

Chapter 2

Supporting Industries: A Review of Concepts and Development

Nguyen Thi Xuan Thuy*

1. Introduction

Many researchers and policy makers use the term “supporting industries,” but its origin and initial meaning are sometimes not well known to them. They define this term according to their own understanding and purpose. In reality, “supporting industries” is Japanese-made English employed first by Japanese enterprises long before becoming an official term. It gained popularity in Japan in the mid-1980s when the Japanese government used it in its documents, as explained below, and has been widely used in Asia ever since. The idea of supporting industries is now routinely discussed in regional meetings on the development of small and medium enterprises (SMEs).

The term began to be officially used in Vietnam relatively late, that is, in 2003. The Vietnamese government did not give much attention to it until the drafting of a master plan for developing supporting industries was requested by the Vietnam-Japan Joint Initiative Phase 1 (2003–2005) as one of the urgent measures to promote foreign direct investment (FDI).

Because of autarky, economic planning, and heavy industry-oriented policy of the past, Vietnam fostered industries that internalized manufacturing of all inputs in a vertically consolidated structure, be it agricultural machines, bicycles, or automobiles. These industries no longer exist, have been streamlined, or have shifted to other activities since the implementation of *Doi moi* in 1986. Due to the lack of information as well as the fact that local suppliers

* The Vietnam Development Forum (VDF) and Vietnam’s Ministry of Industry (MOI). This research was conducted in 2006 when the author was a researcher at VDF-Tokyo.

could not meet stringent quality requirements, foreign firms that came to Vietnam in the mid-1990s were of the view that supporting industries were nonexistent or extremely primitive in Vietnam. However, the survey conducted by the Japan External Trade Organization (JETRO) in 2004 found that this view was not entirely correct, and that Vietnam's supporting industries were burgeoning (Ichikawa, 2005).

Sustainable growth of supporting industries requires a proper policy of the government, and the Master Plan for the Development of Supporting Industries must be designed to meet this requirement. The current version under MOI's internal review still leaves much room for improvement. This paper reviews various concepts and related issues of supporting industries in the hope that this will offer some practical inputs for the master plan.

In particular, the following questions are posed: (i) what does the term "supporting industries" mean, (ii) why does Vietnam need to develop supporting industries, (iii) how did other countries develop their supporting industries, and (iv) what can Vietnam learn from their experiences and what should it do to promote supporting industries. Different definitions of supporting industries give different industrial scopes as well as different policies to address them. We also propose our own definition, which can be used in the Vietnamese policy context. In studying international experiences, promotion policies for localization, foreign direct investment into supporting industries, industrial linkages, and production networks are particularly important.

2. Concepts of supporting industries

Although the term "supporting industries" is widely used in many countries, it is still ambiguous and without consensus in definition. Whether "supporting industries" is understood broadly to include all industries that provide production inputs or narrowly as industries that provide only parts, components and tools for certain industries depends much on the user.

On a practical level, the leather footwear industry needs industries which produce parts of footwear, processed leather, leather working machinery, and design services. Supporting industries of the motorbike industry supply motorbike assemblers with material inputs and their processing as well as serv-

ices. On the other hand, supporting industries also refer to industries which are much broader and without a clear borderline. This means that, for policy formulation, the scope of supporting industries must be specified concretely and strategically by policy makers in a way that ensures consistency between definition and policy purpose.

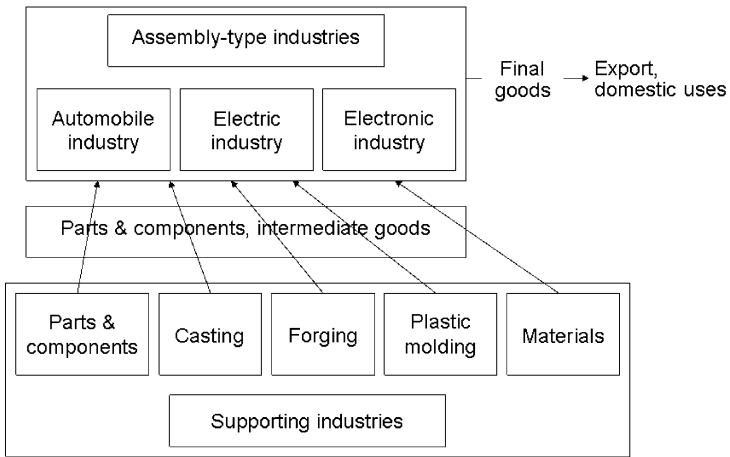
For instance, Thailand defines supporting industries to be enterprises that produce parts and components that are used in the final assembly processes of the automobile, machinery and electronic manufacturing industries (Ratana, 1999: 2). Meanwhile, the US Department of Energy defines supporting industries as those that supply materials and processes necessary to form and fabricate products before they are marketed to end-use industries (2005: 1). In Vietnam's current context, it is not practical to import any ready-made concept of supporting industries from abroad because of differences in economic conditions, development level and the degree of challenges that each country faces in the global economy. It is necessary for Vietnam to select a definition of supporting industries which is most appropriate for its own socio-economic conditions.

The term currently used in East Asia originated from Japan in the mid-1980s. The first official document to use this term, as far as we can identify, was the *White Paper on Economic Cooperation 1985* by the Ministry of International Trade and Industry (MITI)¹ of Japan, where the term "supporting industries" was used to refer to "small and medium enterprises (SMEs) that contribute to strengthening industrial infrastructure in Asian countries for medium and long terms" (1985: 120) or "the SMEs that produce parts and components" (1985: 121). The purpose of MITI at that time was to promote the process of industrialization and the development of SMEs in ASEAN countries, especially in ASEAN 4 (Indonesia, Malaysia, Philippines, and Thailand).

