A Strategic Outlook for the Asian Aluminium Flat Rolled Markets out to 2022 - FREE Whitepaper
NEW Strategic Study from Metal Bulletin Research  
(Publishing date – November 2012)

As part of our new strategic study, MBR is pleased to present below a description and preview of some of our key findings and conclusions in this white paper ahead of publication.

The full report covers the key aspects of aluminium flat rolled products (FRP) market in the following countries: China, Japan, Malaysia, Indonesia, Myanmar, South Korea, Thailand, Philippines, Taiwan, Vietnam and Singapore. Total FRP demand in the selected region is forecast to grow by an impressive 7.2% on an average annual basis over the period 2011-2022. Much of this growth will be driven by continued market expansion in China, however, we expect demand to also expand at a rapid pace in what are currently some of the lesser developed markets in the selected region. This will provide significant opportunities for those looking to invest within this fast growing region.

On a product basis we expect firm growth across the board, though some product sectors are likely to show above average growth. The market for common alloy coil is expected to grow by 9.1% p.a between 2011-2022, with much of the growth coming from newly emerging markets. We also expect to see a strong demand growth profile for sectors such as canstock (body and end), heat treat sheet and building sheet.

The full report “The Market for Aluminium Flat Rolled Products in Selected Asian Countries” offers unique primary and secondary research data, insights, analysis and forecasts to formulate your business objectives. The study examines the full range of strategic growth opportunities for the Asian aluminium flat rolled products market in key fast growing Asian economies and details current and future prospects for aluminium FRP investments out to 2022. The study:

- Provides comprehensive rolling mill profiles in key producing countries, with a special emphasis on the latest developments in the Chinese rolling sector (see example).
- Presents a detailed analysis of historical and current demand trends by market and by major key products.
- Forecasts demand growth by market out to 2022 by key FRP products and by market
- Provides a detailed assessment of future FRP projects in the selected countries as well as projecting forecast production out to 2022.
- Assesses market pricing structures for key selected products and provides year-by-year forecasts out to 2016.
- Examines regional market share by major producer and the degree of competition for individual aluminium flat rolled products.
- Presents trade flows within the region for flat rolled products and indicative shipping rates for major trade routes for aluminium flat rolled products.

“Despite undoubted cyclicality to be expected in the market out to 2022, our analysis confidently shows that overall, bottom-line long-term trends are bullish enough to support investment sentiment and business confidence for the industry.”
### NAME: HARBIN  
COUNTRY: CHINA  
PROVINCE: HEILONGJIANG

**OPERATOR: NORTH EAST LIGHT ALLOY (NELA)**

**CASTHOUSE**

**Furnaces:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
<th>Fuel</th>
<th>Capacity (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Melting</td>
<td>Oil</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>Melting</td>
<td>Oil</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Melting</td>
<td>Oil</td>
<td>20-25</td>
</tr>
<tr>
<td>16</td>
<td>Holding</td>
<td>Oil</td>
<td>15</td>
</tr>
</tbody>
</table>

**Casters:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>DC</td>
</tr>
</tbody>
</table>

Raw material throughput (net of runaround): Primary ingot

### HOT MILL

**Pre Heat:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
<th>Fuel</th>
<th>Capacity (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Soaking</td>
<td>Oil</td>
<td>-</td>
</tr>
</tbody>
</table>

**Hot Breakdown/Finishing Mill:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Work Roll Width (mm)</th>
<th>Power Rating (k/W)</th>
<th>Minimum Gauge (mm)</th>
<th>Maximum Coil Weight (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mino (USSR), 4 Hi</td>
<td>1500</td>
<td>-</td>
<td>8.00</td>
<td>4.5</td>
</tr>
<tr>
<td>SMS, 4 Hi reversing, plate</td>
<td>3700</td>
<td>1500</td>
<td>8.00</td>
<td>-</td>
</tr>
<tr>
<td>Siemens VAI, 4 Hi 3 stand tandem</td>
<td>1850</td>
<td>-</td>
<td>18.00</td>
<td>-</td>
</tr>
</tbody>
</table>

Hot Mill Capacity (’000 tpy):

|          | 180 |

### COLD MILL

<table>
<thead>
<tr>
<th>Type</th>
<th>Work Roll Width (mm)</th>
<th>Power Rating (k/W)</th>
<th>Maximum Speed (m/min)</th>
<th>Minimum Gauge (mm)</th>
<th>Maximum Coil Weight (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mino, 4 Hi</td>
<td>1400</td>
<td>-</td>
<td>800</td>
<td>3.00</td>
<td>-</td>
</tr>
<tr>
<td>NKMZ, 4 Hi</td>
<td>1700</td>
<td>-</td>
<td>-</td>
<td>3.00</td>
<td>-</td>
</tr>
<tr>
<td>NKMZ, 4 Hi</td>
<td>900</td>
<td>-</td>
<td>-</td>
<td>2.00</td>
<td>-</td>
</tr>
<tr>
<td>SMS Siemag 6 Hi non-reversing</td>
<td>1900</td>
<td>1500</td>
<td>-</td>
<td>3.00</td>
<td>-</td>
</tr>
</tbody>
</table>

### FINISHING

3 foil mills, 1 cold strip mill, continuous heat treatment line, annealing furnace.

