

# Iron and Steel Industry in Viet Nam: A New Phase and Policy Shift

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**Abstract:**

The Vietnamese iron and steel industry is entering a new phase. The role of private enterprises has been expanding, and more large-scale projects funded by foreign capital have been proposed. State-owned enterprises are losing their special privileges and are thus being forced to find ways to establish independence from the government. The new phase demands that the government takes new approaches such as promoting competition and arranging systems for scrap trading while pursuing environmental protection, controlling the trade liberalization process, evaluating proposed projects with foreign investment, and expanding the role of business associations.

Keywords: Viet Nam, iron and steel industry, material flow, hierarchical division of labor, state-owned enterprise, policy shift, capability of government, attraction of foreign direct investment, environmental protection, Japan-Viet Nam EPA, business association

## **Introduction**

### *1. Purpose*

This paper will illustrate that the iron and steel industry in Viet Nam is entering a new phase and that a policy shift is needed to fit the new phase. The paper also gives recommendations for the direction of this policy shift. In the remainder of the Introduction, the issues are laid out and contributions and limitations of earlier studies are discussed. Next, Section 1 outlines the structure of trade and production in the Vietnamese iron and steel industry. Section 2 clarifies the characteristics of large-scale steel projects with foreign investment. Section 3 analyzes the policy issues regarding the industry. The final section concludes the paper.

### *2. Open Door Policy, Transition to a Market-Oriented Economy and Promotion of Steel Industry*

It is widely known that promoting the iron and steel industry in developing countries is not easy work. It is safe to speculate that fostering the domestic steel industry forces the country to face such issues as a small domestic market, difficulties in financing, insufficient infrastructure, and shortages of managers, engineers and technical experts that have the necessary skills.

Furthermore, developing countries today are forced to industrialize under the condition that they have to integrate into the international economy at an early stage of economic development (Ohno, 2000; Kimura, 2003). For instance, by joining the World Trade Organization (WTO) and signing a free trade agreement (FTA) or an economic partnership agreement (EPA), more countries in their early stages of development are required to liberalize trade in goods and services as well as investment. This makes it difficult for such countries to adopt traditional infant industry protection policies under which domestic industries are protected and given time to grow and become strong. Vietnamese industries, at large, are facing such a situation (Ishikawa, 2006: Chapter 6). The forecast for the steel industry is a bleak one of pressure toward liberalization and international integration.

In fact, Viet Nam, after the Doi Moi policy was implemented, has been opening up to the world for the last 20 years. Viet Nam reduced intraregional tariffs under the ASEAN Free Trade Agreement (AFTA) in 2006 and joined the WTO in 2007. When studying the possible future of the Vietnamese steel industry, it is necessary to consider this background regarding economic liberalization.

Also, Viet Nam is pushing forward economic reform to a market-oriented economy while claiming to uphold socialism; thus, reform on state-owned enterprises (SOEs) and a policy shift from

industrial policy designed for SOEs are the action assignments in the steel industry as well as in the whole economy. What this reform will look like in terms of the steel industry is also the subject of this study.

### *3. Contributions and Limitations of Earlier Studies*

The Vietnamese steel industry had not been studied in the field of economics in the Japanese or English languages until recently. In 2001, the Japan International Cooperation Agency (JICA) and the Ministry of Planning and Investment (MPI) released the Study on the Economic Development Policy for the Transition toward a Market-Oriented Economy in the Socialist Republic of Viet Nam, also known as the Ishikawa Project, which represented the first ever positive analysis (Fukui, Aiba and Hashimoto, 2001; Ohno, 2001; Kawabata, 2001). Joint research done by JICA and National Economics University (NEU) followed (Hoang Duc Than et al., 2002, 2003; Kawabata, 2003).

These studies pointed out the significant value of attracting foreign direct investment (FDI) and the need to import foreign technology. They also envisaged, however, that Viet Nam Steel Corporation (VSC), a state-owned general corporation, would be leading the industrial development.<sup>1</sup> The road to liberalization was illustrated clearly, but the studies emphasized the need for partial protection during a certain period to encourage industrial formation.

Later, based on facts including the delay of the SOE projects, formation of private enterprises, and acceleration of trade liberalization, Kawabata (2005) argued that SOEs would play an important role in the initial period of development, but that in the following period, private and foreign enterprises would take that place. Furthermore, for the long sector, the need for competition on equal footing was emphasized, and for the flat sector, the importance of attracting FDI was pointed out.<sup>2</sup>

Although the general policy direction was covered in Kawabata (2005), specific changes in the industry structure and concrete policy issues were not discussed. The purpose of this paper is to investigate and discuss these areas.

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<sup>1</sup> VSC was founded in 1994 as one of the 18 state-owned general corporations under the Decision of the Prime Minister No. 91. This type of general corporation (abbreviated as GC91) is under the immediate control of the prime minister.

<sup>2</sup> Ishikawa (2006) indicated that the theoretical rationale of the industrial policy study had shifted from infant industry protectionism in the Ishikawa Project to intervention for FDI attraction in the NEU-JICA Joint Research Project. In the case of the steel industry, it was, to be precise, a shift from assuming the VSC group as a major agency to not assuming VSC to have the major role, fitting the situation that private and/or foreign invested enterprises had entered into the industry. This is not to say that the protection policy was completely rejected and taken over by the FDI attraction policy, but rather, that the shift of emphasis from the former to the latter was based on the change in the industry situation. Furthermore, this shift was made not necessarily in the process from the Ishikawa Project to the NEU-JICA Joint Research, but from Kawabata (2003), which resulted from the NEU-JICA Joint Research, to Kawabata (2005).

## I. Changing Structure of Production and Trade in the Vietnamese Steel Industry

### 1. Production Structure and Main Players

Table 1 shows the relation of supply and demand for Vietnamese iron and steel products. Demand for steel mill products increased by a factor of 1.9 between the years 2000 and 2005. Despite this rapid increase, the demand level is still far below those of more industrialized countries in East Asia. Although domestic production increased by a factor of 2.1, more than 40% of products consumed are imported. Moreover, as indicated later, a large quantity of billet as a semi-product is imported.

Table 1 Demand and supply of steel in Viet Nam

Year	(Unit:1000 tons)						Growth from 2000 to 2005(times)	2005 (Japan)	2005 (South Korea)	2005 (Thailand)
	2000	2001	2002	2003	2004	2005				
Domestic Production (Hot-rolled steel products)	1,589	1,900	2,123	2,389	2,764	3,264	2.1	101,188	49,374	9,409
Import (Final steel products)	1,402	1,868	2,418	2,655	2,602	2,417	1.7	4,522	13,600	6,668
Export (Final steel products)	11	0	52	14	55	151	13.7	27,584	15,282	1,935
Apparent steel consumption	2,980	3,768	4,489	5,030	5,312	5,529	1.9	78,126	47,692	14,143
Import/Apparent Steel Consumption	47.0%	49.6%	53.9%	52.8%	49.0%	43.7%		5.8%	28.5%	47.1%

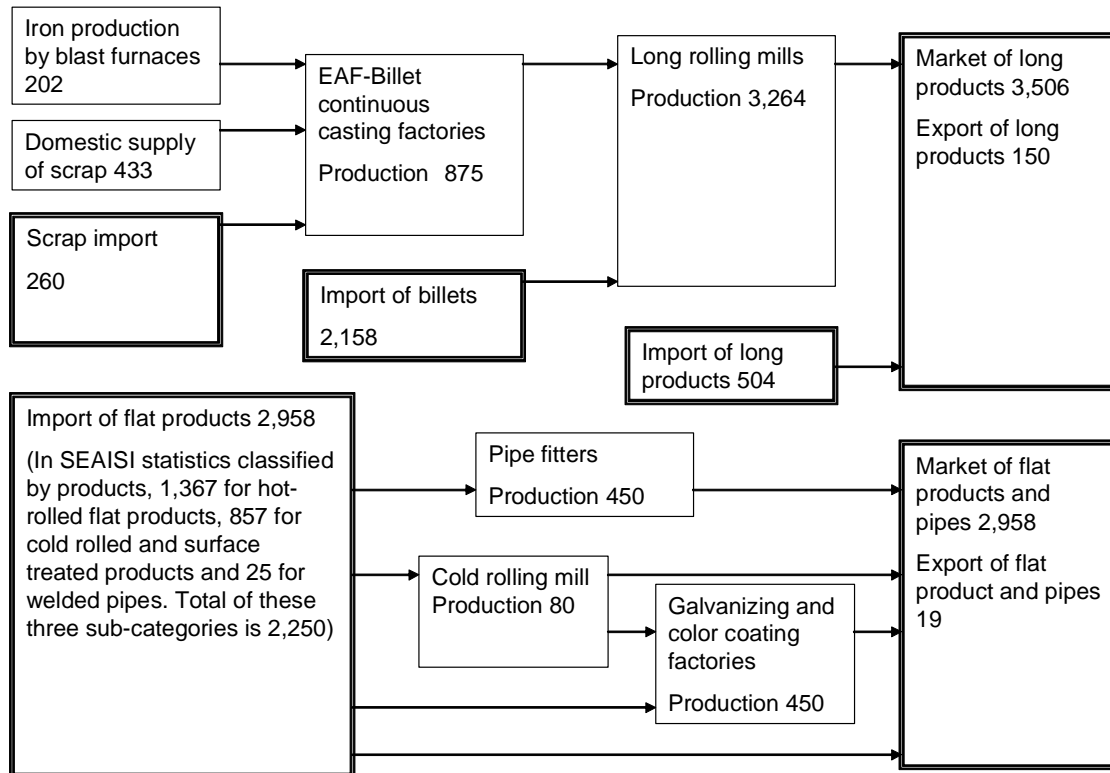
Note: Because of rounding error, it is possible that apparent steel consumption does not equal to production plus import minus export. The number in this table does not equal to the number on statistics by International Iron and Steel Institute (IISI). Source: South East Asia Iron and Steel Institute (SEAISI) (2006b).