Two years later, MITI re-introduced the term to other Asian countries through the New Asian Industrial Development Plan (known as the New AID Plan). The Plan was a comprehensive economic cooperation package based on the trinity of aid, investment, and trade. In the framework of the Plan, the Asian Supporting Industries Development Program was promulgated in 1993 to

¹ MITI has been changed to METI (Ministry of Economy, Trade and Industry) since January 2001.

Figure 1. Scope of supporting industries according to MITI



Source: Japan Overseas Enterprises Association (1994: 19)

resolve trade imbalances, bottlenecks of infrastructure, and shortage of professional workforce in ASEAN 4 and to promote industrial cooperation between Japan and those countries (Japanese Bank for International Cooperation [JBIC], 2005: 125). In this Program, supporting industries were officially defined as “industries that supply the necessary things such as raw materials, parts and capital goods for assembly type industries” (as quoted by Japan Overseas Enterprises Association, 1994: 19). The scope of supporting industries was widened from SMEs to the industries that produce intermediate and capital goods for assembly-type industries without regards to firm size (Figure 1).

A question might be raised as to why the term appeared in Japan but not in other countries, and in the middle of the 1980s but not earlier or later. The higher yen value and the efforts of MITI to develop an industrial base in order to support Japanese firms operating in Asia could be considered as the response to this question. The sudden appreciation of the yen after the Plaza Accord in September 1985, from 240 yen per US dollar in September 1985 to 160 yen per US dollar in April 1986, had a great impact on export-related enterprises (MITI, 1987). The higher yen made Japanese firms reduce exports of finished products and shift production to countries with lower labor costs. However, Japanese factories abroad had to import parts and components from subcon-

tractors in Japan because the providers of essential parts and components were not available in developing countries, including ASEAN 4. Thus, the term “supporting industries” was used to indicate the lack of such industries in those countries. Consistent with this context, MITI subsequently introduced the New AID Plan in 1987 and the Asian Supporting Industries Development Program in 1993, as explained above, which promulgated the term to other Asian countries as well. Therefore, it can be said that the appreciation of the yen and the efforts of MITI were necessary and sufficient conditions for the birth of the term “supporting industries” in Japan and Asia in the 1980s.

Vietnam adopted the term “supporting industries” relatively late, as mentioned above. In the past, concentration on the development of heavy industries in the centrally-planned economy required a wide range of production inputs. Vietnam did not attach importance to the concept of supporting industries because parts and components for finished products of such industries as agricultural machines, bicycles, and automobiles were produced in-house and in a vertically integrated fashion. Even when the term “supporting industries” was introduced in most Asian countries at the meetings of the Asian Productivities Organization (APO) and the Asia-Pacific Economic Cooperation (APEC), Vietnam, which was in the early years of the *Doi moi* process, continued to pay little attention because it was dealing with other urgent issues such as agricultural revitalization, hyperinflation, economic reform, and poverty alleviation.

When foreign investors started to come to Vietnam in the mid-1990s, it was difficult for them to find qualified local suppliers for production inputs. They pointed to this problem and asked the Vietnamese government to take appropriate measures to resolve it. However, at that time the Vietnamese government was not familiar with the concept of supporting industries. The problem included the absence of a legal definition for supporting industries, which prevented any effective execution of promotion measures. The Vietnamese government remained unclear as to how this situation could be corrected (Ichikawa, 2005). The Japanese government was proactive in supporting Vietnam to improve the business and investment environment through the Ishikawa Project (1995), the New Miyazawa Initiative (1999), and the Vietnam-Japan Joint Initiative (2003). These programs were beneficial to both countries: Vietnam was able to absorb much more FDI and foreign firms doing business in Vietnam

enjoyed an improved business environment.

The main themes of the Ishikawa Project were to help Vietnam smooth the transition from a planned to a market-oriented economy, to integrate Vietnam into the international community, to modernize the financial system, to strengthen industrial competitiveness, and to develop rural areas. In relation to these themes, the request from the Japanese business community for a better legal system was also encompassed under this Project². The New Miyazawa Initiative was an Official Development Assistance (ODA) loan to Vietnam, which was used to promote Vietnam's economic reform policy, including formulation of a private sector promotion program, auditing of state-owned enterprises, and tariffication of non-tariff barriers³.

The Vietnam-Japan Joint Initiative, launched in 2003, aimed to strengthen Vietnam's economic competitiveness through promotion of FDI flows into Vietnam. In the Action Plan of the Initiative, the first item in the list of required actions was the "development, introduction, and utilization of supporting industries in Vietnam,"⁴ which indicated that Vietnamese officials started to realize the importance of supporting industries in the process of industrialization and FDI attraction. However, during Phase 1 of the Initiative, which lasted two years, this action did not fully materialize. Therefore, the need for action was reiterated in its Phase 2, which included establishment of a master plan for supporting industries development, setting up of a database of supporting industries, and creating industrial zones for supporting industries.

To fulfill this requirement effectively, Vietnamese policy makers must clearly grasp the nature of supporting industries and related concepts, and choose a definition of supporting industries which can serve as a foundation for designing a comprehensive industrial policy for these industries.

² Ministry of Foreign Affairs (MOFA) Press Briefing on: Summary of meetings held by Prime Minister Keizo Obuchi at the Association of Southeast Asian Nations Summit, December 1998.