### OUTPUT

<table>
<thead>
<tr>
<th></th>
<th>180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Plant Capacity ()</td>
<td>180</td>
</tr>
<tr>
<td>Total Plate Capacity (tpy)</td>
<td>70</td>
</tr>
<tr>
<td>Total Cold Mill Production (tpy)</td>
<td>2011: 121 2010: 115</td>
</tr>
<tr>
<td>Plate Output (tpy)</td>
<td>2011: 39 2010: 25</td>
</tr>
<tr>
<td>Hot Rolled Shipments (tpy)</td>
<td>0</td>
</tr>
</tbody>
</table>

Product range: Sheet, coil, fin stock, foil stock, plate, foil, strips

Main markets: Building products, defence, civilian aerospace

**Other comments:**

Construction of the plant began in 1953 with first production in 1956. All the original equipment was supplied by the USSR. The company became a sole state-owned corporation in 1998 and was put under the administration of the Harbin government in 2000. In 2007 Chinalco took over the ownership of the plant for US$159m for a 75% stake. The company announced a major investment programme over the 2007–2010 period to renew the outdated Russian equipment. A new wide plate facility was commissioned in Q4 2010 with a sheet and coil mill installed in 2011.
Key Findings of MBR’s New Study

Despite undoubted cyclicality to be expected in the market out to 2022, our analysis confidently shows that overall, bottom-line long-term trends are bullish enough to support investment sentiment and business confidence for the industry.

MBR has undertaken a detailed research project on the market for aluminium flat rolled products in selected Asian markets.

The focus of the research was aimed at providing deep insight into the fast growing but rather opaque aluminium flat rolled products industry in selected Asian markets. The report provides detailed analysis of the main rolling mills within the region coupled with an in-depth analysis of the size and scope of market demand on an individual country basis as well as by major product segments. Our demand side research was driven from a bottom up approach involving discussions with some of the major consumers of aluminium flat rolled products users to gauge both current and future underlying demand patterns and market behavior.

All our research reports utilize comprehensive research methodologies involving face-to-face or phone interviews with all major market participants with the aluminium flat rolled products (FRP) space in the region.

On the production side, MBR has put together over 80 major individual rolling mills profiles in Asia where we specify detailed rolling mill equipment metrics for furnaces, casters, break down and cold mills. We then provide an in-depth detail on finishing equipment, plant capacity split (where relevant) between hot and cold mills. We then further identify the mill product range and main end-use markets as well details on past, present and future investment and corporate activity.

China to dominate FRP markets out to 2022 with significant changes in volumes and product mix

MBR’s analysis indicates that in China in recent years investment has been focused on up-scaling production capacities as well as moving up the product value chain. We have seen a number of investments in adding hot rolling capacity as well as the production of higher value products such as canstock, lithographic sheet, thin gauge sheet and finstock. Despite this, the main volume focus is concentrated on foil and foil stock for the packaging industry. There has been little investment in products such as auto body sheet or heat treatable sheet and plate.

In recent years outside of China, apart from investment at Novelis’ Korean mills, there has been little significant investment in non-Chinese mills. Most investment has been centred on technical improvements and process control adjustments.

Our analysis on capacity suggests that China will continue to dominate the regional share of capacity out to 2022. In 2011 we estimate that the Chinese aluminium rolling industry accounted for 71% of regional* capacity and we expect this figure to rise to around 76% in 2022. Much of the growth in capacity will be driven by the continuing trend for off-shoring from mature markets by key end-use sectors such automotive, consumer durables and industrial products. However, we expect to see some shift in production capacity to markets such...
as Thailand and Indonesia as domestic demand requirements push producers to locate closer to final end-use customers.

**China dominates regional aluminium FRP capacity in 2011**

Our analysis of future additions to capacity indicate that China will continue to attract the lion’s share of investment, though the type of investment is likely to change moving into the future. We expect China to make a qualitative and sizeable shift in new capacity towards the production of higher value added FRP’s such as canstock, auto body sheet and heat treat sheet and plate.

We believe that investment in foil stock and common alloy sheet capacity will plateau over the coming decade. We forecast Chinese aluminium flat rolled products capacity to grow 38% between 2011-2022, which will represent the largest single producing country at a global level.

