MINISTRY OF INDUSTRY
INSTITUTE FOR INDUSTRY POLICY AND STRATEGY

MASTER PLAN FOR THE DEVELOPMENT OF VIETNAM'S MOTORCYCLE INDUSTRY IN THE PERIOD OF 2006-2015, WITH A VISION TO 2020

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CONTENTS

INTRODUCTION

Vietnam’s motorcycle assembly and production industry, formed since 1990, initially based on the investment of Japanese and Taiwanese motorcycle manufacturing corporations (HONDA, YAMAHA, SUZUKI, VMEP) has developed rapidly recently with the participation of many economic sectors within the country and from abroad. The localization policy of the Vietnamese government in the previous period has strongly contributed to the rapid formation of the motorcycle assembly industry. In general, the localization rate in motorcycle products is relatively high, at around 70-80%, even amounting to 90% at some enterprises.

Up to now, Vietnam’s motorcycle industry can fully meet the demand of the domestic market regarding normal motorcycles and scooters, especially some motorcycles and their parts are exported.

The positive development of the motorcycle industry has come from the great demand for motorcycles in the Vietnamese market and the government's policy of promoting and attracting foreign investment. Particularly, the limitations on the importation of completed motorcycles and high tariff barriers in a long period contributed to encouraging the formation of domestic motorcycle assembly and production.

Over the past period, there appeared several problems in the motorcycle assembly and production industry such as the mass, “short-sighted” production, the lack of long term vision, the low quality of domestic products, the increasing traffic accidents and environmental pollution, the rampant infringement of intellectual property rights, the infringement of consumers’ interests, etc. Such matters must be continuously regulated to ensure the sustainable development of the industry and protect the interests of consumers, producers and the country. Particularly in the context of international integration, when Vietnam has become a member of the WTO and the protection by tariff barriers is no longer existed, the motorcycle assembly-production enterprises must obey the common international rules.

On the basis of the Strategy for the Development of Vietnam’s Motorcycle Industry approved in September 2006, the Prime Minister assigned the Ministry of Industry to formulate the “Master Plan for the Development of Vietnam’s Motorcycle Industry in the period of 2006-2015, with a vision to 2020” to determine the development direction, as well as solutions and policies for the development of the industry in the future. The Ministry of Industry assigned the Institute for Industry Policy and Strategy to draft the Master Plan.

In the process of developing the Master Plan, the working group has received the opinions and participation of motorcycle enterprises, parts makers, the finance, tax, custom and statistics sectors, as well as the administrative agencies such as the National Traffic Safety Committee, the National Office of Intellectual Property, Vietnam Register, the Traffic Police Road and Railroad Department, etc.

The project has also received the support and detail instructions from leaders of the Ministry of Industry, the support of experts in Vietnam Development Forum (VDF) and the Joint Working Group (JWG) within the framework of Vietnam-Japan Joint Initiative Phase 2 in providing methodology and documents related to international and regional experiences.

The project has been built in the spirit of protecting consumer's interests in an integrated market based on equal competition, fairness, nondiscrimination of economic sectors, and harmonization of the consumers, producers and community interests.

In the environment of fierce competition among motorcycle assembly-production enterprises, the Drafting Group faced with many difficulties in collecting production-business data from enterprises. On the other hand, there are many shortages and unbalances in the statistical systems of different ministries and agencies, causing difficulties in making comparison. Thus, expert-based methods have been applied to make additional assessments. Therefore, some shortcomings and subjective views are unavoidable in this plan.

The working group also organized many workshops with the participation of motorcycle production-assembly enterprises, research and administrative agencies nationwide. However, there still remain some certain shortcomings in the plan. The Institute for Industry Policy and Strategy and the Drafting Group hope to receive contribution and comments from experts, administrators, and enterprises to accomplish the Master Plan and then submit it to the Prime Minister for approval.

Part I

AN OVERVIEW OF MOTORCYCLE INDUSTRY

I. GLOBAL MOTORCYCLE MARKET AND THE DEVELOPMENT TREND

I.1. Global motorcycle market

The world motorcycle market is divided into two regions: one of developed countries with GDP per capita above tens of thousands USD per year and one of developing countries with GDP per capita at around several hundreds to several thousands USD per year.

- In developed countries, while automobile is daily private means of transportation, motorcycles are seen as a hobby. The trend of using motorcycles varies from one country to another.

In Europe, the sales of motorcycles each year is not high with the equal amounts of gear motorcycles and scooters. The motorcycle industry has been formed for long time, with such prestigious manufacturers as BMW, Piaggio, Peugeot, etc... In 2005, European countries produced 1.4 million units of motorcycle, accounting for 3.4 % of the world volume, and consumed 4% of the total world volume.

In North America, regular motorcycles are used in highways, have large size, high capacity (above 250 cc) and prices ranging from several thousands to tens of thousands USD. The United State is the country having the developed motorcycle industry with the reputable enterprise named Harley-Davision. In 2005, countries in the region produced 1.8 million units of motorcycle, equivalent to 4.2 % of the world production volume and consumed around 5% of the world motorcycle volume.

Motorcycles produced in Europe and North America are fashionable styles, with high capacity, at high price, produced in limited quantity, mostly for domestic consumption with small part for exportation.

Motorcycles produced in Japan are various in styles and types at lower prices. In Japan, motorcycles produced for domestic consumption are not many (1.5 million units in 2005). Such corporations as Honda, Yamaha, Suzuki, Kawasaki have invested vastly abroad (Honda, let alone, has 32 motorcycle factories in 21 countries), particularly in Asian countries (China and Southeast Asian countries). In 2005, Japanese enterprises in Southeast Asia produced 10 million units of motorcycle.

The sales of motorcycles every year in developed countries are not high. However, the turnover earned in these countries accounts for large amount of the total annual turnover of motorcycle manufacturing enterprises. In the Asia-Pacific market, Honda accounted for above 75% of the total production volume, but the turnover is only 25% of the Honda's total turnover. In contrast, in the North American market, about 7% of sold volume brought more than 30% of the total turnover. This indicates that motorcycles consumed in the Asian Pacific market are mainly common motorcycles at low prices.

- In developing countries, motorcycles are the most essential and effective means of transport in daily life as well as for livelihood. The region is characterized by underdeveloped and synchronous infrastructure, the largest population and low income.

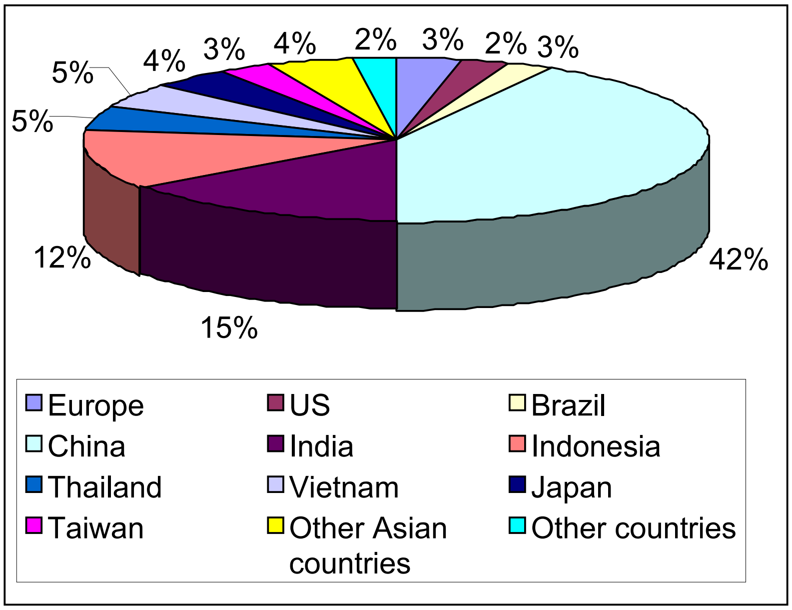
The motorcycle consumption each year in this market accounts for 90% of the world motorcycle consumption. The consumption trends in the market are various, however, due to the underdeveloped infrastructure, the consumption volume of high capacity motorcycles is small, and motorcycle there are mainly small sizes with low capacity (50 - 150 cc) at prices ranging from several hundreds to several thousands USD.

China is currently the leading country in motorcycle production, which accounts for 50% of the total Asian production, around 17 million units of motorcycle per year. Other countries, which also have high production, are Indonesia and India with the productions around 5 million units per year. The production volume of the five Southeast Asian countries (including Vietnam) accounts for nearly 30% of the total Asian production volume. Besides this, Pakistan has started developing motorcycle industry with the investment from Honda. With the production of 2 million units of motorcycle per year, Vietnam is one of the world biggest motorcycle producing countries.

In the Latin America, only Brazil has developed motorcycle industry with the participation of Honda. The production of the Brazilian motorcycle industry is around 1 million units per year, mainly for domestic demand.

The world motorcycle volume increased rapidly from 20 million units in 2000 to 43 million units in 2005, in which the volume of China accounts for 42%, India 15%, Southeast Asian countries 22%. More than 90% of the world motorcycle production is common-type motorcycles.

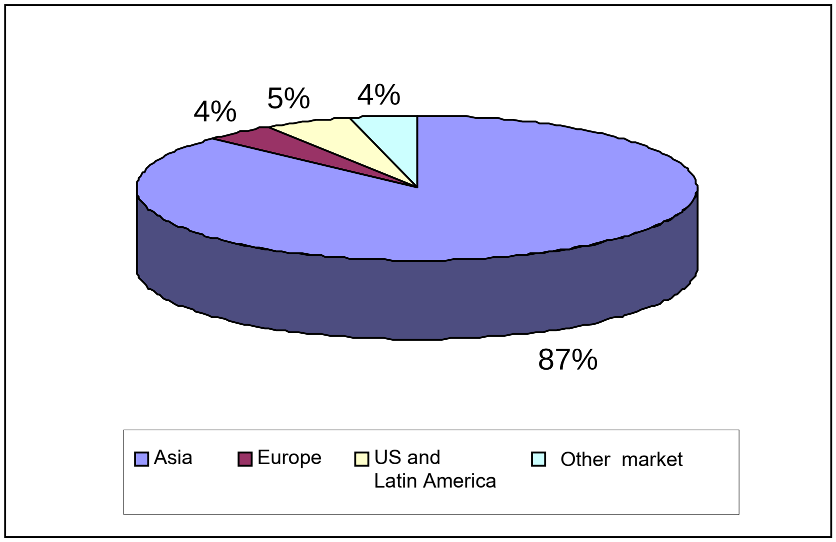
Figure 1. The structure of the world motorcycle production in 2005



Asia is the biggest production region and the largest motorcycle market in the world. Almost the production are for the region's consumption while only a small amount of products with high quality, high capacity, are exported to Europe and America. China is the leading consumption country with the average consumption of 10 million units per year. Other high consumption countries are India, Indonesia with 5 million units per year, Thailand and Vietnam with around 2 million units per year.

Up to the end of 2005, the total motorcycle circulation volume was 290 million units, in which Asia accounted for 80%. China took the lead with 80 million units, followed by India 50 million units, Indonesia 30 million units. Thailand and Vietnam had 20 million units, Japan and Taiwan above 10 million units of motorcycle.

Figure 2. The Structure of Motorcycle Consumption Market in 2005



I.2. Development trend of global motorcycle market

In the future forecast, global demand for motorcycles will grow at the average rate of 5-6% per year until 2010 and will grow slower after 2010 with the average rate of 4-5% per year (according to ENTEK International LLC).

Demand for motorcycles in Europe will not have big fluctuation, or even decrease because the annual registered motorcycles does not change much, or even lesser than previous years.

In North America, there will be an increase in the volume of motorcycles in the US, which will not be a big change, and an insignificant increase in Canada and Mexico. In general, the consumption of motorcycles for women is likely to increase in developed countries.

In developing countries, demand for motorcycles is likely to slow down after 2010 because of the following main reasons: i) the speed of transport infrastructure development does not follow and meet the growth rate of transport means, thus the government in many countries will tend to limit private transport and replace it by using public transport; ii) people's income is gradually improving due to economic development, thus a part of population will shift to use automobile in stead of motorcycle; iii) the density of motorcycles per person in some countries is near the saturation point.

In the future, Asia will remain the centre of common-style motorcycle production in the world with annual production volume of 35-40 million units until 2010, in which 80-90% will be consumed in the region. After 2010, the production volume will be reduced due to the decline trend in market demand.

While high capacity motorcycles will be continued to produce and consume in developed countries, a part of population with high income in developing countries will tend to use these products. In addition, new emerging production areas like Latin America, particularly Brazil, will also participate in producing common-style motorcycles for their domestic markets.

With respect to the volume of motorcycles, the main producers in the future will still be motorcycle enterprises of Japan and China. Honda will be the largest producer with the annual volume of 15.8 million units and is expected to reach 18 million units in 2010. India will be the largest production area of Honda with the capacity of 4.9 million units per year, the following is Indonesia with the capacity of 3 million units per year.

II. ROLE OF MOTORCYCLES IN VIETNAMESE SOCIETY

When society develops, demand for personal and commercial transport also rises. The means of transport must respond to increasing demand in all aspects of quantity, quality, and modal diversification. Each transport means has its merits and demerits. The problem is to select and combine each transport means in a way that maximizes merits and overcome demerits, under the specific natural, economic, and social conditions of our country in this particular development stage. We must satisfy people's travel need by providing convenient transport modes while at the same time ensuring traffic safety, clean environment, and other social demands.

II.1. Role of motorcycles in Vietnamese eco-social development

II.1.1. The role of motorcycles in Vietnamese Society

During the period 1995-2005, the Vietnamese economy continued to operate under the market mechanism with socialist orientation, achieving relatively high growth of 8% or higher in consecutive years. As a result, the speed of urbanization as well as demand for trips and commercial transport also increased.

When the economy develops, people's income also rises. Since public transport systems are currently underdeveloped, people tend to possess personal means of transport such as motorcycles and automobiles to satisfy their travel demand.

Urbanization is currently proceeding rapidly in Vietnam, especially in cities under central administration such as Hanoi, HCMC, Da Nang, etc. This has led to high pressure on transport infrastructure development and caused many problems to residents like congestion, dust, air emission, noise, and downgraded ecological environment.

