

Chapter 4

Supporting Industries and Industrial Human Resources

4-1. The new phase of supporting industry development

It is generally stated that Vietnam's supporting industries are at an early stage of development, and assembly-type manufacturing industries can therefore achieve only low part localization. However, in the case of the motorcycle industry, the traditional negative view of Vietnamese supporting industries no longer applies.

The situation surrounding the supporting industries of Vietnam's motorcycles is changing rapidly in the last several years for three reasons. First, domestic demand, which now surpasses 2 million units per year, is large enough to build strong supporting industries. Second, free trade initiatives at the global, regional and national level, including Vietnam's accession to WTO, completion of AFTA, and a number of FTAs involving Vietnam in particular and ASEAN in general, is changing the dynamics of production site allocation of multi-national corporations. Third, competitiveness of supporting industries in some of the neighboring countries, such as Thailand, Indonesia, Malaysia, China and India, has improved significantly thanks to their large domestic demand or long effort of promotion.

These developments have led to the following new phenomena in Vietnam (see also chapter 2).

First, the part procurement structure of FDI motorcycle assemblers, especially those with large and growing sales, has deepened. From international experiences, the part localization ratio of about 90% can be regarded as optimal, combining in a most efficiently way local parts which are simple, bulky or requiring frequent adjustments and just-in-time delivery, with

imported parts which are compact, subject to scale merit, or too difficult to produce locally¹¹. Some FDI assemblers in Vietnam have already reached this stage, and their localization ratios are not expected to rise further toward 100%. Other FDI assemblers hope to reach this stage within a few years, provided that strong domestic demand continues. Still other FDI assemblers need a longer period before completing their procurement systems.

Second, competition among existing and potential suppliers is increasingly harsh. The fact that FDI assemblers' procurement structure has matured does not mean that competition is over or existing suppliers are secure within that structure. Far from that, suppliers are constantly challenged by the possible entry of new players and the desire of assemblers to have more than one procurement source to reduce cost and diversify risk. Previously, the supplier of any part had a captive market in Vietnam. But now, they have to compete with rivals from all over the world. Selection of suppliers is becoming more sensitive to differences in logistics, lead-time, taxes, tariffs, and other trade-related cost elements. Procurement pattern may change drastically, especially when a new model is introduced or when new policy is introduced.

Third, despite increasing competition, foreign suppliers are now willing to invest in Vietnam even without special incentives. This is because domestic demand has reached a size that is highly attractive to part producers, who require relatively large volume in order to operate efficiently and reduce cost. Since around 2005, motorcycle part suppliers from neighboring countries such as Taiwan, Thailand, Japan, India, Malaysia and Indonesia are aggressively entering the Vietnamese market. They have the advantage over Vietnamese suppliers in terms of higher performance in QCD, more experience in working with FDI companies at home, and strong networks and skillful marketing. Meanwhile,

¹¹ See VDF, *Improving Industrial Policy Formulation*, Publishing House of Political Theory, 2005, in Vietnamese and English, especially ch.5; VDF, Kenichi Ohno, ed, *Building Supporting Industries in Vietnam*, vol.1, VDF, 2007, in Vietnamese and English; Kenichi Ohno and Nguyen Thi Xuan Thuy, "Part Procurement of Japanese Motorbike Assemblers in Vietnam: Situation and Prospects as of Spring 2007," VDF, 2007, in Vietnamese and English.

Vietnamese suppliers are slow to seize this opportunity. One procurement manager of an FDI assembler predicts that these new comers will crowd out Vietnamese suppliers in the part procurement structure of motorcycle assemblers.

While foreign suppliers are formidable competitors for Vietnam's burgeoning part manufacturers, that does not mean the end of the game for Vietnamese suppliers. The entry of new foreign suppliers is inevitable, and even desirable, from the viewpoint of long-term development of Vietnam's motorcycle industry. A strong supporting industry base, of any nationality, will boost the competitiveness of motorcycles assembled in Vietnam. This in turn further broadens the domestic part market and business opportunities, albeit under severe competition among suppliers.

