report.

Number	Identified	Risk Comments
10.1.3.2	Warranty period for the 5-stand cold rolling mill and the Hot Mill.	A contract provision (9.1.4.4) states that the warranty period shall be specified in the Final Acceptance Certificate. Clause 9.1.1.1 states that the warranty period shall be 18 months. PB Power recommends the wording be clarified to confirm the informal advice we have received that it is the intent of all parties that an 18-month warranty will apply to all equipment that has been erected and tested under SMS/TMGE supervision.
10.1.2.5	The hot finishing mill condition.	Risk of additional costs exists due to unforeseen problems with non-refurbished second- hand equipment.
		These risks are reduced by:
		Visual inspections were undertaken by Asia Aluminum staff of the mill in storage – no significant concerns were identified.
		The majority of the electrical equipment is to be replaced.
		Verbal information was supplied covering previous inspections and corresponding reports of mill condition – no significant concerns were identified.

Section Number	Identified	Risk Comments
8.2.5.3	A peak in foundation and building works is planned to occur during the 2005 wet season, which is a difficult time to carry out these activities and may lead to delays.	The coincidence of building work and the wet season is dictated by the project completion date. Asia Aluminum plan to expedite the buildings construction to cover critical plant areas prior to the wet season starting. Provided there is no serious flood, the buildings for the critical plant are expedited, suitable roads are constructed

suitable roads are constructed early and there is sufficient drainage then this should not significantly affect construction work.

## Table 1 – Summary of Risks

As the project proceeds and further contracts negotiated and signed, a clearer understanding of all project risks will evolve.

## 7. PLANT OVERVIEW

Descriptions of the plant and equipment, and production process in this report are PB Power's interpretations based on information provided by Asia Aluminum. This may be subject to change as the project progresses.

The Rolled Products Plant will cover a site approximately 900 m x 550 m. It is a new purpose-built plant for the production of rolled aluminum product and has been optimized for product flow.

Refer to Appendix A for a plan drawing of the proposed Rolled Products Plant site. The drawing indicates planned plant for this project and future plant.

The raw material for the plant is aluminum in the form of sows, mainly imported onto site, with the balance from re-processed site scrap.

The Melt Shop will contain furnaces for melting the sows and scrap, alloying the charges, and casting slabs with a maximum weight of approximately 21.5 tonnes each and maximum thickness of 610 mm. The surfaces of the slab will then be machined prior to delivery to the Hot Mill to approximately 580 mm thickness.

The Hot Mill will consist of reheat furnaces, a roughing mill, an edger, and a finishing mill. The slabs are reheated in the reheat furnaces prior to passing to the roughing mill. The roughing mill is a reversing mill which can produce either plate (8 mm to 150 mm thick) or transfer bar for further hot rolling. One hot roughing mill is included with a further one to be added at a future stage. Plate material will be removed from the line, cut to length, and packed for export from site. Transfer bars will be passed to the hot finishing mill where the material thickness is reduced to between 2 mm to 8 mm. The hot finishing mill will be a 5-stand tandem mill with the material performing a single pass through all the stands.

Material from the hot finishing mill will be transferred for processing in the Cold Mill. The Cold Mill consists of a single stand cold mill and a 5-stand tandem cold mill, with another single stand mill and 3-stand mill to be added at a future stage. The single stand cold mill has a planned input thickness range of 0.2 mm to 8.0 mm and an exit thickness of 0.15 mm to 6.0 mm. The 5-stand mill has a planned input thickness range of 2.0 mm (1.52 mm for pre-rolled hard alloy) to 3.2 mm and an exit thickness range of 0.15 mm to 0.81 mm. The 5-stand cold mill's main planned product is can stock (e.g. for supply to manufacturers of beverage cans) while the single stand mills will concentrate on producing other alloy material.

Material from the Cold Mill will be sent to various finishing processes in the Finishing Plant including slitting, cutting to length, painting, and packing. Located between the cold rolling mills and the finishing equipment is an automated high-bay coil storage system for storing coils awaiting processing in the finishing line.

A roll grinding shop will contain 3 roll grinders with another two to be added at a future stage. The roll grinding shop performs grinding of all rolls from the hot and cold mills. Both work rolls and backup rolls require re-grinding after a period of operation to return them to correct shape and surface finish.

Supporting the processing equipment are the necessary ancillary services such as electrical supply, water supply, waste water treatment, air compressors, cooling towers and boilers.

The plant overall production targets are:

Material	Tonnes/annum
Coil and Sheet Plate Total	361,100 38,900 400,000

## Table 2 – Overall Rolled Products Plant Planned Production

### 8. PROPOSED MAJOR PLANT ITEMS

#### 8.1. Melt Shop

8.1.1 General

At the time of writing, technical specifications have been developed, quotations received, and contract negotiations underway for key equipment. However plant purchase and erection contracts for this equipment had not yet been signed as they are pending funding approval. Proposed plant equipment information has been taken from plant specification sheets developed by Asia Aluminum.

#### 8.1.2 Plant Description

The Melt Shop will take aluminum supplied from off site in the form of sows, together with some of the scrap produced on site, melts it, casts it into slabs, and machines the slabs to a suitable condition for the Hot Mill. Certain alloys have an additional process of controlled cooling in homogenize furnaces to avoid stress cracks.

The plant will include:

- Scrap segregation and storage.
- Induction furnaces.
- Melting furnaces.

- Holding furnaces.
- Casters.
- Homogenize Furnaces.
- Scalpers and saws.
- Cranes.
- Ancillary plant.

### 8.1.3 Product Range

The planned product range is aluminum alloy series 1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx.

Asia Aluminum will specify the melt shop equipment to match the requirements of the Hot Mill.

#### 8.1.4 Plant Capacity

Up-to-date yearly production capacity requirements for individual plant components were not available at the time of writing this report. PB Power performed a high-level check on the critical melting/holding furnace and casting capacity calculations provided by Asia Aluminum, to confirm that sufficient material could be cast to meet the Plant's finished product requirement of 400,000 tonnes/annum. The as-specified plant was able to meet this requirement if operated for approximately 50 weeks per year.

#### 8.1.5 Major Plant Items

#### 8.1.5.1 Induction Melt Furnaces

Induction melt furnaces recover some of the aluminum scrap created in the plant, with the remainder of the scrap directly charged to the melting furnaces or sent off site for processing. One furnace is included with another one to be added at a future stage. The design capacity of each furnace is 1.5 tonnes per hour.

#### 8.1.5.2 Melting Furnaces

Melting furnaces will take aluminum from the storage area and the induction melt furnaces to produce molten aluminum for the casters. Six 85 tonnes holding capacity furnaces and two 50 tonnes furnaces are included, with two additional 85 tonnes furnaces to be added at a future stage. The proposed melting rate of each furnace is 13 tonnes/hour on a continuous basis.