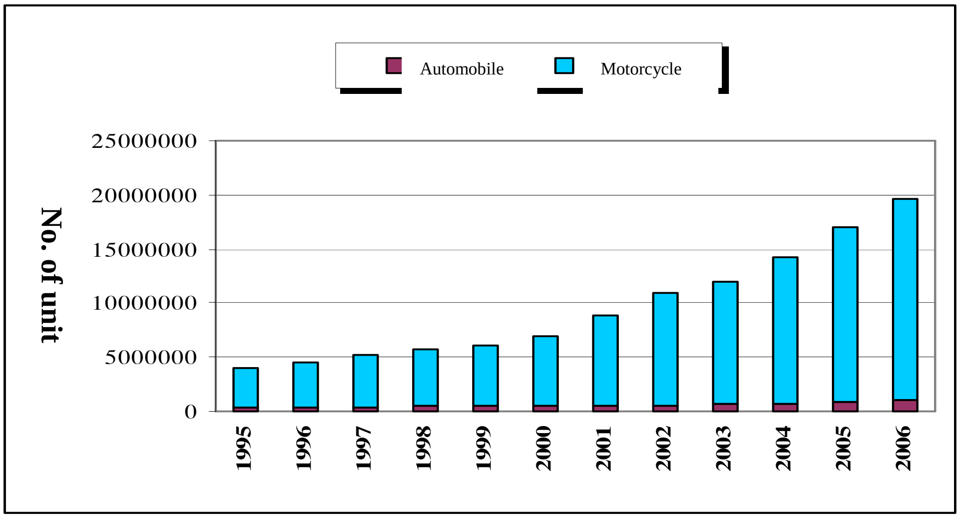
According to the data of the National Traffic Safety Committee and the Road and Railroad Traffic Police Bureau (Fig. 1-1), motorcycles and automobiles have long been the two principal means of transport in Vietnam in terms of absolute volume as well as contribution to cargo transport in the whole country, especially urban areas and economically developed areas. Between them, motorcycles are by far the dominant means of transport.

Table 1. Statistics of road traffic in Vietnam (1995-2006)

Year	Automobiles		Motorcycles		Means of transport	
	Quantity (unit)	Change over previous year (%)	Quantity (unit)	Change over previous year (%)	Quantity (unit)	Change over previous year (%)
1995	340,779	11.00%	3,578,156	17.20%	3,918,935	14.50%
1996	386,976	13.60%	4,208,247	17.60%	4,595,223	17.30%
1997	417,768	8.00%	4,827,218	14.7%	5,244,986	14.10%
1998	443,000	6.00%	5,200,000	7.70%	5,643,000	7.60%
1999	465,000	2.90%	5,600,000	7.70%	5,920,000	4.90%
2000	486,608	6.60%	6,478,954	15.70%	6,964,000	17.60%
2001	557,092	9.60%	8,359,042	29.60%	8,928,716	28.20%
2002	607,401	9.00%	10,273,000	22.80%	10,880,400	21.80%
2003	675,000	11.20%	11,379,000	10.70%	12,054,000	10.80%
2004	774,824	14.70%	13,375,992	17.50%	14,150,816	17.40%
2005	891,104	15.10%	16,086,644	20.20%	16,977,748	19.90%
2006	972,912	9.18%	18,615,960	15.72%	19,588,872	15.38%

Source: National Traffic Safety Committee

Figure 3. The annual growth of automobile – motorcycle circulation



At the end of 2006, Vietnam had 972,912 registered automobiles and 18,615,960 registered motorcycles in circulation. Compared with those in 1995, this number has increased by 2.86 times for automobiles and 5.2 times for motorcycles. The circulation of both two transport means rose very rapidly, especially motorcycles.

According to the studies on Hanoi and HCMC urban planning by the Ministry of Transport of Vietnam and JICA (Japan) (HAIDEP and HOUSTRANS), motorcycles are the dominant transport mode of residents in large cities. In 2005, motorcycles served 62.7% (Hanoi) and 77.9% (HCMC) of travel needs, while the shares of passenger cars and taxis were only 3.5% (Hanoi) and 5.9% (HCMC), and the shares of buses were 8.4% (Hanoi) and 5.9% (HCMC). Clearly, motorcycle is currently playing a big role in road transportation because of the following common characteristics:

- Public transport is underdeveloped and cannot be developed quickly to meet the demand for frequent trips.

- Current living standard of most of Vietnamese people is still not high and cannot purchase automobile. Therefore, motorcycle is the optimal choice of personal transport mean, especially in large metropolitan areas like Hanoi and HCM city.

- Motorcycle is used as a personal mean of transport due to its convenience, mobility, flexibility and suitability with the current condition of road transportation, especially in urban areas with short and narrow roads. Demand for people’s travel is mainly short and medium trips (less than 10 km).

- Fast travel by motorcycles reduces travel time between resident areas and creates good conditions for production and good circulation (in the urban area, motorcycles often travel faster than automobiles). In some periods, motorcycle was considered as a valuable asset in each family. Under a certain level, motorcycles have been seen as fashionable items for urban residents, particularly young people.

- For many people, motorcycles are used as means of transport (passenger and commercial transports) to make living.

Although the “Master Plan for Transport Infrastructure in Hanoi and Ho Chi Minh up to the Year 2020” prioritizes investment in transport infrastructure such as roads, railroads, subways, and public buses, it also foresees that the use of motorcycles in Hanoi and HCMC will remain relatively high in the future, namely 30% in Hanoi and 35% in HCMC in 2020.

At the same time, living conditions in rural areas are expected to improve by 2020, and rural road systems are also likely to be upgraded. Under these circumstances, rural demand for motorcycle use will surely raise, especially in light of the fact that current density of motorcycle use in rural areas is still very low.

The above considerations lead us to the conclusion that motorcycles will continue to contribute significantly to road transportation in Vietnam, at least up to the year 2020. Thus, the development of motorcycles is an objective requirement for Vietnam, and we should continue to study how motorcycles can co-exist harmoniously with other transport means and how they can better serve consumers’ needs, especially in the rural area.

II.1.2. Development of the motorcycle industry from 1990 to 2005

Before 1995, Vietnam had a relatively small motorcycle stock in use, and it increased slowly by tens of thousands of units per year. All of the motorcycles were imported.

During the period 1995-1999, FDI motorcycle assemblers invested in Vietnam and began production, at first using imported parts but gradually increasing parts localization. Consumers’ demand for motorcycles increased annually. However, production volume remained relatively low during this period, and prices were high in comparison with the income level of most people.

Around 2000-2005, local motorcycle assemblers suddenly increased in number, producing motorcycles with parts originating mostly in China, with average to moderate quality and at reasonable prices relative to people’s income. Therefore, they rapidly dominated the domestic market.

From 2000 to 2003, this type of motorcycles occupied as much as 60-70% of the domestic market. In the same period, FDI enterprises adjusted business strategies and changed models, reduced products’ prices, concentrated at popular motorcycle … to increase their market share. At the same time, people’s living conditions continued to improve. As a result, motorcycles in use increased rapidly by about 2 million units per year, except in 2003 when policies to limit the motorcycles utilization were applied (particularly in Hanoi and HCMC, these policies were strictly applied such as stop motorcycle registration in some urban districts).

At the end of the 2001-2005 period, over-capacity and severe competition exerted significant downward pressure on the prices of “Chinese” motorcycles produced by Vietnamese assemblers. Many consumers also do not trust in their products which failed to promptly respond customers’ quality demand. This prompted them to revise business strategies for survival. Some domestic enterprises invested in research and development, built trademarks and designs, improved production technology, and enhanced product quality. Other enterprises enhanced in-house part production, became suppliers of FDI assemblers, improved supplier networks, turned to sales and marketing, or exited from the market. Direct parts imported from China fell significantly and domestic production of “Chinese” parts increased. The situation of severe competition among enterprises has exerted significant downward trend in the prices of local motorcycle producers and assemblers.

The motorcycle market in Vietnam has unique characteristics comparing with other developing countries and regional countries.

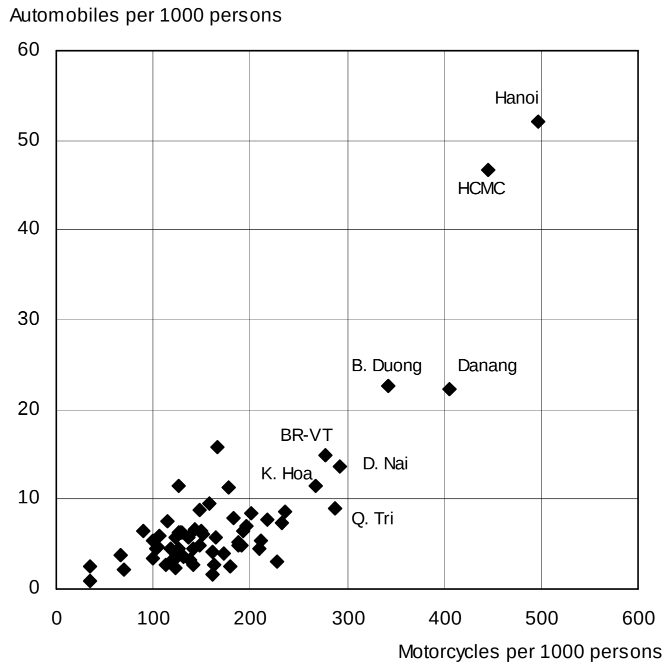
First, motorcycle use in Vietnam is disproportionately high relative to its automobile use. There are only 12 countries in the world where the number of registered motorcycles surpasses that of registered automobiles. Among them, Vietnam is by far the leading country, with the ratio of motorcycle stock to automobile stock of 13.3 in 2000 and 18.1 in 2005. According to the 2000 data, the next country in this ranking was India (5.6), followed by Thailand (5.4), Indonesia (4.6), Cambodia (4.2), China (3.1), Pakistan (3.0), Taiwan (2.4), Bangladesh (2.4), Philippines (1.6), Mauritius (1.3), and Malaysia (1.3).

Second, the geographical distribution of motorcycle use is not uniform within Vietnam, especially between urban and rural areas. According to the National Traffic Safety Committee and the Traffic Police Department, the registration and circulation of motorcycles use are concentrated naturally in big cities such as Hanoi, Hai Phong, Da Nang, HCM city, in provinces with a larger population such as Nghe An, Thanh Hoa, An Giang, and in provinces with dynamic economic development such as Dong Nai, Binh Duong, Khanh Hoa, Ha Tay, etc… According to the data up to 2005, the five cities under central administration have 5,177,437 motorcycles, accounting for 33.24% of total motorcycles in use, in which HCM city and Hanoi accounting for 16.82% and 10.05% respectively. Incidentally, the distribution of automobile use is similar to that of motorcycle use. Motorcycle market in Hanoi and HCM city are near saturation with 2 people per unit, but rural market are likely to grow strongly and the urban-rural gap is expected to narrow in the medium to long run[1] (see

[1] In Thailand the difference between rural and urban areas is not large. In 2003, in Bangkok, there was one motorcycle every 2.47 person, while this portion in other areas was 3.61 and the average number of the national whole was 3.46 (*IDE-JETRO, Motorcycle Industry in Asia,*

Figure 4 and Appendix 1).

Figure 4. Motorcycle and Automobile Density by Province, 2005



Source: National Traffic Safety Committee

Third, the Vietnamese motorcycle market is very dynamic and consumers expect from motorcycles is also changing rapidly. Until the late 1990s, the motorcycle was considered a means of saving that retained good value over time as well as a practical means of transport. Around 2000, with a large inflow of cheap but low-quality “Chinese” products, the motorcycle suddenly became a commodity. After 2003, the popularity of “Chinese” motorcycles declined as demand shifted toward high-quality, stylish motorcycles and scooters, especially in urban areas.

From 2004 to present, motorcycle demand continued to expand strongly. Apart from robust income growth, motorcycle demand has been fueled by the removal of demand-restrictive measures such as parts import quotas (2002-2005) and registration control (2003-2005). By 2006, Vietnam’s motorcycle market reached nearly 2 million units per year with an expectation of further expansion in the future. The domestic demand size is sufficient for major assemblers to aggressively introduce new models and for parts suppliers to willingly invest in Vietnam.

2005). In Vietnam, the correspondent data in 2005 in Hanoi and HCMC was 2.16 persons/ one motorcycle, in other areas was 6.14 persons/one motorcycle and the nation-wide average was 5.11 person/one motorcycle.

The reasons for sudden increase of motorcycles:

The main reasons for this phenomenon are:

+ The growth of Vietnam's economy in the recent years was fast and stable. The average revenue per capita in 2005 reached about 10.1 million VND/capita, equaled 3.17 times of that in 1995. There are more and more people who can purchase motorcycle.

+ The road system is gradually improved. The national road system is innovated and upgraded while provincial and district road systems gained more investment to enhance the quality.

+ The urbanization happens rapidly, thus the travel and transportation needs of residents gradually increase, while other transportation means still have many limitations.

+ Motorcycles have many appropriate features to the conditions in Vietnam:

- Highly dynamic, small in size, ease to use, can transport more than one people and cargo, appropriate to the road condition and two-wheel vehicle using habit of residents;

- Various of type and models, appropriate in the hot and humid (not cold) weather;

- Large range of price that appropriate to the variety of revenue of residents: most of local assemblers' motorcycles are priced 4.5-8 million VND/unit, FDI assemblers' motorcycles 12-28 million VND/unit, high-quality scooters and high-capacity imported motorcycles 50-120 million VND/unit;

- Operating and repairing costs are reasonable with the resident's incomes.

However, besides the above advantages, motorcycle is a transport means which has high risk of accidence due to:

- Easy to purchase, while the riders' awareness of observing traffic laws is still low. The unruliness and arbitrary of the motorcycle users lead to traffic accidents (the common infringements are riding without license, drunk driving, speeding, running red lights, going wrong way and lane, sudden entry, sudden entry the priority road without slowing down, not using helmet).

- Motorcycle is less able to protect the users from accidents. When the accident happens, the motorcycle users are nearly not protected as those use automobile, so that the injuries are more serious and the fatalities is high. Moreover, since roads are narrow, high density with various transport means circulating, accidents are normally serious and cause many fatalities and injures.

Taking the critical role in residents' transport and having high traffic frequency in current over-loaded transport system, motorcycles are potential for causing accidents. Furthermore, along with the booming of their number in circulation, motorcycles have the bad effects on the environment, contribute to the traffic jams and urban air pollution.

II.2. Motorcycles and related social issues

II.2.1. Traffic safety

Countries all around the world have to face to the increase of traffic accident although the seriousness of the problem is different within the countries. Vietnam has still not been ranked at top countries in the world in terms of traffic accident but the increase of traffic accident is very worrying. Recently, traffic accident has become a serious problem and traffic safety has been pointed as an urgent problem by the government.

According to the statistic data from 1999 to 2005, in the whole nation, there were 228,225 traffic accidents with 98,905 fatalities, 242,399 injuries and economic damage estimated hundreds of billion VND. Road traffic accidents account the critical part with 96.3% of total cases, 95.4% of fatalities and 98.9% of injuries.

In the recent year, along with the rapid increase of motorized vehicle, especially motorcycles, accidents have also increased. Traffic conflicts and bottlenecks in urban areas became apparent, and traffic accidents in rural areas, which used to be very few in the past, began to soar. On the other hand, the level of understanding and compliance of traffic safety requirements remains very low among the public. Authorities have also been largely unaware of their critical role in restoring traffic safety and order.

