

IRON, STEEL AND BASE METAL PRODUCTION IN MYANMAR

Introduction

This compendium focuses on recent developments in Myanmar's metal casting and metal products industries. Attention is directed to the base metals rather than to bronze, gold, and silver used in traditional craftwork.

Little of a general nature has been written about the base metal industry in Myanmar. Apart from three small iron and steel mills operated as state enterprises, a modern copper cathode production plant at a mine near Monywa and foundries attached to several state factories, the base metal casting industry is carried out in scores of small private workshops throughout the country. Stats released by the Ministry of Industry-1 in 1999 showed a total of just over 600 private shops with a total of 3,700 employees engaged in base metal production and 1,200 shops with 6,000 employees manufacturing base metal products.

A directory issued by the Ministry of Industry in 2001 lists the products made in 300 of the larger of the small private base metal producers. Sheet iron, rolled iron and iron bars were being produced in 40 workshops and smelters, iron rods in 35, aluminium ware in 32 and nuts, bolts and nails in 24. 140 shops are listed as producing spare parts and/or machinery and a variety of metal products in the remainder. Insights into the running of traditional family operated foundries in Yangon are found in Kyaw Naing's piece in Myanmar Times reproduced in this collection. Other small foundries of this type are to be found in the Seinpan district of Mandalay.

An interview with a stainless steel jobber, U Than Swe of Golden Rose Industry in Thingangyun township, paraphrased from an article in Business Tank, gives a first-hand impression of the entrepreneurial spirit of the small-scale metal producer in Myanmar.

The only mills in the country capable of processing crude iron are the small factory at Anisakhan near Pyin-U-Lwin, the Ywama steel mill at Insein and the mill belonging to the military owned Myanmar Economic Corporation near Aunglan in central Myanmar. None of these come close to meeting the country's annual consumption of more than half a million tons of iron and steel. As Kyaw Min Htun notes in his study of the machinery industry in *Industrial Development in Myanmar: Prospects and Challenges*: most of the private firms engaged in the industry use low quality steel and iron and parts imported from China, Taiwan, Korea and the ASEAN countries. "Myanmar badly needs a large-scale steel mill, which can produce high quality products at reasonable prices."

It is unlikely that a large national steel mill be built in the near future. As evidenced by several articles in this collection, the current trend is towards small, industry-specific foundries like those presently being opened in the industrial zones in Monywa, Mandalay and Taung-gyi, which are being jointly financed by the private sector and the government. Similarly, the Ministry of Industry-2 has just opened a foundry in its new complex at Indagaw near Bago which will provide the steel needed for its auto and farm implements factories there.

Copper mined at a large open-pit mine near Monywa is now being converted into copper cathode sheets at a modern facility built in the late nineties by a joint venture company owned by the government and Ivanhoe Mines of Vancouver, Canada. Production is targeted to reach 40,000 tons in 2005 with the promise of the doubling of production in the near future, using ore from a nearby deposit, untapped to date. Unfortunately, all of the high quality copper cathode that is produced is exported to other markets in East Asia. The same situation applies to the tin smelter operated by a Wa mining company near the border with Yunnan. Similarly, China would presumably absorb all of the ferro-nickel produced at a processing plant in Tagaung area of Upper Myanmar, if a mine proposed for the area is developed.

Most articles in the compendium are arranged in chronological order with the most recent ones at the head of the list. However, in some cases where there were only brief references to a particular factory or operation, it was considered to be more useful to gather them together under a single heading. e.g., those dealing with the Ywama steel mill.

The article headings have been changed from the original headlines in many cases to more faithfully reflect the contents. Some articles have been shortened or edited to make them more appropriate to their place in this collection.

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MARUBENI INKS VENTURE FOR ZINC ROOFING FACTORY IN MYANMAR

Photo sources:

Figures 1, 2 and 3: Myanmar Ministry of Mines

Figure 4: Myanmar Times

Figures 5, 6 and 7: Business Tank

Figures 8, 9,10,11: Ivanhoe Mines

Figure 12: MRTV

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Bibliography

The best single work on the changing industrial scene in Myanmar is *Industrial Development in Myanmar: Prospects and Challenges*, edited by Toshihiro Kudo, published in 2001 by the Institute of Developing Economies of the Japan External Trade Organization. Reference lists at the end of several chapters provide an exhaustive bibliography of articles and books on industrialization since independence in 1948 in both Burmese and English. It is the source of the selection on base metal production that follows:

Kudo, Toshihiro, "Transformation and Structural Changes in the 1990s" in *Industrial Development in Myanmar: Prospects and Challenges*, see above for publication details.

Kyaw Min Htun, "Machinery Industry: From Repair Workshop to Supporting Industry" in *Industrial Development in Myanmar: Prospects and Challenges*, see above for publication details.

Registered Private [Metal Work] Industries, See Industry-1 Section of the Ministry Home Pages of the Myanmar government website: <http://www.myanmar.com/>

INDUSTRY-2 MINISTRY OPENS FOUNDRY, ALUMINIUM CABLE FACTORY

Bago: New Light of Myanmar: 04-05-05 ([CONTENTS](#))

The Ministry of Industry-2 opened the Research Department, a foundry and an aluminium cable factory in Indagaw region in Bago Township this morning. Member of the SPDC Lt-Gen Khin Maung Than of the Ministry of Defence unveiled the stone plaque of the department and signboards of the factories. ... At the briefing hall, Lt-Gen Khin Maung Than heard a report on factories of the Indagaw Industrial Zone, progress in implementing the industrial projects, staff strength, investment, and factories under construction presented by Minister Maj-Gen Saw Lwin. The foundry can produce 1,500 tons of iron and 500 tons of steel a year. The aluminium factory

can produce 1,600 tons of cables for 6.6 kv, 11 kv, 33 kv, 66 kv, 132 kv and 230 kv lines and stay wires. The ministry has built industries manufacturing disc wheels, radiators, metal bearings, inlet and exhaust valves, diesel engines, steel, ball bearings and aluminium cables in the industrial zone. Electric motors factory and electrical apparatus factory are under construction.

(NLM: 01-09-02) Minister for Industry-2 Maj-Gen Saw Lwin inspected the unloading of machinery imported from India from Mandalay vessel of Myanmar Five Star Line at Bo Aung Kyaw jetty at 5 pm today. Director-General U Khin Maung of the Ministry of Industry-2, Managing Director U Soe Thein of Myanmar Automobile and Diesel Engine Industries and Managing Director U Khin Maung Kyi and officials of Myanmar Five Star Line reported on arrangement for the transportation of machinery from the ship to Indagaw Industrial Zone. The minister gave necessary instructions. Today's arrival, packed in 1756 boxes inside 14 containers, were out of the machinery purchased from India and worth over US\$ 700,000. The machinery are to be installed in the ball-bearing factory, iron smelting workshop and power distribution station in Indagaw Industrial Zone.

(NLM: 23-08-03) With a view to upgrading the nation into an industrialized one, the Ministry of Industry-2 established the Automobile Spare Parts Factory in Indagaw Industrial Zone. The industrial zone is situated on Yangon-Bago Highway in Hlegu Township, and not very far from Yangon. The plants of the industrial zones were set up during the period from 2001 to 2003. The automobile spare parts factory is formed with the disc wheel plant, the metal bearing plant, the radiator plant, the inlet & exhaust plant, the ball bearing plant, the foundry plant and the sub-station. The foundry produces steel at the rate of 500 tons per year and cast iron, 1500 tons per year. In cooperation with the Angelique Co of India and the Complant Co of China, the industrial zone is running the sub-station for ensuring industrial development of the nation.

DEMAND FOR STAINLESS STEEL GOODS ON THE RISE

Yangon: May Thandar Win MTBR: 02-05-05 (CONTENTS)

Stainless steel is replacing wood and iron as the material of choice for furniture, household goods and construction in Yangon, according to industry sources. "In the past two years it has become very trendy to use stainless steel in Yangon, mainly because it does not rust and because there are no additional costs for painting, polishing or coating it," said U Win, the managing director of Uni-Win Stainless Steel World.