Figure 1 shows the structure of production of the Vietnamese steel industry in 2005, sorted by material flow based on classification of major product categories.

The upper half of the figure is about the long sector. Rolling capacity of long products was 6 million tons in 2005 (Vietnam Steel Association=VSA, 2007),<sup>3</sup> which was more than domestic demand (unless specified otherwise, production capacity is expressed per year). On the other hand, steelmaking capacity is small, and over half of billet demand is satisfied with imports.

<sup>3</sup> VSA, founded in 2002, is a business association whose members include the VSC and its affiliates, private enterprises and foreign enterprises. Business associations in Viet Nam are under strict control of governmental agencies by law, but the real situation varies (Fujita, 2004).

Figure 1 Material Flow of the Vietnamese Iron and Steel Industry, Based on Classification of Major Product Categories (2005)



Unit: 1000 tons. Source: Author compiled from SE AISI (2006a, 2006b).

Recently a trend has emerged of investment in construction of steelmaking factories that include electric arc furnaces (EAFs) and continuous casting mills. Steelmaking capacity has increased from less than 1 million tons in 2004 to 2 million tons in 2006 (VSA, 2007). Problems in billet procurement will turn into problems in scrap procurement as time passes.

The lower half of Figure 1 is about flat products/the pipe sector. Rolling capacity is small unlike the case of the long sector. The first cold rolling mill begun operating in 2005, and its rolling capacity is as little as 400 thousand tons. There is no hot strip mill in Viet Nam.

This imbalance between processes has existed since the late 1990s, but the composition of producers in each process is changing. VSC and its affiliated companies were leading the way to industrial development in the 1990s. VSC has jurisdiction over steel production and the market as GC91. Its subsidiaries include small-scale integrated steel producers, EAF steel producers, rolling producers, distribution firms and research and development companies. VSC also has a stake in joint ventures with foreign enterprises that are engaged in long rolling, surface treatment, and secondary processing. The master plan for the steel industry, proposed by VSC, was approved by the

government in September 2001. Its goal was industrial development with VSC leading the rest.<sup>4</sup> VSC still plays a large part in the industry, and particularly notable are the new factories built by the master plan.

One of those new steel factories is Phu My Steelworks, owned and operated by the Southern Steel Corporation (SSC), one of the VSC affiliates. Its commercial operation started in 2006. Phu My Steelworks is the most modern EAF-rolling mills in Viet Nam. It has an EAF with the capacity of 70 tons per charge of which the supplier is Danieli from Italy. It can produce up to 500 thousand tons of crude steel per year and has a rolling capacity for 400 thousand tons of long products.<sup>5</sup>

Another new factory is Phu My Flat Steel (PFS), which was founded under VSC to operate the first cold rolling factory in Viet Nam. This mill has been in operation since 2005, with a pickling facility, two reverse cold rolling mills (one of which also acts as a temper rolling mill) and a batch type annealing furnace. It can produce up to 400 thousand tons per year. The original plan was to build it with only one cold rolling mill that would also act as a temper rolling mill for the production capacity of 205 thousand tons (JICA, 2000), but with the addition of another cold rolling mill, it achieved the production capacity of 400 thousand tons.<sup>6</sup>

These modern factories are significant for Viet Nam's steel industry because they can halt the growing imports of billet and cold rolled sheets. At the same time, they have a great meaning to VSC because not only can the enterprise improve corporate performance by controlling new factories, it can also prove its managerial capability to both the domestic and international economic communities by making these factories successful.

As discussed above, the forming of production facilities by SOEs has been significant in the Vietnamese steel industry. At the same time, however, this picture is undergoing an enormous change. Until around 2000, most of the private steel enterprises in Viet Nam were simply opportunistic producers which produced irregular products using inadequate facilities. Also, there was only one 100% foreign affiliated steel producer. Nevertheless, today in 2007, two kinds of more up-to-date producer groups are observed outside of the VSC group. One of them is a private enterprise and the other is a foreign affiliated enterprise that has no relations with VSC.

There are more than ten firms operating that are 100% privately owned or foreign-invested in the

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<sup>4</sup> The organizational structure of the VSC group and the details of the process for developing the master plan can be found in Chapter 5 of Kawabata (2005).

<sup>5</sup> Originally, its rolling capacity was reported to be 300,000 tons per annum, but according to the Danieli website, this should be 400,000 tons.

([http://www.danielicorp.com/Danieli\\_Morgardshammar/Danieli\\_Morgard\\_News/danielimorgardshammar\\_news.htm](http://www.danielicorp.com/Danieli_Morgardshammar/Danieli_Morgard_News/danielimorgardshammar_news.htm), accessed on March 1, 2007)

<sup>6</sup> Confirmed by interviews with managers of PFS and factory visit at PFS on June 13, 2006. About PFS, different sources give different capacity amounts. This is probably caused by this specification change.

long product rolling business, and they had 40% of the entire rolling capacity in 2004 (Kawabata, 2005, pp.180-181). In the steelmaking process, several private enterprises are operating, such as Hoa Phat Steel, and about 30% of the EAF capacity was held by private enterprises in 2006 (Author estimated from VSA, 2007).

Also, in the flat sector, investment from foreign or private enterprises in hot dip galvanizing, color coating and cold rolling mills is increasing. Lotus Steel (Hoa Sen Corporation) completed the construction of a cold rolling mill with the capacity of 180 thousand tons in April 2007. Sun Steel (Sunsco) is building a cold rolling mill with the capacity of 200 thousand tons. Both of the mills seem to be mainly for producing cold rolled sheets as host materials of hot dip-galvanized sheets (GI sheets).<sup>7</sup>

In short, while VSC still has a presence, producers are being diversified as foreign or private enterprises have no relation with VSC. VSC has a plan to build two EAF-rolling mills as in the master plan, but there might be some discussion over how appropriate it would be for an SOE to make more investment in such competitive sector.

At the same time, it is very hard for VSC and private enterprises to finance adequately the future projects in the flat sector and upstream processes because these require larger funds and more advanced technology. Building a small cold rolling mill for PFS with no outside partners, VSC had a difficult time financing 120–130 million dollars for it, and also caused two-year delay in the construction (Kawabata, 2005, pp.204-205). At this point, investment projects of private enterprises are limited to EAF-rolling mills, small cold rolling mills and small hot dip galvanizing lines. The investment amount of each project is about 100 million dollars. It will be much more challenging for both VSC and private enterprises to finance a construction project such as continuous cold rolling mills or hot strip mills that requires over 300 million dollars. This is a different situation from the steel industries of Indonesia, Thailand and Malaysia where big SOEs or local private conglomerates have invested lavishly.

Obviously, attracting foreign capital is essential for larger-scale projects in Vietnamese steel industry. In addition to that, to help compensate still developing Vietnamese steel technology, transfer of technologies and managerial skills from foreign enterprises will be essential. Large steel projects initiated by foreign companies, as described later, will be an important contribution to the

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<sup>7</sup> In the case of Lotus Steel, all products of cold rolling mill are host material for GI sheet. Confirmed through the interview at Lotus Steel on May 5, 2005. For information on the start of cold rolling mill at Lotus Steel, see the Lotus Steel website ([http://www.lotussteel.com/en/lotus\\_steel\\_en.asp?menu=en\\_job\\_opportunity&uid=150](http://www.lotussteel.com/en/lotus_steel_en.asp?menu=en_job_opportunity&uid=150); accessed on June 5, 2007). Although GI is an abbreviation of “galvanized iron”, it is really “steel” sheet. It is called “galvanized iron” due to historical reason.



development of the Vietnamese steel industry.

## 2. Trade Structure

Table 2 shows steel import in Viet Nam classified by exporter countries and items.