Compared to 1990, the road traffic accident in 2002 increased by 4.6 times in terms of number of cases, 5.8 times in terms of fatalities and 6.3 times in terms of injuries. In 2003-2006, traffic accident reduced significantly in terms of number of cases and injuries but the number of fatalities was still at alarming level with more than 11.000 people / year (Table 2). While in 1990 there were nearly two traffic accident cases in daily average which killed 6 people and injured 16 people, these numbers in 2002 were 7.7 cases, 36 fatalities, 85 injuries; an in 2006 were 4 cases, 35 fatalities and 31 injuries.

Statically, from 2002-2006, annual fatalities due to traffic accidents nearly unchanged, while the number of traffic accident cases an injuries reduced significantly. The reason may be the insufficiency in reporting.

Table 2. Road Traffic Accidents (1990-2006)

Year	Accidents	Fatalities	Injuries
1990	6,110	2,268	4,956
1991	7,382	2,602	7,114
1992	9,470	3,077	10,048
1993	11,582	4,140	11,854
1994	13,760	4,897	14,174
1995	15,999	5,728	17,167
1996	19,638	5,932	21,718
1997	19,998	6,152	22,071
1998	20,753	6,394	22,989
1999	21,538	7,095	24,179
2000	23,327	7,924	25,693
2001	25,831	10,866	29,449
2002	27,993	13,186	30,999
2003	20,774	11,864	20,704
2004	17,663	12,230	15,417
2005	14,711	11,534	12,013
2006	14,727	12,757	11,288

Source: National Traffic Safety Committee.

According to the data analysis of the Nation Traffic Safety Committee, most of the traffic accidents occurred on national highways where traffic volume, speed, and density were high:

- National road: 48.9%
- Provincial road: 26.2%
- Urban road: 17.1%
- District and commune road: 7.8%

By transport mode, 71.4% of road traffic accidents were caused by motorcycle drivers, 22.5% by automobile drivers and 6.1% by other road users (Table 3)

Table 3. Transport modes cause road traffic accidents

Year	Analyzed sample	Motorcycle drivers (No. of case)	Automobile drivers (No. of case)	Other road users (No. of case)
2002	18,142	13,172 (72.6%)	3,680 (20.2%)	1,290 (7.1%)
2003	12,368	8,677 (70.2%)	2,921 (23.6%)	770 (6.2%)
2004	7,915	5,760 (72.7%)	1,668 (21.0%)	487 (6.3%)
2005	9,409	6,904 (73.4%)	2,019 (21.5%)	486 (5.2%)

Source: Road Traffic Department and National Traffic Safety Committee

From 2000 to 2002, when the number of motorcycle suddenly increased, road traffic accident also increased rapidly. In the years when the sales of motorcycles were high, the number of fatalities and injuries due to road traffic accident has also expanded quickly. In 2001, when the number of motorcycles increased by 29.6%, road traffic accident also increased by 39.7%. In 2002, when the number of motorcycle increased by 22.4%, road traffic increased by 22.2% (Table 4).

The regions which have big volume of motorcycles also have the highest number of traffic accident. With the data in 2001, HCMC had 1224 fatalities due to traffic accident, following is Hanoi - 470, Dong Nai – 405, Dak Lak – 348, Nghe An – 324.

2003 was the first year road traffic accident reduced and that was also the year applying the limitation of motorcycle registration combined with the strict control the road traffic laws implementation for various transport means.

Table 4. The traffic accident fatalities increased following the increase of circulating motorcycles

Year	Fatalities	Rate of fatalities increase compared to previous year (%)	Rate of motorcycle increase compared to previous year (%)
1995	5,430	19.8	9.1
1996	5,581	2.8	17.6
1997	5,680	1.8	14.7
1998	6,067	6.8	7.7
1999	6,670	9.9	7.7
2000	7,500	12.4	15.7
2001	10,477	39.7	29.6
2002	12,800	22.2	22.4
2003	11,319	- 9.45	10.77
2004	11,739	+ 3.7	17.55
2005	11,184	- 4.7	16.46
2006	12,757	+14.1	15.72

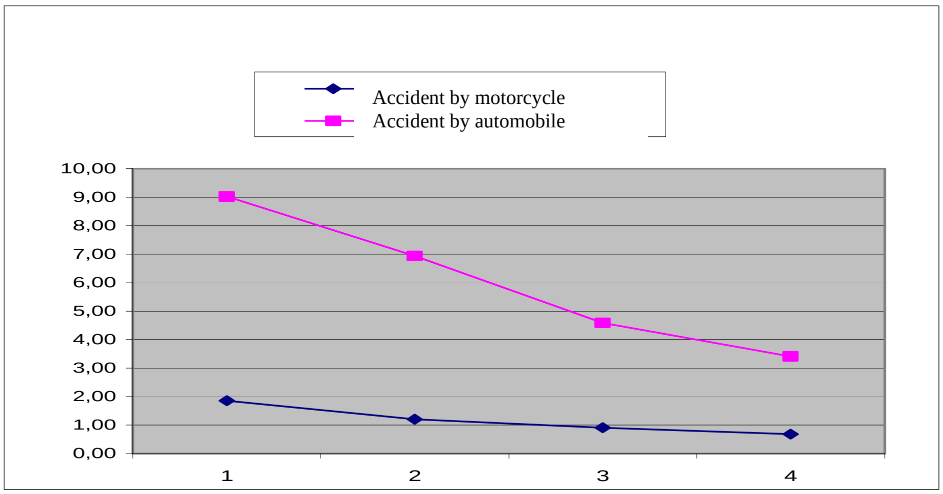
Source: National Traffic Safety Committee.

The rapid development of motorcycles in the recent years is considered as one of the main factors leading to the current situation of road traffic accident. From this, there were comments that limitation of motorcycle utilization and constrain the development of private transport means are necessary.

There is undeniable fact that the incompliance with traffic regulations of motorcycle drivers is one of the main reasons causing traffic accidents. However, the analysis of number of traffic accident per 1000 transport vehicles from 2002 to 2005 indicates that automobile is the main factor causing traffic accident (Figure 5). In terms of the traffic accidents per 10,000 motorized vehicles, automobile was 9 (in 2002) and 3.4 (in 3005) while motorcycle was 1.9 (in 2002) and 0.68 (in 2005).

Apparently, the main reason causing traffic accident was not only motorcycles. This issue must be studied more concrete to have the exact conclusion and to build the effective measurements to solve the problem.

Figure 5. Average accident per 1000 circulating vehicles



Source: Compiled from National Traffic Safety Committee.

According to the sampled accident analysis presented in Table 5, about three-fourths of road traffic accidents in Vietnam are identified as caused by road users' errors, among which speeding is the primary cause. Road infrastructure, especially national highways, has improved significantly in the last decade, but drivers' mindset has not changed accordingly. Dangerous overtaking by trucks, buses and passenger cars expose low-speed vehicles, such as motorcycles and bicycles, to great risk in a mixed traffic situation.

Table 5. Main Causes of Road Traffic Accidents in Selected Years

Cause	2001		2003		2005	
	Count	%	Count	%	Count	%
Number of total accidents	25,040	--	19,852	--	14,711	--
Number of analyzed accidents	14,332	100.0	771	100.0	8,485	100.0

1	Road user's error, of which:	10,896	76.0	647	83.9	5,629	70.7
	Speeding	4,686	32.7	212	27.5	2,656	31.3
	Dangerous overtaking	3,686	25.7	155	20.1	1,317	15.4
	Drunk driving	841	5.9	42	5.4	506	6.0
	Poor road observation	1,183	8.3	103	13.4	1,015	12.0
	Misuse of lanes	-	-	109	14.1	134	1.6
	Pedestrian error	500	3.5	26	3.4	371	4.4
2	Unsafe vehicle condition	191	1.3	3	0.4	56	0.7
3	Roads and bridges	33	0.2	2	0.3	12	0.1
4	Other	3,212	22.4	119	15.4	2,418	28.5

Source: National Traffic Safety Committee.

According to the statistics of the Road Traffic Police Department – HCMC's Police, the department deal with more than 1,300,000 cases of traffic participants violating road traffic law every year. In average, every 3 traffic participants have one violating the traffic law and every 6 residents of the city have one violating the law. This shows that the attitude of compliance with the traffic laws of traffic participants is very low.

The majority of traffic conflicts and accidents are caused by aggressive and lawless driving such as speeding, reckless overtaking, running red lights, sudden entry into road section, going wrong way, frequent lane changes, and excessive honking. While careless drivers should be blamed and bear direct responsibility for such conducts, shortcomings in public policies also indirectly permit and encourage such dangerous behaviors. These shortcomings include (i) inadequate traffic safety education, (ii) inefficient traffic enforcement, and (iii) insufficient traffic safety facilities.

II.2.2. Urban traffic

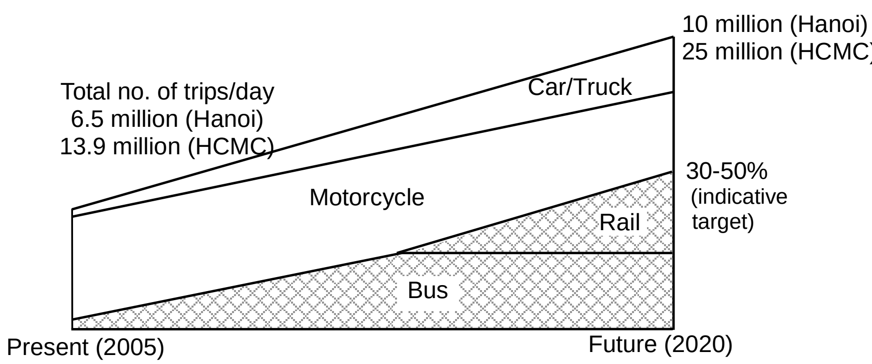
Vietnam currently has a relatively low rate of urbanization (about 30% in 2005), but is likely to undergo continued rapid urbanization which lasts in decades. This trend is expected to continue until the urbanization rate reaches 70-80%.

Urbanization, on the one hand, enhance the quality of life (more new social services, information access and people's mobility improve, employment opportunities expand). On the other hand, rapid urbanization exerts severe pressure on existing infrastructure and people's living and working conditions, as traffic congestion worsens, agricultural land is encroached upon, and environment deteriorates. The key policy objective should therefore be to find an effective way of maximizing the benefits of urbanization while minimizing its negative consequences.

Cars, motorcycles and public transportation systems are three pillars of road transportation in any developing country, particularly in urban areas. Each of these transport modes has merits and demerits. It is people who make the final modal choice based on various factors (such as their income, travel need, climate and geography, and the existing state of transport infrastructure). However, policy can also make a significant difference by guiding people's choice. The crucial policy question is how to combine the three principal modes to achieve maximum transport benefits while reducing social and economic costs. In long term, public transports will be the main transport means in center and periphery of large cities.

Hanoi and HCM, the two largest cities have plans to build public transport system which can respond 45-50% needs of the residents in 2020, including the system of buses, urban mass rapid transit (UMRT) – city-internal train and high-speed buses (See figure 6 and table 6)

Figure 6. Planning target to 2020



Source: HOUTRANS household interview survey (2002).

Table 6. Comparison of Three Principal Modes in Vietnam's Urban Travel Setting

	Motorcycles	**Automobile (personal use)**	**Urban Mass Rapid Transit (UMRT)**
Personal flexibility	**High**	High to moderate	Low
Comfort and privacy	Moderate	**High**	Low

Space efficiency	High to moderate (moderate if mixed traffic)	Low (depends on occupancy)	**High**
Energy efficiency	Low to moderate (depends on occupancy)	Low (depends on occupancy)	**High**
Predictability of peak-hour travel time	Moderate	Low	**High**
Traffic safety	Low (if unregulated)	Moderate (if unregulated)	**High**
Environment Friendliness	Low (if unregulated)	Low (if unregulated)	**High**

In order to realize this scenario, a large amount of capital investment is necessary. According to HOUTRANS and HAIDEP studies, each city requires a total of about US$14 billion to satisfy its transport needs by 2020 (Table 7). Main areas of investments are as follows:

(a) *Road development*--this includes an early completion of missing links, improvement of bottlenecks, as well as the construction of a substantial length of primary and secondary roads, especially in urbanizing areas, flyovers, interchanges at critical intersections, and bridges across the rivers … Greater Hanoi needs to build about 600 kilometers main roads and Greater HCMC needs to expand 750 kilometers of main roads including 46 kilometers of urban expressways.

(b) *Urban mass rapid transport (UMRT) network*--this comprises of urban rail and bus rapid transit (BRT). Hanoi needs to build four UMRT lines with a total length of about 200 kilometers. Four UMRT lines with a total length of about 140 kilometers excluding BRT are proposed to be built in HCMC.

(c) *Improving traffic management*--this includes various minor improvements of roads as well as implementation of traffic management measures and safety facilities such as traffic signals and signs, pedestrian bridges, parking facilities, etc.

(d) *Bus and other public transport services*-- buses provide services in non-UMRT corridors and feeder services to UMRT. Other supplementary public transport, such as taxi, motorcycle taxi, and factory and school buses, are also expected to play specific roles.

Table 7. Required Investments in Urban Transport Sector in Hanoi and HCMC, 2005 to 2020

	Investment cost (US$ million)	
	Hanoi	HCMC
Urban roads	7,993	10,090
Traffic management	444	520
Public transport	5,130	3,455
Total	13,567	14,065

Sources: HOUTRANS and HAIDEP.

Travel demand in Hanoi and HCMC has increased rapidly and is expected to increase further in the future (Table 8). Changes are expected not only in transport volume but also in the composition of transport modes. Both cities have experienced a significant shift from walking and bicycles to motorcycles over the last decade, and a further shift from motorcycles to cars and other public transport services likely as experienced in other cities in the world if infrastructure and UMRT networks are adequately developed.

Table 8. Travel Demand in Hanoi and HCMC

City	Mode		Number of trips (000/day)			Share (%)		
			1995 1)	2005 2)	2020	1995	2005	2020
Hanoi	Bicycle		2,257	1,598	452	73.2	24.6	4
	Motorcycle		632	4,075	3,390	20.5	62.7	30
	Car and taxi		7	226	1,808	0.2	3.5	16
	Public transport	UMRT	-	-	4,294	-	-	38
		Bus, etc.	165	547	1,356	5.4	8.4	12
	Truck and other		21	57	-	0.7	0.8	-
	Total		3,082	6,503	11,300	100.0	100.0	100
HCMC	Bicycle		2,633	1,988	106	32.0	13.6	0.4
	Motorcycle		5,267	10,806	8,606	64.0	77.9	35
	Car and taxi		82	212	4,709	1.0	1.6	19
	Public transport	UMRT	-	-	4,551	-	-	18
		Bus, etc.	247	782 3)	6,792	3.0	5.9	27
	Truck and other		-	132	-		1.0	-
	Total		8,229	13,920	24,764	100.0	100.0	100.0

Sources: DFID-MVA (1996, HCMC), HOUTRANS (2004), and HAIDEP (2007).