He said people are also choosing stainless steel because of the narrowing gap between the prices of steel and iron. "At first steel was five times more expensive than iron, but now iron is about the same price or only about 1.5 times cheaper," he said. Meanwhile, stainless steel furniture can be twice the price as that made from some hardwoods, but costs about the same as teak products. Stainless steel is commonly used for banisters, ladders, gates and kitchen appliances in homes, and for shelf tables, trays, trolleys and basins in restaurants, hotels, hospitals and clinics.

Most of the stainless steel used in Myanmar is imported from China, Thailand and India, with a strong preference for Chinese steel because it is cheaper and of reasonable quality, U Win said. "We can only guarantee that stainless steel made in Thailand will resist rust, unlike steel made in China, which will corrode if exposed to acid," he said.

The price of stainless steel manufactured in Thailand is 35 to 50 per cent higher than China-made material, industry sources said. "However, we can guarantee Thailand-made steel for 30 to 50 years," said U Soe Myint, the managing director of Soe Myint and Sons Stainless Steel General Trading and Decoration Centre. U Win Lwin, the owner of Universal Stainless Steel, said that people prefer stainless steel because it looks clean and modern. The use of steel kitchen appliances is likely to grow most rapidly in hotels and restaurants as awareness of the importance of food safety and hygiene increases in Myanmar, he said.

The widespread use of stainless steel in Myanmar is limited by the lack of technology needed to bend the material to produce custom designs, said U Win. However, U Soe Myint said he believes that an increase in spending power and an interest in healthier lifestyles among people in the country will contribute to the development of the steel industry.

CHINA NONFERROUS GROUP PLANS FERRO-NICKEL PLANT IN MYANMAR

Singapore/Hong Kong: Reuters: 29-04-05 [\(CONTENTS\)](#)

China, scouring the world for raw materials to feed its fast-growing economy, aims to start building a \$500 million nickel mine and smelter in Myanmar within the next two years. Pending a feasibility study, the state-owned China Nonferrous Metal Mining and Construction (Group) Co. wants to develop a project in the Southeast Asian country that would produce 30,000 tonnes a year of ferro-nickel for the region's booming stainless steel industry. "If the Chinese find it feasible, we will form a joint venture company," Myint Thein, Myanmar's deputy minister of mines, told Reuters.

Supply and demand of nickel, which has risen 6 percent in value this year, are seen roughly in balance in 2005 from a deficit of 40,000 tonnes two years ago. The Chinese state body, known as CNMC, has completed an exploratory study of the Tagaung Taung project in northern Myanmar, about 200 km north of Mandalay. The project was previously explored by Australia's Mount Burgess Mining .

CNMC and Myanmar government officials said Tagaung Taung held about 40 million tonnes of nickel ore with average metal content of about 2 percent, or 800,000 tonnes of nickel. "We'd prefer to build a 30,000 tonnes-a-year ferro-nickel plant," said a CNMC official. He said construction could begin within two years, but it would take another 2-3 years to start output, as building would stop during Myanmar's rainy seasons.

He said the feasibility study would confirm the size and cost of the project, but estimated CNMC would need to invest \$500 million to produce 30,000 tonnes a year of ferro-nickel. "We will pay all costs. The Myanmar side will use land and the deposit itself as its contribution," the Chinese

official said, adding the split of any joint venture was subject to negotiations. Myint Thein said power to run the smelter could be supplied by two newly constructed coal-fired plants or by the Shwe Li hydroelectric project, which was also backed by China. "The power situation in our country has improved a bit," the deputy minister said.

Ferro-nickel from Tagaung Taung would be sold on the international market, the CNMC official said, but added much of it could end up in the furnaces of China's stainless steel mills. The Netherlands-based International Nickel Study Group this week estimated world output in 2005 at 1.31 million tonnes, up from 1.25 million tonnes last year. Nickel closed at \$15,750 a tonne on Thursday for three-month delivery on the benchmark London Metal Exchange.

China has taken its search for nickel resources across the globe. The country's top producer of the metal, Jinchuan Nonferrous, last week agreed to spend \$1 billion with Baosteel group to revive a nickel plant in the Philippines. Chinese companies have also signed agreements to develop nickel projects in Cuba and Papua New Guinea, while Jinchuan has ore supply agreements with a number of Australian miners, including WMC Resources Ltd, Sally Malay Mining Ltd. and Fox Resources Ltd.

GUIDELINES LAID DOWN FOR OPERATION OF NEW FOUNDRIES

Yangon: New Light of Myanmar: 25-04-05 (CONTENTS)

The coordination meeting (2/2005) on industrial development took place at the Ministry of Industry-1 on Kaba Aye Pagoda Road on 24th April with an address by Industrial Development Committee Chairman Prime Minister Lt-Gen Soe Win. . . . He highlighted the development of modern foundry plants, forging shops, and forging machines in the Mandalay, Monywa and Ayethaya industrial zones .which will launch their manufacturing processes in late May. It has been a great change in the private enterprise as the nation's iron casting industry was transformed from cottage industry to better one with the use of modern machinery.

Each modern forging shop in the three industrial zones has a capacity to melt more than 1,000 tons a year. So, the industrial zones have been able to manufacture iron products on a large scale. With the use of lathe machine, milling machine, drilling machine, slotting machine, grinding machine, boring machine, gear cutting machine and tolls grinding machine, the workshops of the foundry plants can produce a large range of iron products. So, it is important to operate the plants and workshops at full capacity round the clock. It is important to have man, material, money and market for the industrial development in the long run as there have been modern machinery.

Management system of factory and mill should be flexible according to the economic nature and it cannot be practised as the management system of the governmental department. Only when there is proper management system of factory and mail, will the foundry industry run constantly and gain benefits. The factory and mill management committee will have innovation and initiative to meet ISO and ensure add-on in producing machine parts in order to be able to penetrate foreign market. When the industry is in the process of advancement, it will be able to add other items such as spectrometer, ultrasonic crack dactor, precision measuring instrument,

preheating furnace, CNC machine etc. one after another.

Then only, are the factories and mills to apply the electronic technology to catch up with those of international community and they will be able to switch from import-substitute industry to export-oriented one which is exporting mechanical spare parts. Hence, officials concerned are to make integrated and well-coordinated efforts for ensuring proper management system at the foundries, constantly producing technicians and technocrats and penetrating foreign markets. With development of foundry industry, progress will be made in industries such as power tiller production industry, farm-used small trucks production industry, motorcycle production industry, bus and lorry production industry and small rice mill and hydel power turbine production industry. . . .

Next, Secretary of Industrial Development Committee Chairman of Myanma Industrial Development Committee Minister for Industry-1 U Aung Thaung reported that the Government today is placing emphasis on development of the industrial sector with momentum. And, the Government provides assistance to industries for their development. The minister briefed the Prime Minister on import of machinery for establishment of foundry plants, forging shops, mould shops and machine plants at Mandalay, Monywa and Taunggyi (Ayethaya) Industrial Zones with US\$ 5 million assistance provided by the Government in order to manufacture quality products with the use of modern technology, progress in conversion of CNG run vehicles and assembling of bus and truck.

Minister for Industry-2 Maj-Gen Saw Lwin reported on arrival of machinery from abroad for foundry plants in Mandalay, Monywa and Taunggyi (Ayethaya) Industrial Zones, distribution and installation of machinery at respective industrial zones and technological assistance. Deputy Minister for Industry-2 Lt-Col Khin Maung Kyaw presented reports on progress in building the mould and die factory and conversion of diesel and petrol run vehicles to CNG run vehicles.