Vietnamese suppliers should not hope to win over foreign suppliers in the short run, or erect barriers to prevent their entry. Vietnam's policy target should be the leveling up of local suppliers *in the medium to long run*. As long as domestic motorcycle assembly continues to grow dynamically with frequent model changes, assemblers are always willing to switch to Vietnamese suppliers if they improve QCD performance and marketing. At that time, it becomes possible to re-capture the domestic part market from at least some of the foreign suppliers that entered Vietnam earlier, under the condition of open and fair competition. That is the natural process of part localization which Vietnam should pursue, rather than artificial part localization under coercive policies.

When that is achieved in the medium to long run, the supporting industries of the motorcycle industry will become the foundation of other assembly-type manufacturing industries as well as the source of international competitiveness. Motorcycle part suppliers may, for instance, also produce parts for the electronic and electrical industry or the automobile industry, although they may need to upgrade skills or invest in new equipment to get new customers. In Vietnam, the supporting industries of the motorcycle industry are the largest and most advanced

among all supporting industries to take up this responsibility and create a positive nexus of development.

Ultimately, development of supporting industries will depend on the effort of the business sector. However, Vietnam's market mechanism is in the process of forming and the indigenous private sector is still weak. In this situation, the government should initially assist the nascent market mechanism and remove barriers that impede the development of supporting industries.

4-2. The need for high-quality industrial human resources

The importance of human resource development in industrial growth is well known. However, with limited time and financial resources available to Vietnam, the types of human resources to be promoted must be carefully selected with concrete targets and effective policy measures. As noted above, we expect the motorcycle industry to become the principal industry around which strong supporting industries are created, human skills are upgraded, and competitiveness of all assembly-type manufacturing industries in Vietnam is improved. Human resource policies must support this goal.

There are three groups of industrial human resources needed by the motorcycle industry that merit official support.

First, Vietnam needs a sufficient supply of top-level professionals who can manage manufacturing enterprises or design and supervise production processes competitively. This elite group must be educated at the university level or higher, for example at the institute of technology, the engineering faculty of a university, or a foreign university. They need to study basic theory, relevant skills and knowledge, proper attitude toward manufacturing, and international perspective. To make this possible, good instructors, curriculums, teaching materials and equipment are necessary, with emphasis on practicality and relevance to the competitiveness of global manufacturing enterprises. The government should improve each of these ingredients, with international support if necessary.

Second, factory workers must be upgraded. This is particularly important for production processes that heavily rely on machinery and equipment and their proper design, adjustment and operation, and where workers must accumulate skills and knowledge over a number of years. Such manufacturing enterprises need a large supply of *multiple-skill workers* who can perform various tasks and know the overall production process. They should initially study at a technical high school or an industrial college, then move to the factory floor to receive on-the-job training. Good instructors, curriculums, teaching materials and equipment which are practical and relevant are needed, as in the case of the elite group. In supplying them, close cooperation between schools that teach the students and enterprises that plan to hire them is essential. By contrast, official support is not required for single-skill assembly workers or garment workers that undertake cut, make and trim (CMT), for whom the required level is low and short-term training provided by the factory is sufficient.

Third, general directors, factory managers, engineers and multi-skill workers who face difficulties in their work but have the right mindset and willingness to learn should be assisted. Among these, the attitude and enthusiasm of the general director is by far the most crucial, without which no company can improve performance. Once the serious commitment of the top management is confirmed, a company-specific problem-solving program should be launched with the help of an experienced industrial expert ("factory doctor") or a consultant company specializing in such improvements. The content, method and duration of the program may differ in each case. Additional support may be mobilized from FDI partners, government or foreign organizations. Such order-made diagnosis and cure is the most effective. However, ready-made external courses can also be used if the problem is clearly identified and suitable courses are available at a convenient time and location for the company.

In many countries, there is social prejudice that professionals who work in clean, air-conditioned offices are "superior" to factory managers and engineers who work in noisy and humid factories with lower-level workers.

Such stigma does not exist in Japan, where Mr. Sakichi Toyota (1867-1930), Mr. Konosuke Matsushita (1894-1989), and Mr. Soichiro Honda (1906-1991) initially were all engineers happily working on greasy workshops. Japan's *monozukuri* (manufacturing) spirit, which pursues manufacturing with skill, pride and long-term dedication, was born from such positive attitude toward factory operation. However, in Vietnam, manufacturing does not seem to be accorded with the same social respect as lawyers, doctors, or web designers. Students prefer business, banking and computer classes rather than engineering. To promote industrialization, the Vietnamese government should change such attitude by initiating a campaign to re-orient people's mind, giving social recognition and respect for talented factory managers and engineers, and prioritizing and supporting technical education and training.