Table 2 Steel imports in Viet Nam by major countries of origin (2005)

(Unit : 1,000 tons)

	Japan	South Korea	Taiwan	China	Thailand	Russia	Ukraine	Total Import
Pig Iron	*	*	*	14	1	0	0	148
Ferroalloys	*	*	*	7	0	0	0	
Ingots and semi products	<b>178</b>	41	14	<b>925</b>	39	<b>437</b>	<b>91</b>	2158
Long products	<b>60</b>	<b>65</b>	42	<b>157</b>	12	25	0	504
Thick and medium plates (Non-alloy)	<b>71</b>	34	21	<b>150</b>	*	<b>186</b>	22	638
Hot rolled sheets and strip (Non-alloy)	<b>177</b>	16	<b>72</b>	<b>191</b>	<b>112</b>	27	<b>56</b>	729
Cold rolled sheets and strip (Non-alloy)	<b>205</b>	45	<b>138</b>	<b>249</b>	16	4	25	704
Galvanized sheets	41	11	11	5	1	0	0	50
Tinplates and tin-free plates		4	2	*	1	0	0	
All other surface treated sheets	6	11	33	1	17	0	0	104
Electrical sheets	8	2	8	*	0	4	0	0
Alloy steel sheets	26	13	27	38	6	0	2	N.A.
Seamless pipe and tubing	19	8	1	13	*	3	5	68
Welded pipe and tubing	13	29	15	14	1	0	0	25
Wire products, cast tube and secondary products	4	6	17	<b>61</b>	13	1	0	73
<b>Total steel</b>	<b>818</b>	<b>286</b>	<b>402</b>	<b>1824</b>	<b>219</b>	<b>688</b>	<b>201</b>	<b>5201</b>

Note: All numbers are from statistics of exporters.

\* means less than 1 as a result of rounding off.

Items not specified as non-alloy or alloyed mean all kinds of steel.

Source: Author used data that Japan Iron and Steel Federation (JISF) compiled from customs statistics of each country.

Total import is from SEAI SI (2006b) p.71, while the number of total import of long products was from SEAI SI (2006a) p.V5.

There are no formal statistics on the steel industry in Viet Nam and customs clearance statistics are difficult to obtain outside of Viet Nam. Table 2 was compiled from exporters' statistics, which were sufficient to reveal the trend although they lack uniformity.

The biggest exporter is China, and Japan and Russia follow. Semi product (billet), imported more than any other items, comes mainly from China and Russia, and partly from Japan. Long products are imported from China; plates come from Russia and China; hot rolled sheets and strip come from China, Japan and Thailand; and cold rolled sheets and strip come from China, Japan and Taiwan at large. A high percentage of the imports from China and Russia consists of billet; imports from Japan are concentrated on sheets and strip. Various types of surface treated sheets and seamless pipes which are reasonably considered as high-grade steel are imported in only small quantities. Among those, galvanized sheets are imported mainly from Japan, but for other items, exporters are Japan, China, Korea, Thailand and Taiwan.

Table 3 shows unit prices of items imported in quantities over 10,000 tons, classified by products and exporter countries. The export unit price of Taiwan is comparatively high. This reflects the fact that Taiwanese producers make high-grade flat products. However, as the unit price of billet is also

high, it could be said that other factors such as exchange rate fluctuation might be reflected as well. Comparatively, the export unit prices of Russia and Ukraine are ostensibly low, and that of China follows. For the exception of thick and medium plates, it can be reasonably assumed that the items from China are low-grade products.

Table 3 Unit price of imported steel in Viet Nam by major countries of origin (2005)

(Unit: dollar per ton)

	Japan	South Korea	Taiwan	China	Thailand	Russia	Ukraine
Pig iron				312			
Ferroalloys							
Ingots and semi products	365	378	<b>413</b>	344	334	322	310
Long products	649	663	<b>700</b>	493	710	393	
Thick and medium plates (Non-alloy)	461	658	514	<b>575</b>		456	422
Hot rolled sheets and strip (Non-alloy)	<b>506</b>	480	424	451	426	389	354
Cold rolled sheets and strip (Non-alloy)	<b>698</b>	586	616	532	672		469
Galvanized sheets	592	<b>754</b>	617				
Tinplates and tin-free plates							
All other surface treated sheets		994	848		927		
Electrical sheets							
Alloy steel sheets	1323	<b>1862</b>	1859	1140			
Seamless pipe and tubing	1088			884			
Welded pipe and tubing	838	720	<b>1074</b>	727			
Wire products, cast tube and secondary products			1251	692	1658		
Total steel	617	691	<b>734</b>	451	613	368	363

Note: Items of which the volume is over 10,000 tons as a result of rounding off are mentioned.

All numbers are from statistics of exporters.

Items not specified as non-alloy or alloyed mean all kinds of steel.

Source: Author used data that JISF compiled from customs statistics of each country.

Table 4 Unit price of steel export from Japan to Viet Nam and all countries of destination by products (2005)

	Percentage of each products to total steel in physical term (From Japan to all countries)	Percentage of each products to total steel in physical term (From Japan to Viet Nam)	Average price per ton (From Japan to all countries) (A)	Average price per ton (From Japan to Viet Nam) (B)	B/A
Total steel	100.0%	100.0%	909	617	67.9%
Seamless pipe and tubing	4.3%	2.3%	2035	1088	53.5%
Alloy steel sheets	7.0%	3.2%	1530	1323	86.5%
Welded pipe and tubing	5.6%	1.6%	995	838	84.2%
Galvanized sheets	13.7%	5.1%	770	592	76.9%
Cold rolled sheets and strip (Non-alloy)	10.0%	25.0%	758	698	92.1%
Thick and medium plates (Non-alloy)	8.6%	8.7%	732	461	63.0%
Hot rolled sheets and strip (Non-alloy)	17.9%	21.6%	574	506	88.2%
Ingots and semi products	12.5%	21.7%	389	365	93.8%

Note: Price is denominated in US dollar.

Items not specified as non-alloy or alloyed mean all kinds of steel.

Source: The same as Table 3.

Comparing to other countries, import unit prices of hot rolled sheets and cold rolled sheets from

Japan are high but other products from Japan are not necessarily so. To clarify what this means, Table 4 compares the unit price between all exports from Japan and exports from Japan to Viet Nam only. The export unit price of steel to Viet Nam is 617 dollars, whereas the aggregate export unit price of steel to all countries is 909 dollars. The export unit price of steel to Viet Nam is much lower; in fact, it is the lowest of all export unit prices to the major countries of destination.<sup>8</sup> This can be explained by two points: the first point is that a significant fraction of exports to Viet Nam is such inexpensive products as semi-products (billet), and the second point is that even when the export unit price of the same product is compared, that to Viet Nam is lower than that to others.

In essence, Viet Nam is an export market of lower grade steel products for Japan, compared to other major destinations. Viet Nam imports low and medium grade steel even from Japan, which is a production base of high-grade steel. Moreover, the grade of imports from Russia, Ukraine and China are lower than that from Japan. This suggests that the high-grade steel market is very small in Viet Nam.

However, it should be noted that the difference between export prices to Viet Nam and other countries varies among flat products. Export unit prices of hot rolled sheets and strip (mostly hot coil) and cold rolled sheets and strip to Viet Nam are close to those to other importers while unit prices of plates and galvanized sheets are much lower. This may be because, while there is demand in Viet Nam for high-grade hot coil and cold rolled sheets to manufacture mechanical products including motorcycles, demand for other high-grade products such as heavy plates used for shipbuilding and galvanized sheets used for cars is low. These different levels of demand correspond with the composition of the Vietnamese manufacturing industry.

### *3. Hierarchical Division of Labor in Sheets and Strip Market*

In order to understand the real situation of the competition between domestic and imported steel, analysis of production and trading classified by product items and exporters is not enough, since even in one particular product category, there are varieties of specification and application. This sub-section focuses on sheets and strip, for which import substitution has partly begun. By analyzing the material flow of sheets and strip classified by their application, product categories and specifications, this section aims to illustrate the achievements as well as limitations of import substitution.<sup>9</sup>

Let us refer to the market segment for comparatively higher-grade sheets and strip as Market I and

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<sup>8</sup> The author calculated from JISF (2006), pp. 176–179.

<sup>9</sup> Kawabata (2005) studied the Thai market for sheets and strip using this same method.

the market segment for lower grade sheets and strip as Market II. Market I in Viet Nam includes flat products for firms manufacturing products for export or products for domestic use but requiring the same quality level as the ones in industrialized countries. Steel for automotive bodies (galvannealed sheet, cold rolled sheet and high tensile hot rolled sheet), motorcycles (cold rolled sheet), home appliances (prepainted sheet and cold rolled sheet), steel furniture for export (cold rolled sheet), and motors (electrical steel sheet) are included. Buyers of those steels are mostly foreign affiliated manufacturers. Market II includes the other, lower grade steel sheets, which are referred to as “conventional” in the industry. Here, most of the flat products for construction are included. Moreover, sheets and strip for bicycles or home furniture for domestic consumption, welded pipe, and parts for motorcycle repair and some other uses are included.<sup>10</sup>

Figure 2 Material Flow of Cold Rolled and Surface Treated Flat Products in Vietnam, Based on Classification of Applications, Product Categories and Specifications (2005-2006)