ANISAKHAN IRON MILL ORDERED TO DOUBLE PRODUCTION

Pyin-U-Lwin: New Light of Myanmar: 19-12-04 ([CONTENTS](#))

Senior General Than Shwe and party arrived at No 1 Steel Mill [in Anisakhan]. In his reports at the briefing hall, Mines Minister Brig-Gen Ohn Myint said the Senior General gave guidance on production of steel at a rate of up to 25,000 tons a year as of December during his visit to the mill on 11-04-04. Plans were drawn up, he continued, in accord with the guidance, and preparatory measures were also taken from June through November. Arrangements had been made to exploit iron ore and produce steel as targeted from December, he said. The minister also said arrangements had been made for sale of iron ore to Mandalay, Monywa and Taunggyi industrial zones in line with the Senior General's guidance. Next, he gave an account of tasks carried out for repair to machinery to boost the productivity of the factory, purchase of raw materials for the mill, measures for immediate supply of electricity and diesel, and the strength of skilled workers.

Later, Minister for Electric Power Maj-Gen Tin Htut reported on measures being taken for supply of electricity for the factory. Minister for Industry-1 U Aung Thaung, Minister for

Transport Maj-Gen Thein Swe, and Minister for Science and Technology U Thaung reported on the role they could play in enhancing the mill's productivity. In response, Senior General Than Shwe gave guidance, saying that efforts were to be made to increase productivity as the development of the country depended on it. Necessary assistance had been provided for No 1 Steel Mill to enhance its productive capacity, he continued. It was necessary for related ministries to supply raw materials for the mill, he pointed out. Efforts were to be made to produce steel essential for nation-building tasks, he added, calling for officials concerned to keep the factory in proper order and to take innovative measures for the long-term operation of the mill. . . . Later, Senior General Than Shwe inspected condition of No 1 Steel Mill and stockpiling of raw materials.

* No.1 Iron and Steel Plant at Anisakhan near Pyin-U-Lwin is a state corporation under the Ministry of Mines. It smelts iron ore from the state-owned Kyatwinye open-pit mine 26 miles south-east of Pyin-U-Lwin. The Anisakhan plant produces sponge and pig iron, steel billets, steel grinding balls and steel rods.



Figure 1: Open pit mine at Kyatwinye



Figure 2: Anisakhan Iron and Steel Mill



Figure 3: Iron Smelter in operation at Anisakhan

(NLM: 10-10-04) SPDC Secretary-1 Lt-Gen Soe Win, and party went to Iron and Steel Plant of No 3 Mining Enterprise. [in Anisakhan] . . . General Manager of the plant U Saw Moe Myint said Head of State Senior General Than Shwe had given guidance on production of 25,000 tons of iron and steel a year beginning December 2004 during his inspection tour on 11 April 2004. Arrangements are being made for increased production in accordance with the guidance. The general manager also reported on requirements, stockpiles and fulfillments for the plant. . . . Secretary-1 said personnel at different levels are well-experienced in production and urged them to apply their experience for industrial development. Secretary-1 and party inspected the plant, coal, lime, iron, model of furnace of the plant, the master room, voltage regulator, electric furnace and steel bars. They also inspected production of steel pipe used in cement plant, iron bars, production process and various kinds of steel rods and bars. They inspected small electric furnace, work done for production and import-substitute items. .

MODERN FOUNDRIES TO BE SET UP IN MANDALAY, MONYWA, TAUNGGYI

Yangon: New Light of Myanmar: 21-07-04 ([CONTENTS](#))

A coordination meeting (No 3/2004) on industrial development was held at 2 pm today in the training hall of the Ministry of Industry-1. . . . Present at the meeting were members of the Industrial Development Committee ministers, the Yangon mayor, work committee members deputy ministers, subcommittees members the vice-mayor, officials of the SPDC Office, departmental heads, chairmen and members of Industrial Zone Supervisory Committees and Industrial Zone Management Committees, officials of the Union of Myanmar Federation of Chambers of Commerce and Industry, rice millers and guests.

Addressing the meeting, Secretary-1 said that with the assistance of the State, foundries and forging shops will be established in Mandalay, Monywa and Ayethaya Industrial Zones. So, quality iron products will be manufactured. At present, private iron foundries of industrial zones are manufacturing their products through conventional methods, he said. Without meeting the set standards of raw materials, without making full use of catalysts and without systematic quality control, the products have not been in good demand and they have to be used only in local market, he noted.

Therefore, cooperative efforts should be made to improve the standard of iron smelting industry. And arrangements are to be made to complete the project of modern foundries in the three industrial zones. In connection with the modern foundries, a modern mould workshop will also be established. So, iron products can be manufactured not only for local market but also for export, he added. All in all, the Secretary-1 said, with the products with the firm local and foreign market, Myanmar industry will develop significantly.

Based on modern foundries, measures are to be taken for manufacturing of farm machinery, he said. At present, the Government and private industries have been able to produce only some 20,000 units of power tillers needed in agricultural sector per year and there is still more to produce. Technicians of the Ministry of Commerce have produced small rice mills that can also be used in the fields, meeting the standard of international level. Therefore, the industrial zones,

according to the samples, are to continue producing the devices. Likewise, priority is to be given to producing small hydel power turbines and small bio-gas powered generators that can generate electricity on a wider scale, which contribute to power supply in rural areas and efforts are to be made for establishing crude palm oil plant and palm oil refinery at home based on extended cultivation of oil palm. With such great efforts, the industrial sector will make progress beginning 2004-2005 realizing the goals of the State. . . .

Next, Chairman of Myanmar Industrial Development Work Committee Minister for Industry-2 Maj-Gen Saw Lwin reported on purchase of equipment for foundry and supply of equipment for assembling the vehicles and other points. Minister for Commerce Brig-Gen Pyi Sone reported on innovation of small rice mills and edible oil refinery. . . .

Next, Secretary-1 gave instructions. He said the Head of State practically gave encouragement to development of industrial sector. The Head of State gave guidance on five points: workmanship, precision, quality metallurgy, modernization and innovation. By following the guidance of the Head of State the industrial zones will be able to manufacture finished products of higher quality that can penetrate into new markets. It is sure that the industrial sector will develop, he said. He called for efforts for continued progress of the industrial sector. After the meeting, the Secretary-1 and party and rice millers observed foreign-made modern small rice mill, modern small rice mill innovated by Myanmar Agricultural Produce Trading and their uses, rice, broken rice, bran, paddy husks and spare parts. The Secretary-1 presented cash awards to experts of MAPT.

USE OF ALUMINIUM GAINS POPULARITY IN YANGON

Yangon: Maw Maw San: MTBR: 05-07-04 ([CONTENTS](#))

Aluminium is enjoying increased popularity as a building material, Yangon market sources told the Myanmar Times last week. Retailers said sales of the metal — used in place of the more traditional teak for doors and windows, ceilings and partitions — had increased by 30 per cent over the past three years. Daw Khin Shwe, the owner of the Thet-Lu glass and aluminium shop, said that she had seen the popularity of aluminium steadily increasing. "People use aluminium because it is more compatible and durable than teak. Many of our customers are banks, hotels, towers, plazas, factories and housing projects who order aluminium partitions. And more and more people are using aluminium for sliding doors," she said. "Customers find it new and very attractive. And making teak furniture takes about one week but aluminium usually takes not more than two days," she added.

Ko Toe Wah, managing director from the Toe Wah Interior Decoration, also said that his sales had increased markedly over the last three years as more customers asked him to decorate their homes. "This year, the aluminium ceiling is very popular, and so are curtain walls which are mostly used in shops and offices," said Ko Toe Wah. A curtain wall is a partition made of an aluminium frame with a glass insert.

Ko Kyaw Kyaw Han from Zizawa aluminium shop said that as the popularity of the metal increases, competition is heating up. "My shop is in Sanchaung and in the past there was only

our shop in our township. Now there are more than three shops," he said Aluminium is imported from Singapore, Malaysia, China and Thailand. According the Ko Toe Wah, the best quality aluminium comes from China.

IRON, STEEL PRICES RISE TO MEET CONSTRUCTION INDUSTRY DEMAND

Yangon: Ye Lwin: MTBR: 16-02-04 [\(CONTENTS\)](#)

Construction items such as cement and iron bars are in strong demand by construction companies and private contractors due to the building boom currently underway, according to brokers in Yangon. The price of iron rose more than 20 per cent over the last eight months, from K430,000 to about K540,000 a ton," said U Aung Min, the manager of the Maung Weik Family Company. The company is one of major iron distributors in Myanmar. "The price of iron bars varies from time to time depending on the market demand. Now that construction is booming, the demand for iron increased sharply compared to last year," said U Aung Min.