Industrial human resources and supporting industries are the two sides of the same coin, the one dealing with human aspects and the other highlighting physical aspects, which together enable a country to achieve excellence in industrial production. This will enable Vietnam to break through the low technology trap as well as cope effectively with the China challenge. In the terminology of Prof. Takahiro Fujimoto, Vietnam should master *integral manufacturing* (chapter 2). Industrial human resources and supporting industries are the pre-conditions for mastering integral manufacturing.

In what follows, policies to strengthen supporting industries and industrial human resources are proposed.

4-3. Incentive measures

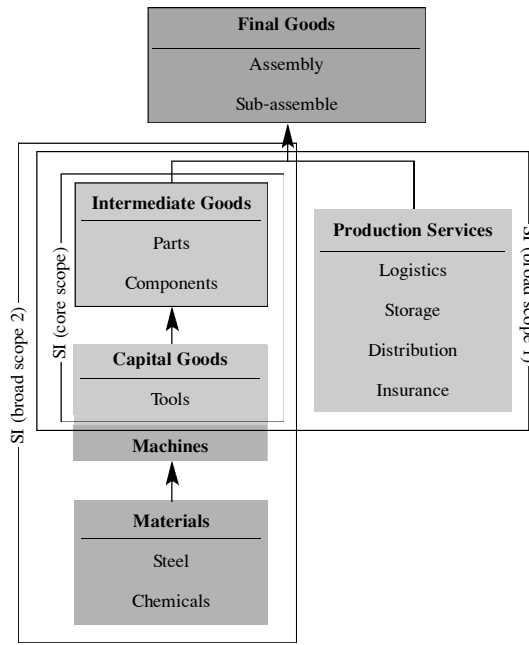
Preferential taxes and financial support are standard policy instruments for promoting supporting industries. They are commonly used in ASEAN countries, often in the form of SME promotion measures, because the importance of supporting industries has been clearly recognized in these countries. In Vietnam, however, such policy is not yet in place, and incentive

measures are mainly reserved for investing in "high-tech" sectors or remote and mountainous areas. This master plan proposes that Vietnam should introduce incentive measures for supporting industries, which are competitive enough to attract domestic and foreign investors vis-à-vis neighboring countries, but not excessive. Incentive measures, while not sufficient by themselves, can prepare basic conditions in which investment in skills and equipment is encouraged. To implement this policy, however, the working definition of supporting industries must be clarified at first.

Generally speaking, supporting industries refer to a group of producers located in a country, both local and FDI, that supply intermediate inputs to assemblers in that country. The precise scope of supporting industries depends on each case as well as the intention of policy makers¹². The scope of supporting industries may be as narrow as just one particular industry or as broad as all manufacturing industries including food, textile, garment and chemicals. However, the term supporting industries was originally used by Japan in the 1980s to refer to the suppliers of assembly-type manufacturing industries only, such as automobiles, motorcycles, electronics and electricals, and precision machinery.

The scope of inputs is another issue (Fig.4-2). One way to define supporting industries is to include both physical inputs (parts and components) as well as industrial services such as logistics, storage, distribution and insurance. Another way is to include physical inputs only, but all the way from raw materials. These two scopes have an overlapping segment, which can be considered the core scope of supporting industries. This core includes parts and components which are made of metals, plastics or rubber, and processes of producing them such as pressing, casting, forging, welding, molding, machining, plating, and heat treatment. In particular, technology of making, adjusting and repairing dies and molds occupies a central position in the core scope.

¹² Nguyen Thi Xuan Thuy, "Supporting Industries: A Review of Concepts and Development," in K. Ohno, ed, *Building Supporting Industries in Vietnam*, vol.1, VDF, 2007, in English and Vietnamese.

Fig. 4-2 Scope of Supporting Industries

Source: see footnote 12.