If required, additional alloying metals can be added to the furnace charge (molten aluminum), and then the charge is transferred to the holding furnace.

### 8.1.5.3 Holding Furnaces

The holding furnaces will be located between the melting furnaces and the casters. They allow fluxing and additional alloying agents to be added to the molten aluminum. The furnaces hold the charge while a chemical analysis of the charge is undertaken in the on-site laboratory. If necessary, additional alloying agents can be added at this stage. The number and capacity of holding furnaces matches the melting furnaces.

### 8.1.5.4 Casters

Molten aluminum from the holding furnaces is transferred to casters. The casters take molten metal and drop cast it into water cooled molds to form slabs of between 6,000 mm to 7,000 mm in length. The proposed slab maximum dimensions are 610 mm x 2,100 (2,400 future) mm x 7,000 mm, which is within commercially available casting equipment capabilities. The capacity of casters matches the holding furnaces.

#### 8.1.5.5 Slab Homogenize Furnaces

These furnaces allow slow cooling of special alloys of grades 2xxx and 8xxx that have a tendency to split if cooled rapidly in ambient conditions.

#### 8.1.5.6 Scalper and Saw

Scalping involves removal of the top, bottom and sides surface layers of the slab to remove impurities trapped in the surface layers. One scalper is included with a second one to be added at a future stage.

A slab saw removes the head and tail ends of the slab. One saw is included with a second one to be added at a future stage.

#### 8.1.5.7 Ancillary Plant

The main ancillary plant items for the Melt Shop are:

- Cranes.
- Cooling towers.
- Nitrogen plant.
- Chlorine storage.
- Argon storage.
- Bi-gas blending plant.

### 8.2 Hot Mill

### 8.2.1 General

At the time of writing this report the purchase of a second-hand hot finishing mill (ex McCook) was complete.

A contract covering the refurbishment of this hot finishing mill and the supply of a new hot roughing mill has been signed with SMS/TMGE, who is the same contractor refurbishing the 5-stand cold mill.

At the time of writing, technical specifications have been developed, quotations received, and contract negotiations are underway for other Hot Mill key equipment, e.g. scalper, saws, and reheat/homogenize furnaces.

#### 8.2.2 Plant Description

Slabs from the scalper will be reheated to hot rolling temperature in the reheat and homogenize furnaces.

From the reheat furnaces the slabs will be transferred to the hot roughing mill for thickness reduction from approximately 580 mm to between 8 mm to 150 mm depending on the end use of the material. Rolling in the roughing mill is performed by passing the material backwards and forwards through the mill, with the number of passes depending on the final required thickness. Material designated as plate will be removed from the line after this process, cut to length, and packed for export from site. One hot roughing mill is included with another one to be added at a future stage.

The remaining material in the form of transfer bars will be passed to the 5-stand hot finishing mill which reduces the thickness in a single pass to an exit thickness of between 2 mm to 8 mm. The material from the hot finishing mill is coiled for transfer to the Cold Mill.

Supporting the mills are cranes, oil storage systems and waste oil disposal systems.

#### 8.2.3 Product Range

The planned product range is the aluminum alloy series 1xxx, 2xxx, 3xxx, 5xxx, 6xxx, 7xxx, 8xxx.

The draft specifications for the hot finishing mill indicate the mill is capable of rolling 2,030 mm wide material, however with new backup rolls this can be increased to 2,540 mm in the future. The new roughing mill is planned to match the potential future 2,540 mm finishing mill maximum material width.

The draft specifications for the hot finishing mill indicate an exit material thickness in the range of 2 mm to 8 mm.

A selection of pass schedules (computer simulations) had been undertaken by SMS to confirm the capability of both the new hot roughing mill and the refurbished hot finishing mill. The most critical mill is the hot finishing mill as it has to perform the desired reduction in one pass. The pass schedules provide sufficient information to confirm that the mill can meet the most taxing width, thickness reduction, and alloy combinations of material to be supplied to the 5-stand cold mill for manufacture of can stock (being the critical product for this plant).

The guarantees for the 5-stand cold rolling mill are conditional on specific thickness and profile (flatness) tolerances being met on the material from the hot finishing mill. The final agreed hot finishing mill guarantees are better than the requirements of the 5-stand cold mill for thickness range and profile.

#### 8.2.4 Plant Capacity

It is planned to divert 38,900 tonnes/year from the hot roughing mill output as plate products with the remainder passing through the hot finishing mill.

Up-to-date yearly production capacity requirements for individual plant components were not available at the time of writing this report. PB Power performed a high-level check on the critical roughing mill capacity calculations provided by Asia Aluminum, to confirm that sufficient material could be processed to meet the Plant's finished product requirement of 400,000 tonnes/ annum. The mill, as defined in the draft specifications, was able to exceed this requirement if operated for 48 weeks per year.

#### 8.2.5 Major Plant Items

#### 8.2.5.1 Slab Reheat and Homogenize Furnaces

The purpose of these furnaces is to re-heat (and stress relieve) slabs to rolling temperature after they have been processed on the scalper and saw. Three furnaces are planned with two additional furnaces to be added at a future stage. Asia Aluminum plan to specify the capacity of the furnaces to meet the hot mill requirements.

#### 8.2.5.2 Hot Roughing Mill

The hot roughing mill will take slabs from the reheat furnaces and produce either plate to be removed, cut and packed, or produce transfer bar for further processing in the hot finishing mill. Associated with the roughing mill is an edger to control slab width during the rolling process.

Also associated with the hot roughing mill are transfer tables on either side of the mill. During the roughing process the length of the slab increases significantly and the transfer tables support the slab as it is passed either side of the mill.

One roughing mill is included with another one to be added at a future stage. The second roughing mill will be added in-line with the first mill to allow both to transfer to the hot finishing mill.

#### 8.2.5.3 Hot Finishing Mill

The mill is a second-hand mill purchased by Asia Aluminum from the USA. The mill was originally installed in a plant owned by Reynolds Metals Company, McCook, III. The mill was then purchased by Commonwealth Aluminum, dismantled and placed in storage to be used for a future expansion. Due to a recent takeover of Commonwealth, the expansion was cancelled and the mill sold. This mill will be refurbished and upgraded by SMS/TMGE and supplied as a package with the new hot roughing mill.

For Asia Aluminum's purchase of the hot finishing mill there was no pre-purchase inspection report as produced by SMS for the 5-stand cold mill. This creates a risk that there may be hidden defects with the mill that may lead to problems for Asia Aluminum. These risks are reduced by the following:

- Commonwealth undertook inspection of the mill prior to their purchase. Reports produced from their evaluation of the mill include the Roll Diameter Reports, Gear Inspection Reports, and a Crack and Housing Inspection Study undertaken by Voest Alpine (VAII). The reports were unavailable at the time of writing, however verbal discussions with a representative of Commonwealth involved in the mill's purchase indicated there were no significant problems identified by Commonwealth for this mill.
- Asia Aluminum and SMS representatives undertook visual inspection of the mill prior to purchase for this project and stated that they found no significant problems.