According to industry sources, Myanmar uses about 400,000 tonnes of iron and steel a year, most of which is imported mainly from Ukraine and China, and also from India, Indonesia and Russia. Only about five Myanmar companies trade in iron and about a dozen companies distribute iron products to the construction companies and sites.

"The increasing price of iron is very hard to control," said an iron trader. Another iron dealer said the price of iron has recently risen mainly because of the development of new high rises in and around Yangon. "A ton of iron cost K400,000 in 2002 and at the beginning of 2003 the price had risen to about K460,000. Today's price is about K540,000," said U Kyaw Win, a construction contractor said.

FOUNDRIES TURNING SCRAP METAL INTO MONEY

Yangon: Kyaw Naing in MTBR: 28-07-03 [\(CONTENTS\)](#)

Private foundries play an important role in industry by turning discarded scrap metal into useful machine components, industry sources said. Once the scrap metal is smelted, it is used to make anything from spare parts and engines to gravel pumps, jaw crushers and farm machinery.

Privately-run foundries can be found in industrial zones at Shwepyitha, Hlaing Thayar, North Okkalapa, Shwe Paukkan, Thaketa, South Dagon and South Okkalapa townships. There about 60 foundries in the zones. Metal smelters cast parts and engine blocks using iron, bronze and brass.

The majority of small foundries are family businesses using traditional methods. As has been the practice for generations, coke and scrap metal are put into a furnace before firing of the coke which eventually transforms the metal into a molten and malleable state. The super-heated metal is then poured into moulds designed to produce a wide variety of parts and objects.



Figure 4: Smelter at small family shop

For conventional iron casting, the foundry's temperature must be kept between 900 and 1000 degrees Celsius. Only a few foundries in industrial zones use electric furnaces. For casting mild steel with an electric furnace, the temperature must be maintained at 1200 to 1400 degrees Celsius.

Some metal casters are well known as manufacturers of specialised products. For example, U Thaung Shwe Iron Casting Works in North Okkalapa Industrial Zone has been producing cast iron sewing machine stands for over 25 years. U Kyaw Swar Lin of the company said: "We focus solely on the production of sewing machine stands. Our annual production of these stands is about 5000 units." Distributors of sewing machines for household use import machines from China and mount them on stands manufactured by local metal casters.

U Khin Maung Myint is a producer of flat and round steel bars. He said: "We first produced flat bars using steel from old frames of bridges and old ships. As availability of steel has become more and more difficult, I have been forced to turn to raw materials such as scrap iron. I imported an electric furnace from China and started to cast mild steel bars from any iron rubbish in 1999. Now we are producing flat, square and round bars at our metal factory using the raw materials processed at our own foundry. Business is good and I intend to extend our foundry business and iron bar production," he said.

Some foundries specialise in the casting of machine parts to order. U Maung Thet has been engaging in iron casting work for over 50 years. He said: "We mainly cast spare parts for rice mills such as pulleys and wheels. We have supplied brake blocks for the Ministry of Rail Transport and man hole lids for the Ministry of Communications, Posts and Telegraphs." He said that with his decades of experience, he now provides a consultancy service for development of parts and engine blocks. He also makes lathe machines of various sizes for local industries.

Proprietors of foundries said that raw materials for making cast iron have become rare. The price of recycled cast iron has risen gradually up to K200 per viss (3.6 lb) today, from K12 per viss in 1990.

MINERAL CASTING PLANT PRODUCES EIGHTY TYPES OF ACCESSORIES

Yangon: New Light of Myanmar: 19-07-03 ([CONTENTS](#))

Secretary-1 of the SPDC General Khin Nyunt this morning inspected . . . the Mineral Casting Plant of Excellence Mineral Casting Co Ltd on U Tayok Gyi Road in Ward 4 in Hlinethaya Industrial Town. Excellence Mineral Casting Co Ltd Chairman U In Saw and Managing Director U Tun Hlaing welcomed the Secretary-1 and party and reported on casting, moulding and finishing works of the plant. The Secretary-1 and party inspected various kinds of modern equipment used in agricultural and shipping works, steel moulds, stainless steel wares, moulds of car spare parts, steel sockets, electrical accessories and parts for industries manufactured by Excellence Mineral Casting Co Ltd.

(NLM: 21-06-03) Chairman of the Industrial Development Committee Secretary-2 of the State Peace and Development Council Lt-Gen Soe Win, accompanied by Deputy Minister for Industry-2 Brig-Gen Aung Thein Lin, arrived at the Excellent Mineral Casting Co Ltd in Hlinethaya Industrial Zone this afternoon. They were welcomed there by Chairman of the company U Yin Saw, Managing Director U Tun Hlaing and officials. Then, the managing director conducted the Secretary-2 and party round the factory. The Secretary-2 gave instructions. The factory produces about 80 types of steel products weighing some 50 tons a month, and the company is distributing its products to local and foreign markets, it is learnt.

STAINLESS STEEL JOBBER REPORTS ON IMPORT-SUBSTITUTE PRODUCTION

Business Tank: June-03 ([CONTENTS](#))



The article below is a free paraphrase of an interview with Managing Director U Than Swe of Golden Rose Industry on Laydaunkan Road in Thingangyun Township. This small company is directly involved in the manufacture of mild and stainless steel products for use in home, office and the hospitality and marine products industries in Myanmar. Pictures are reproduced from the Business Tank article and from a website maintained by Golden Rose Industry.

Figure 5: U Than Swe of Golden Rose Industry

My company has been in operation here since 1990. But tinsmithing was a part of our family tradition for a long time before that and was passed from generation to generation. I also operate a cold storage facility and since I could not afford to import quality equipment, I turned my hand to producing what I needed for myself. We Myanmarans can make what we need for ourselves and that is what I have done with the goods you see here. I have designed and produced them myself and saved on the high costs of transporting imported goods. By using quality goods produced at reasonable prices, both producers and users will be satisfied. Moreover, since our products can be substituted in place of things made of wood, deforestation will be prevented. As a Myanmar national I am very proud of myself for producing international standard quality steel products of the highest standard.



Figure 6: Production line at Golden Rose Industry



Figure 7: Finished product at GRI

Our major products include stainless steel handles, verandas, hotel kitchen utensils, stainless steel furniture and steelware, utensils for the marine products industry such as fish and prawn trays and racks, wire meshes and buckets for processing, tables for freezing and cold storage units. We also produce hospital equipment such as patient trolleys and beds, medical equipment, audio parts and train seats, part for agricultural machinery, gas stove covers, TV racks, ladders, stools, ice-crushers, house keeping trolley, school tables and desks, etc.

My goal is to strive for customer satisfaction and to provide the goods contracted for on or before the set date together with a one-year product guarantee. Cold storage businessmen in particular are satisfied with our products. Quality control plays an important part in the manufacturing process. My target is to get my customers to use home made instead of foreign goods. Newly designed products for sea food utensils and agricultural apparatus which will be manufactured soon. We hope to export in the near future and we will fill the needs of our customers.

