Intensive Steel Seminar
(Minutes)

Date: 8:30-17:00, October 16, 2000

Place: Daewoo Hotel, Hanoi

Vietnamese side

Active participants:

Nguyen Quang Thai (DSI/Vice President)
Pham Quang Ham (DSI/Former Director, Industry Department)
Do Huu Hao (MOI Institute for Industry Policy & Strategy/Director General)
Nguyen Kim Son (Viet Nam Steel Corporation/President)
Pham Chi Cuong (VSC/Vice President)
Nguyen Huu Tho (VSC/Planning and Investment Department)
Hoang Duc Than (National Economic University)
Bui Van Muu (Polytechnic University)
Ngo Tri Phuc (Polytechnic University)

Other participants:

Pham Hong Chuong (NEU), Tran Hoe (NEU), Nguyen The Anh (NEU), Dinh Huy Tam (VSC), Nguyen Van Vinh (MPI/DSI), Vu Thi Ngoc Phung (Viet Nam Economic Association), Nguyen Thi Nga (MPI/DSI), others.

Japanese side

Active participants:

Kenichi Ohno (National Graduate Institute for Policy Studies)
Fukunari Kimura (Keio University)
Nozomu Kawabata (Tohoku University)
Takao Aiba (Japan Economic Research Institute)
Nobuyoshi Tanaka (JICA expert and Nippon Steel Corporation)
Toshiki Yabuta (Nippon Steel Corporation)

Other participants:

Morimasa Kanamaru (JICA Resident Representative), Daisuke Hosokawa (JICA), Miho Ota (JICA), Tadashi Kikuchi (Keio University), others.

Chairpersons: Ham (morning), Ohno (afternoon)

Interpreter: Dang Dinh Quy

Morning Session

Opening remarks by Kanamaru and Thai (details omitted)

Presentation: Cuong

Let me present my personal opinion, as someone who has worked in the steel industry for 37 years. VSC's masterplan has already been presented and approved by the government [for details, see Tho below]. I have four points.

1. New integrated steel works (NISW) and separate investments in smaller plants are both needed (two-track approach). NISW is large and efficient and will be the core of our steel industry in the future. By contrast, smaller plants are less costly and can be established sooner. Decision to build NISW must be made quickly, since free trade will start to bite by 2010 or so.
2. We will initiate the production of flat products, currently all imported, by building cold rolling mills (CRM) and hot strip mills (HSM). The first HSM should be a prior investment to NISW. If it is built separately, securing the supply of slabs will be difficult.
3. For steel making, NISW is the correct answer. Electrical arc furnaces (EAF) alone will be too small to fill our need and face the shortage of input (scrap).
4. Regarding the rehabilitation of Thai Nguyen Iron and Steel Corporation (TISCO) and Southern Steel Corporation (SSC); TISCO's capacity is being expanded to 240,000 t using Chinese technology, completed by 2001. Additional expansion to 500,000 or even 1-2 million tons, although suggested, is questionable. Far from the port and markets, TISCO faces an inherent weakness of high transport costs. As to SSC, its current performance is good because of (i) cheap scrap, (ii) import protection, and (iii) low-price orientation of users. But these advantages will disappear in the future, and SSC will lose competitiveness. To avoid this, a combination of closing old plants and building new ones is necessary. As a first step, we want to build an EAF plant in Phu My.

Presentation: Ohno

I have translated VSC's plans into a spreadsheet model and numerically and graphically evaluated four uncertainties. Simulations are based on the 1998 JICA

masterplan with necessary updates and subject to further revision [Excel files were provided to MPI, NEU, VSC].

1. Uncertainty over financing: If all is borrowed, debt service and current-account deficit will be too large. If joint venture (JV) is chosen, no such deficits will occur but future profits must be shared (if successful). Also JV means Viet Nam will not have full control.
2. International price fluctuations: during the 1990s, steel prices exhibited medium-term cycles of roughly 5 years. The previous JICA masterplan assumed high prices of 1997, but if this year's very low prices are used, projected profits will be significantly reduced. Either is extreme. It is certain that prices will fluctuate. In my paper, the range of profitability is shown graphically assuming that instability of steel markets will remain basically the same as in the 1990s.
3. Tariff scenarios: five cases are examined: full AFTA compliance, zero tariffs, high tariffs, moderate tariffs, temporary moderate tariffs. High tariffs will naturally boost profitability, but actually it cannot be chosen due to international pressure and adverse effects on steel-using industries.
4. Investment timing: two-track gradualism, single-track NISW construction, and accelerated single-track NISW construction are compared. The last will require an enormous sum beyond Viet Nam's financial capacity. The first will need less (but still large) amounts.

