

**FINAL TECHNICAL REPORT OF PROJECT**  
**Learning via networking with multinationals: closing the knowledge gap in**  
**small developing economy.**  
**The study of Vietnamese motor (auto) industrial sector**

**I. General data**

IDRC grant number: 101678-007 (Centre File)

Institution: the National Institute for Science and Technology Policy and Strategy Studies (NISTPASS) of the Ministry of Science, and Technology (MOST)

Country: Vietnam

Research team: NISTPASS and collaborators

Grant recipient and Project leader: Dr. Tran Ngoc Ca, NISTPASS, MOST

The project team so far consists of the following persons (their involvement depends on different work packages):

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**Time period: 2003-2005**

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## **II. Overall rational**

According to the grant agreement, the project has the objective of the understanding the practice of how Vietnam responds to the challenges of the globalization, to build up own technological capability and contribute to the change of knowledge policy in the new context.

The project tries to identify policy measures which enable Vietnamese enterprises to overcome trade barriers such as IPR related issue, to integrate successfully into the international production networks, focusing on learning and innovation capacity building. By doing so the study also clarifies some academic issues related to learning and innovation literature.

The study looks at how Vietnamese companies as active learners in international economy could close the knowledge gap in doing business with their counterparts and what policy measures can support the learning process of these firms.

Using production network of auto/motor industry in Vietnam as case study, the project has learning as the focus of the study. Learning from multinationals, upgrading learning capability via networking with foreign suppliers, attracting R&D capability and at the same time, addressing the challenges posed by increasingly strict IPR regulations and trade regimes, are crucial components of this approach. Vietnamese small and medium sized enterprises (SME) as the central actors of the national and sectoral system of innovation and their behaviour in an enabling policy environment and supporting institutions (both technological and financial) are the main research target of the project.

As such, the proposed project has a twofold objective: to clarify some practical issues of learning and innovation for Vietnamese industry and related IPRs barrier, including recommendation to improve the knowledge policy environment in Vietnam; and to contribute to the enriching empirical experiences from a developing small economy on some academic issues related to learning and innovation.

## **III. The research problem**

Following the mentioned rationale and objectives, the project has following elements as *research issues*.

Traditionally, the knowledge and technology gap between developed and developing economies is a well known problem. Much of the research discourse and policy debates have been spent on the issue (Fransman, 1995; Lall, 1990, Perez & Soete, 1988). One of the possible approaches for many developing economies to link with the international and global/regional knowledge community seems to become an active part of the wider networks: networks of

producers, technology suppliers and providers, marketers, buyers (Ernst et al., 1999; Nelson, 1993).

This approach is expected to help to close the increasing divide between developing and developed economies, through learning, sharing knowledge, experiences and technology, etc. More specifically, via activities such as FDI and joint R&D collaborative programs, their spillover effect could be crucial for host developing country to gain technology expertise, knowledge pool, etc. (Blomstrom & Koko, 1998, Coe et al., 1997).

While majority of developing economies tried to create employment and export opportunities, some have pursued FDI promotional policies to encourage innovation and technological upgrading (Lundvall, 1992). For some selected developing economies, especially from East and Southeast Asia, experiences show that participating actively in international production networks of FDI and technology transfer has been an effective and affordable way to learn and close the knowledge gap in globalization process (Hobday, 1995). International flows of technology in fact do contribute to the learning and innovation activities in the host economy in different formats: embodied technology (machinery, equipment, hardware in general) and knowledge (tacit and codified, software).

However, this approach is not always easy to follow in practice and success of the above approach should not be taken for granted. Due to lack of many conditions, domestic firms from developing economies find it difficult to work with and win contracts from foreign companies (both FDI and foreign customers). As such, the learning process or spill over effect did not happen.

One of the obstacles for this process is related to issue of intellectual property rights (IPRs). Barriers to IPR created by many international and regional trade regimes (WTO, WIPO arrangement, etc.) could hinder the efforts of weak economies and firms to learn.

As a small economy, while attempting to integrate into the international economy recently, Vietnam is in need to search for some appropriate measures to enhance its technological capability. To achieve these goals, and facing possibility of the widening gap of knowledge, there is a great urgency for Vietnam to work with the international community not only in terms of capital flow, but more so in knowledge creation and use.

One of the possibilities is that Vietnam would need to design strategies and policy to attract direct foreign investment and technology transfer in a way that foreign companies could locate production of goods and services embodying patents and create necessary infrastructure, promotion partnership and training programmes for learning and technology spill over to occur.

There are some problems in addressing these issues. In general, attracting FDI and technology transfer to Vietnam is not an easy task, given the context of scarce financial resources, increased competition around the world, poor infrastructure and not so conducive legal and policy environment, including institutional organisations. Despite the reforms and amendments made regularly to improve investment environment, some key issues remained that hinder the inward flow of capital and technology, among which transparency and consistency of policies and legal frame are the most crucial.

In a manufacturing sector like Vietnamese auto/motor industry, the issue of localization is one of the key questions. This caused a strong debate both in policy-making circles and media on the benefit of the policy and its impact on the development of the industry. One of the arguments was that the policy and related regulations on localization of components and usage rate of local parts in the assembled products are disincentives for the innovation in the industry to take place (Nguyen Vo Hung, 2002). Similar policy disincentives could also be named.

In addition, given commitments of Vietnam in several international and regional trade regimes (AFTA, BTA with the US, and future participation in WTO, etc.), the country's learning and competitive advantage will soon be, among others, challenged by issues related to intellectual property rights (IPRs). In general, as a member of WIPO and international arrangements in IPR area, Vietnam seems to have more or less well developed system of IPR laws and regulations. When it comes to the implementation of these laws and regulations, the difficulty is apparent. This issue caused a lot of concern and policy debates among many researchers, officials and policy makers within the government authorities. One of argument is that instead of forced implementation, more incentives should be provided for stakeholders (enterprises, authorities) to have more voluntary enforcement of IPR regulations.

In relation to this is an issue of co-ordination and collaboration where the role of government ministries such as Ministry of Trade, Ministry of Industry, Ministry of Science and Technology is debated. This could lead to the effectiveness of policy measures or reduce impact of the whole policy making process. In this context, the study on policy, institutional and legal framework for learning and innovation in Vietnam should shed new light both on the academic discourse of knowledge policy and on policy debate in a developing country perspective.

The project tried to examine the following *hypotheses* such as:

- (1) weak learning readiness is the main constraint of Vietnamese firms to participate in and to utilize the networking with foreign firms, to upgrade their technological capability and climb the learning ladder;
- (2) IPR issues, posed by new international context, are hindering the learning and innovation efforts of Vietnamese SME, while they do not receive sufficient support from the government in terms of a suitable knowledge policy and incentive system;
- (3) the overall macro-policy environment of the host economy is not encouraging the multinational and foreign actors (suppliers, providers, buyers) to be conducive toward learning efforts of Vietnamese SME, and thus, not promoting learning.

To clarify the research issues, several *research questions* are examined as follows:

- (1) can Vietnamese firms as learners gain knowledge and close the knowledge gap by collaborating with multinational actors (sellers, providers, suppliers, etc.) in their networks; and (2) what is the IPR barrier, among other things, that Vietnamese firms face in this process, and how they could deal with the issue, what is the solution to this.

Eventually, one of the components of the study is to provide recommendation of policy measures on how to improve the policy environment for learning in general, and how to cope with IPR barrier in particular for Vietnamese firms as learners in their efforts to close the knowledge divide. As such, changes of the domestic policy and organizational institutions are proposed accordingly, including all actors of the national and sectoral system of innovation such as R&D institutes, universities, technology intermediary and other organizations dealing with consulting, information, standards, quality control, etc. Market institutions such as financial, banking, as crucial elements of innovation system, are also examined.

## **V. Research methodology and design**

The analytical framework of the project sees enterprises as the center of an innovation system. The project has following research components and methods.

### **Work package 1.**

Survey of literature on policy for learning, innovation and knowledge accumulation of some neighboring countries (mainly from ASEAN perspective). More specifically, literature review with regard to IPR issue in the context of developing countries is conducted. Desk research in collaboration with the

Center for Innovation Law and Policy of the University of Toronto, Canada is the method to conduct the job. This served as a basis and analytical framework for more empirical studies.

## **Work package 2**

In addition to literature review, the study provided an analysis of policy environment influences on learning behavior of Vietnamese firms and practices of MNCs in working with Vietnamese partners for learning process. This knowledge policy mapping has been taken by both the review of relevant legal and policy documents enacted by the Vietnamese government authorities having impact on firms' actions, and by the exploratory interviews.

In this work package, a sub-theme focused on identification of IPR issues, which might hinder learning efforts of Vietnamese firms. Desk research based on relevant IPR-related legal documents and exploratory interviews are the main methods. This sub-theme is the first step to examine second research question.

## **Work package 3**

In order to address the first research question on the learning capability of Vietnamese firms via collaborating with foreign partners, there is a need for assessing their learning readiness. As the first step, literature review and exploratory interviews are required for this task. The same research question is partly answered by the more empirical studies of firms.

## **Work package 4**

Based on results of all above research activities, a questionnaire designed to collect data from firms is developed. Once filled and returned, the questionnaire allowed to test the research hypotheses and clarify both research questions on firms' ability to close knowledge gap and IPR specific issue. A representative sample survey of 100 firms in auto/motorcycle related industries have been conducted using the above questionnaire. These companies are working as suppliers of parts, components, or subcontractors for manufacturing and assembling operation in auto/motor industry. Most of these firms are small and medium sized enterprises (SME).

## **Work package 5**

Next step is final report with policy recommendations. After analyzing knowledge-related policy environment of Vietnam, its impact on behavior of Vietnamese and foreign partners in learning and innovation interaction,

empirical studies of Vietnamese firms and their practice in trying to close knowledge gap through collaborating with foreign companies would pinpoint the weaknesses and problems to be solved in the innovation system of the industry. To sum up, policy analysis supported by firms' survey and case studies are the main methods in this project.

## **VI. Project implementation and output**

To implement the project, following activities have been taken:

### **Activity 1**

Carry out theoretical literature survey, desk research together with advisors from the University of Toronto, Centre for Innovation Law and Policy (CILP). Initial workshop to discuss research questions, issues and problems, research design is conducted in first week of November 2004. Prof. Richard Owens, Executive Director of the Centre has spent a week (November 1-5, 2004) in Vietnam working with the research team. Comments and contribution from him have been instrumental in the improvement and clarification of some concepts on learning and innovation. The list of relevant literature on innovation, learning, spill over effect of FDI, technology transfer and globalisation and networking with MNC has been supplied by the Centre staff, with synopsis focused on the role of firm, especially SME. It has been agreed by an MOU that the Centre for Innovation Law and Policy would continue to be a long term partner for NISTPASS in this project as well as other research and policy making activities in the future.