³ MOFA Press Release: ODA Loan to Vietnam – to support economic reform of Vietnam, September 29, 1999.

⁴ MOFA's Report on Vietnam-Japan Joint Initiative to Improve Business Environment with a View to Strengthen Vietnam's Competitiveness, December 4, 2003.

3. Related concepts

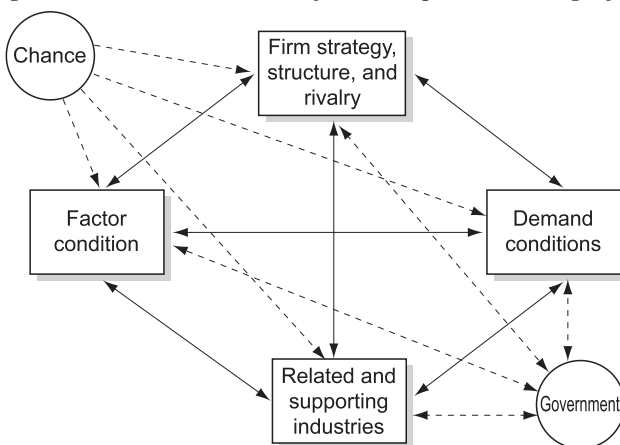
Parallel to the term “supporting industries,” other related concepts are also used to refer to supplier industries, *inter alia*, related and supporting industries, subcontracting, ancillary, part and component industries, and vendors have close meaning to that of supporting industries.

3.1. Related and supporting industries

The term “related and supporting industries” is used by Michael E. Porter, a professor at Harvard University, as a fundamental determinant of national competitive advantage. In his book *The Competitive Advantage of Nations* (1990), he introduces the Diamond Model (Figure 2), which includes four interlinked key factors for competitive advantage and can be applied to all nations and industries.

Among these four factors, the term “related and supporting industries” is defined as “the presence or absence in the nation of supplier industries and related industries that are internationally competitive” (1990: 71). He divides this determinant into two factors: supporting industries and related industries. Supporting industries create advantages in downstream industries because they produce inputs that are widely used and important to innovation or

Figure 2. Porter’s Diamond model for the competitive advantage of nations



Source: Porter, M.E. (1990: 127)

to internationalization, whilst related industries are those in which firms can coordinate or share activities in the value chain when competing, or those which involve products that are complementary (1990: 100–105). Three other determinants include (i) the strategy, structure and rivalry of firms, which show the conditions in which companies are created, organized and managed, and the nature of domestic rivalry; (ii) demand conditions, which are the nature of home demand for the industry’s product or service; and (iii) factor conditions, which imply the key factors (i.e., skilled labor, capital, and infrastructure) that are necessary to compete in a given industry. In addition to these four factors, Porter also emphasizes the role of government because policies implemented without consideration of how they influence the entire system of determinants are likely to undermine national advantage.

The term used by Porter is broader and academic, while MITI’s term is more specific and empirical. However, both emphasize the importance of supporting industries to strengthen the industrial competitiveness of nations.

3.2. Subcontracting

The term “subcontracting” was used some decades ago but has not always been specified in an explicit manner. The recent definition by the United Nations Industrial Development Organization (UNIDO) indicates that subcontracting is “an agreement between two parties—the main contractor and the subcontractor. The main contractor entrusts one or several enterprises with the production of parts, components or sub-assemblies and/or provision of industrial services necessary for the manufacture of its final product. The subcontractor executes the work as per the specifications provided by the main contractor”⁵. Unlike supporting industries, subcontracting emphasizes only long-term commitments and relationships between large firms and subcontractors, and it does not cover other types of transactions, e.g., in-house or outsourcing.

In the Japanese economy, the public view on subcontracting has drastically changed over time. In the 1940s and 1950s, subcontracting was thought of as the exploitation of small firms by large ones, that the latter utilized their

⁵ UNIDO’s official website definition at <http://www.unido.org/doc/4558?language%5fcode=en#Where>

dominant position in a transaction to unfairly impose on the former unprofitable conditions, for instance, delays in payments to subcontractors. In the 1970s and 1980s, as Japanese gained confidence in their economic system, the view swung toward the opposite end. Subcontracting has been regarded as one of the important components of the Japanese economic system, with presumed benefits in saving costs to search for and select new suppliers, having successful quality enhancement and cost reduction in cooperation with subcontractors, and having efficient risk-sharing mechanisms (Kimura, 2001). Nevertheless, recent studies indicate that subcontracting no longer upholds its advantages such as long-term stability and quick reaction to changes in the large firms, but that it instead brought pressure, gave limited scope for bargaining, and lowered profits for subcontractors in comparison with independent suppliers (Kimura, 2001; Subrahmanya, 2006). As such, there has been a recent trend for subcontractors to become independent suppliers that are similar to enterprises operating in supporting industries.

3.3. Ancillary industries

The term “ancillary industries” has been widely used in India since the 1950s. It was defined in the Industries (Development and Regulation) Act of 1951 as “an industrial undertaking, which is engaged or is proposed to be engaged in the manufacture or production of parts, components, sub-assemblies, tools or intermediates, or the rendering of service...” The term is known only in India, as the Indian economy had not yet linked closely to the global economy. A few Indian policy makers did try to introduce this term to the outside world, for instance, in an article “Development of Ancillary Industry in India” published in the *Small Industry Bulletin for Asia and Far East*, Vol. 5, Nanjappa (1967, as quoted by Fuminori, 2004) wrote that in order to foster small scale enterprises, the Indian government had set up a committee to promote ancillary industries to act as suppliers of necessary parts, components, and semi-finished products to large enterprises. The term, however, did not gain widespread appeal outside India. A reason for the lack of appeal might be because this term indicated a subgroup of small-scale industries, and thus rarely found a specific concern, policy, or strategy for the promotion of such industries, even in India.