Being second-hand the mill presents a number of potential risks and benefits. Potential risks include worn or damaged components and possibly outdated technology; benefits may include a known production history, cost savings, and delivery time savings. The following are areas of potential risk in purchasing this second-hand mill together with comment on any risk mitigation work being undertaken:

- Remaining life in the work and backup rolls. When the previous owner of the mill, Commonwealth, purchased the mill they scrapped any work rolls and backup rolls with less that 50% remaining life. The mill now has 17 backup rolls (1.7 sets) and 57 work rolls (5.7 sets) all with at least 50% remaining life, which is more than sufficient.
- Condition of the work roll bearings and bearing chocks. No information is available on these bearings and chocks however Asia Aluminum plans to undertake inspections and any repair work necessary.
- Condition of the back-up roll bearings and bearing chocks. No information available on these bearings and chocks however Asia Aluminum plans to undertake inspections and any repair work necessary.
- Condition of the centerline thickness gauge and profile gauge. These gauges will both be new with the profile gauge being a state-of-the-art multi-head unit.
- Condition of the screw down system. This is to be refurbished as part of the SMS/TMGE contract.
- Condition of gearboxes. The Commonwealth representative stated that the gearboxes were inspected and no significant wear or damage was found. SMS recommend that Asia Aluminum undertake inspections of the gearboxes. To limit the risk to the mill operation the following is suggested:
  - Undertake inspections of the gearboxes prior to installation.
  - Perform a vibration foot print of each gearbox as soon as possible during commissioning (both unloaded and loaded).
  - Where gears are found to require attention in the near future either confirm that manufacturing drawings of the gears exist or remove the gear for manufacturing drawings to be made.
  - Instigate a rigorous condition monitoring program on the gearboxes covering vibration and visual inspections.
- Replacing the motors on mill stands F3, F4 and F5 as part of the upgrade work. SMS have recommended that a drive train analysis be performed to confirm that the gearboxes can accommodate the increase motor speed. These motors will have the same maximum torque as the existing motors but will have a higher maximum speed. SMS/TMGE plan to undertake a natural frequency analysis of the drive train, which is prudent. There is a potential risk that the results of the drive train analysis will indicate a natural frequency within the new mill speed range, at a speed selected to meet particular finished material parameters of 3104 alloy. This however can be accommodated by the new mill control system which can slightly alter the mill speed to move away from the resonance speed. SMS/TMGE has stated that speed

changes to move away from a drive train resonance are possible while still retaining material exit parameters within required ranges. Should this not be possible, there is in addition a fall-back procedure where the mill can be run at a lower speed with no thickness reduction undertaken in the first stand. This achieves a lower output but is still sufficient for planned production.

- Lubrication issues with increased speed on mill stands F3, F4 and F5. Asia Aluminum needs to evaluate the lubrication systems and lubricant viscosity, and undertake changes as necessary. Any changes will not be a large cost.
- Condition and age of control systems. This risk has been addressed by installation of:
  - New state-of-the-art control system hardware and software.
  - New thickness gauges and profile gauge.
- Condition and age of the mill electrical system. All electrical systems have been reviewed by SMS Demag and TMGE and either replaced, upgraded and in some cases reused where appropriate. The risk has been addressed by:
  - New power transformers.
  - New power supplies.
  - Replacement of main drive motors on three of the five stands with AC motors and electrical drives.
  - New switchgear.
- Conditions of the mill stands and stand hold down bolts. Cracks may exist in these components. NDT (non destructive testing) to locate any cracks in the mill stands is programmed to be included in the modification work been undertaken, however it is not planned to NDT the housing bolts.
- Spare parts. No overall information was available on spare parts for the plant at the time of writing. SMS/TMGE has recommended US\$2.37 million be typically set aside for spares for this type of mill, however this value may be reduced depending on the spares that are supplied with the second hand mill. Asia Aluminum states that a contingency for spares has been included in the general budget contingency of US\$26 million.

## 8.2.5.4 Ancillary Plant

Associated with the hot mill main equipment are cranes, oily water treatment plants, and fume extraction systems.

## 8.3 Cold Mill

## 8.3.1 General

A major plant item in the Cold Mill is a 5-stand cold mill. This mill was originally installed in 1965 at a Kaiser plant in the USA, and upgraded in 1984.

A contract had been signed with SMS/TMGE for refurbishment and upgrading of this mill (which is now underway); however some of the upgrade work had been removed from this second contract and was to be contracted out directly by Asia Aluminum. The new mill will be made up of second-hand mill components, refurbished second-hand mill components, and new equipment.

Asia Aluminum advised that the second-hand mill was purchased through a used-equipment broker specializing in dismantling and re-selling second-hand steel mills. Asia Aluminum hired four experienced engineers from Kaiser to supervise dismantling and packaging work. In these circumstances there is every reason to expect the mill components will arrive on site in good condition, properly identified for reassembly.

At the time of writing, technical specifications have been developed, quotations received, and contract negotiations are underway for other Cold Mill key equipment. However, purchase and erection contracts have not yet been signed as they are pending funding approval.

No spools (steel drums that thinner gauge aluminum is wound onto) have been included in any of the signed equipment purchases to date. Asia Aluminum estimate 1,000 spools are required at between US\$3,000 and US\$5,000 each, equating to US\$3 m to US\$5 m. This value has been included in the budget.

8.3.2 Plant Description

The Cold Mill will consist of:

- Hot coil storage area.
- One 5-stand tandem cold rolling mill and ancillary plant.
- One single stand rolling mill (4-hi or 6-hi) and ancillary plant.

Additional plant to be added at a future stage will consist of:

- One single stand cold mill.
- One 3-stand cold mill.

#### 8.3.3 Product Range

### 8.3.3.1 Five Stand Mill

Feed stock for the 5-stand cold mill will be supplied from the adjacent hot finishing mill, with some material pre-rolled on the single stand cold mill, however if necessary feed material could be supplied from outside suppliers.

Asia Aluminum plan to produce mainly can stock on this mill, i.e. grades 3xxx and 5xxx, with the balance made up of alloy grades for other end uses, i.e. grades 2xxx, 6xxx and 7xxx.

Can stock consists of three grades of aluminum: grade 3004/3104 for the can body, 5042 for the can tab and 5182 for the can cap. Each of these grades has different material properties, the 3xxx series is noted as a "medium" alloy whereas the 5xxx series is noted as a "hard" alloy.

The 5-stand mill's planned maximum material width is given in SMS/TMGE's refurbishment contract as 1,562 mm, however actual rolling data from Kaiser indicated widths up to 1,590 mm. Increased width may be possible; however the backup roll barrel length of 1,625 mm

would place limitation on this. This width is still within the width range of the hot finishing mill.