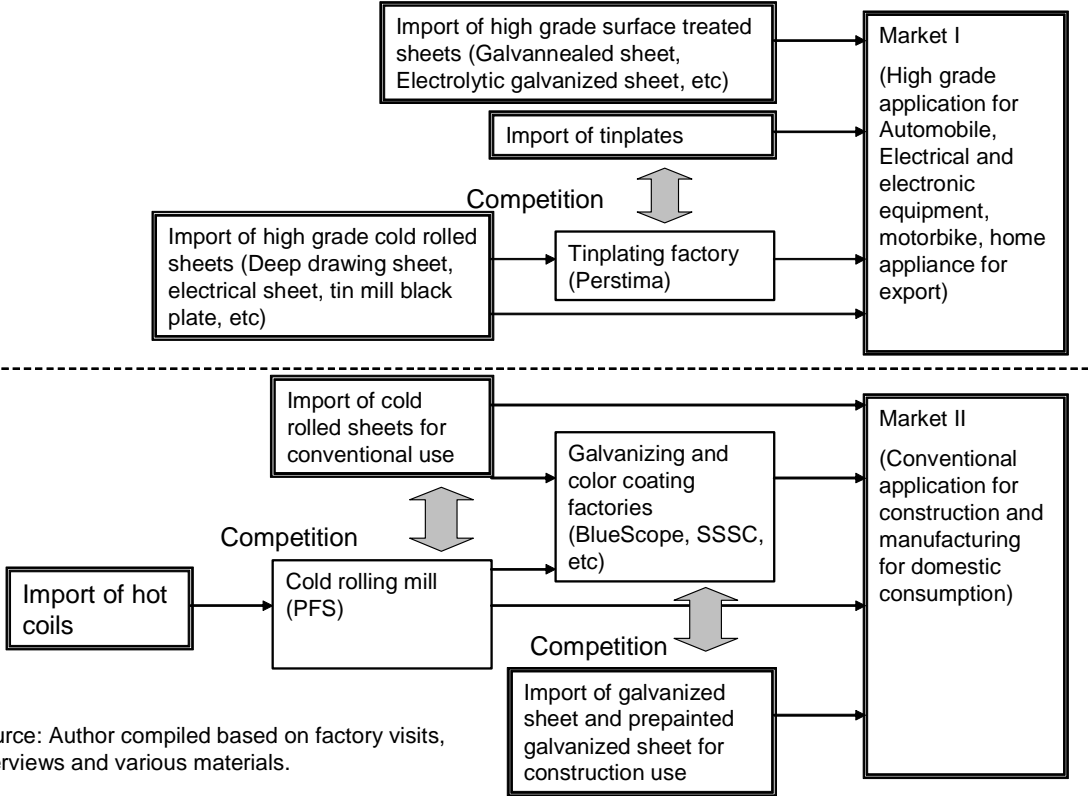


Figure 2 shows the material flow of sheet products to Markets I and II in Viet Nam. Ironmaking, steelmaking and hot rolling process for sheets and strip are not done in Viet Nam. Thus, hot coils and

<sup>10</sup> From the feasibility study report on building PFS (JICA, 2000) and the author’s field survey in Viet Nam. Markets I and II are conceptual categorizations. In reality, sometimes I and II could share the same customers that buy various specifications.

plates are all imported and there is no competition between domestic and imported products in these markets. Therefore, only cold rolled sheets and strip and surface treated sheets are dealt with in Figure 2.

A sole high-grade flat product produced in Viet Nam is tinplate from Perstima Viet Nam, which is a 100% subsidiary of Perstima Berhad in Malaysia. All the rest of the high-grade steel is imported. On the other hand, lower grade steel sheets are produced by various domestic steelmakers involved in different stages of processing.

In June 2006, 70% of PFS's product was the host material for GI sheets and the rest of the cold rolled sheets and strip was sold mostly to pipe fitters. PFS was also producing a small amount of press materials which are only sold to wholesalers. Thus, it would be reasonable to assume that they were not taking direct orders of high-grade sheets and strip from manufacturing and assembling companies.<sup>11</sup> That is a challenge of PFS's technology and operation.

Surface treating enterprises such as BlueScope Steel Viet Nam (BSV) and Southern Steel Sheet Corporation (SSSC) are producing galvanized sheet, 55% aluminum-zinc alloy plated steel sheet and prepainted galvanized sheet (PPGI) all for construction.<sup>12</sup> Those are rather high-grade products as for construction. BlueScope, in particular, has successfully built a brand name in the construction industry by not only processing sheets and strip but also handling building designing and installment altogether. Nevertheless, no surface treatment enterprise is producing flat products for automobiles or electrical/electronic equipment as yet.

In essence, Vietnamese markets for cold rolled sheets and strip and surface treated sheets are structured in a hierarchical division of labor. The demand for high-grade steel was derived as the manufacturing and assembly industry was brought into Viet Nam by foreign enterprises. Domestic steel enterprises have not been able to supply this market. Thus, most high-grade sheets are being imported. However, considering this situation along with the import composition analysis done in the former sub-section, the market for high-grade flat products appears to be small. This reflects that Vietnamese industrialization has made limited achievements so far.

## **II. Large-Scale Steel Projects with Foreign Direct Investment**

### *1. Outline of Large-Scale Steel Projects*

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<sup>11</sup> Interview with a manager at PFS on June 13, 2006.

<sup>12</sup> 55% aluminum-zinc alloy plated steel sheet is the steel sheet which is hot dip plated with zinc and 55% aluminum combined. PPGI is a steel sheet which is hot-dipped with molten zinc and color-coated with synthetic resin (Tekko Shimbun Corp. ed., 2006, pp. 19, 32–33).

In Viet Nam, FDI attraction has been accelerated in the manufacturing industry overall, and that includes the steel industry. According to the master plan, foreign investment meant joint venture with VSC. However, some projects not addressed in the master plan have been proposed. Some of these projects have been already approved. Not only joint ventures but some 100% foreign invested projects obtained licenses.

Table 5 shows the large-scale foreign-invested projects that were either proposed or approved by June 2007. In this sub-section, technology, amount of investment and investors of these projects are examined. Then, the supply and demand balance will be examined in the next sub-section.

There is a rising criticism in Viet Nam toward approval of some large projects. Experts in the steel industry believe that some of the projects are severely under-financed, and the government should take a better and more careful review before giving approval (*Vietnam Economic Times [VET]*, October 1, 2006; *VietNamNet Bridge [VNN]*, September 6, 2006). Especially, Pham Chi Cuong, a vice-chairperson (currently serving as a chairperson) of VSA has been candidly stating that a project by Tycoons Worldwide Group has serious problems (*VNN*, August 6, 2005). Characteristics of this project, including this criticism, are discussed below.

Tycoons is planning to build an integrated steelworks with the crude steel production capacity of 4.5 million tons with 1.056 billion dollars of investment, and to produce billet in the first phase. In addition, hot coil and cold rolled sheets and strip are planned to be produced in the second phase. Tycoons is, however, a wire rod roller/bolt manufacturer with production bases in Taiwan and Thailand, and it does not possess technology for pig ironmaking, steelmaking and flat product rolling. Jinan Iron and Steel Group in China, which will provide 40% of the capital, may offer ironmaking and steelmaking technology. However, Jinan has only brief experience in sheet rolling, because its hot and cold strip mills just started operation in 2006 (China Iron and Steel Association [CISA], 2006, pp. 20–23; Data from JISF).

Critics say that the amount of investment would not be enough for constructing integrated steelworks. It is said that the technology style adopted in China in which Chinese and secondhand facilities are used will save the investment amount but that productivity and environmental control will be sacrificed (*VET*, October 1, 2006; *VNN*, September 6, 2006). Indeed, the chief of the Administration Department of Dung Quat Economic Zone suggested that Tycoons would possibly use Chinese or Taiwanese facilities (*Vietnam Economy [VE]*, November 13, 2006).

Table 5 Large-Scale Steel Projects by Foreign Investment in Viet Nam

Investor	POSCO (South Korea):100%	Essar Steel (India):65%, VSC:20%, Vietnam General Rubber Corporation (GERUCO):15%	Tycoons Worldwide Group (Taiwan):60%, Jinan Steel and Iron Group (China):40%	Sun Steel (Taiwan), Konkett (Taiwan), Minmetan (Australia)
Location	Phu My Industrial Zone, Ba Ria Vung Tau Province	Phu My Industrial Zone, Ba Ria Vung Tau Province	Dung Quat Economic Zone, Quang Ngai Province	Ha Tinh Province
Process and Production Capacity	1st stage: Cold rolling mill (1.2 million t/y) 2nd stage: Hot strip mill (3 million t/y), Hot-dip galvanizing line (0.4 million t/y)	Hot strip mill (2 million t/y)	Integrated steelworks (1st: 2 million t/y. Blast furnace and steelmaking) (2nd: additional 2.5 million t/y. Integrated process)	Integrated steelworks (4.5 million t/y) Thach Khe iron mine
Products	1st stage: Cold rolled sheets and strip 2nd stage: Hot coil and hot-dipped galvanized sheet are added	Hot coil	1st stage: Billet (Partly exported) 2nd stage: Hot coil and cold rolled sheets and strip are added	Unannounced
Investment Amount	1st stage: USD 491 million 2nd stage: Unannounced Total: Unannounced (Probably about USD 1.1 billion)	USD 527 million	1st stage: USD 556 million 2nd stage: USD 500 million Total: USD 1.056 billion	USD 1.95 billion
Construction Period	1st stage: 2007-end of 2009 2nd stage: 2010-2012	Until 2009	1st stage: until 2009 2nd stage: until 2014	Unannounced
Status	Licensed in November 2006	Contract was placed in February 2007	Licensed in September 2006	Applied for a license in May or June 2006