Our definition of supporting industries, for the purpose of giving special treatment for promotion, is a narrow one and includes only *pressing, casting, forging, welding, and production of dies and molds*, which are very important for the healthy growth of machinery industries but seriously lacking in both quality and quantity in Vietnam at present¹³. The concept is limited for concentrating limited budget for promoting some focal industries. But the scope of assistance can and should be expanded in the future.

Preferential tax treatment is a standard policy instrument for promoting supporting industries. Neighboring ASEAN countries, especially Malaysia

¹³ These five items have been identified as crucial in a number of interviews conducted by MOI and VDF with motorcycle assemblers and suppliers in Vietnam.

and Thailand, already provide such incentives under well-focused national campaigns for upgrading SMEs. Exemption or reduction of corporate tax, reduction of taxes or tariffs for machinery imports, and subsidies for R&D are popular measures which should also be introduced in Vietnam for the five activities mentioned above. In addition, a special financial institution to provide loans to small, non-SOE companies should be established and its lending should be activated.

All incentive measures must be available equally to all types of economic sector, as.

4-4. Linking retired Japanese and young Vietnamese

In Japan, a large number of experienced factory managers and engineers are reaching the retirement age of 60 ("The 2007 Problem"). Many of them are still healthy and want to contribute to improving industrial skills of developing countries. However, they cannot realize this plan individually due to language barrier, procedural complexity, and uncertain living conditions abroad. On the other hand, Vietnam has a large number of young people who can perform well in high-quality manufacturing if proper instruction and training are given. But they are also unable to receive such instruction and training since schools can teach only basic theories and general skills.

It is therefore proposed that the Vietnamese government, in close cooperation with the Japanese government and business community, should launch a program in which retired Japanese talents work with Vietnamese managers and engineers in Vietnam in order to transfer their manufacturing skills and attitude in practical setting. The program, which may be called Japan-Vietnam Skill Exchange, should include (i) registration and matching services, (ii) administrative and procedural support, (iii) support for Japanese retirees to live and work comfortably in Vietnam including travel, language, housing and medical services, (iv) reasonable but not high payment for Japanese retirees, and (v) evaluation, monitoring and problem-solving mechanisms. The style and duration of work should be

flexible enough to accommodate the needs of both Japanese retirees and Vietnamese enterprises.

The Vietnamese government should draft a preliminary proposal of this plan and present it to the Japanese side, to be concretized and revised subsequently. A special agency should be created to implement this program. A pilot program may start in a small scale, which can be expanded as experience is gained. Private and public assistance from Japan should be sought if necessary. Through this program, Vietnam should become the most favored destination among all developing countries of old Japanese managers and engineers who want to transfer their skills and knowledge.

4-5. Technical and vocational education and training

To supply a large number of high-quality human resources, existing programs should be enhanced and new programs should be added through joint public-private effort.

First, the government should subsidize 50% of the cost incurred by enterprises belonging to the five processes specified above--*pressing, casting, forging, welding, and production of dies and molds*--for the purpose of training their management, staff or workers, whether internal or external, and including foreign dispatch. Eligible training activities are: (i) classes given within an enterprise; (ii) on-the-job training; (iii) short-term and long-term training courses offered by private, public or foreign agencies; (iv) dispatch of workers to another location, domestic or abroad, for training; and (v) worker competition such as QC Circle Olympics or Skill Olympics in which workers belonging to the same business group in different countries or locations meet in one place to compete for high performance. In addition, existing training programs by public and foreign agencies, such as those listed in Tab. 4-1, should be fully advertised and utilized.