WA TIN SMELTER IN OPERATION NEAR YUNNAN BORDER

Pangsang: New Light of Myanmar: 10-12-02 ([CONTENTS](#))

Central Committee for Drug Abuse Control Chairman Minister for Home Affairs Col Tin Hlaing, Vice-Chairmen Minister for Progress of Border Areas and National Races and Development Affairs Col Thein Nyunt and Minister for Foreign Affairs U Win Aung and member of the CCDAC Minister for Labour U Tin Winn led the team comprising ambassadors of foreign embassies in Yangon, diplomats and journalists from home and abroad and toured Shan State (East) and Shan State (North-East) from 6 to 8 December to witness the drug elimination tasks and border area development projects being implemented by the State and the national race groups. . . . After inspecting Pangsang, the ministers and party proceeded to Lonhtan Village* {in the Wa township of Hkwin Ma (Khuma or Kun Ma)], where they were welcomed by Wa national races leader U Pauk Yu Chan. Then, U Pauk Yu Chan reported on production of tin, running of tin refinery and sale of refined tin to the ministers and diplomats. The ministers and party inspected the functions of the tin refinery, where U Pauk Yu Khan said that the production of tin in Lonhtan region started in 1999. In the first year 500 tons of tin were produced, in 2000 700 tons and 2002 900 tons were produced. Raw materials were exported to China at the rate of Ywan 32,000 per ton or US\$ 4,000 per ton and refined tin at the rate of Ywan 48,000 per ton or US\$ 6,000 per ton . The factory started running on 11 November 2002. There were four Chinese experts and about 100 local workers with the factory. The investment of the whole project was Ywan 900 million (over US\$ 100 million) and 12 kinds of mineral has been seen in the region, he said.

(http://www.unodc.org/pdf/publications/report_2002-08-27_1.pdf)

*Long Tan was designated a Special Wa township area in 1992 when it was separated from Hkwin Ma township and this was primarily due to the tin mine situated there. While Long Tan has been famous as 'tin mountain,' [for more than a hundred years], large scale shaft-mining did not start there until 1992. Income derived to date has been through the sale of raw tin ore to Ximeng County in China, which itself has some tin reserves and production capacity. In 1998, the Wa, with support from the GOUM began construction of a tin smelter, which is due to go into commercial production in November 2002. The WCC is unable to import the chemicals needed for the smelting process due to restrictions imposed on chemical movements within Yunnan Province, China. It is understood that some of the chemicals required can be used in the processing of heroin. The tin reserves and the development of a tin smelter in Long Tan represent one of the most important economic ventures of the WCC and it could become an important place of employment for the local Wa people. The town itself lies between 2,100 and 2,200 metres in elevation. Long Tan borders Ximeng County in China, which is also predominantly ethnic Wa. There is one road crossing into China from Long Tan.

RAW MATERIAL IMPORTS COVER 80% OF MYANMAR'S STEEL PRODUCTION

Yangon: Xinhua: 17-09-02 ([CONTENTS](#))

Myanmar consumes about 500,000 tons of steel annually, according to government industrial sources here Tuesday. There are six steel makers in Myanmar — one Myanmar-ROK (Republic of Korea) joint venture, four Japanese companies and one Myanmar national firm.

With an investment of 5.3 million US dollars, the Myanmar PoscoSteel Company (MPSC), a joint venture between the semi-official Myanmar Economic Holdings Ltd. and the Pohang Iron and Steel Company of ROK, has since 1999 been producing simple steel products in the country such as galvanized iron corrugated sheets and plain sheets for roofing purposes. The joint venture, with a production capacity of 20,000-30,000 tons per year, takes about 23 percent market share in Myanmar's local market, while the rest belongs to other five.

For steel production in the country, 80 percent of raw materials are to be imported, while the rest are available domestically. Steel raw materials have to be imported because of the fact that although there are core iron mines in Myanmar, it lacks technology to produce semi-finished steel plates which are used as raw materials in producing galvanized roofing sheets.

YWAMA STEEL MILL RETURNED TO GOVERNMENT CONTROL

Yangon: Kyaw Zaw Oo in MTBR: 22-07-02 ([CONTENTS](#))

A group of prominent building industry entrepreneurs has taken over a company which plans to offer K1.25 billion worth of shares to the public. It will be one of about 20 public companies in Myanmar. The move follows the take-over by the Myanmar Construction Entrepreneurs' Association of National Industrial Holdings Limited, which was established by private sector investors four years ago to manage a government steel factory* at Insein township. The management venture was not successful and the government resumed its control of the factory about two months ago in a development which paved the way for the holding company to be taken over by the MCEA.

(NLM: 01-08-99) The first annual general meeting of National Industrial Holdings Ltd was held at the meeting hall of Ywama Steel Mill in Insein Township this morning. Present on the occasion were Minister for Mines Brig-Gen Ohn Myint, Deputy Minister U Myint Thein Managing Director of No 3 Mining Enterprise U Hsan Tun, Chairman of National Industrial Holdings Ltd U Htay Myint, Executive Directors, the general manager, officials and shareholders. U Htay Myint presided over the meeting and General Manager U Tun Kyi acted as master of ceremonies.

Minister Brig-Gen Ohn Myint said the mill run by Ministry of Industry- 1 and Ministry of Mines produced finished iron and steel products for construction. Production of the mill was handed down to private entrepreneurs with the guidance of Head of State Senior General Than Shwe according to the market-oriented economic system for speedy development of the State's

economy, he said. He urged the entrepreneurs to boost yearly production, extend production of new products and promote quality.

Minister Brig-Gen Ohn Myint then inspected the mill. U Win Thin and group\1 1998-99 financial statement for approval. Executive Director U Aung Nyunt reported on share of profit to shareholders. New Board of Directors was then elected.

* Originally opened in 1957, the Ywama Steel Mill in Insein township in northern Yangon is one of only three plants in Myanmar with crude steel production facilities. The mill produces reinforcing steel bars, wire nails, barbed wire, and zinc-coated wire mesh, using imported steel billet. In the mid-80s the plant was modernized by a consortium led by Kobe Steel and C Itoh Ltd of Japan during which the capacity of the plant's electric arc furnace was raised to 12,000 tons per year, increasing annual rolling capacity from 28,800 to 48,800 tons. At the same time the wire mill capacity was doubled to 16,400 tons per year. However, due to irregular electric power supply and a whole series of miscalculations, the mill has never operated at anything like full capacity and has depended on imported billets rather than the electric arc furnace. In 1998 the decision was made to privatize the mill and it was leased for a period of 10 years to a consortium of local entrepreneurs known as National Industrial Holdings Ltd. But NIHL was unable to operate the mill profitably and in May 2002 returned it to the government. Today it continues to operate at reduced capacity as a subsidiary of Mining Enterprise No 3 of the Mines Ministry

SX - EW PLANT PRODUCING COPPER CATHODE AT MONYWA (CONTENTS)

Excerpted from "Stranger in a Strange Land" by Matt McClearn: Canadian Business: 18-02-02

For all its poverty and oppression, Myanmar is rich in natural resources, with reserves of silver, lead, zinc, copper and other minerals, as well as rubies, jade and sapphires. Artisan miners have chipped away at these deposits for centuries. But Myanmar lacks sufficient capital and expertise to harvest ore on a larger scale, and little of the country has been explored in any technologically advanced way. The generals knew they needed help developing Myanmar's untapped reserves. So in the early 1990s, they began courting international companies to explore and develop concessions in partnership with state-owned Mining Enterprise No. 1 (ME-1). Friedland was among the few foreigners to take them up on their offer. His representatives visited Myanmar in 1992 to inspect several concessions and eventually submitted a proposal to mine copper in Monywa, a region that has three known significant deposits: Sabetaung and Kyisintaung (known collectively as "S&K") and the much larger Letpadaung ore body. By 1994, the two parties had agreed to a pilot plan. That same year, Friedland founded Ivanhoe (known as Indochina Goldfields Ltd. before 1999), with himself as chair.

Ivanhoe execs knew that Myanmar was a dicey place to do business. In early 1996, company representatives approached the Department of Foreign Affairs and International Trade in Ottawa to satisfy themselves that, if Ivanhoe were to make a move there, there would be no international barriers. The response was encouraging: though the Canadian government has pressured

Myanmar on human rights issues, it did not discourage companies from investing or operating in the country. Meanwhile, results from the pilot project were also promising. In 1996, Ivanhoe formed a joint venture with ME-1 called Myanmar Ivanhoe Copper Company Ltd. (MICCL), with each party owning 50%. ME-1 put up Burmese miners and equipment; Ivanhoe had to provide the capital. Much of that was raised when the company went public in mid-1996; 18 million shares sold for \$ 15 each, resulting in gross proceeds of \$ 270 million. It was the biggest IPO of any junior exploration company in Canadian history. But it was also a flop — shares lost almost \$ 3 in value the first day, leaving many to conclude the offering was overpriced.