One of the important aspects of collaboration with the CILP is the involvement in drafting the Technology Transfer Law for Vietnam. The drafting team has worked with Dr. Owens on a review of relevant legal documents for technology transfer from different economies.

### **Activity 2**

A team for the project has carried out collection and analytical survey of all Vietnamese existing law, regulations and policy documents relevant to the industry and its knowledge learning activities. The team completed knowledge policy mapping report for the auto/motor industrial sector. Policy issues such as localisation of motor parts (industrial policy), taxation (financial policy), human resources (training and education policy) have been discussed.

In addition, another group of project conducted an analysis of IPR related issues for innovation in general and for the auto-motor industrial sector in particular. This group completed the report on IPR issues. Findings have been discussed at the workshop in November 2004.

### **Activity 3**

Another group of project has conducted the collection and review of existing material in relation to the learning status of firms in the industry, using other secondary sources of completed or on going projects. The group has identified several issues and problems in relation to the willingness of foreign MNC to support Vietnamese firms in learning as well as the learning readiness of Vietnamese firms themselves. These issues would be addressed and clarified in the survey. The overall policy mapping and reports have been presented and discussed at an international workshop in Hanoi in June 2005.

### **Activity 4**

The project team prepared questionnaires for firms' survey. It has been collected the list of SME working in industries related to motor/auto industry, to serve the choice of research population and preparation of the survey. The team also has contacted relevant respondents, and discuss the training of people for survey group, etc.

After the first year (2003-2004), second year of the project (2004-2005) has been devoted to further activities.

### **Activity 5 and 6**

In an effort to get a better and more solid understanding of learning activities of domestic firms in auto-moto sector, a survey of domestic firms that have been making auto-moto parts was planned within framework of this project. Started with a list of part makers constructed by Ministry of Industry in 2002, the research team has further developed an updated list of more than 200 firms that we believe has included almost all auto-moto part makers in Vietnam. Looking at this updated list we found that firms are concentrated in the two poles of the country surrounding Hanoi and Ho Chi Minh City where the main assemblers are located. It also reveals that only about half of them is domestic firm while the other half is foreign invested one. Since this project aims at understanding learning activities of pure domestic firms via linking up with foreign firms, those domestic firms in the list naturally become research population.



As a research tool for the survey, a constructed questionnaire was developed using both knowledge gained from literature review and preliminary interviews. After piloting, the questionnaire was revised and used for firms interview. It should be noted that this is not a sample survey, since all firms in the research population (112 domestic auto-moto part makers) were contacted for face-to-face questionnaire interview. The research team has successfully interviewed 87 firms, mainly in the North and in the South, however only 56 filled questionnaires are of good quality for dataset construction.

In addition to the survey, the case studies have been conducted in both categories: multinational companies (two companies Honda Vietnam and VMEP from Taiwan) and three Vietnamese SME that provide input for the production of foreign firms.

### **Activity 7**

Analytical report writing

## **VII. Research findings**

There are several main research findings coming out of these activities. These have contributed to achieving the objectives of the project, both in terms of generating new scientific knowledge and policymaking.

### **7.1 Theoretical review**

The literature review summed up the findings on issues of *globalization, and impact of FDI* on host countries. It is clear from many studies, both theoretical framework and empirical one that *MNC* do play an important role in spillover phenomenon in many developing economies (Dicken, 2003; Newfarmer, 1985). However, it is not an automatic process, but depending on many factors, including that of host countries policies. More recently, the concept of industrial upgrading and global value chain come in the focus of research on the role of TNC and developing countries (Gerefi, 2005). It is clear that many players from developing countries by participating in global production network could have opportunity for learning. Still, this potential depends on circumstances to become a reality in different context of developing countries. Types of value chain also shape the learning potential and behavior (Gerefi et al., 2005). This would have implication for studying Vietnamese firms behaviors.

Another stream of literature reviewed is related to IPR. The protection of IPR is very important for disclosing and diffusing new technology and knowledge as

well as generating new knowledge. Indeed, effective protection of intellectual property will encourage the creation and innovation of firms. With the appropriate benefit, firms will spend more money in R&D activities, and that means more inventions, new products, new process will be invented. Technology and knowledge is improved and developed that result in the development of economy and society. Ordover (1978) has considered ways of adjusting the patent system that may help to both provide returns to the inventor, and encourage the diffusion of the innovation in the economy. However, in another study (1991) he has argued that strong patent protection may not necessarily be conducive to growth. For example, in a strong intellectual property regime, R&D investment by one firm can significantly raise the costs of doing R&D for other firms thereby potentially discouraging them from making their own investments.

Moreover, many studies have found that the importance of patents varies widely from industry to industries<sup>1</sup>. Patents were viewed as a critical inducement to research and development investment only in a few industries such as pharmaceuticals, specialty chemicals and some mechanical engineering lines (Kaufer, 1983). In these industries, the role of patents is not for bargaining purpose, but simply to secure greater returns from investment research. Therefore, protection of intellectual property is not absolutely necessary strong in every case, every industries. However, it is cannot be denied that IPRs has played an important role in transfer and diffusing technology and knowledge, which are foundations for the development of every economy and society.

Unlike developed countries, IPRs systems in most of developing countries are weak or not enforced in practice. Around these problems, there are different points of views that whether this is good for poor or not. For the rich, poor countries need to establish strong IPRs since it helps to foster growth by stimulating domestic innovation, boosting foreign investment and improving access to new technologies. However, for the poor, patent hurts, rather than help, domestic industries, which are often based more on copying than on innovation.

Both these point of views are true and reasonable. Without a IPRs system with strong enforcement, a developing country cannot attract foreign direct investment that results in difficultly accessing to advance technology, less innovation and will make the poor be poorer (Verspagen, 1999). However, there is another attitude that argues patents are obviously bad for poor countries. In this context, there is a view that rich countries could open their domestic IPRs systems, including discounted fees and subsidized technical assistance. It also

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<sup>1</sup> See Scherer, F.M (1958), *Patents and the Corporation: A report on Industrial Technology under Changing Public Policy*; and Taylor, C.T and Silberston, Z.A (1973), *The Economic impact of the patent system: A study of the British experience*.

suggests they should help poor countries to set up their own systems without saddling them with rich world standards until they are ready to benefit from them.

The most importance is the awareness of the country itself to deal with the problems. That is what India, China and South Korea have been attempting to implicate and at least have primary successful. India has a strategy to develop intellectual property of their own by reversing the brain drain into foreign outfits or offshore-services firms. Many experts who have worked for foreign company come back to India and start their own new business or research home. Other when doing research for foreign firms for money, they parallel implicate their own R&D activities. Indian firms or individual have contract work with foreign also plough money back in the form of venture capital. These attempts to establish own R&D capability of India have some primary successful. India also has policy to encourage innovation in small and medium firms with many supports to achieve a patent. The IPRs system of India has been strengthened, however, India still has faced to the problems of expensive medicine and other problems of plants, animals and genes. Korea has been successful with the model of copying then innovation. Nowadays, they have a quite strong IPRs system without the supports of rich countries or other international organizations. Korea has established their own innovation capability and can compete in some certain industries.

Overall, the importance of IPR issue and IPR policy of host countries is recognized but the extent and specific issues are causing different views and debates. There is no consensus on the way this issue should be dealt with in the current trade and investment discourse on globalization.

## **7.2 Overview of the auto-moto industry in Vietnam**

### **a. Motorcycle Industry**

Given the importance of motorcycle industry in a context like Vietnam, the project decided to pay more attention and research effort on this sub-sector. The industry is a significant case for studying the impacts of FDI on learning activities of domestic firms. Findings in motorbike industry will not only benefit the policy-making jobs related to the industry, but also provide insights into policy arrangement on FDI, local enterprises and S&T institutions. As a result, automotive industry has been dealt with in a much more limited extent.

#### ***Emerging of the sector***

Motorcycle has been an important transportation means in the whole of Vietnam since the country's unification in 1975. Right after unification, used motorbikes were traded from the South to the North, making it a new way of personal transportation in the North of Vietnam. In the years followed (1975 - 1987), a significant amount of East European bikes had entered Vietnam via Vietnamese who worked overseas under a labour export deal between Vietnam and former socialist countries. Under another arrangement, a large amount of Vietnamese academic staff was sent off to serve in education sector of some African countries. Earning foreign currencies, many sent home their saving in kind of new Japanese and/or French bikes. These new bikes had become a symbol of prosperity in Vietnam during that time and this attitude to bikes still remains until today.

Period from 1988 to 1992 is characterized by the dominance of Japanese bikes. This was caused partly by change in policy and partly by availability of new sources of supply. During this period, every person travelling overseas was granted duty free for 2 imported bikes. Given a huge gap between world price and domestic price, the product became profitable bring-back for overseas travellers. However, what different from previous years is that new sources of supplies had emerged. Firstly, significant quantities of second-hand bikes were accumulated in Japan and their trading prices were very attractive. Secondly, many international flights that link Vietnam to the world were re-routed via Bangkok, a motorbike manufacturing centre in the region, that made it become a hub for motorbike trading. The legendary Honda' Dream II were used to be carried from Thailand as traveler's luggage, even as the handbags in extreme cases. Due to trade barriers and short of supply, motorbike's prices were set relatively high and only middle-income families could afford to have a bike. Very few could have more than one bike for the whole family.

By 1992, motorbike had already become an important transportation means as accumulated number of registered bikes reached 2,846,000. However, regardless of a huge mechanics sector, which included many large SOEs, making motorbike's spare parts had remained the business of small production units (mainly in kind of mechanics cooperatives). Motorbike industry literally did not exist at that time, the production of spare parts based on out-of-date machinery, and quality of products were low in general.

Period from 1992 up to now observes the development of motorbike industry in Vietnam with some incredible jumps. The first FDI Law in 1987 and its subsequent amendments have made way for entries of foreign motorbike makers into Vietnam. First products of these FDI enterprises were introduced in 1994 and developed quickly in terms of models and quantities in the years later. Considered as an import-substitute industry, high tariffs have been applied to imported bikes, creating favourable conditions for these FDI enterprises to explore local market (at the cost of consumers). The motorbike industry became a flagship of consumer branches in Vietnam considering both, the market dimension and the rapid expansion within recent years.

