CHAPTER 3

THE MALAYSIAN STEEL INDUSTRY

3.1 Government Policy on Steel Industry

The Medium and Long Term Industrial Master Plan for Iron and Steel industry from 1986-1995, which was planned by the Malaysian Industrial Development Authority (MIDA) and United Nations Industrial Development Organization (UNIDO) in 1985, showed that the Malaysian steel industry, except Perwaja Steel, developed under a market-oriented economy without Government involvement. Perwaja, established in 1982, was fully owned by the Government. The purpose of establishing Perwaja was to develop the steel industry to be competent and cost-effective in the industry, and to provide people in the rural area with the opportunity to work in a large industrialized organization (Star,1993). In 1990, Perwaja saw its first pre-tax profit of RM 23.5 million. However, in 1996, the Government disclosed that it was insolvent with current and long-term liabilities and accumulated losses of RM 2.985 billion (Business Times,1998). After that, Maju Holding took over Perwaja steel under a privatization scheme.

However, for private companies, the Government didn't involve in making a specific decision on their projects, amount, and location. Instead, the Government has encouraged the private sector by showing the strategic direction the industry should take, and it has tried to attract potential investors with administrative guidance and incentives. A plan taking this kind of approach is called the Indicative plan, which would be distinguished from the industrial master plans of the centrally planned economy which incorporate minute details of action programs including projects and investment budgets.

3.2 Important Definitions

Before going into the analysis, it is necessary to define a few words in order to prevent any confusion from the interpretation of the terminology.

(1) 'steel' means crude steel, which is Billets, Blooms, or Slab.

(2) 'long products' means Bars, Wire rods, and Sections which are Flat Bar, H-Beam, I-Beam, and Angles.

(3) 'flat products' include Plates, Hot-rolled Sheets & Strip (H/R), Cold-rolled Sheets & Strip, Cold-rolled Electrical Sheets, Galvanized Sheets, Tinplates, and Other Metallic-coated Sheets.

(4) 'steel for long products means Billet or Bloom.

(5) 'steel for flat products' means Slab.

(6) 'Hot-rolled Steel Products' include Rails & Accessories, Steel Sheet Piles, Sections, Bars, Wire Rods, Rounded for Tubes, Plates, Hot-rolled Sheet & Strips, and Tyres &Wheels.

3.3 Product Grouping

The Malaysian steel Industry is grouped into three product groups (Malaysian Iron and Steel Industry Federation, 1998):

Table 3-1: Category and Type of Steel Products

Category	Type of Products
Primary Products	(a) Scrap-Substitute: • Hot Briquetted Iron (HBI) • Directed Reduced Iron (DRI) . (b) Crude Steel (semi-finished) • Billet • Blooms • Slabs
Rolling/Finished Products	(a) Long Products: • Bar • Wire Rods • Sections (b) Flat Products: • Hot- Rolled Plates & Sheets • Cold Rolled Sheets
Secondary Products	(a) Downstream Wire and Wire • Products: • Nails • Wire • Wire Mesh • Bolts and Nuts • Barb Wire, etc. (b) Flat Secondary: • Coated/Painted Steel • Tubes & Pipes (Seamed)

Source: Malaysian Iron & Steel Industry Federation (1996), *Status & Outlook of Malaysian Iron & Steel Industry*

The analysis of the study will be focused on crude steel and Rolling /Finished Products. The reason is because

1) comparison among countries is based on crude steel output , which shows capability of making steel in a country.

2) Rolling/Finished products are used as feedstocks for secondary steel products. Therefore, it is important to study Rolling/Finished products to assess the competitiveness of the Malaysian steel industry.