1) 1996 for HCMC.
2) 2002 for HCMC.
3) Including bus, lambro, motorcycle taxi, cyclo, private bus and ferry.

In the future, the role of motorcycle in the urban areas of Vietnam will change along with the appearance of new elements such as the increase of automobile transport and the construction of urban train system. However, to operate urban train system effectively, motorcycles still have an important role in connecting public transport service systems and for short and medium distance travel. At that time, as an additional transport means, motorcycles will still contribute significantly in the social and economic activities of urban people, in the transport system as well as in the overall development of cities.

II.2.3. Environmental protection

Like many other countries in the world, Vietnam in now facing serious environmental pollution, especially air pollution. Population bombing, high speed of urbanization lead to the rapid increase of transportation vehicles (including automobiles and motorcycles) and air pollution, which is harmful for human health. Air emission from vehicles is main cause of climate change and it can also significantly affect ecosystems

In Vietnam and other countries in the region, air pollution is now acknowledged as a serious public health threat. WHO estimates that globally about 800,000 people die prematurely every year because of exposure to urban outdoor air pollution. Among them, about 500,000 are believed to be in Asia. The Disability Adjusted Life Years (DALY) indicator[2] shows that out of the 6.4 million affected by air pollution, 3.8 million are in Asia. According to the Vietnam Statistical Year Book 2005, the majority of respiratory diseases in Vietnam are related to air pollution[3].

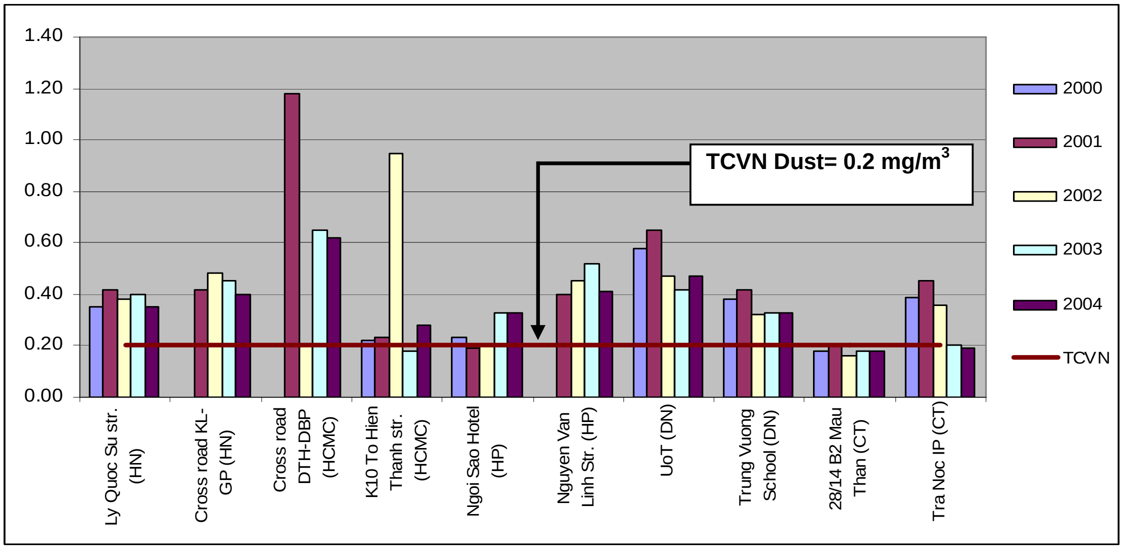
The monitoring data of the Center for Environmental Engineering of Towns and Industrial Areas (CEETIA) shows that, in the period from 2000 to 2004, air pollutants such as carbon monoxide (CO), nitrogen dioxide (NO2), dust and particles at a number of locations exceeded nationally stipulated standards for ambient air quality (TCVN 5937--see below) as shown in Figure 7. The noise level is also persistently high.

[2] According to WHO's definition, the DALY for a disease is computed as the sum of years of life lost (YLL) due to premature mortality and the years lost due to disability (YLD) for incident cases of the health condition.

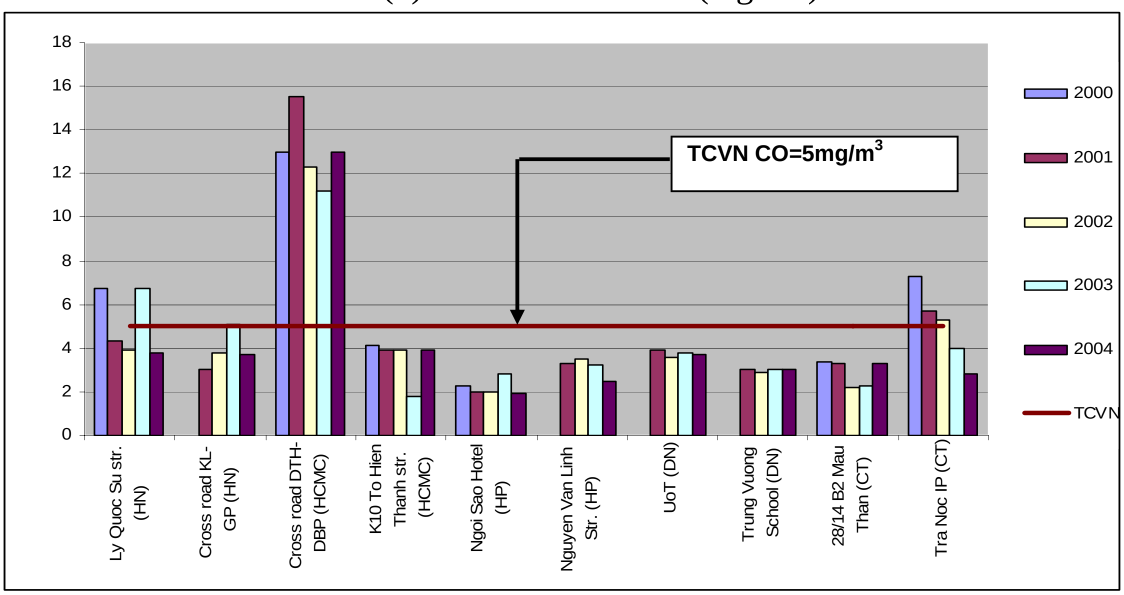
[3] According to the Statistical Yearbook 2005, the most common diseases related to air pollution in Vietnam are lung diseases (415.09 per 100,000 persons), throat and tonsil diseases (309.40 per 100,000 persons), and bronchial tube diseases (305.51 per 100,000 persons).

Figure 7. Air Pollution in Urban Areas, 2000-2004

(a) Dust (mg/m3)



(b) Carbon Monoxide (mg/m3)



Source: Center for Environmental Engineering of Towns and Industrial Areas (CEETIA), various years.

The costs related to health problems caused by air pollution in Hanoi were estimated at US$23 million in 2006, or about VND1 billion per day. Meanwhile, the World Bank Environment Monitor Reports 2002 estimated the health-related air pollution costs to be US$392 million for Metro Manila in 2001 and US$424 million for Bangkok in 2000. Compared with these cities in the region, the health costs of air pollution in Vietnam, which is at an early stage of motorization, is much lower. However, it is likely to grow rapidly unless preventive measures are taken.

Recent study of the monitoring data of the Center for Environmental Engineering of Towns and Industrial Areas (CEETIA) shows that transport vehicles are responsible for 98% of total CO emission, more than 25% of NO2, around 95% of CmHn and more than 90% of lead. According to the Vietnam Register data, motorcycles are the major source of air pollutant emissions, accounting for 54.4% of total CO emitted, 54.1% of HC, 54.5% of Pb and 43.0% of dust.

In order to mitigate the trend of increasing pollution, many countries in the world adopt stricter roadmap for control the emission from transport vehicles. At present three types of emission regulation have been widely applied. They include European (EURO standards), American and Japanese emission standards. Most of Asian countries try to follow the European standards due to their advantages over the American and Japanese standards in terms of strictness, comprehensiveness and easiness of implementation.

Conforming to a higher emission regulation requires both vehicle emission control technology and corresponding fuel. On November 23, 2000 Vietnamese government issued the Directive # 24/2000/CC-TTg to face out lead gasoline. This is an initial step to implement EURO 1 in Vietnam. Fuel quality standards have reviewed according to EURO 2.

On October 10, 2000 Government of Vietnam issued Decision 249/2005/QD-TTg on Setting the Roadmap for Application of Emission Standards to Road Motor Vehicle. The main content is as follow:

-For motor vehicles which are manufactured, assembled or imported as brand - new ones, the emission standard limit according to the Vietnamese standard equivalent to the Euro 2 limit must be applied to each kind of vehicle as from July 1, 2007.

-For motor vehicles whose quality technical safety and environmental protection are certified before July 1, 2007, but have not yet been manufactured or assembled, the emission standard limit according to the Vietnamese standard equivalent to the Euro 2 limit shall apply to each kind of vehicle as from July 1, 2008.

For second - hand motor vehicles imported into Vietnam, emission standard limits must be applied according to the following regulations as from July 1, 2006.

To implement EURO-II or higher standards, Vietnam must have new standards and mechanisms to ensure suitable fuel quality. New emission regulations must be synchronized with the improvement of fuel quality.

Apart from fuel quality, the vehicle inspection and maintenance system is another key instrument for controlling vehicle emission. How this system actually operates greatly affects the vehicle’s performance, including environmental impact.

Vehicle inspection can be classified into annual inspection, roadside inspection, random tests in parking lots, and inspection for road vehicles entering the city. Among these, annual inspection and roadside inspection are the most important. In Vietnam at present, vehicle inspection covers only automobiles. Inspection of motorcycle is considered by some to be infeasible due to limited equipment and human resources relative to the large number of motorcycles. However, since motorcycles are the largest source of vehicle emission in Vietnam, they must definitely be included if cleaner urban air is to be achieved and the EURO roadmap is to be realized in the future. Inclusion of old motorcycles is particularly important for this purpose.

II.2.4 Intellectual Property Rights

Protection of Intellectual Property Rights (IPR) helps preserving consumers' benefit and producers' legitimated creative achievements; is the motivation to foster the development of the industry, stimulate innovation research in production and create better products, and improve the value of life. As a result, consumers can use more convenient and perfect products.

However, the monopoly in intellectual property can become a barrier inhabiting labor creativity, slowdown the process of product innovation and improvement, when it is abused. Therefore, Intellectual Property Rights Protection should go along with the conditions of protection time.

In current situation, property right is becoming more important to enterprises who want to maintain a long-term business and stable development, is an important meter to evaluate the enterprise's development.

Motorcycles are highly popular at every corner in Vietnam, so setting up the protection of intellectual property right in motorcycle industry is an essential in intellectual property right in general. Appropriate IPR protection in the motorcycle industry will have active effects and spillover to others industries. Good IPR protection in the motorcycle industry benefits consumers, producers and society in general.

Consumers are protected to purchase high stable and high quality products which bring safety in traffic. Using "copying" products with low quality, consumers not only face the risk off going on road but also pay more cost to repair and replace their wrong spare parts;

Producers benefit from the healthy growth and competitive business environment of the motorcycle industry in general, and from the elimination of illegal copies of their models and the increased value and prestige of genuine products in particular;

Vietnamese society as a whole will be also benefit thanks to a strong development of enterprises. Multiform and convenience of products help improve living conditions.

Intellectual property in the industry consists of (i) invention, (ii) trade mark, and (iii) industrial design[4]. Setting up the intellectual property right in the motorcycle industry can be dressed as follow:

Invention: In general, designing and manufacturing processes of motorcycle production has been fairly completed, the fundamental technology to produce these kinds of the product has been popular in many countries as well. Inventions protected are know-how or breakthrough technological improvements of producers. Subjects of inventions are manifested from two tenors: (i) developed by technological solutions (materials, technology, structure), (ii) developed from different technological ideas (e.g., uncouple / automatic gear, electric / sparking system, cylinder dynamically controlling engine, electronic fuel ejecting system)

Industrial design: In order to create a new design and being protected, an enterprise has to invest a rather huge capital expenditure. This investment is very risk because not all of its designs will be accepted in the market. Huge amount of capital and high risk are the big barriers to domestic enterprises with small size.

Trademark: Trade mark is an effective factor to the development of enterprise. Creating an impressive and prestigious trade mark is very important in doing businesses. Meanwhile the expense for building a trade mark is usually not high.

By the year 2005, among 260 requests, Vietnam had certificated nearly 114 patent licenses to motorcycle producers. Most of them were belonging to Honda Vietnam (90 patent licenses). Vietnamese enterprises were certificated 11 patents.

For industrial design, only 124 of 267 requests from motorcycle assembling-manufacturing firms operating in Vietnam meet the standard requirement to get patent licenses.

For trademark, there are more than 238 trademark registered and used. However, there are many problems to be concerned. There are many similar trademarks (for example: Halim, Fanlim, Halley, Honlei, Haesun, Hanmun, Hansam, Noubon, Nouvo...), or different trademarks are registered for similar products. This makes many difficulties for consumers to distinguish and make their choices among products. However, all of these trademarks had been registered and approved as legal trademarks or given document verifying not infringe industrial property right in Vietnam by National Office of Intellectual Property Right (Ministry of Science and Technology).

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[4] The right to fight against unfair competition, in which the creator takes an action to stop other people from abusing the creator’s achievement to compete unfairly, such as unauthorized use of unpatented design, is an IPR component which is also recognized internationally. However, this right is not stipulated in the current intellectual property law in Vietnam, and therefore it is not included in this master plan.

Intellectual Property Law and industrial design related regulations are still not concrete and more or less base on feeling evaluations which lead to swerve law or make difficult to relevant government authorities when solving problems. Furthermore, regulation permitting the protection term more than 10 years doesn't encourage enterprises to innovate their products.

Most of consumers don't aware of the harm of using "me too" or imitation products in the age of international integration. Vietnamese people are still fond of foreign trademarks. Thus, there exists the attitude of concession or sympathizing with infringements on intellectual property.

III. SUPPORTING INDUSTRIES AND INDUSTRIAL HUMAN RESOURCES FOR MOTORCYCLE INDUSTRY IN VIETNAM

III.1. Supporting industries for motorcycle industry

In general, Vietnam's supporting industries has been developing at the beginning stage. Assemble, manufacturing industry has attained a very low localization rate, but supporting industries for motorcycle industry are an exception, the localization rate in this sector is fairly high.

There are 3 main reasons for the fast development of the supporting industries in recent years: i) domestic demand has been highly increasing (current demand is over 2 million motorcycle per year), its size developed its supporting industries; ii) free trade initiatives at national, regional, and global levels (include WTO accession, AFTA commitments and bilateral agreements implementation..) lead to a change of multinational corporations' production locations; iii) strong competition of supporting industries in the region, such as Thailand, Indonesia, Malaysia, China and India.