Even as the backlash against Western corporations in Myanmar grew, Ivanhoe was deepening its commitment. In late 1997, MICCL launched a US\$ 150-million construction program at S&K. Its reserves had lured foreign miners before, only to disappoint. The Bor Copper Institute of Yugoslavia began developing an open pit mine there in 1984; by the mid-'90s, its small operation was processing 8,000 tonnes of ore a day. But in 1998, unable to recover enough copper to turn a profit, Bor departed. That same year, MICCL began commercial production.

Ivanhoe's technology might help it succeed where Bor failed. S&K's ore contains copper sulfides. The old way of doing things — Bor's — was to separate the copper by immersing ground ore in chemicals and letting the sulfides float to the surface. The copper concentrate was then refined in a smelter. Trouble was, much of the copper sulfides oxidized in the process, so not enough copper floated to turn a healthy profit. Ivanhoe figures it's found a better way in a more modern process, called heap-leach, solvent extraction-electrowinning (or SX-EW for short). With SX-EW, miners put crushed ore on leaching pads and spray it with solutions of bacteria and sulfuric acid, which dissolves the copper. Pumped to a recovery plant, the copper-rich solution is then subjected to organic solvents that isolate copper ions, producing an electrolyte. Zap the electrolyte with a current, and the copper ions migrate to a stainless-steel cathode plate — producing 100-pound sheets of exceptionally pure copper.



Figure 8: Iron crusher at S&K Mine



Figure 9: Organic solvent used to extract copper iron SX - EW plant



Figure 10: Electro winning cells at SX - EW plant



Figure 11: Sheets of copper cathode produced in electro winning cells

The process is simple, efficient and cheap. The sheets are shipped some 800 kilometres to Yangon, on Myanmar's southern coast; from there, they can be shipped throughout Asia. Distributed exclusively by Japanese trading house Marubeni Corp., most of the sheets are destined for copper wire and rod producers in Japan and Thailand. Low costs are vital, since copper prices are only now recovering from 14-year lows reached this past November. Hammered by a rapid global slowdown in manufacturing, copper is now priced at about US 67 cents a pound, but spent much of last year hovering near US 60 cents. It hadn't been that low since "before I was in high school," says Terry Bell, a Toronto-based consulting mining analyst. "I'm 39 years old, and it's been more than [US]60 cents for my entire career."

The good news for Ivanhoe is that by extracting copper at just US35 cents a pound, MICCL is among the world's lowest-cost producers. "It's quite unusual for a pure copper mine to have costs of less than 40 cents per pound," says Bell. Even under harsh market conditions, the operation has started to generate positive cash flow.

Labor costs are one factor. Only 10 of MICCL's 560 employees are from outside Myanmar; the remainder are Burmese. And Kunz says those jobs are highly prized. "Canadian miners can make \$ 80,000 a year," Bell says. "In Myanmar, if they make \$ 3 a day, that's \$ 2.96 more than the next-door subsistence farmer." But, he adds, "it's not a labor-intensive operation." More significant is that the Yugoslav enterprise stripped away much of the rock and soil covering the ore before it shut down, reducing MICCL's up-front costs. Moreover, Monywa's ore is high-grade for an open-pit mine and, thanks to SX-EW, recoveries are good. While other techniques produce intermediate products that require further processing, Monywa's copper sheets are ready for market.

In 2000, the Monywa Copper Project produced 27,500 tonnes of copper and more than US\$ 20 million in revenue for Ivanhoe. (In the first nine months of 2001, Ivanhoe lost US\$ 18.4 million on revenue of US\$ 55.8 million.) A few hundred kilometres southeast of Monywa, Ivanhoe is

also examining the Modi Taung gold deposit it found in late 2000; the company is calling those gold veins "bonanza-grade." And S&K is only the first phase of the Monywa project. The joint venture hopes to harvest the nearby Letpadaung copper deposit, which Ivanhoe expects would boost total annual production to 155,000 tonnes and employ 1,000 locals. Kunz estimates the expansion will cost US\$ 390 million —making it among Myanmar's biggest foreign investments ever — and he has been in talks with Asian investors to raise it. He predicted in late December that work at Letpadaung will begin soon.

As for the junta, it won't get its full share of the Monywa profits and its 4% royalty on copper sales until MICCL's Japanese investors have recouped their construction costs — which Ivanhoe expects won't happen until 2005 at the earliest. Until then, the government earns only a 2% royalty, which amounted to US\$ 885,000 in 2000, along with some rental income.

LOCALLY PRODUCED GALVANIZED ROOFING HARD SELL IN MYANMAR

Myabuzz: 19-06-01 ([CONTENTS](#))

Myanmar Posco Steel Co, the Korean steelmaker's 70%-owned joint venture in Yangon, Myanmar, estimates that demand for galvanized roofing sheets will increase significantly in the long term. Around 20% of private housing in the country uses galvanized roofing sheets at present. However, the company is braced for a difficult few years as Myanmar's economy struggles and an increasing number of galvanizers crowd the domestic market.

Myanmar Posco has an annual capacity of 30,000 tonnes. Last year, the plant produced 19,000 tonnes for sale in the domestic market. Myanmar Posco began commercial operations in January 1999, using new machinery installed by Posco's engineering arm, Posec. Corrugated roofing sheets account for around 90% of output. The plant uses imported CR coils, mostly from Posco's Korean plants, but also from Taiwan.

The company's export opportunities are limited by Myanmar government legislation, which dictates that roofing sheets must be at least 0.3mm thick. But buyers prefer cheaper, thin products, so the company cannot sell. Earlier this year, Myanmar Posco successfully exported around 200 tonnes to southern China, although the high transport costs involved preclude more regular sales.

Myanmar now has galvanized sheet capacity of around 120,000 tpy or more, compared with the demand last year of about 80,000 tonnes.

IMPORTED STEEL SET TO DOMINATE MYANMAR

Metal Bulletin: 14-06-01 ([CONTENTS](#))

Rising demand for construction steel in Myanmar (Burma) will be met largely by imports, as the country's domestic steelmakers struggle against high electricity and production costs and government-imposed quotas on semi-finished products.

Ywama Steel Mill, now the only private sector construction steel producer in Myanmar, has delayed indefinitely plans to restart its idled electric arc furnace. The company contends that scrap collection rates are insufficient to feed the 15-tonne EAF and that, in any case, importing billet for re-rolling is a cheaper option. "We have to rely now on billets from India and the CIS, as the scrap we have in Myanmar is not enough for us to operate the furnace," said Win Myint, executive director of planning at Ywama's parent company, National Industrial Holdings Ltd (NIHL). "At the prevailing billet price of \$180-190 per tonne cif Yangon, it is also more expensive to produce locally," he added.

Located in Insein township in northern Yangon, Ywama was privatised in 1998. The mill has 34 local shareholders, mostly representing the construction industry, and is operated by NIHL. In addition to the idled EAF and 2-strand curved mould caster, Ywama has a 20 tph reheating furnace and a bar/rod rolling mill installed in the 1950s and upgraded by Japanese companies, including Kobe Steel, in the 1980s.

Total rolling capacity is in the region of 3,500 tpm, said Win Myint. "But at this moment we cannot produce up to capacity," he said. The company's billet imports are restricted by government import quotas to approximately six separate shipments of 2,000-3000 tonnes annually.

Ywama also imports some finished products in order to make up its orders. Win Myint told MB.com that Ywama meets less than 30% of private sector construction steel demand in Myanmar, which he estimates at 10,000 tpm and rising. "We cannot monopolise; we have to share the market with other private companies," he said, adding that the remaining quotas are taken by traders and construction companies themselves.

Win Myint ruled out the restart of the EAF for at least another two years. "We will keep the EAF but we must have a firm supply of scrap and availability of power before we try to restart it," he said. He also said that Ywama will not expand rolling capacity, despite approaches from German, Japanese and Chinese companies offering technical assistance for such a project. "Even after renovation, the price would not be very competitive compared to the prevailing market price," he commented. "We could not compete with importers," he said, adding that the company could sell debar at around \$250 per tonne against a current import price in the region of \$220 cif.