Elsewhere, we project Japanese capacity to reach 1.8 million tonnes per year, little changed from the 2011 level. Any investment at Japanese rolling mills is likely to involve changes in process and control equipment and upgrades to obsolete technology rather than any significant investment in major capacity additions. We expect a similar picture to emerge in South Korea and Taiwan.

For 2011 we provide a detailed matrix of product mix with estimated production for the major rolling mills in the region. For non-Chinese rolling mills our analysis shows that can body stock production is the single largest product type, followed closely by common alloy coil. Building sheet, litho sheet, foil/fin stock and can end stock stand out at the largest segment by volume. In contrast, common alloy coil and foil stock dominate the product mix in China. Output of other product segments lags far behind these sectors on a volume basis. However, our analysis of future planned capacity investments in China suggests that this product mix is likely to change significantly over the next 10 years.

MBR’s report provides a detailed breakdown of demand by product and market. Our analysis suggests that the region consumed an estimated 7.7 million tonnes of flat rolled products in 2011. As with production, China dominates the regional share of demand and demand growth. Much of this has been driven the underlying fast pace of overall economic growth. However, end-use sectors such as construction, packaging and consumer goods have specifically driven growth in FRP demand in China. Based on our analysis of population, demographic and socio-economic trends, we estimate that China’s consumption of aluminium flat rolled products will increase by 65% out to 2016. Further out, we expect demand to continue grow at a healthy, but moderating pace out to 2022.

Outside of China we expect firm annual growth in most of the newly emerging markets, albeit from a very low base. However,
Key Findings of MBR’s New Study

the overall picture is mixed on a country-by-country basis. We expect Japanese demand to show modest growth over the forecast period as the industrial base is hollowed out with trend growth averaging around 1.0% p.a. between 2011 and 2022. Demand growth in Taiwan and South Korea is expected to fare better over the forecast period with growth average 3.5% – 4.5% p.a. In emerging markets such as Indonesia, Vietnam, Malaysia and Thailand we expect demand to grow by 5.5% – 6.5% p.a. on a trend basis, driven by strong infrastructural investment as well as by a growing consumer sector which is likely to benefit sectors such as consumer durables, packaging and transport.

Rising urbanization and the growth of the middle class resulting in fast growing disposable incomes will ultimately drive the overall trend for firm gains in aluminium demand and we believe that the flat rolled products segment will benefit significantly. Indeed, we project FRP demand growth in the region on a trend basis to more than surpass MBR’s assumption for long run primary aluminium demand growth of 4.5% – 5.0% p.a.

On the other hand, we expect aluminium FRP demand in the selected markets to grow faster, by an average annual rate of just over 7.0% over the forecast horizon. The ramification of this is that this will provide new opportunities for suppliers into the Asian FRP sector (including primary smelters, technology providers, service companies etc).

Demand by major FRP product segment (2011)

On a product basis we expect firm regional demand growth in common alloy coil and building sheet, while sectors such as heat treat sheet and can body stock are also expected to show solid growth over the next 10 years. On a country basis we expect Chinese demand growth to show the fastest average annual rate of growth, but other markets such as Vietnam and the Philippines are projected to be growing at a fast pace as well. In contrast, we expect demand from the economically mature markets in the region such as Japan, South Korea and Taiwan to grow at more modest pace.

MBR has also identified the level of competition for each product segment in terms of an overall competition index and in terms of price. Our analysis shows that products of relatively lower production complexity such as common alloy will tend to have the highest level of competition with lower barriers to entry. In contrast more complex products (in terms of production process and market structure) such as auto body sheet will have a lower overall level of market and price competition.

As part of our unique research we present an analysis of conversion margins for which we have obtained historical data. Our forecasts are based on MBR’s projection of the LME aluminium prices together with an assessment of market conditions. For can body sheet, can end sheet and 1050 H14 sheet we have indicative average margins prevailing in the region as a whole.

In broad terms our research indicated that there is a significant disparity in conversion fees within similar product types due to freight and quality variations. Most buying is done on a 6 month to annual basis with little material sold on a truly spot basis. Unlike Europe and North America, inventories are generally at a higher level relative to the level of underlying business, though this is now changing towards a more “just in time” policy.

A Strategic Outlook for the Asian Aluminium Flat Rolled Products out to 2022 contains valuable analysis, recommendations, prices and market forecasts in over 90+ pages.

The full report will be ready in November 2012.

Call +44 (0) 20 7779 8000 to order your copy now while stocks last.
Background information on Metal Bulletin Research

Metal Bulletin Research (MBR) is the independent research division of Metal Bulletin Ltd, otherwise known as American Metal Market Research (AMMR) in the North American market. MBR was established in 1991, and specializes in market research and consulting services for the ferrous and non-ferrous markets.

MBR provides regular analysis and forecasts of global markets, and business conditions within the global metals markets. The company makes its research available to clients through various publications, services, and consulting arrangements.