The specified entry thickness range for the 5-stand cold mill is 2.0 mm (1.52 mm for pre-cold rolled hard alloys) to 3.20 mm. This is within the hot finishing mill exit thickness range of 2 mm to 8 mm.

A selection of pass schedules (computer simulations) had been undertaken by SMS to confirm the capability of the refurbished 5-stand cold mill. In addition some historical data was available for the mill from Kaiser. Both provide sufficient information to confirm that the mill can meet the most taxing width, thickness reduction, and alloy combinations for manufacturing can stock (being the critical product for this plant).

Under SMS/TMGE's refurbishment contract, final acceptance tests are performed on the mill with 3xxx and 5xxx grade material. It is recommended that these tests cover the most taxing combination of width, exit thickness, and alloy to confirm the specifications are met.

#### 8.3.3.2 Single Stand Mills

Feed stock for the single stand mills will be supplied from the adjacent hot mill however if necessary feed material could be supplied from outside suppliers.

Asia Aluminum plans to produce grades 1xxx, 3xxx, 5xxx, 7xxx, and 8xxx on these mills.

It is understood that Asia Aluminum will specify the new single stand mills to match the maximum output width of the hot finishing mill (minus trim). At present the hot finishing mill is restricted to roll 2,030 mm wide material however with new backup rolls this can be increased to 2,540 mm.

Either a 4-hi or 6-hi mill is being considered, with an additional 4-hi mill to be added at a future stage.

#### 8.3.4 Plant Capacity

Up-to-date yearly production capacity requirements for individual plant components were not available at the time of writing this report. PB Power performed a high-level check on the cold mills (5-stand and single stand) capacity calculations provided by Asia Aluminum, to confirm that sufficient material could be processed to meet the Plant's finished product requirement of 400,000 tonne/annum. The as-specified mills were able to exceed this requirement if operated for 48 weeks per year.

The pass schedules showed there were some cases where the mill roll drive motors for the 5-stand cold mill exceeded their rated capacity, however the mill grade motors installed on the mill are able to safely operate continuously at 115% of their "rated capacity".

#### 8.3.5 Major Plant Items

8.3.5.1 Five Stand Mill

SMS Demag was engaged in early 2003 to perform a visual inspection of the plant to evaluate its condition and provide recommendations on refurbishment required. The plant was not operating at the time as it had been idle since 2002. SMS Demag stated

that the plant appeared to be in good condition and recommended minimal refurbishment/replacement work.

The mill and associated equipment was purchased on an "as is" basis and is being dissembled, packed and shipped by Kaiser. Included in the purchase were O & M manuals, spare parts, operating records, operating procedures and drawings. The purchase contract provided minimal requirements for protection (both mechanical and corrosion) of the components for shipping and storage, however PB Power was informed that disassembly and packing was witnessed by Asia Aluminum staff and that it was completed to their satisfaction.

SMS/TMGE have been contracted to refurbish and upgrade this mill. The contract stipulates guarantee performance requirements of the refurbished mill. To meet these performance requirements SMS/TMGE have specified modifications, upgrades, and refurbishment required on the mill.

The two un-coilers on the entry side and new tower type accumulator station allow the mill to run continuously by welding aluminum coils together. On the exit side there is a twin coiler again to allow the mill to operate on a continuous basis. Although the mill is able to operate with continuous strip flow it needs to decelerate when the weld join passes through the mill stands, it then crops the weld section and accelerates again.

The mill is unique in that the rolling fluid is a water-based oil emulsion rather than the normal cold mill oil-based rolling fluid. This water-based system was developed by Kaiser, which they patented. The purchase contract includes the purchase of the physical equipment as well as the patent by Asia Aluminum. This system has advantages in reducing fire risk and possibly a reduction in atmospheric discharge of hydrocarbon products.

Included in the purchase is a set of second-hand work rolls and backup rolls. SMS Demag stated that these appeared in good condition. No information was available on the individual roll diameters to assess remaining life. There is a risk of significant future expenses if the rolls are approaching the end of their lives.

During rolling, critical parameters to be achieved for the aluminum strip are material thickness, thickness tolerance, and shape. Shape is a measure of the variation of the strip in the transverse direction (perpendicular to the travel direction). A number of devices on the mill control shape including hydraulic cylinders to apply load to the rolls, hydraulic rams to apply bending to the rolls, and control of amount and location of cooling fluid application. Measuring systems on the exit of the mill measure both thickness and shape and provide feedback to the control system for continuous adjustment of control devices. Guarantees have been supplied by SMS/TMGE for thickness tolerance and shape.

Being second-hand, the mill presents a number of potential risks and benefits. Potential risks include worn or damaged components and possibly outdated technology; benefits include a known production history, cost savings, and delivery time savings. The following are areas of potential risk in purchasing this second-hand mill together with comment on any risk mitigation work being undertaken:

Remaining life in the work and backup rolls. No information
was available on the condition of the rolls at the time of
writing this report. It is unlikely that all the rolls are near

the end of their lives; however a contingency should be included in the budget to cover purchase of rolls if required. As a contingency estimate, it is assumed that one entire set of roles requires replacing, i.e. sufficient rolls to fill all five stands. Based on recent prices for similar rolls the contingency would be approximately US\$2 million. If required, new rolls can be supplied within the project construction timeframe. Asia Aluminum state that this contingency has been included in the general budget contingency of US\$26 million.

- Condition of the work roll bearings and bearing chocks. There are a total of 58 work rolls bearings supplied with the mill. Inspections have been undertaken of the bearings by an independent company. Fourteen bearings were scrapped with the majority of the remainder requiring re-manufacture. The remaining 44 bearings equates to a total of two complete sets with 4 spares. This is just sufficient to operate the mill however a number of additional spares may be required.
- Condition of the back-up roll bearings and bearing chocks. No information is available however Asia Aluminum plans to undertake inspections and repair work as necessary.
- Condition of the shape roll. The shape roll is a critical item to achieve correct material flatness. The shape roll has been sent to the original manufacturer (ABB) for a full service, which is prudent.
  - Condition of gearboxes. A visual internal inspection of the mill major gearboxes was undertaken by an independent company in the US. The inspection report noted wear and pitting damage on a number of gears to varying degrees of severity. The inspections did not include condition assessment of the bearings other than in some cases manually rotating the shafts to listen for bearing noises. A number of the gears were noted as requiring attention in the near future. A number of gears were noted as having insufficient lubrication. The design of some gearboxes restricted or blocked internal inspection. To limit the risk to mill operation the following is suggested:
    - Perform a vibration foot print of each gearbox as soon as possible during commissioning (both unloaded and loaded).
    - Investigated and remedied lubrication problems prior to re-commissioning.
    - Where gears were noted as requiring attention in the near future either confirm that manufacturing drawings of the gears exist or remove the gear for manufacturing drawings to be made.
    - Instigate a rigorous condition monitoring program on the gearboxes covering vibration and visual inspections.
- Condition and age of control systems. This risk has been addressed by installation of:
  - New state-of-the-art control system hardware and software.