Vietnam's supporting industries for motorcycle industry, in the future, can become a driving force to the development of other industries. If the motorcycle industry' target is reached, its supporting industries will be a foundation to other manufactured and assemble industries. Motorcycle component supporters can also produce accessories, spare parts to electrical-electronic, car production industries though it has to strengthen its technological level in order to getting more new customers.

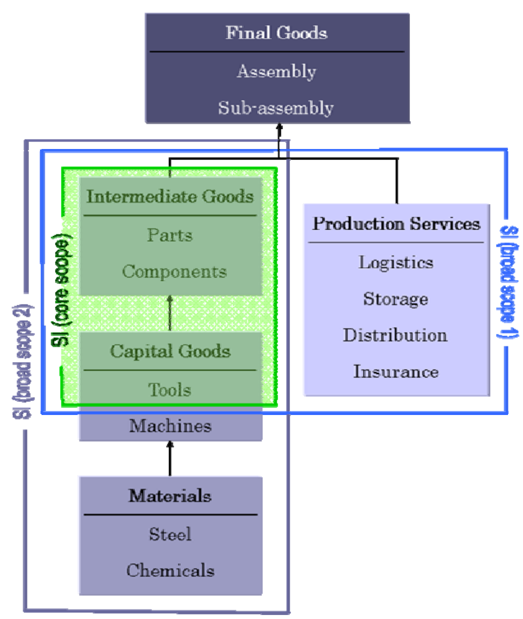
In a term, supporting industries is a nation's group of producers (include domestic and FDI producers) provide intermediate inputs to assemble producers in that country. Accurate range of supporting industries depends on each situation as well as intention of policy makers. It can be defined as one industry or related to many others such as garment and textile and chemical ones. The term of "supporting industries" first used by Japanese in the 1980 decade referred to supporters of manufactured industries, such as car, motorcycle, electronics and precise machinery.

For input factors, the range of supporting industries can also be defined differently (Figure 8). It's normally defined as an industry included physical inputs manufacture (spare parts and components) and industrial services (such as logistics depot, distribution and insurance services). Another definition is base on physical input and raw materials. These two definitions have the same parts and that can be considered as the main parts of supporting industries. So main parts of the supporting industries include components created from steel, plastic, rubber and production process such as stamping, casting, forging, welding, shape creation, mechanical process, rice seeding, heat handling. In more detail, components and pattern manufactured technologies play a central position in the core part of supporting industries.

With the target of giving corresponding development solutions, this plan defines supporting industries in a narrow meaning. Therefore, it includes only processes of stamping, casting, forging, heat handling and shape creation. These processes play an important role in the development of manufacturing industry which Vietnam is in seriously inadequacy of quantity as well as quality.

The reason for narrowing the definition is aiming at concentrating its limited development support fund and enhancing development of certain industries. In the future, however, scope of the defining will be more extended.

Figure 8. Scope of Supporting Industries



Vietnam's supporting industries for motorcycle industry has been established and developed rather fast in the past years. Up to now, it is estimated that nearly 1000 enterprises produce motorcycle components, of which more than 200 are FDI enterprises. Production and component supply network can be dressed as follow:

+ Group 1: Motorcycle produced enterprises themselves invest in producing motorcycle’s components. This results from the regulation which prohibits each enterprise producing at least 20 percent of component. Enterprises usually invest in producing some components with high rate level like bodywork, clutch, carburetor, plastic set...

+ Group 2: Network of domestic enterprises. Majority of these are mechanical, rubber, plastic, electricity, electronic enterprises which already exist. Since motorcycle produced industry was established and developed, those industries have been producing another additional products, i.e. motorcycle components. Thus, most of domestic enterprises produce motorcycle components and other products as well. Hence, in the beginning of their growth, domestic enterprises are deficient in adequate investment to producing motorcycle components resulting in low quality of product, weak competition. Their products are mainly provided to domestic enterprises which assembling popular motorcycles with low prices. Some enterprises, however, have invested in technology so they can produce high quality products and become constant suppliers to FDI enterprises.

+ Group 3: Network of join-venture and 100 percent foreign capital enterprises. These enterprises are partners of Japanese, Taiwan, Chinese companies. They invest in Vietnam due to FDI motorcycle production enterprises’ invitation. But their sizes and production capacities are only at small and medium scales. Total capital in each enterprise is less than 5 million USD. They not only produce motorcycle components but also other products. Products such as fuel gauge, lights, electric wire, saddle, basket, wheel, spoke and some plastic parts of the motorcycle, hub, breaks, and some details of the engine... are produced at a medium technology level. The quality of these products are rather high and can satisfy demand of FDI motorcycle production enterprises as well as export standards, so their prices are also several times as high as similar products produced by the Group 2. These enterprises are mainly supplied to Japanese and Taiwan firms such as Honda, Yamaha, Suzuki, and VMEP. Components produced by Chinese FDI enterprises, such as Lifan, United Motor Vietnam, are mainly supplied to domestic producers, a small part of these are supplied to FDI motorcycle producers.

+ Group 4: Network of enterprises importing components from China or other nations in the region, redistributing to domestic motorcycle producers or supplying in detail market. The quality of these imported components is low so it is sold at low price. It is difficult to control these imported components.

Prior nations experiences indicates that strong development of supporting industries is a driving force enhancing motorcycle industry development. A drastic network of component suppliers with high competitiveness is a solid foundation to overall industry development and joining to regional and international production and distribution network.

Vietnam motorcycle industry was established and developed 30-40 years later than other South East Asia nations. Therefore, it is difficult to develop component suppliers. These difficulties are:

i) Vietnam has to face with international competition in the beginning of development stage.

ii) The time request for localization is rather short. (Thailand: 26 years, Indonesia: 22 years; Vietnam: 2 years)

iii) The time that ban import to foster local production is shorter (Thailand: 18 years, Vietnam: 6 years)

Thailand and Indonesia have a long time to develop their motorcycle industries, and they can balance the development of motorcycle producers and component suppliers. Meanwhile, in Vietnam the number of producers was booming but non-corresponding investment to develop the component suppliers.

Another factor affecting to the development process of component suppliers is the regulation that force each motorcycle produced enterprises producing at least 20 percent of motorcycle's component. This regulation aim at preventing investment in motorcycle trade only and encourage domestic production but it lead to dispersed and overlapped in investment for component production. It also doesn't encourage cooperation among enterprises since any of them wants to invest in producing some components that have high component level. And when implementing localization policy (which is currently abrogated), domestic enterprises are absorbed to specify high localization level in order to receive import tax preferential treatment of the remaining imported components. Therefore, their investments are overlapped in producing body work only.

Up to now, Vietnam still has not got any professional motorcycle component producer to supply high competitive products. Hence, it has to import a huge quantity of motorcycle components. Its main import markets are Thailand (42.0%), China (24.9%), Taiwan (15.5%), and Japan (10.4%)

Table 9. Importing Motorcycle Component

1000 USD

	1996	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
CBU	131.150	773.520	628.857	298.527	89.427	0,00	1.261
Engine	0,00	7,6	346	7.207	2.284	2.145	5.678
Engine parts	0,00	0,00	33.413	11.074	9.595	12.969	1.087
Spare parts	0,00	36.097	48.230	147.117	177,514	396.937	468.302

Source: Compiled from data of General Customs Office

The price of imported component decreased (the price in 2004 reduced for 4 times compare with that of 1996) thank to the development of supporting enterprises.

Table 10. Number and value of imported components

	1996	**1999**	**2000**	**2001**	**2002**	**2003**	**9 /2004**
Quantity (*set*)	107,276	508,368	1,571,700	2,502,700	1,479,535	968,466	976,666
Value (Mil.*USD*)	131.15	398.26	703.08	668.23	421.62	290.54	293
Average (USD/set)	1,222.6	783.4	447.3	267.4	285.0	300.0	300.0

Source: Compiled from data of Ministry of Trade and General Customs Office

The competition among component suppliers in Vietnam becomes more and more drastic. Even though FDI producers have relative stable purchasing policies to components, the competition among component suppliers still exist. Existence component suppliers even face with competition from new suppliers. Motorcycle producers can buy a component from different sources in order to reduce risk and production cost so their purchasing policies may be changed fast particularly when a new design has been introduced or a new policy applied.

Many foreign component suppliers intend to invest in Vietnam in spite of drastic competition and non special incentives. The main reason is that domestic demand has reached fascinating size to produce efficiently. Component suppliers from Taiwan, Thailand, Japan, India, Malaysia and Indonesia have invested in Vietnam since 2005. Those suppliers have more advantage than domestic producers in term of implementing QCD. They also experience in communication, marketing and in working with other partners which are FDI enterprises at their home countries. It's supposed that these new competitors will push domestic suppliers out of motorcycle producers' purchasing component networks.

The participation of foreign suppliers is obvious and is a factor to long term development of motorcycle industry in Vietnam. If the supporting industries become stronger, the competitiveness of Vietnam motorcycle production enterprises will be increased. In order to compete with foreign suppliers in the home market, the domestic component producers should be self-motivated to strengthen their production capacity, improve QCD and marketing. Then domestic suppliers can recover home market share from foreign suppliers in the context of equal competition.

III.2. Industrial human resources for motorcycle industry

Human resource plays a vital role in industry development. Due to the limitations of time and finance resource, Vietnam should develop human resource selectively. The motorcycle manufacturing industry uses multi-occupations with high skills in profession and management. In order to build a strong motorcycle manufacturing industry, a high tech human resource which partly enhances competitiveness for other assembly industries of Vietnam, it should focus on the three main following human groups:

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

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

- The group of general directors, factory managers, engineers and multi-skill workers who face difficulties in their work but have the right mindset and willingness to learn should be assisted. Among these, the attitude and enthusiasm of the general director is by far the most crucial, without which no company can improve performance. Once the serious commitment of the top management is confirmed, they will play the leading role in developing business after overcoming temporary difficulties.

In many countries, there is social prejudice that professionals who work in clean, air-conditioned offices are “superior” to factory managers and engineers who work in noisy and humid factories with lower-level workers. To promote industrialization, the Vietnamese government should change such attitude by initiating a campaign to re-orient people’s mind, giving social recognition and respect for talented factory managers and engineers, and prioritizing and supporting technical education and training.

Industrial human resources and supporting industries are the two sides of the same coin, the one dealing with human aspects and the other highlighting physical aspects, which together enable a country to achieve excellence in industrial production. This will enable Vietnam to break through the low technology trap as well as cope effectively with the challenges of other countries in developing industry generally and in motorcycle manufacturing industry particularly.

<u>Part 2</u>
CURRENT SITUATION OF THE DEVELOPMENT OF VIETNAM'S MOTORCYCLE INDUSTRY AND DEVELOPMENT ORIENTATION

I. CURRENT SITUATION OF DEVELOPMENT OF VIETNAM'S MOTORCYCLE PRODUCING AND ASSEMBLING INDUSTRY

I.1. Investment in manufacturing and assembling

The motorcycle industry of Vietnam was born about a decade ago and developed quickly, especially in the period 2001-2005. In addition to four foreign invested motorcycle producing-assembling firms which were established in the 1990s, i.e. VMEP, Honda, Yamaha, Suzuki, there appeared many new local producing and assembling firms which initially operated based in the component part source imported from China.

During the period 2001-2005, according to the data of Vietnam's Register, there were at least 67 companies operating in producing and trading motorcycles, which disposed nation-wide and had the maximum assembling output of 2.4 million units. The production system has gradually been formed with hundreds of firms from different economic sectors in Vietnam as well as from abroad.

Recently, in the condition of fierce competition and mainly due to the quality problem, the sales of the low-priced motorcycles with Chinese component parts reduced remarkably. This is the main reason for the rapid decreasing in the number of local motorcycle assemblers.

In 2005, according to the data of Vietnam Register, there were 51 motorcycle manufacturers and assemblers, four of which have the production volume of more than 100,000 units/year, six companies have production volume of more than 40,000 units/year, 10 companies has the production volume ranging from 20,000 to 40,000 units/year and 17 companies have the production volume of 10,000 - 20,000 unites/year. The rest has the production volume less than 10,000 units/year.

Table 11. The development of motorcycle production and assembling in 2001-2006

	2001	2002	2003	2004	2005	2006
Newly registered motorcycles (x1,000)	2,485.6	1,818.6	1,789.6	2,138.8	2,188.4	2,553.6
Scooters	22.43	82.17	101.47	180.98	192.32	n.a.
Manual transmission	2,463.17	1,736.43	1,688.17	1,957.81	1,996.10	n.a.
Market share (percent)	100%	100%	100%	100%	100%	100%
FDI assemblers	12.94%	42.37%	47.59%	51.71%	53.55%	54.53%
Honda	6.84%	21.02%	23.68%	23.85%	28.63%	31.57%
Yamaha	0.92%	3.78%	6.77%	9.80%	11.72%	13.74%
Suzuki	1.04%	2.31%	2.88%	3.59%	3.89%	1.69%
VMEP	3.18%	13.55%	11.80%	12.02%	7.75%	5.87%
Other	0.97%	1.71%	2.47%	2.46%	1.56%	1.65%
Local assemblers	87.06%	57.63%	52.41%	48.29%	46.45%	45.47%
Over 40,000 units/year (6 firms in 2005)	8.07%	10.20%	12.59%	19.35%	22.42%	27.09%
20,000-40,000 units/year (10 firms in 2005)	40.54%	31.10%	30.64%	24.57%	13.43%	7.35%
10,000-20,000 units/year (14 firms in 2005)	21.07%	10.03%	9.16%	4.20%	8.83%	5.46%
Less than 10,000 units/year (in 2005)	17.38%	6.29%	0.03%	0.16%	1.77%	5.57%

Source: Compiled from Vietnam Register data.

There was a trend of production accumulation in the local motorcycle assembling. In 2006, the production portion of local firms, which have the production scales of less than 40,000 units per year, especially those have the scales of less than 20,000 units per year, has reduced significantly. In 2006, 18 firms (both FDI and local firms) account for 88% of the nation's total motorcycle production. However, there still exist some firms operated perfunctory, seasonally and have the production volume of less than 10,000 units per year.

According to the evaluation of many experts, in the total 54 manufacturing and assembling companies (3 new companies got approval in 2006) there are only about 10 companies really operating effectively. Four of which are FDI companies.

Before 2000, the annual motorcycle production volume was about some hundred thousand units, mainly by the FDI companies and some local companies importing and assembling completed one-set component parts. Motorcycle price at that time was relatively high compared to the consumers' income.

In the next period, some local companies have invested in purchasing common motorcycle assembling line from China and assembled Chinese and some local component parts. Since the price is suitable for the consumers' income, sales of local companies fiercely increased. In 2001, local producing-assembling companies accounted for about 80% the total production of the industry.