Kimura

Under AFTA, protection will become hardly possible by 2006-10 although there may be some room during the transition years. Two points should be mentioned. First, the AFTA deadline—2006 for Viet Nam—may be delayed due to Malaysia's desire to protect automobiles, but it will arrive sooner or later. As to WTO, days are gone when high tariff ceilings were permitted; some countries, such as Mongolia, had zero tariffs before entering WTO. Viet Nam must also prepare for low tariffs. Second, steel is an industry with potentially large forward and backward linkage. FDI was key to the creation of supporting industries in other ASEAN members. If steel is overly protected in Viet Nam, high steel prices may discourage FDI inflows and no supporting industries may grow.

Aiba

I am a credit analyst with international experience including China. To me, VSC's plan for NISW looks too risky and hasty; it is not a project that can be financed on a commercial basis. Although financial data of VSC are not entirely open, let us assume a turnover of $500m, net income of $6m, and depreciation of $5-7m. The rule of thumb is that maximum commercial bank borrowing is 10 times the cash flow (net income plus depreciation), which means that VSC can safely borrow about $100-150m. On the other hand, the proposed NISW will require $6 billion—10 times the turnover and a thousand times the profit. This amount is out of question, from the viewpoint of credit analysis (the first CRM alone, $100+ million, may be affordable). VSC considers steel as the backbone of the entire economy. But this will be a very weak backbone in Viet Nam. Mr. Ohno's simulation predicts a string of losses up to 2020, but this will mean bankruptcy if it is an ordinary joint stock company. Viet Nam must be very careful in steel investment.

Cuong

We admit that the biggest problem is financing and rapid construction of NISW will be risky. But it must be remembered that this is not a VSC project, but a national project with government involvement for the purpose of reducing imports. In other ASEAN countries, blast furnaces are built by the government even though their steel companies are more profitable than us. Of course, VSC cannot finance it alone. As to the concrete steps toward NISW, no consensus exists and I myself am not sure. It will depend on the financial capability of the government and VSC. We hope to complete the first step toward it by 2010, but many problems are already arising.

Tho

We appreciate Japanese advice on many aspects of our industry. We too have studied these issues for long. Let me briefly explain VSC's masterplan using transparencies. We have three investment scenarios (base, high, low) up to 2010 [These transparencies were later provided on a confidential basis]. The base scenario builds HSM in 2009, CRM in 2010, and slab production in 2012, as prior investments for NISW. The high case assumes HSM in 2005, CRM in 2006, and slab production in 2010. In the low case, NISW construction will not be started before 2010 (preparations only) while HSM is built in two steps: hot coil production with imported slabs in 2006, and slab production in 2009. This low case is similar to Mr. Ohno's "gradual" scenario.

Tanaka

Steel investments should begin with relatively inexpensive and profitable downstream plants, gradually and separately from NISW. As to flat steel production, appropriate capacity will be about 30-50% of domestic demand. Domestic demand for flat products is expected to grow from the current 1 million to 3 million tons in ten years. Timely investment is needed.

As to quality and product mix, Viet Nam should target ordinary carbon steel of high quality. To achieve this, appropriate latest proven technology must be carefully chosen. Specifically, 6Hi is recommended for CRM and Coil-Box-Tandem for HST. Ladle furnace is traditional technology but will contribute significantly to quality and productivity. To produce a broad range of products, blast furnace-basic oxygen furnace (BF-BOF) technology is more suited than EAF. Long products can be produced by EAF, but flat products will require BF. If EAF is to be also used, choose the latest proven type with easy maintenance.

Metal source also requires careful consideration. In order to secure a stable supply of imported scrap, long-term contracts with a reliable trading company will be desirable. If direct reduction iron (DRI) is to be adopted, it can lower the dependency on scrap. If domestic coal is to be used, the right kind of DRI technology must be chosen. Smelting direct reduction is not yet established technology and Viet Nam should not adopt it now.