3.4 Production of Steel in Malaysia

In 1967, Malaysia produced about 150,000 tons of steel (Malaysian Industrial Development Authority,1985). Malayawata, established in 1961, was the first steel mill. In 1983, the quantity of steel production increased to 300,000 tons. Of the 300,000 tons, half the amount was produced by blast furnaces of Malayawata while the remaining half was produced by melting scrap in Arc furnaces of small companies. It took 15 years to double production from 150,000 tons to 300,000 tons. That means the steel industry had not developed much in terms of capacity between 1967 and 1983.

In 1986, steel production amounted to 355,420 tons. From thereon , the production of steel increased rapidly. In 1987, the production reached 638,430 tons, an increase by 79.6 %. This is due to the start - up of a new mill which is Perwaja steel, established in1982.

In 1990, for the first time, the production of steel exceeded 1,000,000 tons. Three years later, the production was doubled, reaching 2,045,500 tons. In 1996, the quantity was 3, 216,000 and in 1997 the production of steel was 2,962,000 tons which was slightly lower by 7.9 % from last year's figure. The rapid increase in production of steel after 1990 was a result of expanding capacity by steel mill to meet the demand of the booming economy. From 1990 to 1996, Malaysian economy recorded a strong performance of 8-9 % of growth on average.

Table 3-2: Production of Steel in Malaysia by Year

(Unit : tons)

Year	Production	Export	Import
1983	300,000	N.A	N.A
1986	355,420	N.A	N.A
1987	638,430	N.A	N.A
1990	1,197,320	20,000	221,120
1994	2,045,500	49,180	799,140
1995	2,450,500	21,680	630,800
1996	3,216,000	N.A	N.A
1997	2,962,000	36,000	622,638

Source:-Malaysia Iron & Steel Industry Federation (1996), *Status & Outlook of Malaysian Iron & Steel Industry*
- South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*

Note: The figures show the quantity of steel produced. As Slab was not produced in Malaysia, the quantity of steel is for the production of Billet.

N.A: Not Available

As seen from Table 3-2, the amount of Billet produced was not enough to meet domestic requirement. As a result, Malaysia had to import from overseas. In 1997, the quantity of import amounted to 622,638 tons.

3.5 Steel Producers in Malaysia

Now the Malaysian steel industry has five major crude steel producers which are Perwaja, Amsteel, Malayawata, Southern Steel, and Antara as shown in Table 3-3. Their production capacity by product types is shown in Table 3-4.

Table 3-3: Major Producers of Steel (Crude Steel)

	Perwaja	Amsteel	Malayawata	Southern Steel	Antara
Year of Establishment	1982	1980	1961	1963	1975
Annual Sales (RM million)	932	1,200	461	759	334
Employees	2,988	1,150	1,058	1,100	1,095
Capacity of steel production (Billet & Bloom) as of 1998 ('000 ton)	1,200	750	450	1,000	574
Products	Bar, Beams, Sections, Wire Rod, Wire, Nail	Bar, Wire Rod	Bar, Wire Rod, Angles, Flats, Squares	Bar, Wire Rod	Bar, Angle

Source: Malaysian Iron and Steel Industry Federation (1998), *Directory, 1997/98*

Remarks: Three new firms, Mega Steel, Nusantra, and Tahan plan to produce crude steel for flat products. Among them, only Mega Steel is scheduled to start trial run in Dec.,1998. Therefore, details of these companies are not shown here. Mega Steel is a subsidiary company of Amsteel.

Table 3-4: Production Capacity by Product Types

Sub - Sector	Product Type	Number of producers	Capacity ('000 tons)
Primary Products	DRI	1	1,200
	HBI	1	720
	Billets	6	3,186
	Blooms	-	-
	Slabs	-	-
Rolling/Finished Products	Round/Deformed Bars	23	2,500
	Small Sections(flat, square, and angle	5	200
	Wire Rods	4	900
	Hot-Rolled Sheet	1	2,400
	Cold-Rolled Sheet	2	420
Secondary Products-Long	Galvanized Wire	7	84
	High - Carbon Wire & Strand	2	120
	Barbed Wire	20	20
	Bolts & Nuts	16	100
	Welded Mesh	35	400
	Nails	16	50
	Welding Electrodes & Polished Shaft	9	42
	Cold-Drawn Flat Bars	7	70
Secondary products - Flats	Steel & Cemented - Lined Steel Pipes	18	600
	Pipe Fittings	4	12
	Tinplate	1	240
	Galvanized, Prepainted, and Roll - Formed Sheets	25	200
	Steel Service Centers	9	720