- MBR is a leading commodity market research firm known for its reliability, editorial independence and integrity
- It provides regular, in-depth analyses of global markets, business conditions and consultancy for a range of clients
- Coverage of all major developed and emerging economies through publications, services, and consulting arrangements
- Proven track record of accuracy, and innovative and provocative research established over more than a decade of continuous publication
- Clients in more than 70 countries include producers, banks, fund managers, metal–driven consumers, brokerages, leading management consultants, economists, strategists, corporate officers and other professionals at the world’s leading financial institutions and metals–related corporations
- Its research embraces fundamental valuation and market analyses and forecasting through globally integrated models, extensive databases and is supplemented by a team of specialist consultants
- MBR believes that the volume of repeat business it receives highlights that it regularly meets its primary objective of delivering total customer satisfaction.
- In addition, MBR produces numerous relevant multi–client studies each year covering the steel sector in detail.
- MBR benefits from being part of a large global specialist metals and economics publishing group which encompasses the market leaders in its fields. On the metals side, the Metal Bulletin Group is the parent to the leading metals news journal, the once–weekly Metal Bulletin magazine, as well as North America’s leading daily metals newspaper American Metal Market. The Group’s metal businesses provides MBR with an invaluable network of international contacts within the metals industries that enhance our ability to provide research on almost any aspect of the metals business. Since October 2006, the Metal Bulletin Group has been part of Euromoney plc which is a FTSE-250 company. The latest financial reports can be obtained from www.euromoneyplc.com
- Nevertheless, MBR stresses the ability of its consulting business to operate independently of the rest of the Group, and the existence of formal rules of confidentiality that exist between the news providers within the group and the research and consulting division. BCA Research, a leading Canadian–based economics consulting company, is also a fully owned subsidiary of the Metal Bulletin Group, and works closely with MBR on its long-term economic–based modelling.
As the independent research division of Metal Bulletin, our team of consultancy can draw on an unparalleled wealth of knowledge and networks accumulated since the company was founded in 1913.

The Metal Bulletin Research team have extensive industry-wide experience gained from previous employment with Corus Steel, Arthur D. Little, Accenture, Maanshan Iron & Steel Co. Mckinsey & Co, Dubal, JBBWe, Harsco Metals, Bloomberg, Alcan, Baosteel, Emirates Steel and many more.

The Metal Bulletin Research portfolio includes:

- **10 Market Trackers**: providing all the data, analysis and forecasting you need, on a regular basis, to make the right decisions for your business on the markets that matter to you
- **3 Quarterlies**: Cost services for steel and iron ore and analysis of capacity and capital expenditure in the global steelmaking market
- **Strategic Forecast Studies**: Available for one-off purchase, these studies offer long-term forecasts for all key areas of the metals and mining industry
- **Consultancy**: When you need customised information solutions for your projects, or independent bankable market feasibility studies, Metal Bulletin Research provides all the global and regional insight you need to proceed with confidence.

Our Base Metals Coverage includes:

**Regular Research Reports**

- **Base Metals: Weekly Market Tracker** provides a unique, independent and authoritative market and price overview of the base metals industry. The analysis includes short-term technical analysis highlighting key trading opportunities across the entire base metals complex and market price forecasts extended to cover the full contract range being offered by the LME – three years forward for copper, aluminium, aluminium alloy, zinc, nickel, lead and tin.

- **Aluminium: Weekly Market Tracker** is an essential service ensuring you receive in-depth, regular and dedicated market analysis and forecasts, as well as regular updates, on the primary aluminium, alumina and its raw material markets. The report includes short-term technical analysis, as well as a review on power, freight and carbon products markets, which together with alumina constitute the main inputs in the aluminium industry.

**Specialist, Long-Term and Strategic Forecast Studies:**

- **NEW – A Strategic Investment Outlook for the African Metals and Mining Sector: Markets, Political Risk and Resource Potential out to 2020** is designed to give vital and detailed market and business intelligence in evaluating the metals and mining sector opportunities on the continent.

- **NEW – The Global Market for Aluminium in the Architectural, Building and Construction Sector to 2021** provides detailed analysis of the usage of aluminium in the architectural, building and construction sector across the regions covering over 20 countries.

- **NEW – A Strategic Five Year Outlook for the Aluminium Carbon Products Market** provides green coke, calcined petroleum coke and coal tar pitch price forecasts, details of coke and pitch producers and a view on China’s role as a carbon supplier to the global aluminium sector.

- **NEW – The Global Market for Aluminium Castings to 2021** provides current market analysis for aluminium castings and demand forecast out to 2021, across key end-use segments, with the main focus on the transportation sector.

For more information on any of these products please call +44 (0) 20 7779 8000. Alternatively contact Brian Levich, Consultancy and Special Projects Director, Blevich@metalbulletinresearch.com, +44 (0) 207 556 6020.