Ywama currently produces, at intervals, 10-25mm deformed and plain bar. Small quantities of wire rod are also produced, along with some barbed wire and wire mesh. All sales are to the domestic market. The plant also has a separate angle mill and hot sheet mill, neither of which is operational. Win Myint said that demand for angles is limited and that it is difficult to source slab with the dimensions required for its sheet mill. The idled caster can produce 230x90mm slab; the sheet mill would only resume were the EAF to come back on stream.

Myanmar has yet to install any pipemaking facilities and imports pipe from China, Thailand and other Asean countries. In addition to Ywama, however, the iron and steel division of Myanmar Economic Corp (MEC) — a government body under the Ministry of Defence — operates a plate mill, wire mill and H-beam fabrication shop.

PRE-ENGINEERED STEEL BUILDING SUPPLIERS WATCH AND WAIT

Yangon: Moe Zaw Myint: Myanmar Times: 14-05-01 ([CONTENTS](#))

Three years after its introduction into Myanmar, the pre-engineered steel building industry has levelled out, but interest in the technology is increasing through the work of main players within the industry. Pre-engineered steel building (PEB) technology has been used in the United States since the 1950's. It was introduced to Myanmar in late 1997 and because of its advanced technology most local and foreign manufacturers in Myanmar use PEB for their industrial construction plans.

"Myanmar has great potential; it has a lot of investors (both local and foreign), and cheap labour and facilities (land)," said Mr Wael Elmawie, Area Manager of Zamil Steel Buildings, Vietnam. Zamil Steel was a pioneer in PEB technology and design in Myanmar, supplying PEB to the nation since 1997. "We had to firstly educate our customers about the quality of our technology and products, and how it differs from conventional building materials." Among the advantages are; PEB is approximately 30 percent lighter than conventional steel buildings; construction is fast, and quantity surveying calculations are

Demand has levelled out, but interest in technology is increasing easier. The price of a PEB project can be as much as 20-40% lower than that of the conventional steel projects. For Zamil Steel this price is slightly balanced by the cost of shipping materials from its parent plant in Hanoi. Zamil Steel is the largest manufacturer and supplier of PEB in Asia and Africa, with 38 offices in 35 countries. It is now operating its business in Myanmar with a fully-equipped representative office of 8 staff including a sales and marketing team, quantity surveyor, draft engineer, and construction supervisors. They have now supplied PEB for 102 projects, mostly factory and warehouse constructions, with over 2 millions square-feet of PEB in Myanmar since beginning operation three years ago. Mr. Alizara Aga, Marketing Manager at Zamil Steel in Vietnam told Myanmar Times his business has currently plateaued, but they hope to boost business and increase supplies in the future.

With a workforce of about 40 staff, Southern Metal Industry Company is a strong competitor in the Myanmar PEB construction industry. They buy raw steel bars from Taiwan and Japan via Thailand through Myanmar Siam steel company and Benhur Company. They design everything in accordance with customers' desire in their factory in Hlaingthayar Industrial Zone and then install them in the customers' buildings. This, says Ma Thanda, engineer with Southern Metal, places them ahead of competitors. "We can build faster as we have ready-to-use PEB at our sales centre." Construction usually takes three to four months for an average industrial building, and about four and a half months for a larger factory. If the client has already laid the concrete foundation, it takes only two months to finish a building. U Zaw Tun Aung, Manager of Southern Metal, also told MT that their prices are competitive compared to those of other companies because of the international standard of quality of their products. Much of the competitive price has evolved because of the low price of labour in Myanmar.



Figure 12: SMI factory in Hlaingthayar

CORRUGATED IRON SHEET INDUSTRY HURT BY COSTS, ILLEGAL IMPORTS

Yangon: Myanmar Times: 06-11-00 ([CONTENTS](#))

Local corrugated iron sheet (CGI) manufacturers share a vision of import substitution but, before that goal can be realised, firms face a number of tough challenges - competition from illegal imports across the Thai border being foremost among them. "The quality of the illegal imports is so much inferior to the locally-produced version, and its thickness is 0.2mm compared to the 0.3mm local product," said U Htin Zaw, production manager of Myanmar Sai Steel.

There are five firms in the domestic industry, producing CGI with a minimum thickness of 0.3mm following instruction from the Myanmar Investment Commission (MIC) last year. A ton of GI sheet at 0.2mm thickness contains 466 sheets, but there are only 350 in a ton of 0.3mm sheet - an additional cost to the buyer and further disincentive to patronise local firms.

About six months ago, imported products were coming into the local market at the rate of 100 tons per month. But that figure has steadily increased to a rate of 400-500 tons per month. It has had a significant downward effect on demand for the thicker, more expensive local product. Further complicating the situation, groove differences between locally produced and illegally-imported sheets mean the two cannot be used together.

Local suppliers have responded the only way they can, by lowering prices and cutting into their profit margins - in some cases selling below the margin in a bid to gain market share." Our local market is very sensitive to pricing," U Htin Zaw said. Though the 0.3mm product is more durable than the thinner version, it requires stronger support structures to be used in the building around it, resulting in higher construction costs: one ton when 0.2mm CGI is used and 1.2 ton when 0.3mm is used.

Last year, local suppliers made a proposal to MIC that it grant them permits to produce both 0.2mm and 0.3mm, which would allow not only a stronger local position but also promote exports to China and Bangladesh, where the 0.2mm sheets are in demand.

Last year, when the local industry ceased production of 0.2mm sheets, production costs for 0.3mm sheets were K108-110 per foot but the product sold for just K96-97 per foot and then, as firms battled for part of the market, K82. "We have been faced with profitability problems since then," U Htin Zaw said. Despite the fierce competition breathing down their necks, however, the local suppliers have tried to present a united front, cooperating through the exchange of marketing and pricing information.

The other problem the small industry faces is getting the raw materials it needs. "We are not trade firms, we are only manufacturers," said U Htin Zaw. "So we do not have our own export foreign exchange (FE) earnings. "We have in the past imported our raw materials under the deferred payment system, which recently has been restricted." Local suppliers are unable to buy their raw materials under the down payment system. In one month a typical factory would consume US\$1 million worth of raw materials. With a maximum allowable capital investment of US\$3m it is a scenario which inevitably will "severely impair an operator's working capital", U Htin Zaw said.

Most operators are in joint venture with Japanese corporations like Sumitomo and Mitsui, using technology imported from that country, he said. Most local demand for GI sheets comes from Mandalay and Magway Divisions and Mon State and divisions and, more generally, Upper Myanmar. Demand for CGI sheet is highest from November to June when people build residential units and renovate existing ones. During the rainy season, demand is stronger in the dry zone in central Myanmar. Most customers are peasants and farmers from rural areas.

HIGH POWER COSTS HIT STEELMAKING IN MYANMAR

Metal Bulletin: 14-09-00 ([CONTENTS](#))

High electric power charges in Myanmar are stifling attempts to revitalise the country's steelmaking sector. Re-rollers have also been hit by rising import prices for semi-finished products, limiting current production to small quantities of construction steel for the domestic market.

Ywama Steel Mill, one of three works in Myanmar (formerly Burma) with crude steel production facilities, has expressed a long-term interest in renewing negotiations with Japan's Kobe Steel, which supplied its existing electric furnace and continuous caster. A senior official at Ywama told MB that the works may call on Kobe to install new plant or upgrade existing equipment in the future, although its first priority is to restart crude steel production. A spokesman for Kobe's plantmaking department in Tokyo did not rule out such cooperation, although he added that any future business in Myanmar is still a long way from fruition. "The plant business is not so active in Southeast Asia," he stated.

Ywama, located just north of the capital Yangon in the town of Insein, has one 15 ton EAF. The company's 2 strand curved mould caster can produce 100x100mm billet and 230x90mm slab, although the equipment was idled around two years ago and has not produced since, said the official. "The electric power charge is very high," the Ywama official said. "The directors are discussing EAF production, but we will be able to restart."