Source: Malaysia Iron & Steel Industry Federation (1996), *Status & Outlook of Malaysian Iron & Steel Industry*

3.6 Position of the Malaysian Steel Industry in the Global Market

3.6.1 Position of Steel Production

The Malaysian steel production of 2,962,000 tons in 1997 was ranked 36th in the world production. This made up 0.35% of total world production of 794,000,000 tons. A comparison with other countries will be helpful to understand the position of Malaysian steel industry. In 1997, Japan produced 104,544,000 tons, United States produced 99,200,000 tons, United Kingdom produced 18,500,000 tons, and Korea, Taiwan, Indonesia and Thailand produced 42,554,000 tons, 15,993,000 tons, 3,816,176 tons, and 2,101,000 tons respectively. The Malaysian production was far below the amount produced by the countries in the Far East. Malaysia, however, is the second largest producer after Indonesia in South East Asia as seen in Table 3-5.

Table 3-5: The Ranks of Steel Production by Country in 1995,1996, and 1997

Country	quantity in 1995 ('000 tons)	quantity in 1996 ('000 tons)	quantity in 1997 ('000 tons)	share of the world in 1997
World	752,000	748,000	794,000	100%
Malaysia	2,450	3,216	2,962	0.35%
Japan	101,640	98,801	104,544	13.17%
United States	95,200	94,700	99,200	12.49%
Korea	36,772	38,903	42,554	5.36%
United Kingdom	17,600	18,000	18,500	2.33%
Taiwan	11,605	12,350	15,993	2.01%
Indonesia	4,130	4,109	3,816	0.48%
Thailand	2,129	2,131	2,093	0.26%
Philippine	622	600	780	0.1%
Singapore	769	779	383	0.05%
Vietnam	116	59	150	0.02%

Source: - International Iron and Steel Institute(IISI) Steel Data Center (1998), *Largest Steel Producing Countries 1991 to 1997*
- South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*

3.6.2 Consumption of Steel Products

In spite of the sharp increase in the production of steel products in 1995, 1996, and 1997, the supply of steel products could not meet the total requirement of Malaysia. As seen in Table 3-6, the total Apparent Steel Consumption (ASC) (which is defined as the sum of production of Hot - rolled Steel Products and imports less exports) has increased; that is 3,964,000 tons in 1992, 4971,000 tons in 1994 and 7,799,000 tons in 1995.

Consumption quantities in 1996 and 1997, grew slightly , amounting to 7,898,000 tons and 8,057,000 tons respectively. The main reason for the sharp increase in consumption of long products in 1995 was the boom in the construction sector. For example, the consumption of steel bars was ,030,900 tons in 1992 and 970,420 tons in 1994, but the figure jumped to 2,233,090 tons in 1995.

Table 3-6: The Consumption of Steel Products in Malaysia by Year

Year	Production of Hot-rolled Steel Products ('000 tons)	Consumption ('000 tons)	Growth rate of consumption
1993	1,918	4,795	21.0%
1994	2,023	4,971	3.7%
1995	3,071	7,799	56.9%
1996	3,451	7,898	1.3%
1997	3,774	8,057	2.0%

Source: South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*

It is essential for Malaysian steel consumption to be compared to those of other countries in order to judge the potential of Malaysian market.