Table 5 (continued)

Investor	Samoa Qian Ding Group (Group firm of Chien Shing Stainless Steel) (Taiwan)	POSCO, Vietnam Shipbuilding Industry Corporation (Vinashin)	Tata Steel (India), VSC Steelworks: Tata 65%, VSC 35% Thach Khe Mine: Tata 30%, details of Vietnamese investors not announced
Location	My Xuan A Industrial Zone, Ba Ria Vung Tau Province	Unannounced	Ha Tinh Province
Process and Production Capacity	Stainless factory (0.72 million t/y) (Probably EAF-rolling mill)	Integrated steelworks (4-5 million t/y)	Integrated steelworks (4.5 million t/y) Thach Khe iron mine
Products	Stainless sheet (80% is exported to Taiwan)	Unannounced	Unannounced
Investment Amount	USD 700 million	USD 4 billion	USD 3–3.35 billion
Construction Period	Unannounced	Unannounced	Unannounced
Status	Licensed in November 2005	Cooperation of feasibility studies. MoU signed on May 23, 2007	MoU signed on May 29, 2007

Source: Author compiled from the following materials: *VET*, October 2, 2006; News of Quang Ngai Province, November 13, 2006 (<http://www.quangngai.gov.vn/quangngai/english/news/2006/14687/>); *Liberated Saigon Online*, September 22, 2006 (accessed via website of the Ministry of Industry <http://www.moi.gov.vn/EN/News/detail.asp?Sub=123&id=24312>); *VNN*, June 5, September 6, 2006; *Vietnam Agency*, September 18, 2006, May 29, 2007; *Viet Nam News [VNS]*, September 17, 2005, August 24, 2006; *Taiwan Economic News [TEN]*, September 20, 2005, April 28, 2006; *Vietnam Investment Review*, February 10, 2004 (accessed via website of *VET* on April 27, 2004); *Reuters* December 26, 2005; *POSCO IR News*, November 24, 2006, May 25, 2007 (<http://www.posco.co.kr/homepage/docs/en/info/press/s91c10100151.jsp>); *Essar Group News Release*, February 12, 2007 ([http://www.essar.com/steel/pr/2007\\_02\\_12.htm](http://www.essar.com/steel/pr/2007_02_12.htm)); *Japan Metal Daily [JMD]*, September 27, 2006; *Tata Steel Press Release*, May 29, 2007 (<http://www.tatasteel.com/newsroom/tatasteelsign-mou.asp>); *Vietnam Business Forum*, May 25, 2007; answer to my question provided by VSA, February 14, 2007.



The Chinese steel industry is keeping construction costs low by using domestically manufactured facilities and secondhand facilities. Also, Dung Quat Economic Zone offers developed infrastructure for heavy industries, possibly helping lower the necessary investment amount. Even so, Tycoons' amount of 1.056 billion dollars is far from sufficient. To date two pre-feasibility studies on integrated steelwork projects in Viet Nam have been conducted, one by JICA and the other by Arcelor. According to JICA, crude steel production capacity of 4.53 million tons requires 5.728 billion dollars (JICA, 1998, p. IV-2-8-1). Arcelor says crude steel production capacity of about 4 million tons costs about 3 billion dollars (*VNN*, August 6, 2005). Some of the other East Asian projects of similar sizes and for similar product mixes are listed in Table 6. All of these projects have investment amounts of over 2 billion dollars. In contrast, the much smaller investment amount for the Tycoons project naturally seems questionable.

Table 6 Some Projects of Integrated Steelworks in East Asia

Location	South Korea	Taiwan	China	China
Enterprise	Hyundai Steel	Dragon Steel (China Steel holds 47.88%)	Ningbo Iron and Steel (Subsidiary of Hangzhou Iron & Steel Group)	Anshan Iron and Steel Group
Status	Under construction	Under construction	Licensed	Under construction
Production capacity of crude steel	7 million t/y	2.268 million t/y	4 million t/y	5 million t/y
Major products	Hot coil, medium and thick plate	Hot coil	Hot coil, cold rolled sheets and strip, galvanized sheet	Wide medium and thick plate, hot coil and cold rolled sheets and strip
Investment amount (Local currency)	KRW 5.24 trillion	TWD 110 billion	CNY 17 billion	CNY 26.6 billion
Investment amount (USD)	USD 5.58 billion	USD 3.33 billion	USD 2.18 billion	USD 3.41 billion
Remarks		First stage		

Source: Author compiled from *JMD*, January 29, 2007; *YONHAP NEWS*, October 25, 2006; and materials from JISF.

SunSCO's plan for mining development and integrated steelworks construction also has some unclear points. Originally, the firm was founded as Vina Ta Phong in 1996 using Taiwanese capital. It began by manufacturing pipes and expanded its business to bar and wire rod rolling and flat product

painting.<sup>13</sup> At the beginning of 2004, the firm was licensed to build an EAF-rolling mill (*VET*, February 10, 2004, accessed on April 27, 2004).

However, this plan did not make any progress and the firm's bar and wire rod line operation stopped with poor business results. Sunscoc then shifted its business focus to flat products. The firm began to operate a hot dip galvanizing line and prepared for the operation of a reverse cold rolling mill. However, the firm found itself in financial difficulties after experiencing material shortages and market slowdown. In November 2006, Sunscoc announced that it would form a business alliance with Maruichi Steel Tube, Ltd. from Japan. Sunscoc will gain capital and Maruichi Steel Tube will own 35.3% of Sunscoc's share and will provide support in terms of the pipe and flat products business.<sup>14</sup>

It is hard to imagine that Sunscoc will be able to carry out the project with 1.95 billion dollars investment; it is currently in the throes of corporate rehabilitation and its corporate capital is as little as 74.42 million dollars even after the capital increase from its recently formed alliance. Also, it is not certain whether the invested amount of this plan covers both integrated steelworks and the Thach Khe mine project. If the mine project is included in the plan, the amount is too low. Additionally, Sunscoc does not possess the technology for ironmaking and steelmaking. Although the business alliance with Maruichi Steel Tube will bring them the possibility to bring their pipe and flat product business back to health, it is highly doubtful that Sunscoc will succeed in the mining and integrated steelworks project.

Samoa Qian Ding Group, a subsidiary of Chien Shing Stainless Steel Co., Ltd. from Taiwan, has yet another questionable project. Chien Shing's sales in 2006 were 149 million dollars, and the firm posted a loss of 5.25 million dollars after tax deduction (*TEN*, April 28, 2006). According to its annual report and the website, Chien Shing is a stainless steel roller that manufactured 120 thousand tons in 2003.<sup>15</sup> An integrated stainless steelworks project with production capacity of 720 thousand tons and investment of 700 million dollars is quite large for Chien Shing to take on, considering its current business size. In fact, there is no report that the construction has begun, and Chien Shing is nowhere to be found in the report on EAF installation from VSA. It is speculated that there is not much progress to report on the Chien Shing project.

POSCO, an integrated steel producer, has a project with an investment of about 1.1 billion dollars to build a cold rolling mill with the capacity of 1.2 million tons, a hot strip mill with 3 million tons, and a hot dip galvanizing line with 400 thousand tons. The original plan was to build a cold rolling

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<sup>13</sup> Sunscoc Website (<http://www.sunscocgroup.com/english/english.htm#>).

<sup>14</sup> *JMD*, December 20, 2006; *Maruichi Steel Tube, Ltd. Press Release*, November 8, 2006 (<http://www.maruichikokan.co.jp/ir/news.html>).

<sup>15</sup> *Annual report of Chien Shing Stainless Steel Co., Ltd.*, 2003 edition (Chinese Language) and some data on Chien Shing Stainless Steel Co., Ltd. website (<http://www.csssc.com.tw/en/index.html>).

mill with 700 thousand tons in the first phase, and to increase the capacity to 1.1 million tons in the second phase of construction. However, the production capacity in the first phase was changed to 1.2 million tons.<sup>16</sup> POSCO is the largest integrated steel producer in South Korea and ranks fourth in world crude steel production.<sup>17</sup> It can be considered an owner of proven steel technology. Dinh Huy Tam, secretary of VSA, also agrees, saying that POSCO will be able to take advantage of the state of the art technology (*Viet Nam Economic News Online*, December 14, 2006). POSCO is already operating three joint venture companies—VSC-POSCO (a long product rolling firm), POSVINA (a galvanizing firm), and Vinapipe (a pipe producer)—and it has considerable experience.

A joint venture project of Essar Steel, VSC, and Viet Nam General Rubber Corporation (GERUCO) is to build a 2 million-ton hot strip mill with a 527 million dollar investment. Essar is an integrated steel producer with hot briquette iron (HBI) technology, and is the largest exporter of flat products in India.<sup>18</sup> The company has hot rolling technology for flat products, but it is adopting HBI technology instead of blast furnace. Thus, it is a reasonable speculation that Essar is not as experienced as POSCO when it comes to high-grade steel production.