3.4. Part and component industries

There is no specific definition of the term “part and component industries,” but it is usually understood to mean industries that produce parts and components. The term is widely used in assembly-type industries such as motorbikes, automobiles, electrics, and electronics. This is the narrowest related concept, as it does not cover any other input which can be included in the concept of supporting industries such as services, tools, machines, and materials. Part and component industries are seen as the core of supporting industries, and as an important element for assessment of local procurement.

3.5. Vendors

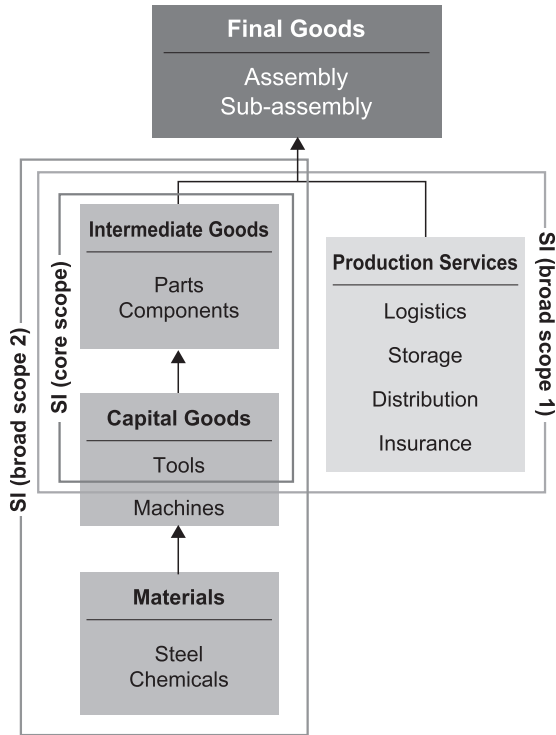
Like “part and component industries,” there is no specified definition for “vendors.” The term is widely understood to mean the sellers of commodities and services for an industry. It is widely used in Malaysia and South Asian countries, and refers to SMEs that work as subcontractors for large firms. Unlike “supporting industries,” “vendors” implies individual firms rather than an industry as a whole. Vendors are basically a unit of supporting industries whose operations play a decisive role in the development of these industries.

4. Definition of supporting industries

The above review shows that “supporting industries” and other related concepts have a common view, which emphasizes the importance of the industries that manufacture inputs for finished products. However, each concept determines a different scope of these industries. Broad concepts, e.g., supporting and related industries and subcontracting, delineate a broad scope, which covers all supplier industries. In contrast, part and component industry or vendors draw a relatively narrow scope. “Supporting industries” is a vague term; without a clear definition, it is impossible to identify which industries they are and to what they provide support. Therefore the scope of supporting industries mentioned in industrial policies and strategies varies depending on concepts and purposes used by policy makers. The more detailed definition of the term is, the easier policies can be formulated, and the more feasible they are.

Figure 3 illustrates three common concepts of supporting industries

Figure 3. Scopes of supporting industries



and their respective scopes. The core concept, which leads to the smallest scope, defines supporting industries as industries which supply *parts, components and tools to produce parts and components*. There are two broader scopes, in which one corresponds to the concept that defines supporting industries as the industries which supply *parts, components, tools to produce parts and components, and production services* such as logistics, storing, distribution and insurance, while the other refers to the concept that defines supporting industries as those which supply *all physical inputs including parts, components, tools, machines and materials*. Noticeably, the scopes of supporting industries do not specify firm size, ownership, or manufacturing architecture. They can include foreign and local firms, larger firms and SMEs, integral and modular manufacturing firms.

In the current context of Vietnam, with budget constraint, underdeveloped industrial bases, and pressures of international integration and competi-

tion, the core concept is more suitable to mobilize all resources for the development of supporting industries. An operational definition of supporting industries, appropriate to the purposes of research and policymaking in Vietnam, is thus proposed as follows: *Supporting industries can be defined as a group of industrial activities which supply intermediate inputs (i.e., parts, components and tools to produce these parts and components) for assembly-type or processing industries.*

While firm size and nationality are not considered in the definition of supporting industries, SMEs and local firms are often targeted in industrial policy. Besides, supporting industries have other characteristics that are not mentioned in the definition, but should be considered carefully in the policymaking process. These characteristics of supporting industries include: (i) they are relatively more capital-intensive and require more skilled workers than assembly-type industries, (ii) their products are supplied for both domestic use and export, (iii) they produce both standardized parts and components, which are usually modular manufactured and export-oriented, and bulky and specific ones, which are integral-type manufactured and used domestically, and (iv) they are required in both assembly-type industries (such as automobiles, motorbikes, electronics) and processing industries (textile and garment, footwear industry), but vary in their features and require different treatment; the former requires more skilled labor force, produces many metal, rubber and plastic parts, and strongly influences the product's quality, while the latter can use low-skilled workers, consists of a few part industries, and the product's quality does not heavily depend on them. That is why supporting industries of these two sectors should be addressed and grouped separately in strategic planning.