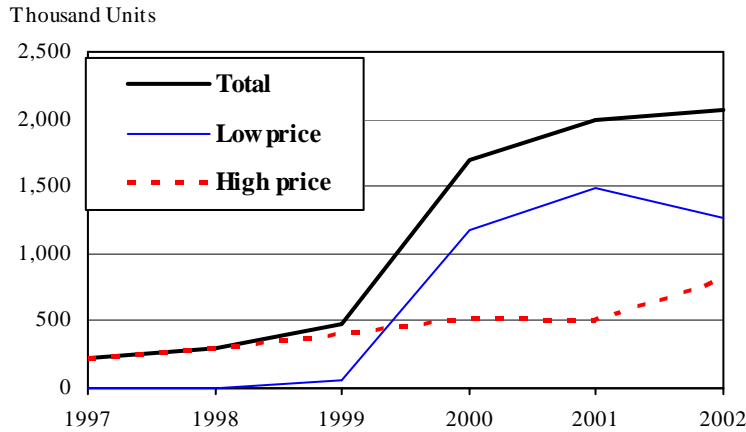
Table 3.1: Motorbike production

Year	CKD	FDI	Local	Total
1999	163,881	211,676	178,975	554,532
2000	65,775	294,697	1,507,052	1,867,524
2001	14,852	325,704	2,079,963	2,420,519
2002	24,137	769,914	988,149	1,782,200
2003		809,957	602,906	1,412,863
2004		1,005,602	895,309	1,900,911

Source: Traffic Police Department, Ministry of Public Security.

The motorcycle market in Vietnam grew briskly since 1999 (see Table 3.1). By the end of 2003, there were 52 motorbike assemblers operating in Vietnam, in which 22 were state-run (42.3%), 23 were private (44.2%) and 7 were foreign invested enterprises. In addition to these assemblers, there were about 200 part-makers, many of them are FDI firms. Measured by the number of vehicles produced, Vietnam now ranks eighth in the world's motorcycle market.

Figure 3.1: Motorcycle Sales in Different Market Segments in Vietnam

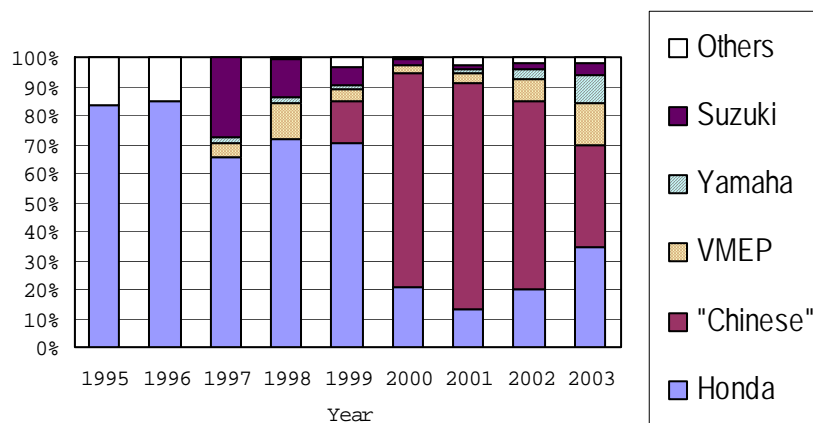


Sources: Ministry of Trade, Ministry of Industry, and Ministry of Public Security.

Note: Sales are larger than the number of licensed motorcycles due to the existence of unlicensed motorcycles.

Since per capita income growth has been relatively steady at about 7% in recent years, the critical factor behind the rapid growth of the Vietnamese motorcycle market was the dramatic price decline from about US\$2,200 on average in 1998 to US\$630 in 2001 caused by the penetration of low-priced motorcycles assembled from Chinese components. The market segment of high-priced products (more than US\$1,000) has increased only slightly while that of low-priced products (less than US\$1,000) has greatly expanded. The trend is reversed in recent years, but low-price bikes are still dominated the market, however this time it is the dominance of FDI assemblers with their low-price models. Figure 2.2 illustrates the fluctuation of market share since 1995.

Figure 3.2: Shares in the Vietnamese Motorcycle Market



Sources: Ministry of Trade, Ministry of Industry, and Ministry of Public Security.

A continued expansion of production volume is the premise for the healthy growth of the Vietnamese motorcycle industry. As Vietnam at present is in the early years of motorcycle industry development, the importance of production volume cannot be overemphasized. Assuming that this premise is met, there is a potential for the development of part suppliers in Vietnam. As larger production volume draws more suppliers to Vietnam, the stage of localization should progress from the second to the third stage. Over time, FDI assemblers and suppliers are likely to let local suppliers take up some parts and production processes. As a consequence, the supporting industries in the true sense will begin to emerge.

### ***Policy Issues***

Development of Vietnamese motorcycle industry over the last few years is boldly impacted by policy. The import prohibition of completed motorcycles from the mid 1990s and a series of measures to promote component production in Vietnam since 2000 are worthy of special mention. The main policy tools for regulating the motorcycle industry have been taxation and import quotas. A progressive import tax based on the local content ratio were applied with the expectation to encourage domestic part production (the higher the local content, the lower the component tariffs).

Local content is defined as the proportion of locally produced components in a motorcycle in terms of value. Taxation based on local content has had a strong influence on motorcycle manufacturers in the formation of subcontracting networks. The quota for importing parts was another significant measure to control the motorcycle industry and protect domestic production in Vietnam. The import quota for each company is based on its capital, production capacity and the local content ratio. Besides taxation and import quotas, requirements related to environment and transportation also aimed to decrease the imports of components as well as to promote or protect the domestic motorcycle industry. These policies also led to the intensification of cooperation within the Vietnamese motorcycle industry.

Impacts of FDI on the technology advancement of the industry are obvious. Being the biggest motorbike assemblers, FDI establishments also invested in

making selected parts using relatively advanced technology. Influenced by the "local contents policy", these FDI establishments were under pressure to look for locally made parts from local part-makers<sup>2</sup> that in its turn, forces local producers to improve its technology and management. FDI also intensify and invite competition from local assemblers. This goes along with "local content policy", forces local assemblers to buy parts locally. Although quality requirement of these assemblers is not as difficult as that of FDI, their orders create a large market for part-makers, which allow them to make necessary investment.

The presence of FDI bike assemblers in Vietnam also attracted international parts makers who supply them various kinds of parts globally. By 2001, there were only 7 FDI bike assemblers, however the number of FDI firms in motorbike industry reached the number of 84 (Table 3.2). Patterns in Table 3.2 also indicates that assemblers from one country usually bring with them parts suppliers from the same country. The production network based on country origin has helped to develop the industry quickly, however it also raise barriers for domestic part makers to enter the market, an issue we will come back in the later part of this report.

Table 3.2: FDI in Motorbike Industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
China							1			7	8
Japan				2	5	5	2		1		15
Korea		1		1				1	1	1	5
Taiwan	2	1	12	2	1		4	5	8	10	45
Thailand				1	1			1		2	5
Other	1				1	2				2	6
Total	3	2	12	6	8	7	7	7	10	22	84

Source: MPI database of FDI projects.

Besides good things discussed in the above section, local contents policy also has negative impacts on the development of the industry. Once implemented, local content policy, revealed many complications and became a hot topic for debate, not only between the authorities and bike assemblers, but also among government bodies. It was criticised that the methods used to calculate local contents are not appropriate and given the lack of effective monitoring system the policy created room for rent-seeking activities. The threshold of local contents for applying privileged import duty was 40%, while in 2000 almost all

<sup>2</sup> According to a recent report, the local content range from 42% to 64.32% among FDI assemblers.



local assemblers were reported to have only 20% local contents, at most, in their Chinese bikes. In 2001, when the policy came into effect, all of these assemblers claimed that they were successful to raise the local contents in their Chinese bikes to the threshold level of 40%, an "amazing effort" if this was real. However, later investigation shows that firms have used many tricks to increase the local contents artificially.

It should be noted that, majority of domestic bike assemblers have background of trading firms. They involved in bike trading first, then when the trade barrier was raised, they switch to assembling activities using simplest technology without any major investment for production of parts and components. The 40% local contents requirement is a strong force which would lead the assemblers to cooperate with local part suppliers or to invest in making them. However, given the weak position of part making sector at that time and huge capital required for investment in part making activities, the firms had found a quicker way to satisfy the authorities.

Given wide spread of smuggling activities at Vietnam - China border, bike parts had been smuggled to Vietnam. Once in Vietnam, these smuggled parts were registered as locally made. Investigation later shows that there are about 400 firms which were registered as local parts makers, but in fact, were trading firms without any significant investment for production. Many of them were especially set up for this "local contents" purpose. As a result, the "local contents policy" which supposed to develop the motorbike industry had turned out to be a paradise for rent-seeking activities.

The policy debate has resulted in many modifications of local content calculation methods and proving requirements within 2001. Lot of investigation were done during this period created a chaos in bike industry. Failure of the transportation infrastructure to cope with motorbike boom made things go from bad to worse. Enterprises blamed the government for inconsistency, the government bodies blamed each other, government office was busy to fight for solution. At the end, the debate was ended by the abundance of "local contents policy" and the government introduced a new mechanism to regulate the industry by production quota and other demand side measures such as restriction of bike registration.

#### b. Automobile sector

Similar to motorbike sector, the automobile sector in Vietnam emerges with the entry of FDI assemblers. In the period from 1989 to 2002, 14 automobile assembling projects have been given licenses with total registered investment of 889,641,435 USD. However, three licenses were withdrawn, so effectively only eleven enterprises with total registered capital of 571,739,190 USD were set up. Following are some major information of those eleven enterprises.

The above 11 FDI projects involve 22 foreign firms and 11 Vietnamese firms. Among the foreign ones there are 13 Japanese firms (Toyota Motors, Suzuki Motors, Hino Motors, Daihatsu Motors, Isuzu Motors, Mitsubishi Motors, Sumitomo Corp, Nichimen Corp, Mitsubishi Corp, Nissho Iwai Corp, Kanematsu Corporation, Saeilo Nachinery), 1 Singapore firm, 1 Philippino firm, 1 Malaysian firm, 2 Indonesian firms, 2 Korean firms, 1 Germany firm, and 1 United State firm. All 11 Vietnamese firms are state owned enterprises (3 of Ministry of Industry, 5 of Ministry of Transportation and 3 of provincial governments).