- New thickness gauges.
- New electronics on tension meters and hydraulic gap position transducers.
- New laser strip speed sensors, hydraulic pressure transducers, work roll bending pressure transducers, and entry bridle pressure transducer.
- Condition and age of the mill electrical system. All electrical systems have been reviewed by SMS Demag and TMGE and either replaced, upgraded and in some cases reused where appropriate. The risk has been addressed by:
  - New power transformers.
  - Recondition main mill drive DC motors.
  - New switchgear.
  - Reviewing auxiliary 60 Hz motor drives and replacing them with 50 Hz as required.
- Conditions of the mill stands and stand hold down bolts. Cracks may exist in these components. NDT (non destructive testing) to locate any cracks in the mill stands is programmed to be included in the modification work to be undertaken, however it is not planned to NDT the housing bolts.
- Condition of the control valves for the roll load cylinders. These are to be replaced with new valves.
- Spare parts. No overall information was available on spare parts for the plant at the time of writing. SMS/TMGE have recommended US\$3.7 million be typically set aside for spares for this type of mill, however this value may be reduced depending on the spares that are supplied with the second hand mill. Asia Aluminum state that a contingency for spares has been included in the general budget contingency of US\$26 million.

#### 8.3.5.2 Single Stand Mills

The single stand mill is to be purchased new. At the time of writing a final decision had not been made as to the mill type. The mill will either be a 4-Hi or 6-Hi.

#### 8.3.5.3 Ancillary Plant

Associated with the cold mill main equipment are cranes, oily water treatment plants, coolant filtration, and fume extraction systems.

#### 8.3.6 Early Operation of 5-Stand Cold Mill

The construction schedule has the 5-stand cold mill available (in early 2006) prior to the hot mill. This provides opportunity to source hot mill strip (hot band) from other suppliers to run in the 5-stand mill.

It is confirmed that there will be sufficient electrical power to operate the mill by this time providing careful load management is undertaken (refer to Section 8.7 below). It is possible to purchase hot band however caution is necessary regarding the quality of supplied material. It may be necessary to produce lower value material initially that can accommodate any quality issues in the supplied hot band material.

In addition, all necessary support and ancillary plant for the mill will need to be in place prior to operating the mill.

### 8.4 Finishing Plant

#### 8.4.1 General

At the time of writing, technical specifications have been developed, quotations received, and contract negotiations are underway for the key equipment. However, the purchase contract and erection contract have not yet been officially signed as Asia Aluminum is pending funding approval.

#### 8.4.2 Plant Description

The Finishing Plant included consists of:

- One high bay coil storage.
- Seven annealing furnaces.
- One trimmer/slitting line.
- One cut to length line.
- One tension leveler line.
- One paint line.
- One plate saw.
- One packing line.
- Finished product storage.
- Waste water treatment.
- Cranes.
- VOC incineration plant.
- Plate department.

Additional plant to be added at a future stage will consist of:

- One annealing furnace.
- One trimmer/slitting line.
- One cut to length line.
- One tension leveler line.
- One paint line.
- One plate saw.
- One packing line.
- One plate heat/quench furnace.
- One plate aging furnace.

Material from the cold mills will be stored in the high bay storage system. This is an automated multi-story coil storage bay.

Material from the storage area can then be further processed on the finishing equipment to the customers' requirements, including slitting, cutting to length and painting.

### 8.4.3 Capacity

No attempt has been made to analyze the capacity of the finishing plant as there is insufficient information on individual machine capacity and product mix.

## 8.5 Roll Grinding Shop

A total of three roll grinders will be purchased; one is second-hand which has recently been rebuilt with new control equipment, with another two grinders to be added at a future stage.

## 8.6 Civil Structures

The Rolled Products Plant will be covered by a number of buildings containing all in-door equipment. No information was available at present on the construction materials for the building. It appears that all building will be built for the planned present and planned future equipment.

## 8.7 Electrical Supply

The electricity supply to site is the responsibility of the local authority (government). Proposal details for the permanent supply are robust, with a double circuit 500 kV lines providing a supply to a new 500/220 kV substation approximately 6 km from the industrial park. Three 220/110 kV 360 MVA transformers are ultimately planned to supply the Asia Aluminum site, of which two are to be installed for the present development with space available for a third unit. Two 110/10 kV substation will be built on Asia Aluminum's site, one of which will supply the Rolled Products Plant. Each substation will have three 110/10 kV 63 MVA feeders. The assessed load requirement for the Rolled Products Plant is 110 MW.

Confirmation from the local authority management committee confirms that this work will be completed by March 2006, which is timely in meeting Asia Aluminum's expatiations of a secure power supply by June 2006.

During the current construction period the government has supplied a power supply with a capacity of 40 MW (40,000 kW).

An interim power supply with a capacity of 80 MW (80,000 kW) will be available from mid 2005 to supply Asia Aluminum's Extrusion Plant, Rolled Products Plant site construction, and for commissioning/operation of the 5-stand cold rolling mill. Careful load management will be required between these three loads until the permanent supply is available.

Site distribution (10 kV and below) is the responsibility of Asia Aluminum. Detailed planning is well underway for its design.

## 8.8 Common Ancillary Plant

The Rolled Products Plant main equipment is planned to be supported by common ancillary plant, including:

- Steam boilers.
- Nitrogen storage.
- Natural gas/fuel oil storage.

- Air compressors.
- Maintenance shop.
- Rolling fluid storage.

## 9. ENVIRONMENTAL ISSUES

## 9.1 General

The following documents were provided by Asia Aluminum and reviewed as part of this assessment.

- Feasibility Study Summary (the "feasibility study"). This document was supplied in Chinese and translation into English by PB Power.
- Environmental permit from PRC government (the "Environmental Permit"). This document was supplied in Chinese and translation into English by PB Power.
- Asia Aluminum agreement with Asia Industrial Park for the facility site (the "Site Agreement"). This document was supplied in Chinese and translation into English by PB Power.
- A general arrangement and plot plan (ACP-0002).

Asia Aluminum has advised that an environmental impact assessment has been undertaken for the project (see the discussion on the Environmental Permit Compliance below).

## 9.2 Environmental Permit Compliance

The Environmental Permit refers to an environmental impact report for a "400,000 tons Alloy products" project that had been submitted to the provincial technical centre and town environmental protection department. Asia Aluminum holds a copy of the environmental impact report however PB Power has not received it for review.

PB Power is assured by Asia Aluminum that the Environmental Permit document as provided is the final Environmental Permit issued by the PRC government for the project. The document states that the PRC government agrees with comments made by the "town environmental protection department."