Afternoon Session

Presentation: Hao

Steel promotion policy is still under consideration by the government. I will present my personal view. First, the priority should be import substitution to meet domestic demand. At the same time, product diversification from construction steel to hot rolls, cold rolls, special steel, alloys etc. should be attempted. Second, we must combine traditional integrated mills (BF-BOF) and other specific methods (DRI, EAF-continuous casting (CC), etc.). Ways to utilize domestic natural gas should be explored. Third, investment financing will mainly be domestic, but the possibility of foreign JVs will not be ruled out. Fourth, downstream segments grew during 1991-2000, but emphasis must

now be shifted to upstream during 2001-2010. As to the timing of NISW, various opinions exist—this issue is of course related to the feasibility of upstream investment.

Domestic steel demand is expected to grow robustly in the future. We hope to achieve a self-sufficiency ratio of 70-80% by 2010.

The big problem with our steel industry is shortage of domestic billets. We aim to boost billet production from the current 400 thousand tons to 1.0-1.4 million tons during 2001-05, achieving a sufficiency ratio of 50%. This will require development of domestic mines in Thai Nguyen, Cao Bang and Lao Cai. Locations of CRM, HSM and EAF-CC mill should be carefully selected. The capacity of SSC must be expanded. We also need pre-F/S and F/S for NISW with the use of Thach khe ore. We already have a few feasibility studies, but with different conclusions. I personally support the use of Thach khe ore and the initial capacity of 2.5 million tons, with later expansion.

During 2006-10, three steel industry centers should be established: Thai Nguyen in the North, NISW in Ha Tinh (North Central Region) using Thach khe ore, and SSC in the South. The biggest obstacle is financing. As Mr. Aiba noted, VSC alone cannot finance it. The government should mobilize all possible means including long-term subsidized loans. High tariff protection cannot be used, but specially reduced electricity and gas prices are worth consideration.

Presentation: Yabuta

I am a flat product specialist with 25 years of experience. Steel is an industry with extensive forward and backward linkage. It is a heavy industry requiring complex and delicate processes which must be integrated into one coherent system. If everything goes smoothly, it takes 21 days from injection into BF to final products. But even one hitch greatly lowers operation efficiency. There are only a few steel mills in the world that achieve consistently high operation efficiency. Low operation ratios are common even in Europe and America. Exceedingly low efficiency of 50-60% is often observed in developing countries. This is so because producers purchase machinery without acquiring necessary operation and maintenance skills. Demand constantly diversifies while machinery constantly depreciates. To fill this gap, frequent maintenance and occasional revamping are required.

Moreover, a large number of managers and engineers are needed to operate these integrated machines. Also, one NISW employs great amounts of computer memories and terminals, and tens of thousands of cranes and motors. You must understand how difficult it is to operate this complex and huge system on a commercially viable basis. In our company (NSC), a large number and a great variety of engineers are at work. Computer software alone is so voluminous that it is managed by one of the largest software companies in Japan. I would like to emphasize that the steel industry requires an extensive support of related technological systems.

Presentation: Tanaka

I would like to comment concretely on the proposed NISW. At present, there are 141 large blast furnaces (BF) operating in the world, of which 15, mainly in Asia, were added in the 1990s. The crucial thing about BF today is large capacity and longevity. This is true also in Japan, where firms try to extend the life of large BFs as much as possible. To achieve this, a complex high-tech system, unthinkable before, is utilized. If a new BF is to be built in Viet Nam, its capacity should be at least 3,000m^3 (2 million tons/year) and if possible, over 4,500m^3 (3 million tons/year). Large BFs are more efficient and can compete with newer processes such as Corex, Romelt, Dios, etc.

The construction cost of NISW, measured in hot coils, will be about $1,000/ton. Assuming an interest rate of 7.5% and maturity of 10-20 years, the depreciation cost will be $100-150 per a ton of hot coils. If a medium-sized BF is built in inland Thai Nguyen, its cost will be much higher than when a more appropriate site is chosen. Such a plan will be unrealistic.