Table 3.3: performance of fdi firms in automobile sector

Name of firms	Entry year	VN/ foreign	Registered capital (usd)	Implemented capital (usd)	Accumulated Sale (usd)	Vehicles assembled
Isuzu	1989	30/70	50.000.000	23.920.000	43.813.581	1.958
Mekong Auto	1991	30/70	35.995.000	35.995.000	127.975.697	5.529
VMC	1991	30/70	58.000.000	25.000.000	215.679.321	16.313
VIDAMCO	1993	0/100	32.229.000	28.217.000	203.616.000	11.816
VinaStar	1994	25/75	50.000.000	53.000.000	201.181.075	6.454
Mercedes- Benz	1995	30/70	70.000.000	22.500.000	155.026.863	4.814
VIDANCO	1995	33/67	32.000.000	12.914.560	32.265.487	2.782
Suzuki	1995	30/70	34.175.000	38.863.000	279.000.000	3.124
Ford	1995	25/75	102.700.000	72.000.000	395.027.000	18.812
Toyota	1995	20/80	89.609.490	110.627.146	169.000.678	6.340
Hino	1999	33/67	17.030.700	8.111.000	9.147.224	452
Total			571.739.190	419.854.000	1.831.933.126	78.394

Note: the statistics are counted to 31 December, 2002.

Since 1990, the government has launched various measures to attract FDI in developing automobile sector. Prohibitive import duties have been applied to imported cars, ban on importation of used cars, differentiated import duties (for SKD, CKD1 and CKD2) have been used to encourage investment in more complicated productive activities (such as painting, finishing and testing) are just a few among many. However, the multi-purposes nature of this policy makes it hard to be consistant. At the one hand, it aims at nursing the infant automobile sector by creating a trade barrier to protect “local” production. At the other hand, import duties applied to imported and local made automobile is considered as a source for budget revenue with luxury good arguments. After almost 15 years of protection, the so called local production is limited in assembling activities of

foreign affiliates with little value added processes and this poor result is paid by the tax burden put on consumers.

Up to 2002, there had been not a single enterprise to achieve the rate of local contents as indicated in their investment licenses. Although some enterprises have prepared to increase this rate, such as Toyota Vietnam investing in new workshop for production of car frame and cover and as such fulfil the local content requirement, this rate is still very modest. Most of enterprises are not achieved the requirement of localization rate as indicated in the business license. Total designed capacity of eleven enterprises is about 148.000 products of various types, however the number of vehicles assembled in 2002 was only 26,706, reaching 17,6% of designed capacity, the highest number compare to previous years (9.5% in 2000, 13.5% in 2001).

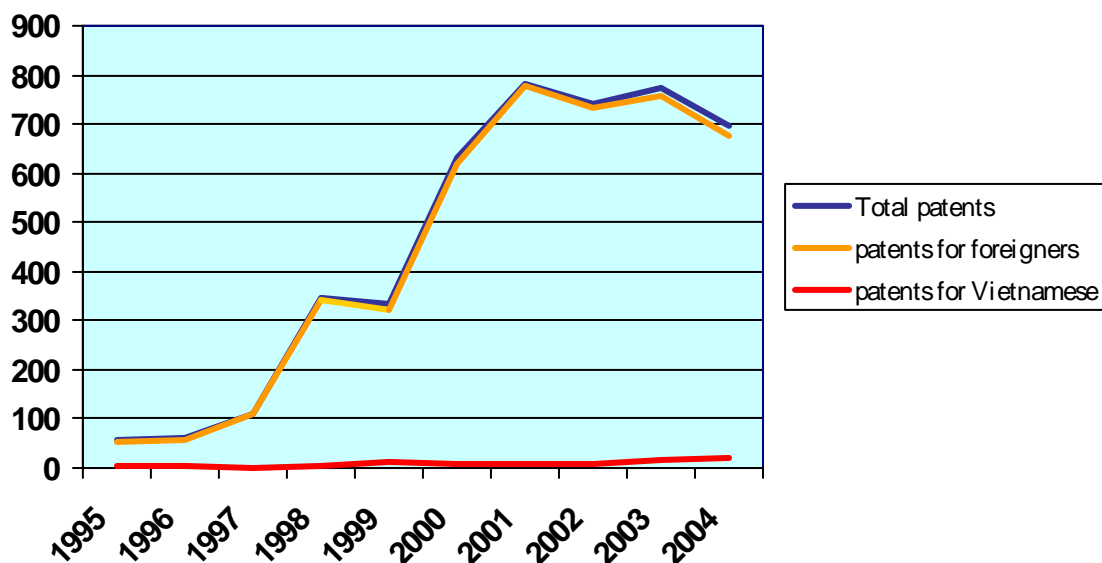
Although implemented capital has reached 74% of total registered capital, assembling activities of almost all enterprises are limited in CKD2 form (except Hino Vietnam). Selective investment in simple assembling activities combine with high protection rate are believed to allow six FDI enterprises (out of 11) making profit even at very low rate of production utilization. Five other enterprises are at lost, including serious lost of Mekong Car. Since 2000, business performance have been improved thanks to the boom in car consumption.

### 7.3 Review of policy environment: IPRs system and law enforcement

The policy review in Vietnamese context pointed to the fact that certain *policies* such as localization of foreign production and products seems not to contributing very much to the learning and technological innovation process of Vietnamese firms. Taxation is another issue that preventing foreign firms from using Vietnamese staff and discouraged learning.

Vietnam's protection system of intellectual property has been established in 1981. Up to now, the IPRs law has been adjusted several times to address requirements of globalization trend. With the support of international community, IPRs law system of Vietnam nowadays is approximate suitable with standard IPRs system in the world. In addition to general IPR regulations, there are no specific policies and regulations created for auto/motor industry.

The following chart shows how increased recently the number of patent granted by Industry Property Department (belonging to Ministry of Science and Technology) after moving to market economy in this period:



Fig

Figure 3: Number of patents granted by Vietnam from 1995 to 2004

Source: Industry Property Department, 2005.

These regulations have some impact on the learning activities of firms in the industry. The impact could be summarized as:

- Standard for protection is sometime unclearly defined, lack of possibility to quantify in creativity
- The standard is too easy for registration and anyone could patent anything for utility model, especially for those very ordinary solutions.
- Content of the description to be submitted as regulated could be useful for further creativity and learning. Companies working in the industry could study the Invention gazette and their information content in finding technical solution for their problems. Sometime, by looking for those IPR expired, companies could have use the invention and other solution for free.
- In general, thank to stricter legal system to suit the demand for entering WTO, application for IPR in Vietnam has been increased significantly.
- IPR regulations by territory allowed companies to learn from patents, utility model and industrial design for those not registered and protected in Vietnam. In fact there estimated that only 1 in 10,000 invention is protected in Vietnam.
- Lack of incentive system prevented users for using archive of invention and other IPR for learning. Only about 1,000 users have used the IPR information for their work annually. In auto-motor industry, for 2 years 2003-2004, National Office of Invention has provided information only for 9 invention/utility models, 407 industrial designs in motorcycle industry.
- In general, firms are not active in utilizing invention and IPR information. Many still violated regulations and infringed others' rights, especially in copying industrial design and trademark of other in their business.

As such, the enforcement of this IPR system is a problem. This raises many problems of accessing to new technology, new knowledge as well of improving technology innovation capability. Certainly, this is not helpful in attracting FDI, moreover, domestic industries seem not be encouraged, R&D capability is not be improved. Infringement of IPR is quite popular in production and sales of products. This is related to invention, industrial design and trademarks. The most serious problems are in industrial design related matters. Actions of infringement are increasingly sophisticated.

There are several reasons for this in the auto/motor industry:

*a) Enforcement regulations are incomplete and lack of effectiveness.*

Although 3 mechanisms are dealing with infringement: civil, administrative and criminal, there is still lack of concretization of clauses of the laws and regulations. The civil aspect of law enforcement is neglected compared to that of administrative enforcement, which has very little effect. Some notion or perception such as “faked goods” are not clearly defined and have too wide implications.

*b) Organization of law enforcement for IPR is not functioning well.*

Currently, there are several organizations involved: People committee (Mayors of cities), S&T revision bodies (Ministry of Science and Technology); police (Ministry of Police); market management force (under Ministry of Trade), Custom. Each of these organizations has their own layers of bodies and organizations, creating complexity, confusion, overlapping and inefficiency.

Next to the policy on IPR, other policies such as financial and taxation policies could have an impact of learning of firms. Here are some observations can be made.

In 2 years, the taxation policies have been revised and changed 8 times, causing a lot of problems for the auto/motor industry in adapting to new business conditions. Overall aim of the changing tax policies is to increase the localization rate of components in assembled products. This aim, according to many assessments, is the wrong one. The absent of quality component providers in Vietnam market is obvious fact. Increase of tax will narrow down the market and discourage the investment, leading to less learning opportunities for Vietnamese organizations.

A numbers of other policies such as training and education, labour, also influenced strongly the learning process of firms. Studies from other industries show the strong evidences.

The *policy review* in Vietnamese context concluded that certain policies such as localization of foreign production and products seems not to contributing very much to the learning and technological innovation process of Vietnamese firms. Taxation is another issue that preventing foreign firms from using Vietnamese staff and discouraged learning. The whole institutional environment for IPR is not up to the extent that favoring the learning.

## **7.5 Learning patterns, readiness and the survey**

The existing reviews on other industries such as electronics, apparel revealed an extreme *imbalance in technological capability* of industrial firms in general. It was reasonably evident in areas of existing production methods and in managing minor technical change, factors associated with the early or entry end of the technological capability. By contrast, it was found little evidence of technological capability in the areas of major technical change and marketing. This may not be surprising given the long history of command and control approaches of industry in Vietnam and the recent nature of the transition to a more competitive economy. Indeed, this imbalance has been attributed precisely to a lack of the learning opportunities that come from competitive pressure, and a consequent lack of a need to engage in marketing or to innovate products in terms of range and quality. As such, the most developed technological capabilities are production, minor technical. The linkage capability, instrumental in learning, especially in cooperating with MNC, is still not very developed (Tran Ngoc Ca, 1999).

*The nature and mechanisms of learning:*

- among learning mechanisms, active learning-by-doing is necessary, but is not in itself sufficient
- learning through foreign connections, in Vietnamese firms, is weak for acquiring marketing and technical change capabilities, due to the ineffective utilisation of these connections by Vietnamese firms themselves and very likely a lack of readiness by foreign partners to help in this area.

When MNC are ready to create conditions for learning, Vietnamese companies did not take the chance for learning. Vietnamese firms generally did not know how to go about utilising partnership arrangements with foreign firms in order to learn technological capability. Equally, foreign partner firms often showed little voluntary willingness to structure and facilitate the learning. A passive approach would need to be replaced with conscious and creative strategies by the individual firm to exploit the potential for technology learning. Institutional factors (e.g. the vast difference in the traditions of SOEs and foreign firms, legal and regulatory regimes or financial impediments) may also have been contributing factors to the discouraging finding in Vietnam (Tran Ngoc Ca, 2000).