5. Necessity for Vietnam to develop supporting industries

Vietnam is currently challenged by competition from regional countries in absorption of FDI, flood of Chinese products, and pressures of international integration. Development of supporting industries is an essential measure for Vietnam to overcome these challenges.

Supporting industries play an important role in promoting FDI. In the 1980s, the massive investment inflows from multi-national corporations

(MNCs) to developing countries were attracted by the low labor cost. Nowadays, when MNCs choose a location for FDI, they consider not only the advantage in labor cost but also the comparative advantages in other production inputs such as parts and components and production services, which can help them to improve their competitiveness in price and quality.

Vietnam is now trying its best to achieve its goal of becoming an industrialized country by 2020. Like other developing countries, Vietnam has utilized FDI as a force to drive its economy. Although Vietnam is attempting to absorb FDI and develop its industrial sector, it does not seem to realize the importance of supporting industries in industrialization and FDI attraction. It is not really proactive in promoting these industries like other ASEAN countries such as Thailand, Malaysia, and Indonesia have done. Thus, it is necessary for Vietnam to learn from the successes and failures of other countries to design a proper strategy and policy on the development of supporting industries.

Supporting industries are essential for Vietnam to compete with China. The growth of the Chinese economy is a threat to all the economies in the world. However it would be unwise for Vietnam to compete directly with China. Manufacturing industries in China, which have advantages of cheap and abundant labor and a large market, are characterized by mass production of modular products with copied design and technology and high competitiveness in prices. Only through promoting high-quality supporting industries and becoming a crucial integral partner of MNCs can Vietnamese products enter the global market without clashing with Chinese products.

Strong supporting industries will also expedite Vietnam's integration into the international economy and participation in the global value chain. Pressures of globalization do not allow any country to protect its industries by non-tariff measures or protective policy. In recent years we have seen the formation of global-scale economic systems which are tightly integrated and often managed on a day-to-day basis. Many firms have had international operations and trading relationships, and all activities are divided among multiple firms and spread across the world. Today, the process of economic development cannot be isolated from these global systems. Supporting industries will help Vietnam to diversify its tradable products and to deeply involve itself in the global value chain through partnerships and linkages with FDI firms and MNCs.

Nevertheless, supporting industries do not develop naturally and Vietnam cannot take full advantage of these industries if the involvements of Vietnamese firms in such industries do not exist. For this reason, deepening the linkages between Vietnamese firms and MNCs, which will be addressed below, must be considered carefully in the policymaking process.

6. International experiences in developing supporting industries

General observations show that latecomer countries implemented various measures to strengthen industrial infrastructure. In the first half of the 20th century, non-tariff measures and protective policy, such as local content regulations, were utilized to protect infant economies. When these were removed because of the pressure from international integration, FDI was used as a driving force for economic growth. In addition, linkages between SMEs and larger firms, local firms and MNCs, as well as participation in the global production networks were considered crucial factors for the development of industries in the latecomer countries.

6.1. Local content regulations

Taiwan and Korea developed their industries, absorbed technologies from foreign companies, and achieved international competitiveness in automobiles and electronics through local content regulations. Taiwan introduced the Local Content Regulations (LCR) in the 1960s covering most automobile, electric and electronic products. The LCR were phased out from 1975 to 1986 when commitments of trade liberalization were fully implemented. LCR were useful in forcing foreign makers, who monopolized the local market, to transfer parts manufacturing technologies to their local joint venture partners or to other local parts suppliers (APO, 2002: 67, 68). Korea launched two five-year programs on localization in 1987–1991 and 1992–1996. According to those programs, a total number of 7,032 parts and components were designated for localization. The programs were successful in the automobile parts industry (about 78% of designated parts were localized), but not in the electrical and electronic parts industry (success rate was only 38%) (APO, 2002: 64, 65). Nowadays, latecomer coun-

tries can no longer apply local content regulations due to the rules of the World Trade Organization. These countries, however, are still able to encourage local procurements through incentives in taxes, loans, or technical assistance.

6.2. Promotion of FDI into supporting industries

Supporting industries were also developed through FDI. Advanced ASEAN countries implemented selective FDI promotion policies to drive FDI into targeted industries. They implemented various tax incentives, established free trade zones under an export-oriented strategy, and took full advantage of the massive transfer of manufacturing bases from Japan during the 1980s and 1990s due to the sharp appreciation in the value of the yen. Thailand did not introduce privileges to favor investment in specific supporting industries. Instead, it sought to increase the number of investment applications from foreign (particularly Japanese) smaller manufacturers, or from local concerns by lowering the minimum required investment amount. The preferential treatment given to such investors was basically orthodox tax benefits. Malaysia promoted FDI into supporting industries by tax incentives such as investment tax allowances, which were a five-year tax respite, and corporate tax levied at 15–30 percent of income. These two countries have now become the major suppliers for parts and components for automobiles and electronics in the world market.

6.3. Linkage promotion

The backward linkage promotion served as a useful measure for the latecomer countries to promote their supporting industries. Japan, Korea, and Taiwan promoted the linkage between subcontractors, which were mainly SMEs, and large firms. Thailand and Malaysia worked to deepen the linkage between local suppliers and foreign affiliates (mainly Japanese firms). Moreover, UNIDO and United Nations Conference on Trade and Development (UNCTAD) also assisted developing countries to promote industrial linkage.