Total world consumption in 1997 was 694,800,000 tons. Malaysia consumed 8,057,000 tons. The share of Malaysian steel consumption was 1.16% of the

world consumption. Meanwhile, consumption of the United States of America was 106,500,000 tons, while Japan consumed 82,728,000 tons, Korea consumed 39,000,000 tons, and Taiwan consumed 21,300,000 tons. However, in South East Asia region, Malaysia was the biggest consumer followed by Thailand which consumed 7,629,616 tons in 1997.

Table 3-7: The Ranking of Steel Consumption in 1997 by Country

Country	Consumption ('000 tons)	Share in the world
World	694,800	100%
Malaysia	8,057	1.16%
United States	106,500	15.33%
Japan	82,728	11.91%
Korea	39,000	5.61%
Taiwan	21,333	3.07%
Indonesia	6,817	0.98%
Thailand	7,630	1.10%
Philippines	4,190	0.60%
Singapore	4,040	0.58%
Vietnam	1,532	0.22%

Source: - South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*
- International Iron and Steel Institute, Steel Data Center (1998), *Apparent Steel Consumption*

3.6.3 Malaysian per Capita Steel Consumption

Apparent Steel Consumption per Capita has been increasing continuously. In 1992, Consumption per Capita of Malaysia was 208.2kg. In 1995, its

consumption exceeded 300 kg. In 1996 and 1997, the Consumption of Capita of Malaysia reached the level of 370 kg. This figure is far below those of the Western countries and Far Eastern countries. In 1997, Japan's steel consumption per Capita (CPC) is 673 kg, USA 428 kg, Germany 498 kg, Korean consumption was 832 kg. It means that the Malaysian steel industry still has potential to develop until its goal for industrialization is materialized in the year 2020.

However, Consumption per Capita of Malaysia ranked No 2 in South East Asia in 1997.

Table 3-8 :The per Capita Steel Consumption in Malaysia

Year	Population (Million)	ASC ('000 Tons)	ASC (kg/Capital)
1992	19.04	3,964	208.2
1993	19.56	4,795	245.1
1994	20.11	4,971	247.2
1995	20.69	7,799	376.9
1996	21.17	7,898	373.1
1997	21.66(E)	8,057	372.0

Source: - South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*
www.asean.or.id, ASEAN countries' primary indicators

ASC : Apparent Steel Consumption

Table No. 3-9 : The per Capita Consumption by Country in 1997

(unit : kg)

Germany	498
Japan	673
United States	428
Korea	832
Malaysia	372
Indonesia	35
Thailand	149
Philippines	63
Singapore	1264

Source : - South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*

- International Iron and Steel Institute (1998), *Economics: Toward the 21st Century, Steel Consumption per Capita for selected countries*

3.7 Malaysia Steel Consumption Characteristic

3.7.1 Ratio of Long Products and Flat Products

In order to analyze Malaysian steel industry in a meaningful way, it is necessary to divide the steel consumption into two categories, that is long products and flat products.

Table 3-10 : Malaysian Steel Consumption by Product Type

Year	Long Product ('000 tons)	Flat Product ('000 tons)	The ratio of long to flat (%)
1986	685	721	48.7 : 51.3
1988	812	1,224	40.0 : 60.0
1990	1,395	1,530	47.7 : 52.3
1991	1,683	1,748	49.1 : 50.9
1993	2,149	2,326	48.0 : 52.0
1994	2,700	2,689	50.1 : 49.9
1995	3,733	3,248	53.5 : 46.5

Source: - Malaysia Iron & Steel Industry Federation (1996), *Status & Outlook of Malaysian Iron & Steel Industry*

- for the purpose of calculating the figures of long and flat products, major items are chosen.
- major long items are Bars, Wire Rods, and Sections while major flat items are Hot Rolled, Cold Rolled, and Coated coil/sheet.