Although the investment amounts of POSCO and Essar are not larger than those of Tycoons and Sunco, these amounts are reasonable for constructing cold rolling mills and hot strip mills.<sup>19</sup> Those projects will possibly push forward the import substitution for flat products, for which demand is likely to increase as Viet Nam's industrialization accelerates. This is similar to the case with the investment of Japanese affiliated firms in Thailand (Kawabata, 2005, Chapter 4). Notably, POSCO, with its technology for high-grade flat products, will have an advantage when the high-grade product market expands. The key will be whether the firm can provide high-grade sheets to foreign affiliated manufacturing firms, especially Japanese affiliated firms, in Viet Nam. POSCO will not have an advantage if lower grade products dominate the market.

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<sup>16</sup> Originally reported investment amount was 1.128 billion dollars. After the modification to the rolling mill plan, there has been no report on the investment amount. About 1.1 billion dollars is the author's estimate. *POSCO IR News*, November 24, 2006 (<http://www.posco.co.kr/homepage/docs/en/ir/news/s91b10100301.jsp>).

<sup>17</sup> JISF (2006) pp. 54–55. Original source is Metal Bulletin, a ranking in 2005.

<sup>18</sup> Essar Steel website (<http://www.essarsteel.com/steel/profile.htm>), accessed on June 19, 2007.

<sup>19</sup> This can be compared with the Thai case of the modern flat rolling mill construction projects in 1990s. Sahaviriya Steel Industries (SSI), which was founded by a local business group, built a hot strip mill with a capacity of 2.4 million tons with 520 million dollars of investment. SSI reported the amount to be 13.3 billion baht. This was converted to US dollars at the exchange rate of 1 dollar = 25.5 baht. See SSI website (<http://www.ssi-steel.com/en/investor/investor.htm>). The Siam United Steel (SUS) (1995), which was a joint venture between a Thai enterprise and Nippon Steel from Japan, installed a cold strip mill with a capacity of 1 million tons with an investment of 700 million dollars. Thai Cold Rolled Steel Sheet (TCRSS), which was a joint venture between SSI and NKK (now JFE Steel) from Japan, installed a cold strip mill with a capacity of 1 million tons with an investment of 542 million dollars (Kawabata 2005, p. 156). In the cases of SUS and TCRSS, Japanese technology was introduced. From these cases, it is clear that the investment plans of Essar and POSCO are reasonable.

The challenge for both POSCO and Essar will be adequately securing host materials such as slabs and hot coils. POSCO is considering procuring the host materials in the future from new integrated steelworks currently under construction in Orissa state in India. But meanwhile, they will bring the materials from South Korea (*JMD*, November 21, 2006). It is reported that Essar will be obtaining the host materials from India (*International Herald Tribune*, February 12, 2007).

As illustrated above, the projects of POSCO and Essar are realistic and have some potential to help further development of the Vietnamese steel industry. In contrast, the three projects with Taiwanese investors seem to have questionable feasibility. Regardless of the industry, direct investment from Taiwan tends to have a lower execution rate (percentage of actual investment amount from the licensed amount).<sup>20</sup> In many cases, they apply for licenses before the projects are fully planned. These steel projects might reflect such characteristics of Taiwanese investors.

Most recently, two large-scale projects were added to the list. One is cooperation on a feasibility study of integrated steelworks between POSCO and Vietnam Shipbuilding Industry Corporation (Vinashin). The other is cooperation on a feasibility study of integrated steelworks and iron ore mines between Tata Steel and VSC. Both of these projects have only reached the stage of signing a memorandum of understanding. The progress of these projects should be watched.

Additionally, Eminence Group announced in May 2007 that it will construct integrated steelworks and other facilities in Thanh Hoa Province with the surprisingly high capital of 30 billion dollars.<sup>21</sup> However, Eminence has not provided sufficient information about itself. Its name is not known in the steel business. The chairman of the group announced that a press conference would be held to explain the details of this project. However, the conference was canceled. Eminence's project is not shown in Table 5 because the information available suggests that the project is extremely unrealistic.

## 2. Market Issues

In this sub-section, large-scale flat product projects are discussed in terms of supply-demand balance. The method of forecasting demand is complicated. Among the flat products, all hot coils and some medium and thick plates can be produced by hot strip mills. The remaining medium and thick plates have to be rolled by specialized rolling mills. Hot coil is the host material of all sheet products and most welded pipes. The total potential demand for hot strip mills in Viet Nam can be calculated

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<sup>20</sup> For the accumulated investment from 1988 to 2005, the execution rate of Taiwan was 36%. During the same period, the rates were 75% for Japan, 49% for South Korea, and 48% for Singapore (Japanese Embassy in Viet Nam, 2006, p.17).

<sup>21</sup> Information about the Eminence Group's project was found in *VE*, May 17, 2007 and *VNN*, May 5, May 22, May 25, May 30, 2007 (accessed on June 28, 2007).

by adding imported flat products to imported welded pipes and subtracting the plates that have to be rolled with specialized mills. Here it is assumed that 70% of medium and thick plates need to be rolled with specialized rolling mills.

The estimate was calculated using two formulas. One is adding up imports of some categories including hot rolled sheets and strip, cold rolled sheets and strip, surface treated sheets, welded pipes, and 30% of medium and thick plates. This yields a demand estimate of 1.803 million tons. The other formula is subtracting 70% of plate import from the total import of flat products. The result is an estimate of 2.511 million tons. Thus, the demand for hot strip mills can be anywhere between 1.803 million and 2.511 million tons.<sup>22</sup> Using a similar method, the demand for cold rolling mills can be calculated by adding the imports of cold rolled sheets and surface treated sheets to the produced cold rolled sheets. This amount is approximately 0.937 million tons.

The demand for steel mill products has been increasing by about 10% per annum since 2001. Based on the assumption that this trend continues, 10% growth can be considered as a standard scenario. Then a pessimistic scenario with 7% growth and an optimistic one with 13% growth can be assumed.

Table 7 shows the minimum and maximum possible estimates of demand along with the estimated capacity of production for the purpose of comparison. The minimum estimate of demand means that the demand increases by 7% from the estimated minimum volume of current demand; the maximum estimate of demand means that the demand increases by 13% from the estimated maximum volume of current demand. In this estimate, it is assumed that all facilities begin operating fully in the year following their construction.

The demand for cold rolled sheets and strip in the year 2010 is predicted to be 1.314–1.726 million tons. Production capacity will be around 1.98 million tons. The size of the domestic market is not large enough for all of the cold rolling mills to work at full production. In addition, if the cold rolling mill of Tycoons produces 1.25 million tons annually,<sup>23</sup> the production capacity in 2015 will be 3.23

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<sup>22</sup> Calculated based on SEAISI (2006a, 2006b). The minimum estimate was calculated by adding up the figures from the SEAISI import statistics by product category. The maximum was estimated from the import value of total flat products reported from VSC to SEAISI. A large gap appears even though the sources for both values are the same institute. Though the reason is unknown, it can be said that Vietnamese steel statistics is still undeveloped.

In this estimation, it is assumed that the demand for final products also means the demand for host materials. However, it is noted that domestic demand for host materials does not exist if production capacity for final products runs short. For instance, demand for surface-treated sheet is considered also to be the demand for cold rolled sheets and hot coils in this calculation. However, surface-treated sheets will have to be imported if the capacity of the galvanizing line is insufficient, so there will be no domestic demand for cold rolled sheets and hot coils. Even if there is sufficient capacity among hot strip mills and cold rolling mills in Viet Nam, they cannot operate without buyers. This is a limitation of this estimation procedure.

<sup>23</sup> Production capacity of Tycoons' cold roller has not been announced. Here it is assumed to be 1.25

million tons whereas the demand will be 1.843–3.181 million tons. Even in the most optimistic demand scenario, the production capacity will be more than demand.

Table 7 Forecast of demand-supply relations in flat steel sector, Viet Nam

(unit: 1000 tons)

Year	Demand of hot rolled sheets and strip		Capacity of hot strip mill (HSM)	Demand of cold rolled sheets and strip (CRM)		Capacity of cold rolling mill	Facilities that start full operation
	Minimum estimate + 7% growth per annum	Maximum estimate + 13% growth per annum		7% growth per annum	13% growth per annum		
2005	1803	2511		937	937	0	
2006	1929	2837		1003	1059	400	400 of CRM (PFS)
2007	2064	3206		1073	1196	400	
2008	2209	3623		1148	1352	780	200 of CRM (Sunsco) and 180 of CRM (Lotus Steel)
2009	2363	4094		1228	1528	780	
2010	2529	4626	2000	1314	1726	1980	2000 of HCM (Essar-VSC-GERUCO) and 1200 of CRM (POSCO)
2011	2706	5228	2000	1406	1951	1980	
2012	2895	5907	2000	1505	2204	1980	
2013	3098	6675	5000	1610	2491	1980	3000 of HSM (POSCO)
2014	3315	7543	5000	1723	2815	1980	
2015	3547	8524	7500	1843	3181	3230	2500 of HSM (Tycoons) and 1250 of CRM (Tycoons)

Note: Demand as host material is included.

Source: Author compiled from the SEAISI data.