**Tab. 4-1 Foreign-funded Technical Training
Programs Currently Available in Vietnam**

<i>Program</i>	<i>Location</i>	<i>Sponsor</i>	<i>Main activities</i>
Association for Overseas Technical Scholarship (AOTS)	On demand	Japan	Supporting technical training in Vietnam and Japan
JODC expert service	On demand	Japan	Expert service in industries
Vietnam Japan Cooperation Center (VJCC)	Hanoi, CMC	Japan	Business courses, training, customized advice
JETRO - JEXSA	On demand	Japan	Expert service
JETRO - J-Front	On demand	Japan	Expert service
JETRO - Business matching between Japanese and Vietnamese enterprises	Hanoi, CMC	Japan	Japanese enterprises come to Vietnam to look for partner companies
JBIC - Small and Medium Sized Enterprises Finance Project	All nation	Japan	Two-step loans via State Bank of Vietnam and financial institutions
JBIC & JICA - Education Development Supplier Project for ITCP (internet telecommunication) in Hanoi Industrial University	Hanoi	Japan	JBIC provides infrastructure and JICA supports IT human resource
JICA - Human Resource Project	HCMC	Japan	Upgrading teaching and administrative staff at universities
JICA - The grass-roots international exchanges	Hanoi	Japan	Supporting environmental human resource
JICA - Vietnam Human Resource Center	Hanoi	Japan (Vietnam in future)	Business courses, Japanese classes, interchange project
MPI Technical Assistance Center (TAC)	Hanoi	Japan	Database, SME support
JICA experts	On demand	Japan	Expert service
Vietnam-Singapore Technical Training Center (VSTTC)	Binh Duong, Hanoi	Singapore	Technical and vocational training
GTZ Vietnam	On demand	Germany	Consulting service, training of vocational school teachers

Abbreviations--AOTS: Association for Overseas Technical Scholarship; JICA: Japan International Cooperation Agency; JBIC: Japan Bank for International Cooperation; JETRO: Japan External Trade Organization; JODC: Japan Overseas Development Corporation; JEXSA: JETRO Expert Service Abroad; GTZ: Deutsche Gesellschaft für Technische Zusammenarbeit.

Second, teaching staff, curriculums and equipment at vocational schools, colleges and universities must be strengthened in both quality and quantity to offer practical and up-to-date engineering education and training. Collaborative training programs involving both FDI firms and local suppliers should be strongly encouraged¹⁴. In such programs, teaching method and materials must be determined and revised with strong participation of client firms. A large number of FDI manufacturers already express interest in participating in such programs, and even sending their experienced engineers as instructors or making their equipment available for training, provided that the government makes serious effort to initiate such programs. The government should set up a framework to implement such programs, and seek international cooperation if necessary. Official support should also be provided to improve the quality of teaching staff to an international level.

Third, a national certification system of *Industrial Meisters* (highly skilled engineers or multiple-skill workers who can teach others) should be established. The government should set up an agency for certifying technical skills, with clear achievement criteria for each specific skills. Nationwide exams should be organized and successful candidates should be given Industrial Meister certificates. This system will broaden the base of skilled workers and encourage good engineers to do even better and be socially recognized. The government should also encourage manufacturing enterprises to link company personnel policy with national Industrial Meister certificates. Certificate holders should be promoted and given higher salaries in exchange for an obligation to teach young workers¹⁵.

¹⁴ One of the most successful programs in collaborative training is the Penang Skills Development Centre (PSDC) in Malaysia. For details and possible lessons for Vietnam, see Junichi Mori, "Development of Supporting Industries for Vietnam's Industrialization: Increasing Positive Vertical Externalities through Collaborative Training," Master Thesis, Fletcher School, Tufts University, 2005.

¹⁵ In Japan, the Industrial Meister certification system is well developed and coordinated among national, prefectural, and firm levels. For example, one large electronics company has an internal meister system for lens polishing, painting, and electrical wiring. Candidates are classified into three ranks A, B, and C. A-ranked engineers are sent to the Meister license offices of the central or local government to receive official certificates. If they are successful, the company additionally awards them with internal Meister titles and a bonus of 500,000 yen (about \$4,200). Meisters in this company are required to train two successors within two years.

4-6. Strategic FDI marketing

Strategic FDI marketing, based firmly on marketing theory and backed by strong commitment of the Vietnamese government, is needed to accelerate the inflow of FDI part suppliers into targeted sectors. Such marketing requires the following steps.

First, the targeted sector must be narrowed down. To initiate strategic FDI marketing, Vietnam should know what kind of FDI suppliers it wants to attract most. Supporting industries in general are too broad for effective targeting. For the motorcycle industry, five specific processes of pressing, casting, forging, welding, and *production of dies and molds*, as proposed above, should be targeted in the period to come.