Japan: Japan designed its industrial policy to respond to the changes in the business environment, and it tried to facilitate and balance the benefits between SMEs and large firms. For instance, in the 1940s, the rapid expansion in the demand for the products of the machinery industry made large firms con-

tract out production to smaller firms rather than expand their own production facilities. To cope with the issue, the Japanese government introduced the Law on Cooperatives of SMEs and other Parties, which was enacted in 1949, to enhance the bargaining power of SMEs and enable them to approach new technologies and sources for loans. In the 1950s, the subcontractors were exploited by their parent companies through buffers and delayed payments. The government intervened by enacting the Law on the Prevention of Delay in the Payment of Subcontracting Charges and Related Matters in 1956 to prevent delays in payments to subcontractors. During the 1960s and 1970s, the rapid expansion of the manufacturing sector, resulting from mass production, led to the increase in competition between large firms. Large firms thus needed subcontractors who could improve productivity and lower costs to enhance the competitiveness of their products. The government supported this through the Law on the Promotion of Subcontracting Small and Medium Enterprises in 1970, to ensure smooth subcontracting (Subrahmanya, 2006).

Korea: In order to promote the linkage between SMEs and large firms, Korea implemented the top-down policy, which designated some large firms as the key players and required them to purchase parts from the targeted SMEs. For example, the SMEs Sub-Contracting Promotion Act, which was introduced in 1975 and revised in 1978, designated some branches of industries as well as their products as sub-contracting products. The large firms were required to procure those designated products through outsourcing rather than through their own in-house production. The number of designated items rose sharply from 41 in 1979 to 1,553 in 1984, and then decreased gradually to 1,053 in 1999 (APO, 2002: 62). In 2005, Korea launched the Strategy for the Development of Materials and Parts, which targeted the main parts and materials used in electronics and automobiles. The strategy designated large firms such as Samsung and Lucky Gold Star (LG) as core firms and designated some producers as participant firms, which would conduct research and develop new parts and materials as substitutes for imported products. The core firms are required to procure these parts and materials from the participant firms (Suzuki, 2006).

Taiwan: In contrast with Korea, the Taiwanese government was not deeply involved in the decision of larger firms and subcontractors, but played

the role of facilitator by providing financial subsidies. The Core-Satellite System was launched in 1984. It consisted of three linkages: (i) parts and components suppliers and an assembler, (ii) downstream users and a major material producer, and (iii) subcontractors and a trading firm/merchandiser (APO, 2002: 69). The government supported these linkages through technical assistance, managerial consultation, and financial aid. The core firms are responsible for coordinating, monitoring, and upgrading the operations of its satellite factories. The core firms are attracted by financial subsidies, while the satellite firms' main interest was to improve productivity. The system served as the facilitator for information sharing and provided a mechanism for the government to implement policies.

Malaysia: To support matchmaking and linkages between local suppliers and large firms, Malaysia launched the Vendor Development Program (VDP), which appointed large enterprises as “anchors.” The anchors had to nurture “vendors” (i.e., first tier supplier and Bumiputra firms), provide them markets, and assist in technical development and management skills. The government provided support through interest-free loans, which were provided only to vendors. The program was not successful due to the lack of enthusiasm and high dependence of the local firms. In addition, anchor firms faced difficulties in finding new vendors to develop, especially Bumiputra ones, because they already had many subcontractors. They participated in VDP only because of the government's request and their commitment to cooperate with the government's SME development policy (Karikomi, 1998).

To correct the situation, Malaysia designed a new program called the Industrial Linkage Program (ILP), where second tier suppliers and non-Bumiputra companies could also qualify as linkage suppliers. The lead principal companies would be granted special treatment such as subsidies for their R&D activities and tax concessions.

Thailand: With a long history of FDI absorption and industrialization, Thailand has created a relatively thick layer of supporting industries, especially for supplying auto parts. However, local capability and technology are still at low levels. Dependency on foreign technology and management remains high even after 40 years of industrial development. The government did not succeed in upgrading the quality of Thai supporting industries (Ohno, 2006a).

This was clearly seen through failures of the Board of Investment (BOI) Unit for Industrial Linkage Development (BUILD) and the National Supplier Development Program (NSDP), which were implemented during the 1990s to provide channels of communication for the manufacturing sector in Thailand.

BUILD was initiated in 1992 and existed until 1997 through four phases, i.e., (i) 1992–1993: development of databases to support matchmaking, focusing on electronics, automobile and machinery industries, and upgrading of suppliers through training; (ii) 1993–1994: technical support, seminar activities and matchmaking activities; (iii) 1994–1995: database development, training and participating in international trade fairs; and (iv) 1995–1997: trade fairs and seminar activities. Simultaneously NSDP, which was initiated in 1994, was a coordinator for all related programs, and provided services and information to suppliers. While BUILD was not very successful, NSDP could not really materialize. The main reasons were: (i) while the demand for the activities of BUILD existed, there was a lack of awareness of BUILD. In a survey of 239 companies producing auto parts and electric/electronic parts, only 43 percent of those companies knew about BUILD; (ii) promotion of matchmaking and subcontracting was not a top priority for firms; the need to upgrade man power and modernize machinery was a higher priority. Only 1.7 percent of the interviewed firms had demands for matchmaking. A final reason is (iii) the lack of coordination between relevant organizations, and the Ministry of Industry (MOI) did not wholly cooperate with BUILD and NSDP⁶ (Lauridsen, 2000).

Learning from those experiences, Thailand sought the cooperation of the Japan International Cooperation Agency (JICA) to design the Master Plan on the Development of Supporting Industries. The plan focused on two sectors: automobiles and electrics/electronics.