The Environmental Permit details the following relevant conditions:

- The approval is for a plant with a total capacity of 400,000 tons per annum corresponding to the proposed plant capacity. Any future capacity upgrades of the Plant will require changes to the permit.
- There is a general requirement to comply with PRC environmental criteria that will minimize generation of contaminated material and use of raw materials, water and energy. Scrap aluminum will be recycled. There is a large (1,000,000 gallon) reclaim oil tank shown in the plot plan together with a waste oil and oily waste water incinerator plant. It has been reported that a saleable waste oil product will be developed if possible to minimize the need to incinerate waste oil. There is no particular evidence in the documents provided of any other proactive aspects of the plant design or its operation, either already in place or committed to, that are intended to meet these criteria and objectives. However, good modern design practice should incorporate these design principles as a matter of course.

- There are specific requirements for emissions to air from equipment (furnaces/boilers) burning coal and oil/diesel, however, there is no coal burning equipment proposed for the Plant.
- The criteria for oil burning equipment (assumed to include diesel fuel) are a maximum of 0.3% sulfur in diesel, and a minimum stack height of 30 m. Fuel with 0.3% sulfur should be readily obtainable. No explicit mass or concentration limits have been imposed, and therefore no flue gas treatment is necessary to meet these criteria.
- There is a general requirement to adopt measures that will ensure the plant complies with PRC noise control criteria. There is no reason to expect that appropriate noise reduction can not be successfully applied to achieve this requirement, but the likely noise emission characteristics of the plant, its compliance with PRC criteria, the noise mitigation proposed and the expenditure budgeted for noise suppression measures have not been provided.
- There is a general requirement to adopt measures that will meet PRC criteria for solid waste control. This includes requirements for recycling all solid metal scrap; disposal of sludge from wastewater treatment to an industrial waste landfill; disposal of domestic solid waste to a solid waste treatment plant; and sending emulsified waste (assumed to be principally a mix of various types of rolling mill oil in water) to a qualified plant for treatment. None of these requirements should be difficult to comply with, although the accessibility of treatment plants is not detailed by the proponent.
- There is a general requirement to adopt measures and a construction schedule that will protect the environment. No construction schedule or specific measures (such as an environmental management plan) to protect the environment during construction have been provided.
- There is a general requirement to develop plans for emergency situations such as leaks and explosions. No plans have been provided, but consideration has been given to water requirements for fire fighting but it would be quite normal to complete emergency plans later in the construction program (but before commissioning).
- Conditions regarding investment in environmental works, the timing of design and construction of environmental protection facilities, and inspection by PRC government representatives are considered quite unexceptional.
- Legal opinion has been provided to PB Power from Guangzhou Foreign Economic Law Office to clarify the clause relating to the "total amount of pollutant disposal" which is required to meet the PRC government's instruction. This clause requires that the quantities of waste disposed of by Asia Aluminum must be within the quota allocated to the Zhaoqing City Environmental Protection Bureau (EPB) by the Guangdong EPB. The opinion provided is that the waste disposal quantities can be readily calculated and would have been notified to the Guangdong EPB (although this document has not been sighted). The opinion is that the available waste disposal quota would be greatly in excess of the Company's requirements, and that even if this were not the case, the Guangdong EPB is required to provide additional quota as part of its permit. Zhaoqing City EPB is required to make additional quota available if necessary by a program to limit the waste disposal of other operations. The legal opinion is therefore that the risk of Asia Aluminum not being able to legally dispose of its waste is very low.

### 9.3 Environmental Management System/Procedures

There is no evidence in the documentation provided that an environmental management system has been established, or that there is any commitment to establish such a system prior to commissioning the plant.

#### 9.4 Water Supply and Quality

It is understood that water will be drawn from a nearby river, and that (waste) water will be returned to the river. Asia Aluminum has stated that they have obtained approval from the government to draw water from and discharge water to the river.

The quality of the water extracted and returned to the river is not detailed in the documents provided. Therefore the impact on the natural environment and on other users of extracting and returning this quantity of water can not be estimated, and is not detailed in the documentation available. It is not clear whether the industrial park would be responsible for the raw water supply and return, or only for drinking water supply as stipulated in the Site Agreement.

An "industrial wastewater treatment centre" is referred to in the Feasibility Study. It includes neutralization, aeration, absorption, filtration and biochemical treatment. The precise nature of some of these processes, for example the absorption process, can not be determined from this information. If properly designed and operated, these processes are likely to provide appropriate levels of treatment for the expected range of wastewater characteristics. A flotation or similar separation stage might be appropriate to remove floating oil. It will be necessary to break emulsions of oil in water and chemical emulsion breaking systems are planned.

The Feasibility Study and general arrangement drawing indicate contact and non-contact cooling water systems. The contact cooling water in particular will accumulate contaminants from contact with the product, and both systems will need to be blown down. Where oil is entrained in the cooling water, or any other significant contaminants (such as cooling tower dosing chemicals) accumulate, the blowdown would need to be treated. It is assumed that they will be treated in the industrial wastewater treatment system before discharge.

Depending on the processes used, it is possible that surface treatment/washing of aluminum, for example before painting, would result in the generation of water contaminated by compounds such as sodium phosphates or chromates that are typically used for this purpose (the possible use of hexavalent chromium has been mentioned). These have the potential to add significantly to the water contamination load and requirements for wastewater treatment. Use of such processes in the project should be matched with suitable water treatment plants, which might require additional processes such as chemical precipitation. If treatment with hexavalent chromium is required, chemical reduction to non-toxic trivalent chromium will be used to enable safe disposal of the waste to landfill. It has been reported that development of water-based coating systems would eliminate the need for chromate surface treatment.

Although wastewater treatment systems have been mentioned in the documentation, the site water balance and the quality of the various streams involved have not been detailed, and potential impacts and compliance with environmental criteria can not be assessed. However, it should be possible to effectively treat all of the wastewater streams likely to be produced by the facility using standard technology if properly designed and operated.

## 9.5 Air Quality

The principal sources of air emissions for the facility are likely to be:

• Combustion of fossil fuel in furnaces, boilers, incinerators.

- Decomposition products from VOCs (volatile organic carbon), waste oil, and contaminants in aluminum scrap etc.
- Fume and dust from aluminum melting and heating furnaces.

Emissions from furnaces and boilers burning coal and diesel oil are covered by the Environmental Permits section above. There is not likely to be any difficulty in meeting the very general criteria specified. There are no criteria for natural gasfired equipment, which we believe will be employed.

The Site Agreement refers to Asian Aluminum being allowed to construct a town gas plant. No further details have been provided on whether or not this is likely to occur. If it were to be constructed, it would be likely to significantly change the nature of potential emissions from the site.