Concerning the use of *foreign connections*, Vietnamese firms have difficulties in using foreign connections to learn technical change capability for two reasons: the ineffective utilisation of this mechanism on the part of Vietnamese firms themselves, and the likelihood that foreign partners not willing to help them in this area. The implication of this is that the learning mechanism through foreign connection is not the one-for-all solution for the technological accumulation of

developing countries. Firms should not passively rely on this mechanism, but should try to exploit this connection more consciously and creatively.

*Following features have influences on learning:*

- the joint interaction of both macro environmental factors and firm-level micro factors is an important influence on learning and technological accumulation.
- personal networking is crucial in the Vietnamese context for learning
- the government plays a contradictory role. It over-intervenes in industrial activity in some respects yet it simultaneously offers inadequate support for other activities. There is little evidence of selective intervention.
- ownership is an important issue for learning. There is a tension between private and state ownership.
- firms' strategies are important determinants of the learning process.

Aiming at understanding learning readiness, behaviour and patterns of firms via working with MNC, in different ladders of value chain upgrading, the survey of SME is undertaken, specifically for auto/motor industries. More specifically, following questions have been addressed by the report on the issue of learning readiness by Vietnamese industrial firms: What are the problems for Vietnamese SME to learn from foreign partners and MNC? Did they learn anything at all? What kind of knowledge did they learn, and what knowledge they did not learn? Why?

*Result of the survey: Learning from foreign affiliates in Vietnam*

(for a full discussion of survey results see academic report)

Although entering auto-moto parts market at entry level with simple products, domestic firms still have to learn to cope with many obstacles and/or problems that are new to them. Understanding the kind of problems that firms have experienced as well as channels that they have employed for learning is crucial for policy design.

Table 4.12 reports the frequency of obstacles that firms experienced in learning to make auto-moto parts. For both groups of firm, lack of “resources for overseas visit” is reported with highest frequency (75% of firms in “not link up” group and “72% of firms in “link up” group). This result, on the one hand, reflects the desire of domestic firms to go overseas for learning; on the other hand, it is an indication of poor learning environment locally (so that they look for going overseas).



**Table 4.12:** Obstacles that firms experienced in learning to make auto-moto parts

having obstacles with	not link up		link up	
	Freq.	Percent	Freq.	Percent
<b>standards for parts</b>	6	<b>50</b>	23	<b>57</b>
<b>access to testing eq-ment</b>	5	42	24	<b>60</b>
consultant for tech. prob	6	<b>50</b>	15	38
<b>technical doc in Vietnamese</b>	6	<b>50</b>	27	<b>68</b>
interlectual property data	5	42	2	05
production equipment	3	25	6	15
fund for trial production	7	<b>58</b>	13	33
copying or immitation	1	08	4	10
<b>resources for oversea visit</b>	9	<b>75</b>	29	<b>72</b>
efficiency of internet use	5	42	23	<b>57</b>
labour force skills	4	33	7	17
design capability	3	25	3	07

“Technical documents in Vietnamese” is problematic for both groups, but it is more serious with “link up” group where 68% of firms reported to experience this kind obstacle. Again, this is an obvious indication of poor learning environment. From innovation system perspective, this is a very serious problem because the system fails to provide innovative firms (innovative in a sense that they make something new to them) with appropriate technical documents that they could refer to whenever needed. It is even more serious since it happens not in any advanced sector but in a relatively mature sector like simple auto-moto parts.

Also related to technical documents is the problem of “standard for auto-moto parts”. Standard is an important technical document and normally it includes many valuable information which can guide firms to make a specific product appropriately. Lacking standard of a specific part means that firms have to learn about its technical specification from other sources which are not always easy. An FDI motorcycle assembler said that when they were looking for local part suppliers, many can make geometrically an exact copy of the sample part, however its material, physical and mechanical characteristics are not in accordance with the sample. Standardization of auto-moto parts in Vietnamese Standard System were under developed.

Lacking technical documents and/or standards for reference, part makers have to learn through experiments. Here come the demand for testing and analysing services. Given small size of the firms and low frequency of use for a single firm, investing in these equipments does not make sense for individual firm and as such technical services in this field is expected. However, high proportion of firms in both groups (60% in “link up” group and 42% of “not link up” group) reported to have obstacles with “access to testing equipments” shows that market

for this kind of technical services is not well developed and at the same time services from public sector is not effective. Having obstacles with “consultant for technical problems” is another indication of poor technical services and is reported with high frequency in “not link up” group, even more often than obstacles with “access to testing equipment” in this group.

Table 4.12 also reveals that obstacles with “design capabilities” and “copying or imitation” are reported with low frequency. This could be interpreted as a consequence of low IPR protection in this field<sup>3</sup> so that firms do not have much problem to copy or immitate similar products. Under such conditions, design capabilities is not a big problems because firms do not have to deal with something new. Obstacles with “production equipment” and “skills of labour force” are also reported with relatively low frequency, especially in “link up” group.

Lacking technical knowledge in codified forms (technical documents, standard etc.), it is expected that learning of firms will rely more on their interaction with other organizations in the system. Table 4.13 reports the average evaluation of firms on the importance of different organizations on their learning process. The scale used in questionnaire is a Likert scale from 1 to 4, with “1” stands for negative impacts, “2” for insignificant, “3” for positive impacts, and “4” for very significant. With this structure, 2.5 is the mean of the scale (average score).

There are several observations from the evaluation of firms in Table 4.13. In general, firms in “link up” group evaluate contributions of various organizations on their learning process more positively than “not link up” group. It seems that pressure from linking-up with FDI assemblers has accelerated the interaction between firms and other organizations.

Looking at evaluation of both groups, it is easy to see that organizations in “public” sector such as “government agencies”, “chamber of commerce & industry”, and “custom, tax authorities” are evaluated with not much contribution, although the score is significantly higher in “link up” sector than in “not link up” sector. Organizations related to technical services like “university, college”, “R&D institution & government labaratory”, “international institution & ngo”, “information agencies”, “local consultant & engineering”, “foreign consultant & engineering” are all evaluated with low scores (lower than average score). This result is consistant with earlier analysis that technical services have not well developed both in private sector as well as in public sector. Relatively high score in case of “vocational school, centre” is not a surprise since making

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<sup>3</sup> (it should be noted that besides weak enforcement of IPR regulations, many auto-moto parts are simple products that don’t have any IPR protection)

simple auto-moto parts requires workers with basic practical skills trained in vocational school, not necessary in university or college.

**Table 4.13:** Contribution of various organizations on learning process of firms

type of organizations	not link up	link up
chamber of commerce & indus.	2.00	2.67
<b>auto-moto association</b>	<b>2.55</b>	<b>3.17</b>
government agencies	2.09	2.40
custom, tax authorities	2.09	2.77
<b>bank &amp; financial inst.</b>	<b>3.09</b>	<b>3.36</b>
university, college	2.27	2.33
<b>vocational school, centre</b>	<b>2.91</b>	<b>3.10</b>
R&D inst. & gov. labaratory	2.00	2.05
international inst. & ngo	2.00	2.00
information agencies	2.09	2.33
local const. & engineering	2.45	2.13
foreign const. & engineering	2.18	2.17
<b>fdi auto-moto assemblers</b>	<b>2.09</b>	<b>3.13</b>
<b>local auto-moto assemblers</b>	<b>3.09</b>	<b>3.45</b>
<b>local vendors</b>	<b>2.91</b>	<b>3.36</b>
<b>foreign vendors</b>	<b>2.73</b>	<b>3.08</b>
<b>sale outlet in free market</b>	<b>3.36</b>	<b>3.25</b>

In Table 4.13, group of organizations that are evaluated as having positive contributions to learning of the firms are their business partners. For firms in “not link up” group, “sale outlet in free market” is mostly appreciated with average score of 3.36, “local auto-moto assemblers” and “bank & financial inst.” are followed with the same score of 3.09. “local vendors” and “foreign vendors” are also appreciated but with lower scores of 2.91 and 2.73 respectively. It should be noted that the two organizations with highest scores for “not link up” group are their main customers. Since “fdi auto-moto assemblers” is not customers of firms in this group, low score is expected. However, such low score as 2.09, among the lowest, is quite surprise. This result is an indication that when firms do not sell to FDI assemblers, it is much more difficult for them to learn from them.

For “link up” group, “fdi auto-moto assemblers” as their customers are evaluated with a much higher score (3.13) compare to “not link up” group. We can argue that selling parts to FDI auto-moto assemblers significantly open up learning chance from them. However, it is still the “local auto-moto assemblers” who are evaluated with the highest score (3.45), following by “local vendors” & “bank & financial inst.” (both 3.36), “sale outlet in free market” (3.25) and “auto-moto association” (3.17). It seems that linking up with foreign partners not only open up the learning opportunity directly from them, but also facilitate interactions of firms with other organizations. In its turn, these interactions facilitate learning.

Above analysis confirms that customers and vendors are important sources of learning. However, working with them involve quite many problems, many of which could restrict learning efforts of firms. Table 4.14 below reports some problems that firms experienced when trying to learn from customers and vendors.

Table 4.14: Problems that firms experienced in working with customers, vendors

Type of problems	not link up		link up	
	Freq.	Percent	Freq.	Percent
lack of parts' design	1	9	10	25
<b>client didn't help w. expert</b>	5	<b>45</b>	21	<b>53</b>
don't know client demand	0	0	6	15
<b>unstable orders</b>	<b>9</b>	<b>82</b>	<b>29</b>	<b>72</b>
restrict to sell to others	1	9	7	17
vendor didn't help w. expert	0	0	4	10
vendor didn't give full doc	1	9	16	<b>40</b>
<b>fail to explore fully vendor</b>	8	<b>73</b>	31	<b>78</b>

With regard to customers, many firms in both groups reported that their clients didn't provide experts to help with conducting their orders. This is considered as problematic and is more serious in "link up" group where 53% of firms in this group reported this problem (compare to 45% in "not link up" group). It is well understood in many sectors of developing countries (such as textile, footwear) that in early stage of development, foreign clients usually provide technical supports in form of offering advisors or supervisors. These experts were seen as an important source of practical knowledge and have many advantage over other types of learning. The auto-moto parts sector seems not to have this luxury.

Table 4.14 points to another type of problem, that is the "unstable orders" of customers. The problem looks more serious in "not link up" group than "link up" group with 82% of firms in the former group reporting the problem while 72% of firms in later group reporting it. Further investigation shows that very few supplying contracts between part makers and their customers, especially non-fdi customers are long term. As a result, it is very difficult for part makers to plan any serious investment, including investment for learning. Fdi customers tend to go with more long-term contracts, while "rent seeking" activities provoke short-term approach of domestic customers. Preventing "rent seeking" opportunities is believed will support long-term relationship between part makers and auto-moto assemblers.