Under the competitive pressure from local companies, FDI companies have adjusted their business strategies; restructured their production; launched the models, developed supporting production networks, after-sale service; reduced price, therefore gradually increased annual sales. In 2005, the sales of FDI companies accounted for 61.63% of the total sales of the industry.

According to the firm survey data, the market shares of motorcycle sales of the main companies in 1998-2005 are exposed in the following table:

Table 12. Structure of annual sales

	1998	1999	2000	2001	2002	2003	2004	2005
Total sales (x1,000)	302	475	1686	1983	2058	1280	1437	1641
Share (percent)								
Honda	27.2	19.5	9.7	8.6	19.4	33.3	35.7	36.9
Honda (import)	40.0	43.6	9.7	3.3	0.0	0.0	0.0	0.0
Yamaha	0.0	2.7	1.0	1.3	2.7	7.7	13.3	13.2
Suzuki	7.2	3.6	1.0	1.4	2.2	4.0	4.9	4.1
VMEP	11.7	4.2	2.3	3.3	7.4	13.6	15.6	7.5
Scooter CBU	0.4	2.5	1.1	1.7	3.4	3.7	1.0	2.7
Local and other	13.5	23.8	75.2	80.5	65.1	37.8	29.6	35.7

Source: Compiled from Enterprise Survey Data.

Due to the high demand of the market, motorcycle assembling production increased remarkably in 2000 and 2001. In 2003 and 2004, most of companies had to reduce the production due to some measures and policies of the governmental offices to restrict motorcycle registration as well as strengthen the production controlling, trading activities of motorcycle producing-assembling companies. However, in 2005, the barrier to the development of the motorcycle industry was mostly removed, therefore, the production has tended to recovered.

The total investment in the industry until 9/2005 was about 9,000 billion VND, one third of which belonged to domestic companies (about 3,200 billion VND). FDI motorcycle companies have invested about 394.413 million USD, of which legal capital was about 129.32 million USD and continue to invest to increase assembling and component part production capacity.

The Japanese FDI companies normally started their production basing on imported component parts and then gradually developed supporting production by calling for investment from foreign and some local firms. Production processes are standardized and controlled strictly, from material providing to component parts producing, storing, product delivering and payment. In general, production process is designed to follow integral manufacturing and follow their owned standard requirements.

The Taiwanese and Chinese FDI companies have the production system based on modular manufacturing practice, in which the firms can use “sharing” identical components to reduce cost and compete with the Japanese companies. These companies have also built their own systems of supplier networks by attracting investment from their own countries as well as using some local suppliers.

Since FDI firms usually with big market share have their advanced technology capabilities, taking initiative in designing. The FDI firms play an important role in the development of Vietnam’s motorcycle industry. The total manufacturing capacity in the technological feasible plans of the seven FDI motorcycle companies is 1.73 million units per year. In fact, some companies recently have the production volume nearly reach to the planned capacity. Among them, HVN and Yamaha have passed the planned capacity and continued to enlarge the scale and increase the production.

Due to the fierce competition pressure, some other FDI firms have also changed their development strategy. Lifan-Vietnam has reduced completed motorcycle production and strengthened engine production to serve local market. Vina-Siam has changed its current production to scooter assembling, in which most of components are imported, as well as become a high quality supplier for some components provided to local market. GMN has also divided into two smaller companies (i.e. GMN trading and VAP component parts manufacturer) in which VAP has become a member of Honda Vietnam system and provided to this company (HVN contribute 70% of the VAP’s total capital).

As for local companies, to follow localization requirements, local companies have also invested in parts manufacturing to ensure the production of at least 20% of the components following the government regulation. However, these investments are not comprehensive and focus only on some component parts which can be counted for high localization rate. When the government removed the localization regulations, many companies have shift to outsource component parts in stead of in house production.

Besides this, for long-term development, some local motorcycle manufacturing and assembling firms have stated to put effort in developing their owned brands, organized their owned the designing activities and component supporting system such as Sufat, Tien Loc, Hoa Lam – Kymco, Da Nang mechanical electronics and technology … companies.

I.2. Import-export turnover

The statistics of motorcycle import and export in the period of 2001-2005 is as follows:

Table 13. Situation of motorcycle manufacturing and importing in the period 2001-2005

Import-export		2000	2001	2002	2003	2004	2005
Export value (thousand USD)		**2,203.5**	**6,202.7**	**8,976.9**	**22,871.4**	**46,3456**	**70,781.2**
Export structure based on type product	C	12.09%	1.39%	3.25%	1.58%	0.58%	0.49%
	CBU	0.00%	0.00%	53.42%	66.71%	57.23%	47.54%
	E	0.03%	0.00%	0.01%	1.92%	10.81%	24.37%
	EP	0.00%	0.00%	0.00%	0.00%	0.86%	0.00%
	SP	87.88%	98.61%	43.32%	29.79%	30.53%	27.60%
Export structure based on firm	Honda	0.58%	1.11%	52.93%	64.84%	68.77%	61.80%
	Yamaha	0.57%	4.41%	1.55%	0.35%	0.00%	0.71%
	Suzuki	1.03%	0.30%	0.84%	0.22%	0.43%	0.26%
	VMEP	7.98%	0.30%	4.92%	16.36%	20.40%	23.70%
	Mac+Chu			2.76%	5.02%	10.12%	13.19%
	Local and others	89.84%	93.88%	37.00%	13.22%	0.29%	0.04%
Import value (thousand USD)		**810,394.1**	**713,292.9**	**465,182.9**	**319,627.8**	**451,597.1**	**541,385.9**
Export structure based on type product	C	0.09%	0.34%	0.27%	12.77%	8.76%	12.02%
	CBU	95.45%	88.16%	64.17%	27.98%	0.00%	0.23%
	E	0.00%	0.05%	1.55%	0.71%	0.47%	1.05%
	EP	0.00%	4.68%	2.38%	3.00%	2.87%	0.20%
	SP	4.45%	6.76%	31.63%	55.54%	87.90%	86.50%
Export structure based on firm	Honda	13.96%	15.32%	23.64%	30.75%	23.11%	24.40%
	Yamaha	0.61%	2.00%	8.76%	20.45%	16.74%	20.69%
	Suzuki	2.18%	2.05%	3.80%	6.36%	4.77%	4.10%
	VMEP	2.97%	3.03%	9.67%	15.23%	13.30%	6.40%
	HL-Kymco	1.16%	2.02%	2.09%	0.11%	1.23%	0.60%
	UMV		0.04%	0.00%	0.07%	1.31%	0.98%

	Local and others	79.12%	75.54%	52.04%	27.03%	39.53%	42.83%

Source: Compiled from General Customs Office data.
Note: CU: Complete units; CBU: Completed built units; E: Engines; EP: Engine part set; SP: Separated parts
UMV: United Motor Company, Local: Local companies; Mac-Chun: Machino- Chunfun company

Thank to the development of local supporting industries, the total import value reduced from 810.4 million USD in 2000 to 319.6 million USD in 2003. In 2004-2005 the total import value increased since the FDI sector has significantly increased their production. In 2005, most of import value was is spare component parts and then motorcycle completed parts. Completed motorcycles import was mainly middle and high-end scooters.

The completed motorcycles priced more than US$200 are mainly imported from countries in EU, United States and Japan; normal SH, Dylan, @, Vespa … motorcycles. Motorcycle priced less than US$ 2,000 mainly imported from China, Malaysia but the volume is not much.

In 2005, Vietnam imported more than 45.7 thousand units of motorcycle valued more than US$ 65 million compared with the number of 18.8 thousand units in 2003. There is a trend of increasing the consumption of high-end motorcycles (mainly scooters) in urban areas where the population is highly density and good infrastructure.

Total export value of the motorcycle industry in 2005 was about US$ 70 million, increased by 30 times compared to that in 2001, mainly component sets, engines and spared components.

The motorcycle exports in the recent period are mainly samples for introduction and survey market; the main export markets were the countries in vicinity region. In the period of 2001-2005, the total export was about 1.700 units with the value about US$ 1.03. Completed motorcycles were exported to 35 nations and territory (including EU, North of America and Japan).

Recently, there are only two companies, i.e. Honda and VMEP exporting motorcycle engines.

Export structure has also changed toward increasing the portion of component set and engine set and reducing spared component parts. All of these three items had relatively high average growth speed.

Honda Vietnam Company takes the leading role in the export activities with the main products of motorcycle component sets, engines and spared component parts to other countries in the vicinity region such as Philippines, Laos and Indonesia. In 2005, Honda exported more than 64,000 motorcycle component sets, more than 27,000 motorcycle engines and more than US$ 4.5 million of spared component parts. VMEP ranks second in terms of export value and also the leading company in exporting completed motorcycles.

In 2005, VMEP also exported more than 70.000 engines, increased by 2.5 times compared to that in 2004. Machino and Chunfun, the two Taiwanese invested companies have also participated in exporting component parts with the value accounting for about 13% of the total export value of Vietnam's motorcycle industry.

Although the local suppliers have not exported directly, they have contributed in the high localization rate of FDI companies' products and in exports of these companies.

In the period of 2001-2005, the Japanese FDI companies, under the parent corporations' strategy of market segmentation, seemed not to have the orientation to export motorcycles to the ASEAN region and mainly concentrate on market in Vietnam. The Taiwanese VMEP has a strategy to turn Vietnam into its base production of motorcycle production with the relatively clear orientation of exporting product to EU. Some local manufacturing and assembling companies started preparing to develop export markets to countries in Africa, Latin America, but have just stopped at the step of market survey.

Evaluating the export ability, many experts argue that the Vietnamese motorcycle products can hardly penetrate into the world markets which has dominated and divided by the leading motorcycle manufacturing countries. To foster the export activities, Vietnam's motorcycle industry should actively participate in the production – distribution system in the region and the world, and may promote exporting parts and components.

Moreover, local companies can explore some small niche markets in the low income countries which have the equal social-economic development condition to Vietnam such as some African, Middle East or Latin American countries … However, when entering these markets, there are often some difficulties in payment transaction so that Vietnamese local firms needs governments act as a guarantee for exporting companies.

I.3. Production and business results

Annual sales of the motorcycle manufacturing and assembling in the period 2001-2005 were as follow:

Table 14. Production and business situation in the period 2001-2005

Year	2001	2002	2003	2004	2005
Total sales (mill. VND)	20,297,536	20,705,982	14,828,780	21,860,256	18,730,991
In USD (mill. USD)	1,309.52	1,335.87	956.70	1,410.34	1,208.45
Total contribute to state budget (mill. VND)	3,194,013	3,764,333	1,401,177	1,796,914	1,282,690
In USD (mill. USD)	206.07	242.86	90.40	115.93	82.75
Average price (mill. VND/unit)	10.92	10.35	11.46	11.04	11.19
Total new registered motorcycle (unit/year)	1,858,125	2,001,303	1,293,776	1,980,144	1,673,380
Total import value (mill. USD)	808.191	707.090	456.206	296.756	405.251
Domestic production value	501.328	628.780	500.489	1113.583	803.200
Average domestic production cost (mill. VND/unit)	4.18	4.87	6.00	8.72	7.44
Percentage (of cost) in price	38.28%	47.07%	52.31%	78.96%	66.47%

Source: compiled from the reports of the Tax General Department

Based on the synthesized financial reports of 32 motorcycles manufacturers and assemblers nationwide, data of production cost, and the average unit price of a motorcycle in the period of 2001-2005, the average of total sales of the industry was about 1.244 billion USD and the average of total cost was about 1.17 billion USD

The converted percentage of domestic production in the average price of a motorcycle product increased from 38.28% in 2001 to 78.96% in 2004 and 66.47% in 2005. This percentage can be considered as the average localization rate of the whole industry counted by the real value. This figure in 2005 was lower than 2004 because recently, there was a trend that consumers started to shift from low end to middle-end and high-end motorcycles which have lower localization rates compared to the common motorcycles.

After declining period of 1998-2001, due to the effect of “Chinese motorcycle flow”, the motorcycle prices tend to increase. In 2005, the average price of a motorcycle in the whole industry was about 11.2 million VND in which the unit price of motorcycles made by A local and Chinese companies was about 7-10 million/unit, those of Japanese and Taiwanese FDI firms was about 15 million/unit. Meanwhile, the converted assembling cost in the industry stabilized in the period of 2001-2005 with the average unit price of 10-11 million, unit price of a motorcycle made by Japanese firms in 2001 was about 20.6 million/unit in 2001, then, reduced to 12.5 million/unit in 2003 and 13.4 million/unit in 2005.

However, in a country in which more than 70% of the population are living in rural areas and have the average yearly per capita income of 600 USD, the recent price of the popular motorcycles, especially that of FDI companies still high compared to the per capita income of most residents.

Table 15. Converted cost structure of a motorcycle

	2001	2002	2003	2004
Industrial production value (%)	100%	100%	100%	100%
Cost	81.75%	81.65%	86.60%	83.72%
- Material	94.02%	93.47%	92.90%	91.59%
- Fuel	0.36%	0.60%	0.43%	0.38%
- Energy	0.36%	0.56%	0.44%	0.52%
- Service	5.27%	5.37%	6.23%	7.51%

Source: Complied from the date of the General Statistics Office

Table 16. Production efficiency of Vietnam's motorcycle industry

	2001	2002	2003	2004	2005
Average cost (mill. VND/unit)	10.51	9.91	10.51	9.96	10.74
Total cost (trillion VND)	19,535.2	19,829.7	13,603.7	19,726.2	17,967.9
In USD (mill. USD)	1,260	1,279	878	1,273	1,159
Profit (mill. USD)	49.19	56.54	79.04	137.68	49.23
Average profit (USD/unit)	19.79	31.09	44.16	64.37	22.50

Source: compiled from the reports of the General Tax Department

According to the synthesized data of the General Tax Department, the total contribution to the national state budget of the motorcycle industry in the last five years was US$ 738 million that account for 11.8% the total sales of the industry. In this amount, 56% was import tax, 26% was import value added tax and the rest was the local value added and corporate tax.

The annual total contribution of the motorcycle industry to the national state budget tends to reduce. Up to 2005, the total tax of the industry is US$ 82.5 million compared to US$ 206 million in 2001. The main reason was that the import tax and import value added tax, which are the main contribution to the national state budget, reduced recently due to the sharp reduction of the import values. Besides this, there were also some other reasons such as the tax clearance lower the actual value with incorrect product's origin and sorts of goods … for import and corporate tax fraudulent.

In general, since motorcycle production is economically efficient and profitable. Also, the motorcycle industry have received the protection of the government by high tariff while the market is large, the motorcycle industry has attracted numerous firms from different sectors.

Up to now, three motorcycle manufacturing and assembling areas, i.e. Japanese FDI firms, Taiwanese invested firms and local firms, with different production organization and business mechanism … are formed.