United Nations (UN): The UN also supports member nations, especially developing countries, in the promotion of industrial linkages. UNIDO established the Subcontracting and Partnership Exchange (SPX) on a worldwide basis in 1985 to support and promote SMEs in developing countries. The

⁶ At that time, BUILD and NSDP were carried out by BOI, which was under the Office of Government and chaired by the prime minister. With the recent administrative reform, it was placed under MOI.

ultimate objective of the SPX was to enhance matchmaking via direct contacts, industry visits, fairs, etc. The primary industrial sectors covered by the SPX operation were metal-mechanic (81 percent), plastic-rubber (64 percent), electric-electronic (47 percent), and industrial services (33 percent) (Rendon, 2000). UNCTAD introduced a toolkit to promote linkages in its *World Investment Report 2001*, in which specific measures to create and deepen linkages, as well as policies to strengthen linkages were introduced. The report included guidance to design a linkage promotion program based on the experiences of some of the member nations.

6.4. Participation in global production networks

Going by the recent trends in the global supply chain, every country has tried to attain some level of specialization and join regional or global production networks. For example, Taiwan has specialized in semiconductors, Thailand has concentrated on automobile parts, and Malaysia has focused on electronics. In order to join these networks, countries must have sufficiently strong industrial bases and human resources. The industrial bases consist of core technologies—those that are required by most industries—such as casting, molding, forging, plating, heat treatment, planting, pressing, and plastic. Human resources refer to skilled workers and managers. There are many examples of success in the development of human resources in Asian countries. In Hong Kong, the Teaching Company Scheme aims to foster university-industry partnership, and it supports local companies to hire graduate students from universities in Hong Kong to assist in proper R&D work. Through the arrangement, companies benefit from the research results. Each company and the Scheme bear half of the cost for hiring students (APO, 2002: 36). In Malaysia, the Penang Skill Development Center aims to increase the supply of skilled labor for manufacturing firms in Penang, especially for MNCs (UNCTAD, 2001). In Japan, meister systems have been formed from the national to local levels, and even at individual companies. These systems encourage engineers and managers to improve their skills continuously, and to transfer their knowledge to their successors.

7. Lessons for Vietnam from international experiences

From the above experiences, some lessons that Vietnam can learn to foster the supporting industries are as follows.

Firstly, local content requirement can no longer be applied, but local procurement still can be increased through incentive schemes such as reducing tariffs on machines and raw materials which cannot be produced in Vietnam, and setting up communication channels between foreign assemblers and local suppliers to reduce information and perception gaps. These incentives must be applied to all firms regardless of nationality.

Secondly, the investment environment should be made more attractive to promote FDI into supporting industries. Nowadays, in the free trade context, Vietnam cannot apply the industrial policy that the pioneer countries employed. Simple external openings such as free trade and investment are not enough. To attract massive flows of FDI, Vietnam should work in cooperation with foreign investors, listen to their needs carefully, set agreed goals for technical transfer and domestic procurement, design consistent supporting policies, and so on. Moreover, Vietnam should also actively solve any problems that may arise in pursuing these goals. Vietnam has to use the targeted policies to create superior location advantages and lower the costs of doing business, which in turn require, among other things, an improvement of domestic skills (e.g., production management, marketing, engineering—not just primary education), infrastructure, supporting institutions, efficient government services, and good management of industrial and export processing zones (Ohno, 2006b: 2).

Thirdly, most part and component suppliers are SMEs, so the Vietnamese government, especially the MOI, should pay more attention to the development of SMEs. The MOI should cooperate closely with local governments in order to design appropriate industrial policies that facilitate business activities of industrial enterprises in the country as a whole and not only the enterprises under the MOI.

Fourthly, global value chains are the current trend for MNCs. The government should promote the industrial linkages between local firms and MNCs by learning from international experiences and in cooperation with international organizations. Experiences from other countries show that successes in

promotion of linkages are rooted in the quick responses of the government to the change in the business environment (Japan); sufficiently strong leading firms (Korea); sufficiently strong core firms and enthusiasm of firms (Taiwan); and technical and financial supports from governments. The reasons for failure or partial success in promotion of linkages are the lack of inter-ministerial coordination (Thailand); the lack of awareness of government's policies (Thailand); mismatch between government policy and the demand of the firms (Thailand); discrimination against types of enterprises (Malaysia), and the lack of enthusiasm of firms (Malaysia). The government should take full advantage of information technology to narrow down the information and perception gaps between local and foreign firms. A comprehensive industrial database will serve as a catalyst or matchmaker that helps firms to save time and find their suppliers or buyers.

Fifthly, for long-term industrial development, the MOI should draw up an annual White Paper on Industry. The reason why the Japanese government could respond quickly to the demand of firms was that it had comprehensive White Papers, which would analyze the conditions for the development of trade, industries, SMEs, and other issues. White Papers, as well as an industrial database and industrial statistic system, are also necessary for industrial research, analysis and policymaking purposes. In addition, in order to meet the current requirements and to catch up with the advanced countries, industrial policies should form industrial societies in parallel with knowledge-base societies. This means that the policy should not only target reducing costs and improving the quality of industrial infrastructure, but should also maintain a conducive environment for innovation on the basis of a network of companies, universities and research organizations.

Finally, for improving the master plan on the development of supporting industries, the MOI should decide an appropriate definition of supporting industries, which is not too broad, to serve as a foundation for designing proper policies and to ensure feasibility of these policies within the country's capability. Coordination with other government organizations and businesses are essential for the MOI in the process of policymaking. The MOI should also use other measures to foster the development of supporting industries, such as promoting industrial human resources by coordinating with the Ministry of

Education and Training (MOET), business community, vocational schools, and foreign organizations; strengthening the development of SMEs; and promoting linkages between local firms and FDI firms/MNCs.