Loose relationship between part makers and their customers also reflects in low proportion of firms reporting to be restricted to sell to others. There is only a

firm in “not link up” group (9%) reported to have this problem while 7 firms in “link up” group (17%) reported it. Some firms in the interview said that their fdi customers put sale restriction conditions on negotiation with “IP protection” argument.

In earlier analysis we pointed out that machine and production skills (to maintain stable quality and low cost) are considered as the most important factors for entering part market. With this regards, vendors are expected to be a source of knowledge. Looking at Table 4.14, we can see that although access to experts and/or documents from vendors is not a big problem, exploring them fully is problematic. There are 73% of firms in “not link up” group and 78% of firms in “link up” group admitted this problem. Interviewing with firms reveals that most of them were not prepared for exploring vendors intentionally. They only realize it when deals had been done and if they had done it again, they would do it differently.

Table 4.15: Importance of learning channels to auto-moto part makers

learning channel	not link up	link up
visit other firms in Vietnam	3.40	3.50
go overseas for learning	3.45	3.56
recruit technician w. k-how	3.64	3.60
trial & error	3.00	3.25
learn from customers	2.91	3.20
learn from vendors	2.64	2.52
co-op w. scientist, S&T inst	2.20	2.10
attend training course	2.40	2.45
refer to technical document	3.27	3.02
using consultant	2.00	2.17
in-house R&D	2.42	2.34

In the survey, another Likert scale from 1 to 4 is used to measure the importance of different channels or approaches that firms have used for their learning efforts (2.5 is the mean value of the scale). Table 4.15 reports average scores of these channels for the two groups. It indicates that “recruit technician with know-how” is evaluated as the most important learning channel for firms in both groups. It is easy to realize that learning channels with highest scores are ones that reflect the self efforts of firms in term of learning by watching, trial & error. Other group of channels like “learn from customers” and “learn from vendors” are important but to a less extend than the former group. It is also clear that scientists, S&T organizations, and consultants are not important learning channels of auto-moto part makers. These results are consistant with evaluation of firms on contributions of different organizations on their learning process.

Policy environment plays an important role in learning of firms. It is understood that joint interaction of both macro environmental factors and firm-level micro factors is an important influence on learning and technological accumulation. Although promoting auto-moto industry, policy measures are not consistent. On the one hand, incentives (mainly tax measures) to promote localization of production activities have been issued, on the other hand, adequate supports (especially technical supports) are not effective plus negative impacts of other regulations.

In the survey, firms were asked to evaluate impacts of policy factors on their learning activities using a Likert scale from 1 to 4. Average scores are reported in Table 4.16. In line with above argument, evaluations of firms show that “local content policy” and “support of gov. in all forms” are very much welcomed with high score in both groups. It is indication that although local content policy were criticized for its implementation, in general, it is still considered as a positive push for domestic part makers.

The fact that “favorite conditions for FDI” is appreciated by firms in “link up” group, but not in “not link up” group provide some evidence that firms in “link up” group have got some benefits from FDI assemblers. There is also a big difference in evaluation of the two groups with regard to “regulation on loan”. Firms in “link up” group highly appreciate the regulation with score of 3.73, while firms in “not link up” group put a much lower score of 2.42. It seems that linking up with FDI assemblers also help part makers to access loans.

Table 4.16: Policy issues

Policy & regulation	not link up	link up
local content policy	3.58	3.63
support of gov. in all forms	3.09	3.77
favorite conditions for FDI	2.36	3.08
restriction on R&D bill	1.82	1.98
restriction on training bill	2.00	1.98
restriction on tech acq. bill	2.18	2.42
regulation on loan	2.42	3.73
regulation on ipr	1.82	2.08

Above is positive aspect of policy, we now turn to some drawbacks. Evaluation of firms in the survey shows that all kind of restriction on R&D bill, on training bill and on technology acquisition bill are considered as not supportive for learning. Further investigation show that tax regimes do not consistently support learning. On the one hand, low import tax applied to auto-moto assemblers encourage them to buy parts locally which open up opportunities for local part makers; on the other hand, restriction on expenditure (which can be deducted from taxable corporate income) for R&D, for training and for technology

acquisition limit the learning activities of firms to fully benefit from such opportunities.

## **7.6 The case studies**

### **7.6.1 Foreign companies**

#### ***a. Honda Vietnam***

Honda Vietnam was established in 1996 as a Joint-venture between Honda Group (70% in total, in which Honda Motor Co., Ltd., hold 42% and Asian Honda Motor Co., Ltd., hold 28%) and Vietnam Engine and Agricultural Machinery Corporation (VEAM). This rate allows Honda to have managerial control in operation of the joint venture. In management board, Japanese side hold the post of general manager and the Vietnamese side hold the post of vice-general manager. The factory is located in Vinh Phuc province, on the edge of the road link Hanoi and Haiphong, about 30 km from Hanoi. The operation was started in 1997 with its legendary Dream model (which is named Super Dream for model produced in Vietnam).

Legal capital of the joint-venture is \$31.2 million, in which the Vietnamese partner contributes value of the land use right, and the foreign partner contributes capital. Design capacity of the factory is 450,000 units/year and this is in due with registered investment of \$104 million. During the construction and development phase of the factory, capital has been added several times. By Aug 2000, total investment of HVN reached \$51.5 m. with production capacity of 300,000 units/year and 943 labours. By 30 Oct 2001, the accumulated investment was about \$134.4 million. By Jan 2002, HVN had 1143 labours and capacity of 450,000 units/year. By Apr. 2002, it reached the capacity of 600,000 units/year with about 2000 labour, a dramatic growth.

Honda Vietnam Co. is considered as a profit making FDI business in Vietnam. Thanks to the reputation of its brands with Honda even became the synonym of motorcycle in many parts of the country, and protection of high tariff rate and efficient sourcing policy, by the end of 2000, Honda's accumulated production reached 339,000 units and its accumulated profit is about \$65.8 million. HVN took just 15 months to reach its first 100,000 units of production, a further 11 months to reach 200,000 units and only 7 more months to reach 300,000 units of cumulative production (Press Release, Sep 29, 2000). By that time, HVN has identified itself as the country's largest motorcycle

producer. Its market share reached 26% in 1999, not mention the imported model of Honda. Since 2000, the company's position has been challenged seriously by cheap locally assembly bikes with imported components from China (the market share of Honda Vietnam dropped to 8.6% in 2001), however it still remains the most important player in the industry.

As a leading motorbike maker in the world, there is no doubt about the superiority of Honda technology. However, how superioritee is the technology of Honda Vietnam is a different question. Given the five regions strategy of Honda in which Thailand is developed as the Honda's headquarter in Southeast Asia, R&D and engineering capabilities are thus centralised in Thailand, living the affiliates like Honda Vietnam focus on production, assembling and marketing.

Defined by the global strategy, it is not surprise that Honda just develops operation capabilities for Honda Vietnam. Construction of the factory was done in accordance with development plan and engineering works of Honda. The technology that has been transferred is process technology, which means equipments and skills to operate and control production process smoothly. Product technology is not transferred fully since design and product development capacity is centralized in Honda R&D South East Asia Co., and Honda's factories located in Thailand.

Concerning the machinery and production structure, by the end of 2000, HVN had developed its structure with six production workshops as follow:

*Pressing Workshop* with a 200t and two 400t pressing machines, a CNC pipe framing machine used to make frame, gasoline tank, chain box, and other precise parts;

*Welding Workshop* with 5 robots to ensure productivity, precision and quality of components;

*Plastic Object Workshop* with modern computer controlled machines, which allow high productivity, while providing endurance and aesthetics of plastic parts;

*Painting Workshop* is equipped with state-of-the-art technology (first use in ASEAN) to ensure the greatest surface protection for metal parts;

*Assembling Engine and Frame*, the assembling line is modern and has relatively high level of automation. It is also equipped with on-the-line testing facilities, which allow quality to be checked at every step of production line;



*Quality Control Workshop* is equipped with state-of-the-art modern Japanese testing equipments operated by overseas trained staff. It also manages the 500-meter long test-runway, which is the longest one in ASEAN so far. Recently, HVN has started to invest in manufacturing engine's components locally. This might result in a totally new workshop.

HVN started with assembling standard models with some parts produced and sourced locally and sophisticated components (such as engine) sourced overseas via Honda procurement network in the region. This network has allowed HVN to be successful in a relatively short period of time. Establishment of HVN also bring with it many foreign parts & accessories makers to come to Vietnam, creating a group of satellite companies around HVN.

The next step of development at HVN is to produce sophisticated components in Vietnam. This is done by heavy investment in machinery and training. The capabilities in operating the production system might be upgraded but there is little evidence that Honda will develop R&D, design and engineering capabilities in Vietnam.

All the above-mentioned technology is transferred mainly through training the staff. Before starting production, HVN has built up a core staff, which comprises of engineers and technicians who then sent to Japan and Thailand for training. 6 months course was for production-line managers and 3 months course was for managers at lower level. In total, 100 people have got this type of training. Once the production commenced, Honda sent its supervisors on a regular basis to overseas and provides guidance to production activities.

Besides oversee training, on-the-job training has been applied since the start of operation in form of short training courses provided by Japanese lecturers. This type of training aims at specific or problematic issues realized in the operation of the new venture. Training curriculum is based on Honda Foundation Course, a program used within Honda only. Teaching methods includes classroom lecture, role-plays, scenario building etc.

HVN recruits local residents who have successfully completed secondary education to work as operation workers. Since many of them have agriculture background, it takes some extra efforts to train them to be industrial workers. This is one of the challenges that Honda has to overcome to materialize its operation in Vietnam. All of the training is in production skills, operation management, and quality management. There is little training on designs. Technology capabilities of Honda Vietnam are thus concentrated on operation, leaving innovation capabilities for it's headquarter in Thailand.

The entry of Honda into Vietnam has a strong impact on the development of motorcycle industry in Vietnam. In order to meet the targeted rate of local contents (so it can enjoy lower rate of import duty for imported components), HVN has to develop a network of suppliers in Vietnam. This network is made up from domestic suppliers who have been selected by and got technical supports from HVN, and other FDI enterprises that in many cases are suppliers of Honda in the region. At the moment, Honda has about 20 local suppliers, in which 13 are Japanese firms coming to Vietnam to serve Honda, a Thailand invested firm who had been assembling Honda products before Honda came to Vietnam, and 6 domestic firms. Honda itself has entered into two more joint-ventures with other local partners to produce motorbike's parts. By the end of 2001, there were over 80 FDI motorcycle-related projects in the whole of Vietnam.