Two incinerators are included in the proposal, one to destroy VOC's from the paint line, one to destroy waste oil/oily water from the industrial wastewater treatment centre. If properly designed and operated, the VOC incinerator should be suitable to meet all likely emission criteria and to conform to good practice. It should be designed to ensure the correct temperature profiles and oxygen concentration to ensure total combustion of VOCs without the formation of toxic byproducts (especially if any chlorinated compounds are present). There is future potential to eliminate the VOC emissions from the coating line (and therefore the need for a VOC incinerator) through the development of water based coatings.

The nature of rolling oils is such that their products of combustion from a properly designed incinerator should be relatively simple with only limited environmentally impact. Asia Aluminum proposes to produce a saleable product from the waste oil separated from oily water in the treatment plant, reducing or eliminating the need to incinerate waste oil.

It is understood that dust and fumes from melting and reheating furnaces will be controlled through bag filters. These should normally be adequate to control most dust, and some size ranges of fumes, if properly selected and maintained. There is the potential for some emissions from fluxes or from contaminants in scrap added to the new material, including fluorides, VOCs and chlorinated organic compounds, depending on the nature of scrap and the fluxes used. These may need more specialized emission control systems, if present in significant quantities.

## 9.6 Noise

No indication is given in the documentation of what noise characteristics the proposed facility will exhibit, what sensitive receptors would be affected, what noise reduction treatments are planned or what budget has been allocated to noise reduction. However, given that the site is within an industrial park area, there is no reason why standard noise treatment measures would not be adequate to ensure that the plant meets all relevant noise emission criteria.

## 9.7 Waste Management

Requirements for disposal of solid domestic and industrial waste are given in the Environmental Permit.

No other specific requirements are known.

## 9.8 Site Contamination

Existing contamination of the site is not likely to be a significant issue. Any risk of cleaning up ground contamination, due to previous use of the site, appears to lie with the local authority (Zhaoqing Gaoxin Technical Production Development Zone Management Committee) who, by contract, shall provide the land free of

encumbrance and take responsibility for indemnification in regard to redemption of the land for project use. However, ground contamination is not specifically mentioned in the contract.

PB Power has been advised that all land to be acquired for the project was, until site work started, agricultural land, and that the Government has confirmed that all fill used for the industrial estate is free of contamination. Land used only for agriculture in the past is considered unlikely to have given rise to significant contamination of a type that could be incorrectly associated with the Asia Aluminum operation. The risk of any liability for remediation of pre-existing contamination is therefore considered to be small where only agricultural activities have occurred.

A formal environmental site assessment would be prudent and would provide a greater level of assurance that the site is uncontaminated. PB Power recommends that a preliminary baseline assessment be undertaken in any areas of the site that might have been contaminated in the past, or that might be contaminated by Asian Aluminum activities in the future. However, a detailed site assessment, which would involve the expenditure of considerable effort, is not considered justified for the level of risk that is likely to be present, based on the information provided to PB Power.

Operations have potential for contamination, especially through leaking tanks, the large volumes of oil/oily water circulating, and diesel fuel storage. Good design practice and effective monitoring of facilities should be adequate to prevent site contamination problems.

### 9.9 Rehabilitation of Site

The site agreement does not make mention of any liability on the part of Asia Aluminum for any contamination or other adverse condition that might exist on the site during or at the end of the period of the agreement, whether such condition was pre-existing or not. The status of the site should be verified prior to taking control of it to identify any pre-existing conditions, and a clear understanding should be included in the contract detailing the liability of Asia Aluminum for any adverse conditions that might arise as a result of their activities on the site.

#### 10. CONTRACTS

#### **10.1** Contract Arrangements

#### 10.1.1 Overview

Asia Aluminum is arranging separate contracts for the supply, installation and commissioning of each major item of plant; project management; design; supervision; together with local contracts for foundation, building and infrastructure works.

The project schedule (supplied by Asia Aluminum on 17 November 2004, refer to Appendix B) shows the project commencing on 1 August 2004 with the completion date as 31 December 2006. This should be achievable for all plant in that the date generally accords with equipment delivery and commissioning periods ascertained by PB Power and with the commitments in the contracts for erection of the hot mill and cold mill, the key areas of the project.

#### 10.1.2 Contract Agreements

#### 10.1.2.1 5-Stand Cold Rolling Mill

Under the contract with the SMS/TMGE consortium, to enable the mill to achieve the specified performance guarantees, most

performance risk essentially remains with Asia Aluminum; those portions of risk remaining with SMS/TMGE carry damages of 5% of the contract value, which is normal practice, but amount to less than US\$1 million. In these circumstances the successful installation and commissioning of the mill will to a very large extent depend on the integrity and performance of the consortium.

PB Power considers reasonable measures have been taken to achieve successful completion, including selecting and managing a reputable erection and commissioning contractor.

Asia Aluminum appears to be in a strong position to meet erection contract obligations to provide Process Know How for mill operation, an important consideration for second-hand equipment. They advise they are in possession of the last six months production history of the rolling mill and this history is approximately 70% applicable to the intended product mix.

#### 10.1.2.2 Hot Mill

The erection contract for the hot mill was signed on 23 November 2004.

A quick inspection of this contract (appendices for the contract are still under review) shows the contract is structured similarly to that for the cold mill with liquidated damages limited to 7.5% of the contract sum.

The hot mill schedule allows for production of the first coil prior to project completion date; final testing will follow for a six month period, during which time rolling will be undertaken but production levels are likely to be lower than full capacity.

### 10.1.2.3 Government Supply Contract

The document entitled "Asia Industrial Park Contract" requires the local authority to provide a power supply to the site. Refer to Section 8.7 above regarding further information on the electrical supply contract.

The local authority is required to provide discharge pipelines (exact purpose not specified) and a water supply pipeline, although nothing is stated on capacity and availability date in either case.

#### 10.1.2.4 Foundation and Building Design

The selection and appointment of the design engineers (JNE provisional) for the cold rolling mill foundations and the associated buildings is in progress. The cold mill building foundations are due to start in mid-December 2004. JNE will need to give particular attention to those design drawings. PB Power has noted that a slight delay to the cold mill itself is not critical. However it would be advantageous to keep as closely as possible to the scheduled start dates to avoid any resourcing issues which may otherwise arise from starting the hot and cold mill foundations at the same time.

All design documents will be in English and Asia Aluminum will take on directly the task of translation, using a team of engineers with a senior verifier. With the translation team in the project office the consequences of any translation errors should be minimized and queries easily dealt with – a particular advantage when working to a tight schedule.

#### 10.1.2.5 Building Construction and Civil Works

These contracts are not yet in place. Asia Aluminum stated that experienced Chinese contractors, known to Asia Aluminum, are available and have previously performed well to schedule. PB Power was advised that work on another adjacent Asia Aluminum project is being carried out by Shougang Metallurgical Construction Co., which we are advised, has a strong track record for completing projects in a timely manner to international standards. While formal contracts are still pending, these general circumstances provide a reasonable level of assurance that locally placed construction contracts should not become a critical performance issue.