Second, aggressive marketing must be launched. Three basic measures for investment promotion are: (i) seminars in foreign countries by central government, local governments or industrial estate developers, (ii) inviting site-visiting missions to Vietnam, and (iii) establishment of investment promotion offices in potential foreign cities. Although Vietnam already organizes all of these activities, the quality and volume of information is insufficient in comparison with, for example, Thailand or Malaysia. Using these channels, Vietnam must approach targeted clients individually and vigorously instead of passive, general marketing. To save the cost of maintaining offices abroad, targeted cities must be selected carefully. Local governments may also want to outsource promotion services from a public organization or NPO¹⁶. It should also be noted that potential foreign investors are interested in hearing not just general merits of coming to Vietnam but also province-specific information as well as any negative aspect of investing in Vietnam.

¹⁶ While Hanoi has established an independent promotion office in Tokyo, Da Nang, Ha Tay, and Lam Dong have set up promotion offices without regular staff inside the Vietnam Economic Research Institute in Tokyo.

Third, rental factories and industrial parks for attracting particular investors should be built. Most FDI suppliers are SMEs in their home countries with little international experience. Compared with big-name multi-national corporations, they are highly risk-averse since any failure in foreign investment will bankrupt their entire business. They are very wary of policy uncertainty and procedural complexity, especially in Vietnam. The risk is higher when SMEs come on their own, rather than to follow and serve one large assembler. Such SMEs prefer to start with small scale since demand in Vietnam is likely to be small initially. To minimize their risk and investment cost, Vietnam should build industrial parks with good location, superb infrastructure, and responsive management with administrative and language support. Alternatively, apartment-type rental factories with small lots of 300-400 m², also with sufficient support, may be built. Such industrial parks and rental factories are a good marketing tool which can convey the seriousness of host countries in reducing the cost of doing business for foreign investors.

Well targeted FDI supplier marketing is routinely conducted by other Asian countries, often in close cooperation with Japanese organizations. Partnership between Tokyo's Ota Ward and Thailand's Amata Corporation is one example. The Board of Investment (BOI) in Thailand had targeted Japanese mold and die makers to strengthen the automobile industry. Ota Ward was selected as the suitable partner, and Amata Corporation was asked to construct Ota Techno Park, apartment-type rental factories, in Chon Buri near Bangkok, to receive Japanese SMEs. Eight factories in the first phase were rented out in 2006 and Amata is now building the second phase. In India, the State of Rajasthan, in cooperation with JETRO, is building Nimurana Japanese Industrial Park on National Highway No.8 near Delhi, near where Suzuki, Honda and Nissan assembly factories are located. The industrial park will have an area of 4.5 km², to be completed by January 2008. In Indonesia, the Indonesian Mold and Dies Industry Association (IMDIA) was established in 2006, as a result of bilateral public-private cooperation between Indonesia and Japan to promote this sector.

4-7. Supporting industry database and business matching

In Vietnam, there is an information gap which impedes business interaction between FDI assemblers and local suppliers. Although many FDI assemblers desperately look for good local suppliers, they do not know where they are located. To search for local partners, many FDI assemblers use telephone directories or workers' personal connections. However, this is inefficient and time-consuming. A supporting industry database can greatly reduce the cost of finding potential suppliers.

However, domestic and international experiences show that most such databases fail to be used by targeted groups because of poor design or lack of proper maintenance. To avoid such a situation, systematic preparation is necessary before launching a database.

To be effective, a supporting industry database must understand and respond to the supplier selection criteria of FDI assemblers. In addition to basic information such as company name, contact address and main products, FDI manufacturers usually need to know (i) general director's attitude, (ii) quality, (iii) cost, (iv) on-time delivery capability, and (v) production scale, before deciding to even contact the candidate company. The database must supply such information in order to be useful¹⁷.

Effective operation of databases is even more difficult than designing them. The common problem is that SMEs do not participate actively in databases which intend to help them. The database becomes useless if targeted companies do not list or update their information. To solicit participation, the database should be coupled with additional services that are appreciated by SMEs, such as finding new customers, training workers,

¹⁷ For this purpose, the following items in the database are useful: (i) self-introduction stating company policy, special skills, JIT experience, and so on; (ii) production facility inventory including machine models and names of manufacturers; (iii) processing accuracy in milli- or micro-meters; (iv) quality certification such as ISO; (v) customer list; (vi) annual sales; (vii) capital; and (viii) number of employees. For details, see Junichi Mori, "Designing and Managing Supporting Industry Databases," in VDF, *Building Supporting Industries in Vietnam*, vol.1, 2007.

or business consultation¹⁸. For policy makers, close contact with suppliers can be a valuable source of information for receiving business opinions and responding to their needs.