NISW, requiring huge investment, should be built in the following steps. First, build smaller downstream plants (HSM, CRM, etc.) separately from NISW. Second, consider coal-based DRI or smelting reduction which can use domestic resources. These should be linked with proposed billet centers. Third, NISW should be built from downstream and only when domestic demand is large enough. After completion, steel production by NISW and EAFs (i.e., billet centers) should meet 40-50% of domestic demand.

Ohno

As a co-chairperson, let me sum up the discussion so far. The biggest question is of

course the speed of NISW construction. In addition, we have identified the following issues:

1. Should Thach khe be used as a main input to NISW, or should ore be imported?
2. Should TISCO be further expanded to become a steel center in the future?
3. What is the proper tariff system?

In free discussion, please refer to these points as much as possible.

Muu

Let me first respond to the co-chairperson's points. First, NISW should be built before 2010. Preparations should begin immediately. Second, thorough F/S of Thach khe ore has not been conducted, and no consensus has been reached. In my opinion, Thach khe ore—and other domestic raw materials—should be supplementary inputs after 2010. Exploration should however begin right now. Third, Thai Nguyen is far from both materials and markets and is therefore not a good candidate for a steel industry center. TISCO's capacity should not be expanded beyond 500,000 tons/year. Fourth, temporary tariff protection is necessary, especially in initial years.

Absorption of management skills will take time, and we must immediately begin to learn it. We thank JICA for all the studies in the past, but the masterplan must be translated into specific investment plans. Financing, management skills, domestic raw materials must also be considered in designing concrete steps.

Primary concerns for the near future are: (i) rehabilitation of existing plants to improve technology and supply capacity; (ii) securing scrap supply, expand efficient EAFs and close inefficient ones; (iii) methods and processes to utilize domestic resources must be studied; and (iv) build a plant to produce various alloys, to meet diverse demand.

Than

JICA's studies are academically respectable, but for practical applications we need a broader context including financing and cost-benefit analysis. The steel question is not of one company or one industry; steel is a national industry and the government should officially support it.

Interests of politicians and the steel industry (producers and importers) are often in

conflict. Some politicians want to build NISW at any cost, but that will not be sustainable in the long run. Private importers are after their own short-term profits and welcome rising imports. To promote steel, profitability of VSC is an inappropriate indicator. Investment decision must be made by an economy-wide criterion. Even if VSC encounters losses, steel-using industries may develop and become competitive. If so, steel promotion is worth its cost.

It is important to jump to latest technology. Otherwise, low competitiveness, losses, and permanent subsidies will be the result. This cannot be achieved by one company alone, so official help is essential. Let me point out four objectives. First, financing is beyond VSC or government budget. Inflow of FDI is still not enough. The government should designate steel as a high priority industry, much above present treatment. Second, we need F/S on the usability of domestic raw materials. Third, I believe the domestic market is sufficiently large, but no precise projections have been made. Fourth, despite Mr. Yabuta's contention that steel requires a complex technological system, I believe Viet Nam can quickly absorb necessary skills. I do not worry about it.

NISW should be completed after 2010. But preparations must be made before 2005, and construction must start following that.

Phuc

I was much interested in the presentations by JICA and VSC. For Viet Nam, the only advantage is that of a latecomer; we can learn and introduce optimal technology from other countries. On the other hand, we have many disadvantages: low competitiveness due to high cost, outdated equipment, quality good enough only for construction bars, etc. As Mr. Kimura points out, we must join AFTA and compete internationally. But I cannot agree with the idea that small plants should be initially built. From the beginning, we should establish modern large-scale steel works.

I agree with Mr. Than that the biggest problems are financing and the use of domestic materials. Financing must be the responsibility of the government. As to the usability of domestic resources, a few foreign studies exist, but no study has been conducted by the Vietnamese. We ourselves must study and come to a conclusion, be it Thai Nguyen expansion or Thech khe ore. Some people have warned that Thach khe ore is of low quality, but technical problems can surely be overcome in the future. Others noted high

transportation cost of Thai Nguyen, but this is no problem either. Since Viet Nam is now investing in transportation infrastructure as a matter of priority, shipping cost for Thai Nguyen will be reduced, sooner or later. In conclusion, NISW should be established at the earliest date. The year 2010 is not soon enough.