The process of seeking local domestic suppliers has an important impact on awareness of many local domestic firms. By negotiating with Honda, they have learned more about quality requirement and management. Those who fail to become a supplier for Honda, learned why they had fail and so what they have to improve. Those who succeed have improved a lot in the process of meeting requirement of Honda. In many cases they also got technical supports from Honda especially with regard to quality management, and these proved to be very valuable.

The entry of Honda also changes the competitive behaviour in the local market. First, importation of similar standard models from Thailand has been replaced by importation of more expensive models aiming at the high-end market. Second, Yamaha and some other assemblers also entered the market making competition even more intense. Third, high price set by FDI firms (Honda is mostly quoted) has created opportunities for low price motorbikes to enter the market. This is the emerge of so called 'Chinese motorbikes' (as most of the components are made in China) with prices range from half to a third of that of Honda's standard ones. In respond to the challenge of 'Chinese bikes', Honda launched its new model 'Wave Alpha', which is priced at about 20% higher than that of 'Chinese ones'. Soon after its launch, the new model has gained a significant share in the low-end market. Many people had to wait for their turn to buy one. 'Wave Alpha' became a real threat to local assemblers who so far had enjoyed the surge of 'Chinese bikes' by assembling these models. They fight back by criticising that Honda has used too much 'Chinese parts' in the new model, that Honda has manipulated the local contents rate for low tax etc.

### ***b. VMEP***

VMEP was the first FDI company invested in Vietnamese motor industry. This is a 100% Taiwanese own enterprises, it got the investment license in 1992 and started its production in 1994. This time, all of technologies, machines and equipments were transferred from Taiwan. Initially, all motor models are made with design supplied from the mother company in Taiwan. This includes detail drawing/illusion and description of manufacturing process.

VMEP's development is a non-stop process of learning. Technologies are acquired step by step based on technology transfer contacts between Mother Company and VMEP. In total manufacturing technology of 18 motorbike models have been transferred, 117 employees have been trained abroad (10930 people\*day), 152 foreign experts have come to Vietnam for technical support (1606 people\*day). Total cost of technology transfer was around 8,7 million USD, in which 7,4 million USD were paid. (Report on technology transfer Sanyang – VMEP).

Beginning with models from abroad and imported parts, VMEP has been modified some model to deal with specific requirements of Vietnam customers (e.g. reducing the noise and shake of engine). The company also increasingly invests in machines and equipments to produce components for its assembling activities. The investment is also done in a step by step manner with simple machines first and later more sophisticated CNC machines. At the moment the company has been producing sophisticated engine components at its factory in Dongnai province. Its staff has managed production technology, however, programming of CNC machines are still conducted in Taiwan.

Recently, in a move to make VMEP become Sanyang's Centre in Asian, technology capability of the Company has been strongly improved. With improving design capability, the company has launched new model that has been partly designed in Vietnam (although comprehensive design and testing are still implicated in Taiwan). Important equipments for design and training design engineer have been invested. 20 engineers will be trained in Taiwan to play the key role in designing.

## **7.6.2 Vietnamese companies**

### ***a. Lien Ha private company:***

Lien Ha co. is one of the suppliers of motorbike seats in Vietnam with the market share evaluated by the owner of as much as 20%<sup>4</sup>. The production site is part of a sport shoes manufacturer located in the outskirts of Hanoi. The company was officially established in 2002, after implementation of Private Companies Law. However, business started unofficially in 1992 when the present owner and director, after being retired, decided to start the business with a group of friends. The director, former CEO of a state owned automobile company expresses great pride of his company that he has never required any bank loan or other financial state support for operation of his company. He expresses that his former network of contacts, recognition of domestic and foreign market in terms of consumers needs and suppliers possibilities, awareness of the operations of local institutions and legal system and great entrepreneurial spirit and belief in the company success contributed decisively to the success of the company.

The company started with employment of 50 persons, now reaching 200 persons at the peak of season. Given the broad contacts of the owner in automobile industry, the initial plan was to produce seats for Toyota's car, however this plan had failed due to the decision of Toyota to use imported seats. The company then turned to produce seats for sofa to be sold in domestic market. In the last few years, with implementation of 'local content' policy in motorbike industry and suggestion from by-then potential customers, the company finds its fortune in manufacturing motorbike seats. Customers of the company are very different in which 70% are Vietnamese motorbike assemblers and 30% are foreign invested companies in Vietnam such as Honda, Toyota, SYM.

The technology applied is quite simple in terms of equipment required and skills of workers employed directly in production line. Second-hand small type plastic pressing machines (which were made in 1990) were imported from Korea and Japan and a single operator can operate each machine effectively. Product designs are based on foreign models available in the market, even though the company claims that modifications in their product make it more durable than competitive ones. Moulds are made locally by some mechanic companies including IMI (Industrial Machinery Institute), while the materials (mainly POLIURETAN) are imported entirely from the USA (via distributor from Taiwan).

Based on what we have observed at the production site, there is no doubt about operation capability of the company in a sense that its workers can operate

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<sup>4</sup> This is an overstatement given our knowledge of his production facility. We think a more realistic number is about less than 5% of the whole market.

effectively and productively. However, there are a lot of things need to be improved. First, the factory should be in a better arrangement. It is quite messy and this will affect productivity to some extent. We do not see any evidence of TQM at site.

Second, even the good point of second-hand machine is that it is cheap, the bad point is that breakdown is more likely to happen and rejection rate is quite high (around 10%). When the machine is down, the normal problems can be fixed by technical staff of the company, but there were cases where the company had to call for external help. Given the lack of formal technical supports from machine manufacturers, the help comes from technicians or engineers of research institute/universities, or of other companies or even individual technicians. These people can make the machine work again, but it is usually take time, and in some cases cannot solve the problem properly.

With regards to adaptation capability, there is not much to discuss about adaptation of machines but more with materials. Specific type of material and sometimes their combinations play a critical role in the durability of the product. In this field, the company has a good knowledge of materials and they are able to produce an appropriate combination for their product.

As we have mentioned earlier, the company claims to have some capability to come up with its own product design, which has some advantage compare to competitive products. However, it is just a minor change in design of other model available in the market. The key issue however is how you can make a durable product using least amount of material and this is really the capability of the company.

#### ***b. Song Cong Ltd. Co. - Ha Dong.***

Song Cong Mechanics Company was established in January 1995 on the base of a mechanics co-operative. It is located in Hadong, Hatay province, just 20 km from Centre of Hanoi and is considered as a flagship of mechanics sector in this province. Its traditional products are motorbike spare parts for replacement need of second-hand bikes, a huge market in 1980s and early 1990s. Being in this business for quite a long time, the company has a good relationship with a wide-range distribution network in Hanoi.

In recent years, thanks to 'local contents policy' applied to motorbike industry, it has expanded to manufactures various motorbike components for both domestic and FDI bike assemblers. It used to be a major supplier for Hatay's factory of VMEP, a Taiwanese motorbike maker, before this Taiwanese

company started its main production facility located in Dongnai, a southern province neighboring HCM City. In the last three years, Song Cong has been supplying many Chinese based domestic assemblers with different kinds of components; most of them are simple ones. Surprisingly, this is usually not based on a long-term contract but rather to meet the short-term need when these domestic assemblers fail to buy smuggled components from China. With better control of smuggling in 2002, the company sees more stable orders from domestic assemblers.

In 2001, Song Cong employed about 300 people working one shift. A new factory with second-hand Japanese machines is under construction and when commence will double the workforce.

Song Cong production is based on multipurpose machines modified for production of specific components. Most of these machines are second-hand Japanese ones and some are Russian ones. Majority of machines are old and their precision is no longer high.

Regardless of inferior machinery, Song Cong has managed to produce many kinds of motorbike components, some are quite sophisticated. The company's approach is to change its old, multi-purpose machines into specialized productive machine with simple innovative accessories. Some of these accessories are invention of the company, some are copied from practices of similar factories in Taiwan. This approach allows the company to obtain productivity and reasonable precision at relatively low cost which is enough for requirement of domestic assemblers. However, this does not allow the company to become supplier of FDI assemblers who require higher quality and stability. Investment for a new factory is believed to overcome this limitation.

Technical knowledge is obtained mainly through 'learning by doing' and 'learning by watching'. Business tours organized by VCCI (Vietnam Chamber of Commerce and Industry) to Taiwan prove to be valuable since it has acquired much technical information, which allows it to innovate successfully. Feedback from distribution agents is an important source of information for the company to modify its products or launch new ones.

Regardless of many technical problems, which need to be addressed, the company usually does it by themselves. Relationship with S&T organisations is considered of no help in this respect due to high cost and ineffectiveness of these organisations. The manager of Song Cong expresses his believe that people from S&T organisation cannot get involved deeply enough to be able to find solutions for the very specific problems of the company. It is better let the engineers who

have to face the problems everyday to be in charge for finding solution. S&T organizations, however is quite helpful in testing services since the company does not own measurement equipments.

### *c. Thang Long Metalware Company*

Thang Long Metal Fabricated Enterprise was established in 1968 as a state owner enterprise that belongs to Hanoi Industrial Department. The company was registered in 1994, again as a state company. The company is the leader in producing metal fabricated household appliances, particular stainless steel products. Its production reaches four millions complete products per year. These include three main types of products: oil-cookers, table lamps and candle lamps; stainless steel utensil; and motorbike components.

Thang Long's headquarter is located in Sai Dong, 10kms from Hanoi's centre. It also has three factories, one in Hoixa, Gialam, Hanoi producing mould and motorbike components, one in LangYen, Hanoi producing water tank and eating utensil, one in HCM City producing metal fabricated products. In 2001, it employed 1059 people. Of which 100 are engineers and bachelors, and more than 200 skilled workers. Many retired experience workers were invited to work for Thang Long and they have contributed remarkably to success of the Company. The company has several important customers such as Honda Vietnam and IKEA of Sweden.

With regard to motorbike components manufacturing, ThangLong's technology is superior to Lien-Ha and Song-Cong as its products are sold to Honda Vietnam with high requirement on quality and stability. Machinery and equipments of Thanglong is more sophisticated than the other two with many large-scale brand-new computer control machines. Being able to operate these machines to produce various kinds of products for different demanding customers proves the company's operation capabilities.

Operating from 1969, the learning activities of the company only started in 1989 and last until today. This period is marked with heavy investment in machinery and human resource development. Thanks to various sources of capital, especially the profit gains from the Joint-venture with Honda and Goshi Giken in GOSHI THANGLONG, the company has been able to expand its operation into many fields with quality and productivity. The company also expands geographically with its under-construction factory in HCM City.