A peak in foundation and building works is planned to occur during the 2005 wet season, a difficult time to carry out these activities. Particular attention is needed to completing the site roads and other critical infrastructure/buildings ahead of this time. Due allowance must be made for lower rates of progress with additional resources available if necessary to achieve scheduled progress dates. Subsequently plant erection in late 2005 is expected to take place simultaneously on all the major sections of the project, placing a heavy demand on skilled supervisory staff. While detailed work plans are not available, PB Power expects the experienced staff available to Asia Aluminum should manage these issues effectively.

10.1.3 Owner's Risks

#### 10.1.3.1 Site Ground Conditions

While the upper soil layers will not support heavy foundations, underlying rock will provide good support to piled foundations for heavy equipment and buildings. The high water table, typically one meter below ground level, will require appropriate relief measures during foundation construction.

#### 10.1.3.2 5-Stand Cold Rolling Mill

#### 1. Purchase

Any concerns on the adequacy and reliability of this secondhand equipment are reduced by the availability to Asia Aluminum of the last 6 months' records of mill operation, assessments carried out by Asia Aluminum jointly with SMS on plant condition, and the subsequent decisions on what refurbishment and/or new manufacture was appropriate.

#### 2. Erection by Asia Aluminum

Asia Aluminum has to provide all labor and supervision to complete erection under the direction of SMS/TMGE, the supervising contractor. Asia Aluminum stated that key personnel will be transferred from their existing operating plants to assist, and there is already a high level of interest in employment from senior personnel experienced in rolling mill operations.

#### 3. Payment

Payment terms require Asia Aluminum to pay fixed amounts to a fixed timetable, but are referenced to the value of deliveries and the right to delay payment if equipment delivery is delayed. The provisions are unclear and may leave Asia Aluminum open to payment on receipt of invoices for fixed amounts.

#### 4. Warranties

Warranties relate to the sourcing of the mill components either from direct purchase by Asia Aluminum, new manufacture under SMS/TMGE supervision, or SMS/TMGE supply.

Items supplied by SMS/TMGE or manufactured under their supervision are warranted for 18 months from the issue of the Final Acceptance Certificate. The functional performance of Asia Aluminum's directly purchased second-hand equipment is warranted to the extent SMS/TMGE have inspected and repaired such equipment under Asia Aluminum's direction. SMS/TMGE has an obligation to assist Asia Aluminum to bring all equipment to specified level of performance during the same 18 month warranty period.

A contract provision (9.1.4.4) states that the warranty period shall be specified in the Final Acceptance Certificate. Clause 9.1.1.1 states that the warranty period shall be 18 months. PB Power recommends the wording be clarified to confirm the informal advice we have received that it is the intent of all parties that an 18-month warranty will apply to all equipment that has been erected and tested under SMS/TMGE supervision.

In the event of delays in completion by Asia Aluminum or SMS/TMGE warranty period expiry is capped at 43 months and 62 months respectively from the effective date of the contract. These periods are reasonable, although adequate protection for Asia Aluminum will rest on an appropriate start to construction as the contract is already in effect.

## 11. CONSTRUCTION BUDGET

The construction budget supplied by Asia Aluminum to PB Power was detailed to the major equipment level, which is sufficient for this report. Asia Aluminum's overall estimate for the Plant is US\$470 million, with their detailed budget at the time of writing the report totaling US\$470,990,000.

PB Power has:

- Undertaken a high level review of the budget by selectively reviewing major items, and cross-checking against independently obtained prices for similar equipment.
- Checked that the significant plant items are included in the budget.
- Checked that the budget has been totaled correctly.

Where prices were obtained by PB Power for comparison purposes, the prices were budget estimates supplied by either manufacturers or organizations associated with the respective industry. The estimate prices were not quotations and were obtained without negotiation.

Prices for buildings, foundations, electrical reticulation, pipework, and other equipment which are not part of the major equipment have been compared to Chinese construction costs. In cases where equipment would normally be manufactured in China, and documented prices were available, the PB Power comparison price was based on the Chinese manufactured items. For equipment where there was no indication of Chinese supply, or where only international prices were available, prices were non-Chinese equipment prices.

It is likely that Asia Aluminum can obtain prices lower than the PB Power comparison prices by obtaining competitive quotes, using Chinese manufactured equipment instead of internationally sourced equipment, or purchasing equipment second-hand. The following table lists the items that appear to have budget values materially different than expected based on information received by PB Power under the above criteria, or where major items appear not to be included in the budget.

A	Selected Equipment Description B	Asia Aluminum Budget (US\$) C	Quotations to Asia Aluminum (US\$) <sup>1</sup> D	PB Power Independent Estimate (US\$) E	Comment F
1.	Coil anneal furnace 160 T	\$2,000,000	\$4,750,000	\$7,300,000	PB Power estimate for non- Chinese supply.
2.	Coil coater (multi	\$6,000,000	\$10,000,000	\$14,500,000	PB Power estimate for non-Chinese supply.
	purpose)				Includes the VOC incinerator and the paint mix facility. Excludes the tension leveler (which is included elsewhere in Asia Aluminum's budget).
3.	Hot and cold coil storage racks	Nil	Not estimated	Not estimated	Prices for these racks appear not to be included in the budget. No assessment has been made for these items as no specifications were available.
4.	Plant General 4.1. Foundations + building construction + roading and drainage (between buildings)	\$37,000,000	\$37,000,000	\$46,500,000	PB Power estimate was made up of the following:
					Buildings
					• Electrical distribution. Covers supply from the 10 kV substation and distribution to new plant
					• Mechanical (air, steam, oil, gas, etc)
					Roading
5.	Maintenance workshop	Nil	Shared facility	Shared facility	The main workshop facility has been excluded on the assumption that the facility is shared with the extrusion plant and the cost is covered elsewhere.
6.	Cranes	\$2,500,000	\$3,600,000	\$9,000,000	PB Power estimate for non- Chinese supply.
					47 cranes are required.
7.	Contingency	\$26,000,000		\$36,000,000	We understand the Asia Aluminum contingency already includes recommended hot mill & 5-stand cold mill spares at \$3m (accounting for existing spares) and the 5-stand cold mill new rolls at \$2m. Conservatively the contingency should be approximately 8% given the complexity of this project.

<sup>1</sup> Verbal prices supplied by Asia Aluminum to PB Power and currently under negotiation. Documentation not provided to PB Power for verification.

### Table 3 – Budget Review

For only the items identified in the above table, the total variance between Asia Aluminum's Budget (Column C) and the PB Power Estimate (Column E) is approximately 8.5% of total budget of US\$470 million, with the estimate by PB Power being higher.

# APPENDIX A