The demand in 2010 for flat products that can be rolled by hot strip mills (hot coil and some plates) is 2.529–4.626 million tons while joint venture between Essar-VSC-GERUCO will produce 2 million tons. At that point, operation at a high capacity utilization rate can be maintained while achieving some import substitution. Then, in 2013, the demand will be 3.098–6.675 million tons while production capacity will be 5 million tons since POSCO will begin full production with the capacity of 3 million tons. In addition to that, if Tycoons begins full production in 2015 with the capacity of 2.5 million tons, the total capacity will be 7.5 million tons whereas the demand will be 3.547–8.524 million tons. In order to keep high capacity utilization rates at all mills, the industry needs 12% or more annual increase in the demand starting from the maximum point of current demand.

These scenarios are only forecasts; they will be uncertain as long as it remains unknown whether all the large-scale projects will be carried out. Moreover, the POSCO-Vinashin and Tata-VSC projects are not included in the calculation because their details have not been released. Despite these shortcomings, these figures make it clear that it is not easy to carry out large-scale steel projects in Viet Nam, where the domestic market is still small. The foreign firms might end up considering exporting because their large facilities produce more quantity than Viet Nam's domestic market can consume, a factor that causes high risks for projects. Another way to look at the situation is that these

million tons, which is half of hot strip mill capacity.

investors might be proposing large-scale investment plans intentionally so as to acquire oligopolistic power by deterring other firms from entering the Vietnamese market. In this case, feasibility of those projects becomes questionable.

### **III. Future Policy Issues for the Vietnamese Steel Industry**

Policy issues are also shifting as the structure and players in the Vietnamese steel industry are changing. In this section, the major issues are discussed and examined.

#### *1. Reform of State-Owned Enterprises and VSC's future*

VSC is keeping the status of GC91, an SOE under the immediate control of the prime minister, but this status itself is changing because of the open-door policy and SOE reform. VSC is losing its original status as a supervisor of production and the market of the Vietnamese steel industry. Investors are now more diversified and large-scale projects include not only joint ventures with VSC but also 100% foreign invested enterprises.

Despite these changes, VSC is still enjoying privileges as an investor based upon the governmental master plan. As mentioned above, VSC has a plan to build, within its group, EAF-rolling mills in the central and northern area in addition to Phu My Steelworks.<sup>24</sup> This had been planned before the time of private enterprises emerged. Now that private enterprise is viable enough to invest in the long sector (at least in long construction steel), If VSC continues to invest in this sector as privileged SOE group, the corporation may end up crowding out private sector investment and encouraging excessive capacity of rolling plants.

All GC91s, including VSC, were under the strict control of the government in the 1990s (Marukawa, 2001). However, the Vietnamese government is pushing forward with their restructuring and conversion to stock corporations. VSC's privileged status will be diminished by its conversion to a joint stock corporation, although this process is not moving as quickly as planned (Ishida, 2004: 45-49). If the corporation loses its privileged status, it will reconsider the feasibility of the EAF-rolling mill projects. It means that the barrier to private investment would be removed. Therefore, the government should take away the VSC's privilege and help it to become one independent business group in the market.

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<sup>24</sup> This EAF-rolling mill to be built in the central area is not a part of the governmental master plan. It is an independent project of VSC.

Taking away its privileged status would not automatically mean the downfall of the VSC group. VSC and its affiliates, SSC and PFS, founded the very first cold rolling mill and the most modern EAF-rolling mill in Viet Nam. Governmental tasks that promote the investment of SOEs have been finished. However, there are new managerial tasks. VSC and its affiliates will have to establish autonomous management and make profit without governmental support.

VSC still has the advantage of knowledge and experience in the steel business in Viet Nam even though they might not be enough as a player of the global steel industry. Additionally, VSC can maintain good communications with the government even without its privileged status. In the steel industry, the larger the investment is, the more necessary policy support becomes in terms of securing the land, improving infrastructure, communication with the local community, and environmental measures. Foreign enterprises might try to create business partnerships with an SOE which retains good relations with the government (these relations should be based on fair communications, not corruption). So VSC does have an opportunity to become a business partner with a powerful foreign investor if it keeps sound management. VSC's managerial skills can be evaluated based on the operation of SSC Phu My Steel Factory and PFS and also the joint venture project with Essar. VSC and its subsidiaries should build their future through the success of those projects.

## *2. Scrap Procurement and Environmental Control*

As discussed above, steel factories based on EAF and continuous caster are becoming popular in Viet Nam. This will make for progress on import substitution of billets. However, as the demand for scrap increases, its procurement is becoming a problem. Although it has never been studied systematically, scrap yielded in Viet Nam is as little as 700–800 thousand tons, according to VSA (*VNN*, December 11, 2006). In 2005, 260 thousand tons of scrap were imported (Figure 1), but VSA estimates that the amount will increase to 700–800 thousand tons in 2006, 1.3 million tons in 2007, and 2 million tons in 2008 (*VNN*, December 11, 2006).

Development of a system for domestic scrap recovery and facilitation of import is an urgent matter. The first tasks to be undertaken to address this matter are an industry survey, standardization of scrap specification, and compiling of industrial statistics.

At the same time, there is a definite need for a system and policy to prevent contamination and pollution due to harmful substances. VSA agrees on this point.<sup>25</sup> An appropriate policy has to be created based on the study of experiences in other countries.<sup>26</sup> Environmental control at EAF plants

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<sup>25</sup> Interview with VSA executives on June 15, 2006.

<sup>26</sup> Examples in other countries include the following: (1) Radioactive material being found in scraps; (2)



as well as methods for handling scrap will become important issues. Air pollution control, treatment of slag, and collection of dust will be of particularly high importance. Standardized guidelines for environmental control at EAF plants will be needed for the entire industry.

Recently, a conflict occurred between scrap procurement and environmental regulations. Though steel scrap is not listed as hazardous in the Basel Convention (on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal), in Viet Nam import and export of steel scrap was banned in the Law on Environmental Protection, which was enacted in 1994. After that, in April 2004, the import ban was lifted to allow scrap as recyclable material (Kojima and Yoshida, 2006). However, tight restrictions were put back in place by the revised edition of that law, which was adopted in National Assembly in 2005 and was enforced on July 1, 2006. The Ministry of Natural Resources and Environment (MONRE) interpreted the revised law as meaning that only steel producers with scrap yards and scrap recycling facilities should be allowed to import scrap.<sup>27</sup> This means that traders engaged in proprietary trading cannot import scraps (*VNN*, December 11, 2006). This caused the disruption of import procedures, and even the scrap VSC ordered was withheld temporarily at Hai Phong Port (*VNN*, October 26, 2006; *VNS*, October 31, 2006).

Even before the revised Law on Environmental Protection took effect, VSA had been arguing that this interpretation would not only cause import disruption but would also impede import substitution of billet. Since the law took effect, VSA has been pushing strongly for flexible implementation of the law. As a result, in February 2007, the Ministry of Trade (MOT) and MONRE reached an agreement that allows trading firms with scrap yards and recycling facilities to import scrap. This agreement will be legalized in a circular guiding the implementation of the Law on Environmental Protection (*VNN*, February 12, 2007).

Viet Nam needs to develop EAF construction and scrap recovery while considering environmental protection from the early stage of industrial development. This is not easily done considering the current financial and administrative capacity of the government and enterprises. The case of scrap import restriction revealed that steel scrap is not recognized to be essential material for steel production, and that the administrative authorities and business associations did not maintain sufficient communication with each other. Cooperation should be arranged among the relevant government ministries and industry organizations to establish distinct measures appropriate for the steel industry's conditions.

It may be helpful for Viet Nam that industrialized countries have already established systems and

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An exporter shipping motor cores and electrical switchboards as steel scraps without intermediary treatment; and (3) Discarded machinery being imported as a scrap source and the dismantlement process causing pollution. Various measures have been taken to solve those problems in industrialized countries.

<sup>27</sup> Also confirmed in an interview with VSA (June 15, 2006).

policies in the field of scrap treatment. These matters may be considered as a topic for international cooperation. For Viet Nam, however, overseas aid for environmental protection and recycling is more readily available than that for steel industry promotion.

### 3. Japan-Viet Nam EPA and Steel Industry

Viet Nam has no alternative but to move ahead with liberalization of trade and investment. The country is moving in that direction, and the steel industry is no exception.

Table 8 shows import tariff rates on steel mill products and the domestic producer of each product category correspondingly. Higher tariffs are put on products that are produced domestically. However, the tariff rates are not very high in general; the highest one is 12%. Until 2001, imports of bars and wire rods were banned and a 30% tariff was put on galvanized sheets (Kawabata, 2005:198-199). Considering that fact, Viet Nam is now moving forward with liberalization.