To be able to meet fast changing demand of customers, the company also invested in a mould making factory using brand new CNC machines. This allows

the company in full control of mould needed for manufacturing different kinds of products and/or components. This also opens room for some innovation activities to be carried out within the company. However, the mould factory and CNC machines in other workshop is also a test for the company engineering capability since programming CNC machines for different jobs is not an obvious knowledge. So far, manufacturing motorbike components for Honda Vietnam or metal fabricated products for IKEA is based on these customers' designs. The CNC machines are programmed accordingly and the company does not have much to do with this. Special training for CAD/CAM technology is badly needed if the company wants to develop its engineering capability.

The company shows its ability in choosing appropriate technology for its need. Take pressing machine as an example. After a time consuming period of consultation, the company decided to choose a Taiwanese vendor. The decision is based on the argument that the machine made by the Taiwanese combines all desirable features with Japanese design, German materials (steel), flexibility in components selection, which give the best value for money. This approach would not be done without a thorough understanding of technology embedded in such machine.

Learning by solving problems and learning from working with customers are the main learning channels employed by Thanglong. Disappointed with support from S&T institutions, the company organizes its staff with selected scientists and technicians to address issues emerge from innovation activities. Technicians of customers and foreign machine vendors prove to be valuable source of technical information.

### **7.6.3 Some observations**

In general, there are several observations can be made from the survey and case studies. Vietnamese producers have quite obsolete level of technology, both in engineering and management. Design capability is weak, mainly relied on FDI firms or imitation. There is lack of cooperation and coordination among local firms.

Concerning relationship of Vietnamese producers and foreign firms, some obstacles have been detected. FDI firms usually posed requirement for local firms in terms of limitation of production volume, in addition to requirement on quality, delivery time. The same products supplied to FDI firms are prohibited to be sold to third party. FDI firms tend not to invest directly into the local producers. They usually send in experts to supervise quality of supplies, support



in operation management, etc. Also, FDI firms not focus on buying from small number of firms, but look for many suppliers.

The findings show that FDI has positive impacts on development of local industry in general and technology in particular. However, FDI operations tend to concentrate on production activities, using proved technology to explore cheap labour advantage and/or market protected by high trade barriers. This mode of investment determines the type of investment and knowledge transfer from parent firms to their affiliates in Vietnam. Analysis shows that investment in production technology is the main type of resource transfer. Training is also concentrate on production management. There are few activities in terms of design or more sophisticated engineering work. Some FDI firms are just starting to develop design capability and more advanced skills for their work force. There is not much room for S&T organisations to get involved in activities of FDI firms.

For local firms, results from some case studies and survey indicate that innovation implemented is not breakthrough change, but mainly the investment in new production facilities. The study also shows that linkage with business community plays a much more important role than linkage with academic community, both as a source of innovation ideas and a channel for problem solving. Within business community, foreign and/or FDI partners are indicated as the main channel for learning, not only for technical issues, but also for issues related to product market and inputs market. Big firms seem to better practice technology management than SMEs do and they also have more chance to be part of production networks of foreign/FDI firms.

Firms surveyed, especially SME, are not totally ready for learning. Even in a more positive environment for learning as alliance of Honda Vietnam with its local suppliers, not every firm can utilize this opportunity to learn from Japanese giant. As a result, the kind of products produced by Vietnamese SME are still simple, most of core component of operation by MNC are still brought in, despite the local content policy. It is also clear from the firms' situation that IPR issue created more concern for MNC than for local firms. But this is resulted in less enthusiasm for foreign firms to engaged in more sophisticated technology upgrading.

Overall policy environment, despite having been improved much lately, still did not provide sufficient support to firms in terms of specific knowledge learning and incentive system. Moreover, this macro-policy environment is not encouraging sufficiently the multinational and foreign actors (suppliers, providers, buyers) to be conducive toward learning efforts of Vietnamese SME.

Most of progress made during the last few years in foreign investment promotion, have not specific measures for encouraging learning.

Regardless of all disadvantage of being small, SMEs still do manage to survive via creative innovations or "no-innovation". One important lesson learned from SMEs cases is that, innovation must be done suitably with capability of firms, otherwise firm might go bankrupt. Case studies also show that innovation requires many type of learning, some are industry specific and common among local firms. It would be a waste of efforts if each firm tries to address these problems individually. However, cooperation between competitive firms is not easy and here the interruptions of government and S&T institutions are needed. These are areas where the government should support for cooperation of firms and S&T institutions and should be the areas for fruitful formal international cooperation.

## **IX. Conclusions and recommendations**

The findings of this study have come to some conclusion. First hypothesis on weak learning readiness of firms, especially of SME in auto-motor industry seems right. This is a general situation of most Vietnamese SME in working with foreign companies. When it comes to IPR, it is not very clear-cut that it prevents local firms from learning, apart from discouraging the further investment of MNC in upgrading technology involvement. Policy environment did not do much to attract MNC to invest in innovation-related activities such as R&D or learning. However, this environment has been progressed significantly for the last few years with IP Law enacted by the National Assembly and many commitments made under BTA, and for WTO entry negotiation. This is an encouraging sign that learning could have better ground to take place.

It is certain that local firms have gained considerable knowledge via working with MNC like Honda, or VMEP in this study, but kind of knowledge they gain seems stayed at simple level of production operation. Very few knowledge on innovation (R&D, design, marketing) were gained. Moreover, this "staying behind" status is true not only for SME, but also for some larger firms and other institutions like R&D institutes, universities. There is no strong tendency considering IPR as a barrier to learn. Most IPR concerned the trade issues: trade mark of motorbike models. Vietnamese SME seem to have double concern about IPR: how not to infringe IPR in fear of termination of relationship with foreign companies for a longer perspective; and how to utilize possibilities to by-pass IPR requirement, if any, for short term benefit. This makes IPR not an immediate issue for local SME.

There are some *implications* and *recommendations* for policy-making in terms of improving learning at the firm level.

It is obvious that firms should clarify what they need to learn and how they need to learn it, depending on their business orientation and strategies. As a coherent part of their business plan, firms have to identify what is required for each period and specific context and which kinds of knowledge they are searching for, and then decide on how to acquire this knowledge and bend their learning efforts accordingly. Instead of learning on an ad-hoc basis, this activity should become a key and permanent means for firms to become more competitive. A conscious approach to investing in, planning and organising learning activities is necessary for learning to take place in firms.

In the main, Vietnamese firms are probably still not active enough about augmenting their learning activities. The government should play a role, but that firms should also be more active in taking the lead. They should introduce new initiatives in their relations with the government concerning policies conducive for learning.

To side-step the serious funding shortage, firms need to devise flexible mechanisms for learning which do not require heavy levels of funding, e.g., the "barter" or exchange of knowledge and training courses, and the organisation of mutually beneficial services.

The utilisation of connections and network with foreign firms, moreover with MNC, is especially important for Vietnamese firms and they should be more aware of the advantages and disadvantages of this mechanism. Vietnamese firms need to be more active in this respect. They need to stop relying passively on "receiving" knowledge and substitute that passivity with conscious "intelligence gathering" while working with their foreign partners. Firms should seek joint implementation of different kinds of technical improvements, using this as a chance to learn the ways foreign companies handle technical change activity. The firms can do the same thing for learning marketing skills. By becoming part of a larger network of producers and suppliers, such as that of the Japanese manufacturers in East and Southeast Asia, firms may be able to learn more about marketing. Different foreign sources could be used in combination to create new learning expertise.

Pursuing a consistent strategy is necessary for the deepening of technological competence. Vietnamese firms should distinguish between which of their actions contribute to meeting their long-term strategy, and which only meet their tactical or short-term ends. Regarding IPR concern, the firms should

balance the short gain and long term benefit in deciding how far they want to go for IPR protection.

Next to firms' effort, support and intervention measures by the government are also necessary. As the policy-maker, the government should create the general framework for industries to develop - a framework which includes regulations relating to macro economic stability and the generation of socially-favourable conditions e.g. more business friendly attitudes of government officials, especially toward private entrepreneurship. Among other things, the government should create more conducive conditions and provide more learning resources for firms in R&D, training and education. Possible initiatives include promoting technological development by issuing S&T policies for the whole country, devising plans suitable for each sector and providing incentives for firms to do business and to learn.

A range of policy recommendations has been suggested to improve the environment, with more attention needed to address the issue of attracting foreign firms to engage in innovation activities in Vietnam. Several experiences of countries in the region are useful in this matter. The role of the state should be redirected towards selective intervention.

State support for the whole industrial infrastructure is needed. The problems of ownership should be dealt with by devising a non-discriminatory environment. Therefore, the government should treat firms under different ownership equally.

Overall, the project has achieved target. Still, some issues remain slower than expected, with few adjustments are required. For instance, the visit by the Canadian advisors (Centre for Innovation Law and Policy, University of Toronto) was postponed until November 2004. The preparation of the survey has also been delayed and result of the survey, case studies and final analysis were affected.

## **X. Output**

As the output, the project has produced several reports:

- a literature survey;
- an analytical review of existing policies, and regulations for foreign investment in general and for auto/motor industry in particular, their weaknesses and bottleneck, gaps and overlapping areas

- a report on learning status of Vietnamese firms, with focus on auto-motor industry
- an analytical report for the survey of firms
- case studies
- full academic analytical report, as a synthesis of all related reports.
- Set of data on industries and on firms.

## **XI. Capacity building**

The first stage of the project seems did not bring much the explicit capacity building, except for some internal seminars and workshops where research team is sharing with each other the literature review results, arguments and methodology discussion. One exception is workshops spent together with Canadian advisor where project team has accumulated some new knowledge and expertise in dealing with legal and policy making, with issues of IPR as well as socio-cultural aspect of this process. In a second workshop held in June 2005, Canadian advisor came again and spent time together with project team, discussing research findings. By learning from the advisor, team capacity has been upgraded, especially in legal aspect of technology transfer, and IPR, which are the core strengths of the advisor.

## **XII. Impact**

The first impact of the project tends to be the sharing findings, results of reviews in certain policy forum with stakeholders from various Ministries such as Ministry of Industry, Ministry of Trade, Association of producers, and manufacturers. Second important impact is the contribution of the project (both by Vietnamese project team and its Canadian advisor) to the drafting process of Technology Transfer Law initiated by NISTPASS and the Ministry of Science and Technology. This has been crucial in helping to draft the first structure and proposal for the Law.

## **XIII. Other consideration**

One weakness of the project implementation is time delay. The preparation of the survey faced some difficulties in contacting firms. One unexpected issue is the absence of the project leader for few months and difficulty of the rest of research team in taking over the project. Better preparation of the project team should be learnt.

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