Due to the fierce competition in the local market, sometimes some firms even use unhealthy competitive methods which harm to the benefit of consumers and the community. This situation demands government to formulate measures to build a fair competitive environment for the consumers' and society's benefits.

I.4. Existing business architecture models of motorcycle industry

Using the terms of Japanese experts, three business architecture models are considered to exist in the motorcycle production in Vietnam. The first is integral manufacturing, the typical model of the Japanese traditional motorcycle manufacturers. The second is the modular manufacturing as in China and the third is the hybrid model which combines the strengths of the both above models.

Integral manufacturing:

The fundamental philosophy of integral manufacturing is that each product is designed and manufactured with an exclusive brand and features, with outstanding quality; is incrementally changed and improved; has the component parts which cannot be shared with other products so that it can sustain the attraction to customers and demand with high profit.

The basic feature of integral manufacturing is that products are designed and produced with parts that are unique to each model. Such parts have original design which continues to evolve and improve over time, and which cannot be used in any other model. The industrial structure of integral manufacturing consists of a system of vertically organized producers which have close, long-term relations with each other. At the top, there is an assembler that designs products, sets standards, and provides technology and market for suppliers. Suppliers in turn produce parts which meet the quality, cost and delivery (QCD) requirements of assemblers. Through this process, original technology is created and internalized. If successful, this business architecture is able to produce high quality products and capture high-end markets. To be effective, however, integral manufacturing requires a business environment characterized by healthy and fair competition, stringent protection of intellectual property rights, and strong linkage between assemblers and suppliers based on long-term trust, reputation, and protection and active development of industrial secrets. Moreover, long-term relationship is a must and required by this business structure since it takes a long time to reap the fruits.

In the current condition of Vietnam, according to the judgments of the Japanese motorcycle manufacturers, there are few local parts suppliers who can meet the requirements of the FDI firms and FDI firms often cope with many difficulties in developing their local suppliers system. Thus, they often use the service of their owned previous foreign invested suppliers. This problem must also be solved in the motorcycle master plan for the coming time.

Modular manufacturing.

Modular manufacturing is for taking advantages of production specialization and fragmentation. In modular architecture, the modality of interaction among components is standardized for easy connection. A product can be assembled from many different components which are standardized from various suppliers. Component procuring contracts are short-term; much depend on offered price and quality. Under such modular component markets, it is not necessary to organize long-term vertical production systems. The market is typical with the free participation, over competition, and the price is the decisive factor for receiving orders. Because of mass production, cost is low, price is reduced and products have price competitiveness. However, the components lack specific features since they are assembled from component parts which are standardized (which do not depend on any specific design) and common used within various type of product. Under the pressure to reduce price, normally, product's quality is not high and stable.

The main advantage of this model of production is that it allows organizing productions rapidly and dynamically, which can attract low income consumers and easily mobilize external resources.

Motorcycles manufactured in this model often have not high quality. Profit is low so that expenditure for R&D, for technological innovation and quality improvement … is limited. Component part suppliers are also under the strong pressure and not stable. Motorcycle manufacturers cannot create and accumulate important technologies either. When the market demand reduces, manufacturers are pushed to the race of cutting price by reducing quality standard. The result is that the firms cannot build their owned brands.

This model is popular in many developing countries since it asks for small capital and technology, while the competitive and production environment is not transparent and fair, distrusted; and the governments' administration systems are low effective with unstable policies disturbing long-term and methodical investment.

Hybrid model of manufacturing:

This is a new business/production model formed in the condition of fierce competition between the above two models in the recent years, when low-priced popular motorcycles from China appeared in the local market.

This hybrid production model combines the advantages of the above two models in the imperfect competition environment nowadays. The FDI manufacturers also have started using some common used components to reduce the product's prices. Some local firms have started building their owned designs and product standards in the market with the hope to build their owned reputation and brand … The parts supplier systems of different manufacturers started to cooperate.

For a latecomer country like Vietnam, the simultaneous development of integral and modular models is unavoidable. Modular production creates jobs and revenue meanwhile domestic entrepreneurs can easily to start the business without the supports of the government. However, since the modular production leads to less chance to improve skills and technology capability, in long term, the modular production can lead to remarkable limitations if the quality and environment standards and intellectual property right are promptly implemented.

I.5. Value chain of motorcycle industry in Vietnam

Quality and prices of motorcycles in the market

High-end scooters: Are imported mainly from countries with advanced motorcycle manufacturing industry, and serve the needs of high income people. These products are often imported under the form of CBU (completed built unit) (Vietnam has prohibited importing completed motorcycle except specialized ones) and assembled in Vietnam. The prices of these motorcycles are normally up to some thousands USD. These motorcycles' quality is followed international standards so that it can fulfill or overcome the local quality standards, such as in emission or lighting systems …

Scooters manufactured and assembled locally: Recently, there a trend of increasing the scooter consuming, especially in the urban area. Respond to this trend, motorcycle manufacturers have launched series of products with plentiful design, type and relatively high quality. The prices of these motorcycles are from more than US$ 1,000 up to US$ 2,000. The FDI manufacturers take the relatively high share of sales of these products. However, due to the sales are still not so high that manufacturers still choose the solution of importing core components and investing in production only some unimportant component parts.

Locally manufactured gear motorcycles: Most of locally manufactured-assembled motorcycles have relatively high localization rate. The firms in the motorcycle industry have also often to change product's design to offer more choices for customers. The prices of these motorcycles are ranging from some hundred US$ to US$ 1.000. However, there is a relative big price gap between products of FDI and local firms. Some motorcycles of local firms have the prices of only about a half or two-third, and even one-third of those of FDI firms' products in some cases.

In general, most of local firms' products have medium quality. However, there appear some products, which are registered their owned design and have relatively high quality, of some local manufacturers. However, since they have not been able to build their owned trademarks, these manufacturers still face many difficulties in the productions.

The products of FDI manufacturers are manufactured based on particular standards and tested strictly from raw materials to completed units so that the quality is relatively good.

Specialized motorcycles group has not been developed. Some manufacturers have 3-4 wheeled models designed for handicaps, tourism activities, agricultural products transporting … but are not manufactured and launched to local market (while have been introduced abroad for export). "Clean" energy motorcycles have been still tested in small scale.

Value chain in Vietnam's motorcycle industry

Figure 9. Production chart of the motorcycle in Vietnam

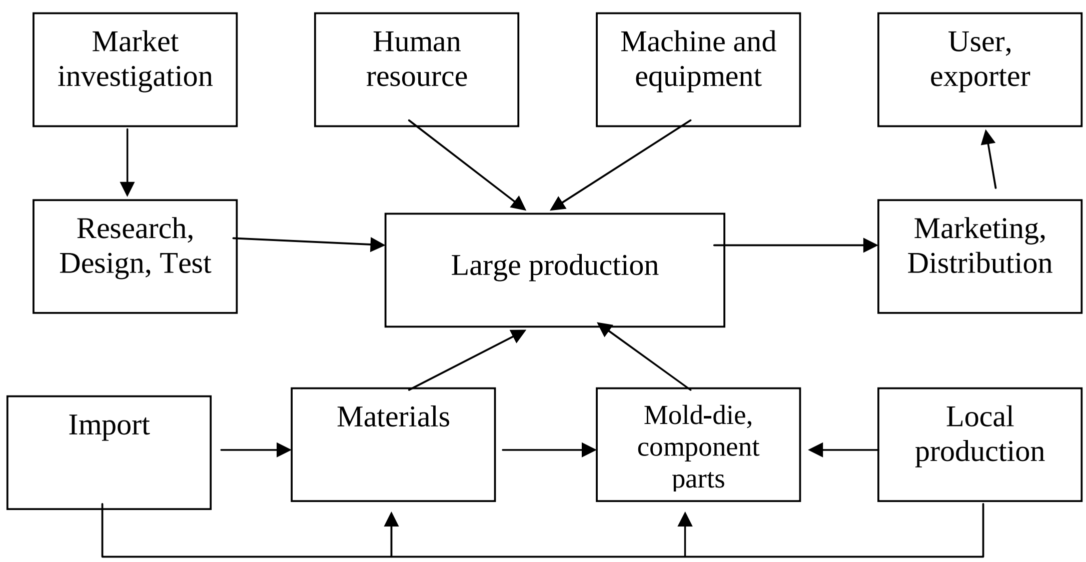


Table 17. Cost and profit structure based on average motorcycle sale price

(Unit: %)

	The Japanese firms group	The Taiwanese firms group	The Chinese and Vietnamese firms group
Research and development	8	5	3

Component parts production	54	64	77
Assembling and Testing	7	7	3
Marketing and cost related to sales activities	10	8	6
Maintenance	1	1	-
Social activities	2	-	-
Contribution to the state national budget	8	7	6
Profit	10	8	5

Market survey, research, design and test:

Based on headquarter's production plans and local market surveys, FDI firms usually launch new products suitable to the customers' needs. VMEP, as an exception, has the policy to build its owned research and development center in Vietnam.

Many local manufacturers, due to the limitation of capability and the low productivity (low output) …, often choose the solution of modifying, changing and imitating the existing favorite designs on the market to produce their products (change and modify enough in order not to violate or infringe intellectual property rights). However, there are some local manufacturers gradually build their owned reputation and trademarks.

Recently, the market has the trend to use fashionable and stylist products instead of durable ones. Thus, frequent launch of new products' designs asks firms to invest significantly in design research to respond to the needs and taste of consumers.

Material: Recently Vietnam still is not able to produce materials for manufacturing industries such as iron, aluminum, plastics (PE, PP, etc) internally. Nearly 100% of these materials are still imported and bear the import tax with the rates issued in the annual tariff list. This is a reason to make the products' price higher.

Mold and die, component parts production: Mold and die take a very important role in proactive designing and manufacturing new products. Recently, mold and die manufacturing industry in Vietnam has not developed and cannot produce big sets of mold and die. Materials for mold and die production still has to be mainly imported. Most of the mold and die manufacturers are small scaled and lack of cooperation within other firms to develop so that the ability to respond to the quality, cost and delivery requirements is still low. Most of the molds and dies are imported form other vicinity countries and territories.

II. CURRENT SITUATION OF SUPPORTING INDUSTRIES AND INDUSTRIAL HUMAN RESOURCES FOR MOTORCYCLE INDUSTRY

II.1. Supporting industries

Producing motorcycle parts:

During the period 2000-2003, implementing the decision number 147/2002/QD-TTg dated on 25 October 2002, signed by Prime minister and the decision 24/2002/QD-BCN dated on 7 June 2002 signed by MOI minister, the motorcycle producers and assemblers invested in supporting industries significantly. The localization ratio, then, was increased.

The assembling enterprises have received the ISO 9001:2000 certificate. Until now, almost parts of popular motorcycle models can be produced by local parts suppliers. The producers and assemblers either invest in production or import components from other companies. Some difficult components like the ones in the engine can also be produced by domestic producers. However, the import solution is selected by some enterprises because of economy of scale.

According to the investigation of the MOI, for the gear motorcycles, the localization ratio is rather high. In some enterprises, this ratio is more than 80% of the whole motorcycle and 60% of the engine. The localization ratio in FDI companies is similar, or even higher, up to 90%.

Due to low production, the localization ratio of scooter components is lower than that of gear motorcycle. However, as the consumption trends to increase, enterprises try to increase the localization ratio.

Apart from the producers and assemblers who invest in parts production, there are hundreds of component suppliers and producers in motorcycle industry. And majority of them are also producing other products and doing other business.

Enterprises invest in new equipment for production lines and technology to produce important components like frame, clutch assy., carburetor and some engine parts..., and aluminum alloy casting parts with high durability. The component quality of domestic producers is improved step by step. Some components are produced according to foreign design standards, and have equal quality with imported ones. Thanks to that, the domestic producers and assemblers can quickly localize almost all parts of the motorcycle.

Nevertheless, some components still have to be imported. Some enterprises import components (in form of IKD or CKD) to assemble engines for their own purposes. At present, the engine localization ratio of majority of enterprises is as high as 60-65%.

Until 2002, there were more than 80 FDI enterprises producing and supplying components for Honda Vietnam, VMEP, Suzuki, and Yamaha. The total investment capital is more than 260 million USD. At first, VMEP brought 11 producers of part and component into Vietnam and created an industrial cluster in Dong Nai province. And they keep developing their satellite enterprises. At present, there are more than 200 FDI enterprises working in supporting industries. HVN has a network of more than 30 FDI satellite enterprises to supply parts and components. VMEP has a network of 56 FDI companies. As mentioned above, the scale and capability of FDI part suppliers is much smaller than the demand.

Enterprises keep investing in equipments, technologies to produce high-tech components with high quality and reasonable price. In 2004, VMEP Company localized 70% of the engine and exported more than 18,000 engines. In 2005, HVN operated its complete production chain. In 2006, Yamaha invested a new factory to produce cylinders and gear box for domestic production and export to Japan. Some domestic enterprises invested more equipment and new technology to improve the product quality, and to build their prestige and brand name.

The investment in motorcycle component production so far is still uncompleted, and cannot meet the demand for both quality and quantity. The international competitiveness of the supporting industries is weak, especially for domestic products. Therefore, the motorcycle industry of Vietnam has to import a big amount of components per annum (Table 18). They are imported from Thailand (42.0%), China (24.9%), Taiwan (15.5%) and Japan (10.4%).

Table 18. Component import situation in the past years

Unit: Thousand USD

	1996	2000	2001	2002	2003	2004	2005
CBU	131,150	773,520	628,857	298,527	89,427	0.00	1,261
Engines	0.00	7.6	346	7,207	2,284	2,145	5,678
Engine part set	0.00	0.00	33,413	11,074	9,595	12,969	1,087
Separated parts	0.00	36,097	48,230	147,117	177,514	396,937	468,302

Source: Compiled from General Customs Office data

Among the three production groups in the motorcycle supporting industries, which are the metal group, paint-plastic-rubber group, and the electric-electronic group, the second group has the best competitiveness. The domestic production (of both FDI and domestic companies) can meet all the demand of the domestic production and export. The products of this group are produced by equipments and technologies at the medium level in the world. These enterprises are located in Hanoi, Hung Yen, Hai Phong, Dong Nai, Binh Duong and Ho Chi Minh City.

The number of parts suppliers producing metal parts is highest. Metal parts account for a majority in a motorcycle. The manufacturing technology is more complicated and diversified. Metal part suppliers are located in all over the country, but they mainly locate in Hanoi, Hung Yen, Vinh Phuc, Dong Nai, Binh Duong and Ho Chi Minh City.

The part manufacturers have developed to the second and third level. It reveals that the production has been professionalized. The parts suppliers are often located near motorcycle assemblers.