Table 8 Import tariff rates for major steel products in Viet Nam

	Tariff rate	Domestic production ( =produced, x =not produced)	Producers in Viet Nam
Non-alloy steel	Billet	2	EAF mills
	Bar	5-10	EAF mills and rolling producers (Only construction steel)
	Wirerod	5-10	EAF mills and rolling producers (Only construction steel)
	Slab	2	x
	Hot rolled sheets and strip (Width is 600 mm or more)	0	x
	Cold rolled sheets and strip (Width is 600 mm or more)		
	- Tin mill black plate	3	x
	- Others	7	PFS and Lotus Steel
	Electrolytic galvanized sheet(Width is 600 mm or more)	5-10	x
	Hot dipped galvanized sheet(Width is 600 mm or more)		
	- Carbon content is under 0.04% or less	0	x
	- Others	10-12	Producers of GI sheets
	Galvanized aluminum alloy sheet (Width is 600 mm or more)	10-12	BlueScope Vietnam
	Prepainted electrolytic galvanized sheet (Width is 600 mm or more)	5-10	? No electrolytic galvanizer. There might be painters
	Prepainted hot-dipped galvanized sheet (Width is 600 mm or more)	10-12	PPGI producers and painters
	Tinplate (Width is 600 mm or more)	7	Perstima Vietnam
Tin free plate (Width is 600 mm or more)	3	x	
All kinds of steel	Seamless pipe and tubing	0-10	? No information
	Welded pipe and tubing	5-10	Pipe fitters (Product mix is limited)
Stainless	Stainless sheets and strip	0	x

Source: Tariff rates are from *World Tariff Online Database* (<http://www.worldtariff.com/>) Accessed on February 24, 2007).  
Producers information is from the interview records, company documents and websites, and newspapers.

Viet Nam needs to further liberalize trade through EPA negotiation with some countries, including Japan. Though it is hard to imagine that Viet Nam would go back to strong protectionism, the government and the industry might be more cautious or reluctant about further liberalization.

It is useful to discuss some issues that will be brought up in EPA negotiation with Japan. According to EPAs that have been reached between Japan and such countries as Malaysia, Thailand, and Indonesia, tariffs on steel will be totally eliminated after a certain period. Until then, a tariff-rate

quota system or a user-specific duty free scheme is being applied. In the tariff-rate quota system, tariffs are lifted for specific amounts of goods in particular categories. In the user-specific duty free scheme, tariffs are lifted for goods in particular categories that are imported for the use of particular industries.

For the ASEAN countries involved in these agreements, this scheme means that fostering manufacturing industries such as automobile and electrical/electronic appliance, which are the buyers of Japanese high-grade steel, takes precedence over import substitution of high-grade steel. At the same time, those countries can keep protection during a certain period for the low-grade markets that domestic producers are supplying. Since most export from Japan is high-grade steel for certain industries, even such transitional measures mean large-scale tariff reductions for Japanese exporters. It is reported that the tariff quota or user-specific duty free schemes will give Japan no tariff for 80% of its exports to Indonesia, 50% of its exports to Thailand, and almost all of its exports to Malaysia.<sup>28</sup>

What will happen if Japan enters into the same type of EPA with Viet Nam? In Viet Nam, there is a problem with taxation on import of high-grade steel that is not produced within the country.<sup>29</sup> Such a problem occurs in cases of import of high-grade cold rolled sheets for motorcycles and their parts, and high-grade galvanized flat products for automobile and electrical/electronic appliances. The former does not compete with PFS's products, and the latter does not compete with domestically produced galvanized sheet. Both of them, however, are subject to taxation. Tariff-rate quota or user-specific duty free schemes would be appropriate to solve this.

However, as mentioned above, the high-grade steel market of Viet Nam is small, and the export unit price from Japan to Viet Nam is lower compared to the price to other countries. It is reasonable to assume that steel export from Japan to Viet Nam includes some lower grade steel products. For instance, billet from Japan has to compete with billet made by EAF mills in Viet Nam, and cold rolled sheet for GI materials from Japan has to compete with PFS's products.

If the Japan-Viet Nam EPA turns out to be the same type of agreement as the EPAs with other ASEAN countries, it will bring the following to the Vietnamese steel industry. Having no tariffs on steel will be strenuous work because harder competition with Japanese steel will be expected in the market of lower grade steel. Tariff-rate quotas on high-grade steel and a user-specific duty free scheme will be easier to accept, as tariffs will be kept on steel products that are domestically produced, without hurting the cost competitiveness of the downstream manufacturing industries.

If negotiation toward liberalization is unavoidable, what is left for the Vietnamese steel industry is

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<sup>28</sup> Comments from the chairman of JISF, May 25, 2005; August 1, 2005; and November 28, 2006 (<http://www.jisf.or.jp/news/comment/index.html>) (in Japanese). Articles from several newspapers also refer to this.

<sup>29</sup> From several interviews with managers of Japanese firms.

to strive to move forward with liberalization as reasonably as possible. Both parties need to understand the structure of the steel trade not just in terms of import composition exporter-by-exporter and product-by-product, but also in terms of the total material flow in terms of products, specifications, and applications. If mutual understandings are reached at the negotiation, that will bring out more reasonable and desirable results. Also, understanding the material flow helps in developing the recycling systems as mentioned in the preceding sub-section.

This paper has illustrated some clues to understanding the material flow. Viet Nam does not yet have sophisticated and published statistics on the steel industry. If Japan and Viet Nam start from arranging this and work cooperatively toward understanding the material flow, they will establish a solid foundation for liberalization in a reasonable sequence and at an appropriate speed, as well as industrial cooperation.

#### *4. FDI Attraction and Review for Licensing Projects*

Foreign capital is essential for carrying out large steel projects in Viet Nam. However, FDI attraction cannot be achieved through a simple laissez-faire system. A special effort for FDI attraction is also necessary. In general, policy to attract import substitution-type FDI in developing countries poses some difficult problems because of the small market and the absence of supporting industries (Kimura, 2003). This is true for large steel projects with some additional factors specific to this industry. For large-scale projects in the steel industry, available locations are limited because developed infrastructure including deep seaports, and the supply of water and electrical power is necessary. Also, in many cases infrastructure improvement is impossible without governmental support. In addition, the domestic market is limited. Considering these conditions, there is a limitation on the number of feasible large-scale steel projects in a developing country. Therefore, a well-planned system is needed where the government carefully examines each project and licenses only good ones. This is true even in the process of dismantling the command-control system and the transition to a market-oriented economy.

Recently questions have come up regarding some large projects. This means that questions are arising toward the government's examination process on projects. Individuals or organizations with expert knowledge in the steel industry are not allowed to participate in the examination process, and this is why criticisms of the Tycoons project are being brought up.

There is a concern that business associations or related individuals will try to protect their vested interests by expressing negative attitudes toward projects by foreign enterprises when they

participate in the examination process. However, this depends on the characteristics of each organization or individual. VSA, founded in 2002, has diversified membership including not only SOEs but also private enterprises, foreign affiliated joint ventures, and 100% foreign enterprises. In some cases, VSA has expressed different views from VSC on behalf of private enterprises.<sup>30</sup> VSA is not obsessed with protecting the vested interests of domestic firms; one of its executive members strongly values the POSCO project. Listening to the opinions of industrial experts from VSA and other steel-related institutions during project review will probably enable reasonable and realistic assessment and will probably not lead to protection of vested interests.

## **Conclusion**

In Viet Nam, the steel market has been under-developed in terms of both quality and quantity, and domestic enterprises have been weak and fragile. In this situation, the government's development plan and investment by relatively modern SOEs (i.e., VSC and its subsidiaries) have been playing important roles. Construction of modern facilities by SOEs had a profound meaning as the basis of industrial development. Though accelerated liberalization tended to leave behind the steel industry, some protection policies like import restriction and high tariff rates were arranged. Such combination of SOE's investment and protection was a feature of the development of the Vietnamese iron and steel industry from the mid-1990s to the mid-2000s. This development phase started when the master plan was first being considered and ended when PFS and SSC Phu My Steelworks began operating.

The Vietnamese steel industry is entering a new phase in its development in which market competition works effectively and private and foreign enterprises play larger roles. Private enterprises are establishing their status in the long steel for construction. In the flat sector and upstream processes, FDI attraction is gaining importance and large-scale projects are becoming more realistic. In the course of these developments, VSC is losing its privileged status. The challenge for VSC is to establish sound management and become an attractive business partner for foreign enterprises.

To facilitate development in this new phase, the government is expected to play a new role. The urgent question is whether the government can shift its policy from promoting SOEs' production to promoting competition on equal footing, arrangement of trading rules, and attraction of FDI with

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<sup>30</sup> When the billet tariff was raised in 2003, VSC supported it, whereas VSA was against it. This may be because VSC can produce some billets but VSA has many members which are private rolling mills dependent on imported billets. From an interview by the author with VSA executives on March 24, 2003.

proper review. To promote competition on equal footing, conversion of SOEs to joint stock companies is important. In terms of the long sector, arrangement of trade legislation on scrap procurement and environmental protection will be the key tasks. The issues regarding trade liberalization policies including EPAs and the content of protection policies have to be carefully reconsidered; these policies must be suited to the reality of competition between domestic and imported steel. It is important to work toward making reliable industrial statistics on the levels of material flow, with assistance from industrialized countries like Japan. These statistics will be a solid base for reasonable trade policies and international industrial cooperation. In regard to FDI attraction, it is necessary to examine and assess the quality of projects using expert knowledge. For all of these tasks, the key will be giving an expanded role to VSA as a business association instead of the government taking over the entire control of policy issues.

The Vietnamese iron and steel industry has many problems to solve. Multiple tasks must be addressed to achieve industrial development under the trends of liberalization and international integration. Corporate capability to lead development in the new phase and the government's capability to push ahead with policy shifts are being tested. The future of the industry will be decided by the results of these tests.

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2/8/2007 English expression was revised thoroughly.