8. Concluding remarks

The term “supporting industries” had been developed over a period of at least two decades, but its nature is not very different from other related terms used long ago, such as subcontracting, ancillary industries, and part and component industries. The logic behind the concept of supporting industries and other related concepts is to emphasize the importance of the industries that manufacture inputs for finished products. This is a policy-oriented term, and thus policy makers of each country should tailor the definition to suit the socio-economic conditions of the country and the targets of industrial strategy.

Although Vietnam began to use this term relatively late, this does not mean that Vietnam will always be behind other countries in the process of industrialization. In order to catch up with the pioneer countries, Vietnam needs to exert more effort than other countries in the development of supporting industries. To do this, Vietnam should utilize comprehensive measures to promote localization, attract massive inflows of FDI into industries (especially supporting industries), deepen the industrial linkages, and participate in the regional and global production networks. Among other things, Vietnam needs to improve industrial human resources, absorb technological transfer, and reduce the information and perception gaps that exist to promote the supporting industries.

References

- Asian Productivity Organization (APO). (2002). *Strengthening of supporting industries: Asian experiences*. Tokyo: APO.
- Fuminori, I. (2004). Sapoutingu indasutori kenkyuu no tenkai: Kenkyuu shiteki shiten o motoni (The development of study on supporting industries: On the basis of research historical point of view). (Essay, College of International Relation, Rit-

- sumeikan University, 2003FY). *Essay Collection*, 4, 1.
- Ichikawa, K. (2005). *Building and strengthening supporting industries in Vietnam: A survey report*. Hanoi: JETRO.
- Indian Parliament. (1951). *Industries (development and regulation) act*. Retrieved July 15, 2006 from <http://www.vakilno1.com/bareacts/industriesdevact/industriesdevact.htm>.
- Japan Overseas Enterprises Association (JOEA). (1994). *Sapotingu indasutori no kenkyu (A study on supporting industries)*. Tokyo: JOEA.
- Japanese Bank for International Cooperation (JBIC). (2005). *Chiikikeizai apurouchi wo fumaeta seisaku no ikkansei bunseki: Higashijia no keiken to tadonaa no seisaku (Coherence analysis of policy based on regional economy approach: Experiences from East Asian and policies of other donors)*. Tokyo: JBIC.
- Karikomi, S. (1998). The development strategy for SMEs in Malaysia. IDE APEC Study Center, Working Paper Series 97/98 – No.4. Tokyo: IDE APEC Study Center.
- Kimura, F. (2001). *Subcontracting and the performance of small and medium firms in Japan* (1st ed.). Washington, D.C.: World Bank Institute.
- Lauridsen, L.S. (2000). Policies and Institutions of Industrial Deepening and Upgrading in Thailand II – The Supporting Industry Policy with Particular Emphasis on the Downstream Plastic Parts and Mould Industries. Working Paper No. 9, Department of Geography and International Development Studies, Roskilde University. Retrieved June 30, 2006 from roskilde-university.com/inst3/IDS/Public/workpapers/no09.pdf/.
- Ministry of Foreign Affairs (MOFA). (1998). Press briefing on summary of meetings held by Prime Minister Keizo Obuchi at the ASEAN Summit. Tokyo: MOFA.
- _____. (September 29, 1999). Press release on ODA loan to Vietnam: To support economic reform of Vietnam. Tokyo: MOFA.
- _____. (2003). *Vietnam-Japan joint initiative to improve business environment with a view to strengthen the Vietnam's competitiveness*. Tokyo: MOFA.
- Ministry of International Trade and Industry (MITI). (1985). *Keizai kyouryoku hakusho (White Paper on Economic Cooperation)*. Tokyo: MITI.
- _____. (1987). *Tsuushou hakusho (White paper on international economy and trade)*. Tokyo: MITI.
- Ohno, K. (Eds.). (2006a). *Industrial policy formulation in Thailand, Malaysia and Japan: Lessons for Vietnamese policy makers*. Hanoi: VDF.

- _____ (2006b). FDI strategy under global and regional integration. In *Lecture note of International Economics*. Retrieved August 1, 2006 from http://www.grips.ac.jp/teacher/oono/hp/lecture_F/lec06.htm.
- Porter, M.E. (1990). *The competitive advantage of nations*. New York: Free Press.
- Ratana, E. (1999). The role of small and medium supporting industries in Japan and Thailand. IDE APEC Study Center, Working Paper Series 98/99. Tokyo: IDE APEC Study Center.
- Rendon, R. (2000). A global review of the industrial subcontracting and partnership exchanges (SPXs) established by UNIDO. Vienna: UNIDO.
- Subrahmanya, M.H. Bala. (2006). Manufacturing SMEs in Japan: Subcontracting, structure and performance. Mimeo. Tokyo: National Graduate Institute for Policy Studies.
- Suzuki, S. (2006, February 6). Kankoku, buhin-sozai sangyou o ikusei (Korea, promoting part and material industry). *Nihon Keizai Shinbun*, p. 6.
- United Nation Conference on Trade and Development (UNCTAD). (2001). *World investment report 2001: Promoting linkages*. New York and Geneva: UN.
- US Department of Energy (DOE). (2005). *Supporting industries: Industries of the future, fiscal year 2004 annual report*. Washington, D.C.: DOE.