3.7.2 The Consumption Characteristics

The ratio of long to flat products in Malaysia in 1995 is about 53.5% to 46.5% on average as seen in Table 3-10. As the country becomes more industrialized, the quantity of flat items is increased. For example, the ratio of long to flat products in Japan is 45.0% : 55.0% in 1997 (South East Asia Iron & Steel Institute, 1998). Flat products are essential indicators of steel consumption in a developed country (Malaysian Iron and Steel Industry Federation,1996). The main users of flat products are electrical, electronics, cars, and shipbuilding industries. In

Malaysia, the electrical and electronics industry is a major industry for the economy. For example, the export of electrical and electronic products in 1997 was above 53.7% of total Malaysia export amount. Malaysian total export in 1997 is RM 221,413 million, of which the amount contributed by the electrical and electronic sector amounted to 18,957 Million (Department of Statistics, 1998).

Car industry also is a potential area which consumes big quantities of steel. The production of Proton, for example, has increased sharply. In 1990, the production was 72,522 units, 94,103 units in 1993, 127,327 units in 1995, and 138,068 units in 1996.

3.7.3 The Production of Flat items

Malaysia has not involved itself in the primary production of flat products even though its consumption has been increasing. It means that Malaysia has not produced Slab which is used for making Hot Rolled Coil/Sheet and Plate. Malaysia has been importing the entire quantity of Hot Rolled Coil from overseas Although Malaysia is producing some quantities of flat items like Cold Rolled Coil or Galvanized Coil, its production is not enough to meet the domestic demand. Table 3-11 shows how Malaysia depends on the import of flat items.

Table 3-11 : Imports of Flat Items

(unit : 1,000 tons)

Products	Production	Import	Export	Consumption
Plates	116	752	35	833
H/R sheet & coil	Nil	1,518	180	1338
C/R sheet & coil	485	620	71	1,034
Galvanized sheet	339	184	20	503
Tin Plates	163	159	7	315
Other Metallic-coated	Nil	219	44	175

Source : - South East Asia Iron & Steel Institute Statistical Committee (1998), *Steel Statistical Year book 1997*

Major steel producers such as Amsteel, Perwaja, Malayawata, Southern Steel, and Antara have expanded their capacity or established new production lines in order to meet the demand for long items, but not the demand for flat products.

3.7.4 Expansion of New mills for Hot Rolled coils

At this moment, three new firms , Mega Steel, Nusantra, and Tahan, have obtained the approval of the Malaysian government to set up manufacturing plants of Hot Rolled coils with the capacity of 2,400,000 tons, 2,500,000 tons, and 540,000 tons respectively. Among them, only Maga Steel is scheduled to start its trial run for production in December,1998. There are three reasons why

the primary production for flat products has yet to be developed. They are as follows:

1) The investment amount needed for the production is quite huge compared to the amount needed for producing long products. For example, Perwaja, in 1993, invested RM685 million for the Gurun project to produce 450,000 tons of wire rods and bars (Star,1993). However, a blast furnace plant for producing 2.5 million tons of flat products , which was suggested to be built in the Industrial Master Plan 1986 - 1995, would require an investment of RM 30.3 billions at 1985 value (Malaysian Industrial Development Authority,1985). Even a mini mill with 2.4 million tons of production capacity for Hot Rolled coil using Electronic Arc Furnace would cost RM 20 billion at 1997 value.

2) The steel industry could not secure adequate technology to build an integrated mill for flat products until recently.

3) The domestic market for flat products was not big enough for one company to invest in a giant mill of flat products while the market for long products has grown very rapidly with the high growth in demand for construction steel. So manufacturers preferred to invest in long products.

3.8: A summary on the development of the Malaysian steel industry.

Based on the discussion above, the Malaysian steel industry can be summarized as follows.

1) The Government was not deeply in the initial development of steel industry, except for Perwaja. Private sector companies have helped to develop the industry, adjusting themselves to the trend of market.

2) The Malaysian steel industry was not strong enough to compete with international major players like Japan, Korea, and Taiwan. However, Malaysia was ranked No.1 and No.2 in terms of consumption and production in South East Asia Market respectively.

3) The investment in flat products was far lower than that for long products.