Kimura

Even if gradualism is adopted, under international integration, VSC's strategy will become extremely important. The key issue is how to deal with inefficient units. With AFTA, some outdated plants will inevitably be driven to closure—but that is good. The highest priority for VSC is to design a policy of productivity improvement so that relatively efficient plants can survive. TISCO is an inefficient unit with excessive employment. Under integration, good plants should not be sacrificed for the survival of bad plants. Similarly, domestic materials should be used only when they are very cost-effective by international standards.

Ohno

Mr. Phuc said that Thai Nguyen's transportation cost would be reduced in the future. But we already have a super highway from Hai Phong port to Hanoi, and from Hanoi to Thai Nguyen the road is not so bad either. Even so, Thai Nguyen suffers from high transportation cost and this can hardly be lowered in the future. As to Thach khe ore, I understand that its high zinc content is a serious problem for BF operation. It is much better to import the kind of ore with ideal quality and composition. The profit margin of the steel industry is very slim, and any compromise in plant location or materials will be fatal in the international survival race.

Yabuta

We also used high-zinc ore in Japan thirty years ago, but that required frequent stoppage and maintenance of BF, which was very inefficient. We no longer use such ore, and no engineer at our company (NSC) remembers the technology for it. We now face another type of high-zinc problem: how to extract zinc contained in automobile scrap.

Phuc

Zinc in scrap and zinc in ore are completely different problems.

Son

Our steel industry is facing great challenges in the age of integration. It is imperative that we should incur no losses while steel is being supported. Viet Nam should closely examine the feasibility of each proposed steel project. VSC has a two-pronged strategy: short-term independent investments and long-term NISW. The former consist of seven projects such as TISCO and SSC rehabilitation, billet centers in the North and South, first CRM, first HSM, etc.

One question is whether the first HSM should be a prior investment to NISW or separately built. If separately built, stable supply of scrap may not be secured. For this reason, we believe HSM No.1 should be part of future NISW.

We have no consensus on the timing of NISW construction. Some say the first BF should be completed by 2010, but we at VSC consider 2012 to be a more reasonable target. Mr. Tanaka recommends an even later date. If we want to use temporary protection, early construction will be better, before the AFTA deadline. But if we think of financing, a gradual approach will be suitable.

Regarding steel, we have many disagreements in Viet Nam. First, we at VSC think that there is no input supply problem with CRM but slab supply for HSM may be difficult to obtain. Second, the location of NISW is hotly debated. Some propose to build NISW in Thai Nguyen with the capacity of 1.3-3.0 million tons, but we disagree. Thai Nguyen is displaced from materials and markets, hardly an ideal location. NISW must be at a port in Central Region. Third, as to the timing of NISW, the proposal of VSC aims at the first BF in 2012, covering 50% of domestic demand. Our masterplan has already been submitted and approved by the government. Before and after the approval, our views remained the same.

Closing remark: Ohno

In steel promotion, financing is among the biggest problems and it appears there are only two ways to overcome it. And at present, neither way faces bright prospect.

The first is for government to designate steel as the highest priority national industry and pour a large amount of soft policy loans into it. But whether the government will do so, and whether steel deserves such a privilege in the first place, remains uncertain. People who study steel like us often develop emotional attachment to this industry, but it is not the only industry in Viet Nam. The merit to the national economy as a whole is a more important concern.

The second is to find foreign partners willing to share costs. Cooperation with foreigners will also facilitate information collection, technology transfer, shock response, etc. On the other hand, joint venture means the Vietnamese side will not have full control of the projects for the pursuit of national interest. Foreign investors are often interested only in short-term commercial profits; they have no obligation to act on behalf of Viet Nam's industrialization. Incidentally, ODA funds are no longer available for industrial projects like steel.

Let me summarize the Japanese view presented today. We are not against Viet Nam's plan to establish NISW as a long-term goal, but it must be achieved gradually and in two tracks, because of financial constraints and the necessary lead-time to learn the skills to manage a huge plant complex and to cope with integration shocks. We do not consider it proper to finalize the site of NISW and begin to commit financially to it at present.

I thank your active participation in this seminar. Members of Trade and Industry Group, let me again remind you that we are to submit our drafts by November 15 and exchange comments prior to Hanoi Workshop in December.

(By Kenichi Ohno and Tadashi Kikuchi)