Idle equipment at Ywama also includes a 20 tph reheating furnace and a hot sheet mill, which has not operated since the severance of the company's own slab feed. At present, the works is only operating its bar and rod mill. Production of 5.5mm mesh quality wire rod is currently running at 500 tpm: 10-25mm diameter debar production is sporadic, and output of round bar and angles has ceased. "We are importing billet for our rolling mill, but the raw material price is high," said the official. He added that most imported semis come from Indonesia and the CIS, with Singapore also supplying small quantities. Production is entirely for the domestic market.

Ywama is publicly owned by National Industry Holding Ltd. The country's two other steel producers are government-owned: No 3 Mining Enterprise is headquartered in Yangon, but has a direct reduction plant and steelmaking facilities near Mandalay; the Aunglan plant is located some 300 miles northwest of Yangon on the Ayeyarwady river, near Prome. The country also hosts a number of galvanizing plants.

*** Electric Arc Furnace (EAF)**

Steelmaking furnace where scrap is generally 100% of the charge. Heat is supplied from electricity that arcs from the graphite electrodes to the metal bath. Furnaces may be either an alternating current (AC) or direct current (DC). DC units consume less energy and fewer electrodes, but they are more expensive.

MEGASTEEL EXPORTS GI SHEETING TO INDONESIA

Yangon: Myanmar Times: 25-09-00 ([CONTENTS](#))

A local firm operating jointly with the Japanese Mitsui company has undertaken to export locally-manufactured corrugated galvanised iron sheets for the first time. The firm, Myanmar Megasteel Industries Ltd, today shipped five containers of six-foot sheets, with a net weight of 98.56 tons, to Indonesia.

The company has been in operation since 1997, supplying the domestic market. Here, its product sells for K10 per foot. Overseas, it will fetch US\$500 per ton. The sizes of the sheets vary from six ft to 10 ft in length and from 2.5 ft or 3 ft in width. Plain sheet is also available. "We can produce custom-made orders under the brand names, Megasteel and Summit," said Min Swe Thein, marketing manager of Megasteel.

Formerly, Myanmar imported GI sheet until 1998. "Now import restrictions are in place in favour of locally-manufactured products," he said. "We are in a position to compete in regional markets in terms of quality, but not in price per item, as we are still seeking greater market share

which is leading to our mass production."

Apart from Megasteel, there are five other suppliers in local market with production capacities ranging from 80 to 120 tons per day. Rejected items from Thai operators are still coming into the local market via smuggling boats with prices lower than those of prime quality products. "But most local consumers do not know about it," said one hardware dealer.

TEST RUN AT SOAP FACTORY BUILT BY INDUSTRIAL PRODUCERS CO-OP

Mandalay: New Light of Myanmar: 09-02-00 (CONTENTS)

Minister for Industry-1 U Aung Thaung and officials inspected soap factory of Myanmar Pharmaceuticals Industries in Aungmyethazan Township, Mandalay yesterday. Managing Director of MPI Col Myint Oo reported on the factory, installation of machines and test running. The minister inspected test production of Shwewa soap. The soap factory was built by Seinban Industrial Producers Cooperatives Society and Myanmar General and Maintenance Industries for distribution of soap to Upper Myanmar and Shan State (North). The factory will open soon. A similar factory is under construction in Magway.

(NLM: 07-02-99) Minister for Cooperatives U Aung San and Deputy Minister for Science and Technology Brig-Gen Thura Aung Ko inspected import substitute products of cooperatives industrial zone in Mandalay yesterday morning. First, Minister U Aung San and Deputy Minister Brig-Gen Thura Aung Ko inspected farm and industrial equipment of Seinban Industrial Producers Cooperative Society at No 337 on Seinban Road in Maha Aungmyay Township. Chairman of the Board of Directors U Kyaw Win and officials reported to the minister and the deputy minister on commodity production of the society. The minister urged the officials for products of the society to be advertised at cooperatives festival, trade fair and industrial exhibition for the development of local industrial sector and the society to participate in import substitute products and boosting production work of the State. Seinban Industrial Producers Cooperative Society produces various kind of machines including pumps, transplanting machines, harvesting machines, air compressors, concrete mixers and others for industrial, construction and agriculture sectors.

(NLM: 26-09-00) Minister for Industry-1 U Aung Thaung and party inspected the construction of oil tanks for the Soap Factory of Myanmar Pharmaceuticals Industries in Magway by Seinban Industrial Producers Cooperative of Mandalay. He also inspected production of Hmway soap, spare parts produced by Seinban Industrial Production Cooperative and fitting of boilers.

(NLM: 05-11-02) Minister for Industry-1 U Aung Thaung . . . went to the construction site of soap factory of the Myanmar Pharmaceutical Industries and saw over the progress of work of the main building there. He also inspected the machines installed by Seinban Industrial Cooperative, Society production of Shwewa and Carbolic soap, installation of machines and the boiler, and the

generator and gave instructions.

MILITARY-OWNED STEEL MILL COMMISSIONED INTO SERVICE

Aunglan: New Light of Myanmar: 26-03-99 ([CONTENTS](#))

The State-owned No-1 Steel Mill* located near Kyaukswekyo Village, Aunglan Township, Magway Division, was commissioned into service today as a gesture hailing the 54th Anniversary Armed Forces Day. It was completed in 25 months of construction project which started work on 22 August 1996. The 1,000-ton capacity mill can produce iron rods of various sizes and shapes and it is targeted to produce 250,000 tons per year.

*The Aunglan mill and another at Myaundaka in Hmawbi township, north of Yangon, are subsidiaries of the Myanmar Economic Corporation. Shares in MEC are jointly held by military personnel on active duty and the Ministry of Military Affairs. Little has been published about the Myaundaka plant, known as No. 2 Steel Mill and Beam Fabrication Shop, but an article in the New Light of Myanmar (28-12-01) at the time of the opening of the Pathaung Bridge across the Kyaukphyra river in Myeik township noted that beams for the 810 foot-long bridge had been designed and produced at the No.2 mill. The beams for several bridges along the new highway between Monywa and Kalewa also appear to have been fabricated at the same shop.

MARUBENI INKS VENTURE FOR ZINC ROOFING FACTORY IN MYANMAR

Yangon: Daily Yomiuri: 08-02-97 ([CONTENTS](#))

Three foreign companies led by Marubeni Corp. have joined a local company in signing a lease with the Construction Ministry for land on which to build a zinc roofing factory, the state-owned New Light of Myanmar reported Friday. The joint venture, called Dagon Steel Ltd, will locate its factory on a 14 hectare site in Hlaingthayar Industrial Zone in a western suburb of Yangon. It will be the second roofing factory in the zone. The venture, with capitalization of \$US7.8 million and Kyat 7.2 million (\$1.24 million) in local funds, will produce 18,000 metric tonnes annually of corrugated zinc roofing sheets for the domestic market, the newspaper reported.

Speaking at the signing ceremony Thursday, Construction Minister Major General Saw Tun said the government has leased land to five foreign companies for various industries, and 10 more had applied for leases in the Hlaingthayar zone.

(Metal Industry source: 19-06-01) Dagon [Steel Ltd] has raised production of galvanized sheets this year, and is aiming to lift output further by the year-end. The Yangon-based company is turning out 800 tpm at present, compared to an average of 500 tpm last year. All sales are local. Dagon sources its CR coils mainly from Thai Cold Rolling, Japan's Kawasaki and PT Essar of

Indonesia.

Myanmar now has galvanized sheet capacity of around 120,000 tpy or more, compared with the demand last year of about 80,000 tonnes Myanmar Posco Steel Co, the Korean steelmaker's 70%-owned joint venture in Yangon, Myanmar, estimates that demand for galvanized roofing sheets will increase significantly in the long term. Around 20% of private housing in the country uses galvanized roofing sheets at present. However, the company is braced for a difficult few years as Myanmar's economy struggles and an increasing number of galvanizers crowd the domestic market. Both Posco and Dagon have postponed their plans to expand into colour-coating.

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