4-8. Quality, safety and environmental standards

To build supporting industries that are internationally competitive, Vietnam must have quality, safety and environmental standards that are consistent with global standards. Vietnam-specific requirements may be added, if there is a legitimate reason, but that should not make Vietnamese motorcycles and parts inconsistent with global standards. Internationally incompatible standards impede export and import and achievement of optimal procurement pattern. They will also increase costs because manufacturers must design and produce unique motorcycles and parts for Vietnam instead of using globally common designs (within a company) to enjoy scale merit.

For example, Vietnam requires that there should be only one headlight, while most other ASEAN countries allow both one-beam and two-beam headlights. Vietnam's regulation is also unique and stricter on beam angles. This makes it difficult to export Vietnamese motorcycles to other ASEAN markets without significant and costly re-modeling. Another example is environmental standards which are different among East Asian countries. Different national roadmaps on EURO air quality standards make it difficult to trade motorcycles and related parts (chapter 7). There should be a comprehensive survey on the compatibility of quality, safety and environmental standards between Vietnam and the rest of the world, with active participation of assemblers and part suppliers in Vietnam. Except for a limited number of cases, if any, which respond to

¹⁸ In early 2007, MPI's SME Technical Assistance Center (TAC) organized a pilot program to invite Mr. Tatsuya Hoshino, Japanese expert, to teach 5S and QCD to eight local SMEs and bring them to several Japanese FDI companies to practice marketing of their products. The program will be expanded to include more SMEs. Such practical training can be usefully combined with the construction of a supporting industry database.

Vietnam's unique road situation, global standards should be adopted to reduce the design and production cost of motorcycle manufacturers in Vietnam.

Vietnam does not have clear industrial and safety standards comparable to national standards of neighboring countries such as Malaysia's JBE SIRIM and Thailand's TISI. The lack of consistent standards encourages importation of low-quality finished products as well as low-quality parts, making Vietnam a dumping ground for defective goods. Without well-established grading criteria of rubber tires, for instance, it is impossible to stop the inflow of low-quality tires. This is an undesirable situation for consumer protection as well as for healthy industrial development. Without national standards, it is also difficult for individual local suppliers to set and aim at their own quality targets.

The Vietnamese government should provide timely information and effective guidance on industrial, safety and environmental laws in other countries which may affect enterprises in Vietnam. For example, in January 2006, EU introduced the Law on the Restriction on Hazardous Substances (ROHS) which prohibited importation of products containing any of the six substances, namely, cadmium, lead, hexavalent chrome, mercury, PBB, and PBDE. Although Vietnam has not adopted a similar environmental law, any firm that wants to remain internationally competitive and continue to do business with EU would adopt ROHS as soon as possible. However, local suppliers in Vietnam have not been informed of ROHS and are not prepared to supply ROHS-consistent parts. One Taiwanese motorcycle part manufacturer complained that it could not switch to the ROHS standard because there was no local supplier of trivalent chrome, which was to replace the banned hexavalent chrome in metal plating.

Finally, to implement national standards effectively, Vietnam needs to establish testing centers and accrediting agencies with sufficient staff and measuring equipment. They can help suppliers to check and prove their product quality, eliminate low-quality products, and save testing costs which are too large for individual producers. In Vietnam, the Directorate of Standards and Quality (STAMEQ) is currently responsible for setting

standards, metrology and testing, and accreditation. STAMEQ has testing laboratories in Hanoi, Da Nang, and HCMC, but they focus mainly on textiles and food processing products. There should also be testing centers for machinery products, either through creating a new organization or expanding STAMEQ functions¹⁹. Moreover, entry of private accreditation organizations should also be welcomed in order to expand services and introduce competition.

¹⁹ UNIDO, EU and France each have conducted capacity building projects with STAMEQ.