In general, the technology and production facilities parts manufacturers can meet the demand for assembling gear motorcycle with capacity up to 125 cm^3. And this is the conditions for shifting to high end motorcycles manufacturing if demand volume is big enough.

Local suppliers have their own production networks according to the production standards and methodology for the three FDI groups of Japan, Taiwan and China. Because of many reasons, the part supply systems of the three groups have different development levels and competitiveness. FDI enterprises play an important role in driving the industry development. Up to now, there is nearly no cooperation and linkage in production among part suppliers, especially among local ones.

This problem should be studied further so that the current production capability can be utilized, the profession can be improved, the product quality can be standardized, the part price can be reduced, and the motorcycle parts can be exported.

R&D

* R&D in FDI enterprises: HVN, YVN, SVN, VMEP are strong enterprises. They play important roles in Vietnam motorcycle industry. Their parent companies (headquarters) are responsible for R&D activities. In Vietnam, these FDI companies only conduct market study through survey, sale, after sale service) and propose to their parent companies to improve the product design.

FDI enterprises in Vietnam are investing in R&D capability building. VMEP has invested in building an R&D center in Dong Nai province. This center started operation in August 2007. According to the judgments of FDI enterprises, the difficulty in doing R&D activity is the shortage of human resources.

* R&D in domestic/local companies: Because the R&D requires huge cost while the products do not have brand name, and the production scale is still small... domestic enterprises have not paid attention to R&D. After few years

studying and changing the existing favorite designs toward the taste of customers (not violate or infringe the property right-referred to law), some domestic companies either join with foreign partners or do by themselves to invest in R&D activities. Domestic enterprises like Tien Loc, Hoa Lam – Kymco, Da Nang electrics and technology, especially Sufat have registered exclusive right for their Backhand motorcycle. Their brand name and prestige have been improved on the market.

In a near future, there should be a research institute to conduct research on motorcycle with the participation of technical experts, researchers and universities as well as enterprises in motorcycle industry to study, design and develop motorcycles in Vietnam. The government can support this research institute financially.

Sale and after sale service:

The motorcycle assemblers and producers have developed their own sale system through agents allocated over the country. Some enterprises established their sole agent and wholesalers. In these agents, there are maintenance and after sale service centers.

In general, motorcycle assemblers do not have enough conditions, investigation method to manage and control the activities of their agents – especially the ones located in remote areas. Therefore, in many agents the brand name violation, selling low quality products, and cheating in doing business are common. This influences consumer rights and the whole society. It is also harmful to the prestige of enterprises.

In the sole agent of FDI enterprises, the price is publicized. The problems of price increase, fraudulent parts rarely occur. But the agents sometimes speculate in motorcycles and wait until the price increase to sell.

In general, the sale and after sale services still have many problems to be addressed. There should be a more strictly regulation on management mechanism for sale agents to protect the producer prestige and consumer right and the whole society.

II.2. Industrial human resources

According to the evaluation of the Vietnam Association of Science and Technology, there are about 100,000 labors working in motorcycle related field from production to sale, maintenance and repairing. It is estimated that more than half of them are working in supporting industries.

Because of many different reasons, the industrial human resources in general and the human resources for supporting industries in particular are still limited in both quantity and quality.

i) Human resource graduated from universities and colleges: a general evaluation shown that Vietnam is in shortage of both research human resource and production human resource at the level of engineer. The newly graduated engineers who can meet the requirements of producers are very few.

ii) Worker resource: Demand for technical and high skilled workers working in supporting industries is very high. At present, part suppliers are in shortage of technical workers, especially skillful ones and middle managers who can manage and supervise the production. Some of the labors working in part suppliers were trained in vocational training schools and centers. The others are normal labors recruited in local areas and do not have industrial knowledge. After recruiting, enterprises, especially FDI ones, must either provide vocational training course or on the job training for new labors or ask senior workers/mentors to supervise and instruct them before the labors can really work.

Most of the workers are very industrious. And after being trained and instructed, they work hard and in discipline. Some workers have not decided to stay with the enterprises for a long time because they are away from their families.

III. INTELLECTUAL PROPERTY RIGHTS IN MOTORCYCLE INDUSTRY

IPR infringements in motorcycles are rampant in Vietnam. It occurs in manufacturing of parts, assembly, transporting and sales. By far, the most common infringements in Vietnam's motorcycle industry are industrial design, especially regarding external plastic cover, in which manufacturers or traders of low quality motorcycles use fake decors similar to originals. Another common way of violating companies is to produce visibly different models from the ones they register. The trademark violation is in product names. Name of fake products often sound like or their designs look similar to original ones.

Trademark infringements are common in sales. Violating shops display signboards or decoration indicating that they are authorized dealers of producers. In some cases, violating producers use ambiguous words for part origin. For example, instead of recording "produced according to Japanese technology", the violating producers records as "produced in Japan".

Overall, Vietnam's legal framework for protecting IPRs is sufficiently developed and at international levels. However, there are some shortcomings in actual implementation: authority is decentralized, some clauses are considered too advanced for Vietnam.

The power to oversee IPR related issues is diversified across many official bodies as follows (see Tab.8-1 for details):

- National Office for Intellectual Property (NOIP) and Inspection Department under the Ministry of Science and Technology
- Market Management Department (MMD) under the Ministry of Trade
- Economic Police (EP) under the Ministry of Police
- Ministry of Industry
- Vietnam Register under the Ministry of Transport
- Provincial People's Committees
- Steering Committee 127

Decentralized authority results in many problems like inconsistencies in coping with infringement. Moreover, under the new law, decentralization has accelerated further. The authority to examine violation was moved from NOIP to a number of enforcement bodies such as Market Management Department (MMD), Economic Police (EP), Customs, etc. This may be justified from the viewpoint of division of labor among related bodies and building capacity at each enforcement organization. On the other hand, however, this increases the risk of inaction or inconsistent action against IPR infringements, because individual enforcement bodies at present lack skills and experience to take over the role of examining violation, and therefore they may decide punishments which are mutually inconsistent.

Police and other authorities destroy plastic parts, front covers, mud shield and other exteriors of fake motorcycles when they are seized. However, the average fine is small (about 160,000VND per vehicle) compared with the sales price of the vehicle and thus does not significantly deter violators from repeating the offense. Moreover, seized motorcycles can later be refitted with new plastic and other exterior parts for sale. This is quite different from and much lighter than international practice. In Malaysia, for example, the authorities destroy fake motorcycles completely.

The current law stipulates that the civil court should settle IPR related cases. Only those violations that are "significantly harmful to society," namely those in food and medicine, are to be dealt with by administrative raids and penalties. It is unreasonable. This may even give the wrong signal that infringements in other industries are less serious and can be tolerated.

To protect themselves from IPR infringements, leading FDI assemblers in Vietnam are taking many measures to deal with IPR. However, it is still not effectively but increases the total cost of enterprises.

IPR effects not only FDI but also local companies. Some local assemblers and producers have tried to set up their brand name and registered new trademark. But the new trademarks and their brand names have not got enough prestige because they are not widely introduced and promoted. That is why some of them are misunderstood as fake products.

IV. OVERALL EVALUATION ABOUT THE MOTORCYCLE INDUSTRY OF VIETNAM AND DEVELOPMENT ORIENTATION

IV.1. General achievements

In the last 10 years, the motorcycle industry in Vietnam has achieved great success. Basically, the industry can meet the domestic demand for normal motorcycles with the capacity as high as 125cc. The localization ratio is more than 70%. Some products are exported. The technology and facility are enough for the industry to develop higher quality motorcycles.

Up to 2005, the industrial production value of motorcycle industry accounts for 3.1% of the total industrial production value of the country. Revenue per annum is about 1.2 to 1.4 billion USD, in which 10% is contributed to the government budget. Export value of 2005 was 70 million USD, 30 times higher than that of 2001.

The motorcycle production and assembly industry attracts about 20,000 labors and dozen thousands of labors working in supporting industries and other related services.

The production capacity of Vietnam at present is higher than the market demand. The domestic motorcycle market has been set up and it is rather competitive so that the government can remove tariff barrier protections.

The supporting industries are developing step by step with many different participants. It can be developed into an important and fundamental industry to support other assembly industries to develop further.

IV.2. Shortcomings in motorcycle industry

Shortcomings in quality, price and competitiveness:

The motorcycle booming exposes many shortcomings in quality, price and international competitiveness. According to the evaluation of experts in motorcycle industry, the motorcycle development now is not sustainable, especially in the domestic production and assembly area.

In the context of global integration, the competitiveness of motorcycle assemblers and producers is still weak. Although the price is low, the quality is not high, and the customers are often low and medium income groups. The business prestige, and market share is decreasing. If the current situation is still keep going, the domestic market share and export market share of motorcycle will be hard to develop.

FDI enterprises are more competitive in the domestic market. With the pre-set targets by the parents, which is focusing on domestic market, FDI enterprises only pay attention to develop their products and designs to meet the demand and taste of the Vietnamese consumers. In addition, their brand name and trademark is long established. Moreover, they are protected by tariff barriers that are the reasons why the prices of some motorcycles are still high.

In general, the motorcycle and part quality standards are not in consistence. The management of the government in the past time is rather ineffective. Therefore, the motorcycle quality of many domestic assemblers and producers is not high, unstable, which influences the benefits of consumers and the society.

Shortcomings in sales and after sale services

It is common that motorcycle producers cannot control the agent activities, especially those who located in remote areas. Therefore, nontransparent business sometimes influences the consumers' benefits.

Industrial property rights and product trademarks

This is a big shortcoming of motorcycle industry. IPR violation is very common. The laws on property right and industrial design do not have clear and detailed regulation. Evaluation about IPR violation is based on feeling so that it is ambiguous. Violators can easily utilize the gaps of the regulations so that they will not be punished. The regulation on prolonging the protection duration for property right to more than 10 years may not encourage enterprises to renovate their products.

The effectiveness of the IPR and industrial design management is low. The management functions of government agencies are overlapped. Some agencies do not have enough right to evaluate and to arbitrate violation cases. The penalties are too light to deter violators.

Majority of consumers are not well aware of the harmful effects of using fake products in the context of global integration. Vietnamese are still very fond of foreign brand names. Therefore, they sometimes agree with IPR violation.

Developing trademarks for domestic producers in the current situation is rather difficult. And it needs supports from WTO agreements to overcome those difficulties.

The problem of coordination and development cooperation

The development relationship among producers and assemblers and with part providers is still weak. Motorcycle assemblers do not have information about part suppliers and vice versa. Therefore, part supply system development is difficult. The industry has not been able to set up a production cooperation system. There is nearly no development cooperation among FDI and

Vietnamese companies.

Recently, the motorcycle association has functioned as a linking and supporting point for motorcycle enterprises. But they are still weak, and ineffective. Their activities are limited among some domestic enterprises. The activities and capability of the association should be improved in the context of tough competition.

Traffic accidents:

The rapid development of motorcycle industry is considered the main reason for traffic accident increase. However, the true main reason is the low awareness of the people when they participate into traffic. Therefore, reasonable solutions are needed to improve the effectiveness of the traffic law in reality.

Some motorcycle assemblers have participated in community awareness raising programs on road traffic law, and training program on safe riding techniques in order to decrease the number of traffic accidents. From 2002, the accidents per capital have decreased, three times lower than that of the year 2002. However, it is clearly that the effort of only some enterprises is not enough. But the problem must be solved at the national level.

Environment pollution

Research reveals that road traffic means is the main cause for environment pollution, especially noise pollution and emission pollution in big cities and road cross. At present, the equipment and facilities are not enough to examine, and supervise the emission and noise pollution of motorcycle and automobile or the gasoline quality. The current regulation of the State on management and supervision over the gasoline standard application, emission and noise seems to be effective with only large scale producers. Local enterprises in small scale do not prepare to apply EU2 standard on motorcycle emission in 2007.

Benefit problem:

The development of motorcycle assembly and production has great impact on beneficiary groups in the society: the whole society, the state, the consumers, and enterprises.

However, in the booming time of motorcycles, benefits of the consumers and the community are not well paid attention to.

Motorcycles of some local assemblers have low quality and duration, cannot meet the technical and safety requirements. The consumer benefits therefore are influenced. After a period of fast development, low quality motorcycles seem to reduce greatly as they do not have prestige on the market.

The material quality, emission and noise pollution are not under control. The inventory products which cannot be sold are pasted a new graphic and then resold on a market as a new products. The trade violating products have direct effect to the consumers’ benefit.

Motorcycle price of FDI companies has decreased but it is still high. This is because the price is still accepted by Vietnamese consumers and there is not reason for these enterprises to reduce their price as their products are sold mainly in domestic market.

Consumer protection agencies and Vietnam motorcycle and bicycle association do not have many activities. And so, the benefit of consumers is often violated.

The State budget revenue from motorcycle business and import export activities is declining. The main revenue is import taxes, but it will reduce greatly in the future. The loss of revenue in enterprise income tax and VAT is not small. Tax debts are high.

When the localization regulation is removed, many assemblers will use others' parts in assembly. Therefore, the capacity of part production chain of local enterprise will be low. Some enterprises leave their plastic pressing chain, molding chain or mechanical processing chain unused.

The competition context:

The domestic competition environment forces enterprises to improve their production and business strategies. The implementation of law application, IPR protection, quality supervision, technical standard supervision, product safety supervision, emission standard supervision, and pricing and taxing issues... must be improved to create a fair competition environment among enterprises and to protect benefits of consumers and community.

IV.3. Development trends

About products and future trends

Diversifying product designs, improving product quality to meet regional and international standards, spurring exports in all three forms of products, parts, and production export.

Improving the international competitiveness for the supporting industries is the foundation to develop the motorcycle industry, and to diversify the product designs and improve the product quality. It requires all enterprises to invest in technology, apply new technology in production, and participate in human resource training and development. Moreover, authorized agents of producers should also be developed to improve the service quality, reduce trade cheatings, and IPR violation... which influence directly to the consumers benefits and enterprise prestige.

Big enterprises with good brand name (especially FDI enterprises) should consider complete motorcycle export, CBU and engines as a development orientation in the future. They can export to regional countries from the beginning and then expand to other countries with other high quality products. Other enterprises, depending on their capability, can directly export their products to the niche markets with similar socio economic conditions with Vietnam like South Asia, Middle East, Africa, and South America countries...

Parts manufacturers can export their parts directly or indirectly by increasing the localization ratio in the export products of big enterprises. However, to increase export, enterprises must invest in research activities, technology capability upgrading, international competitiveness, marketing strategies to meet the demand of domestic market and then the international market.

With the mentioned markets, payment is one difficulty. The government should support them to solve this difficulty.

Development cooperation:

Encourage cooperation in production and business activities among Vietnamese and international enterprises.

To improve the cooperation among enterprises, to problems should be solved: building an information center or a database for the industry and improving the activities of the industry association toward the regional and global integration trends.

Information center and database for supporting industries:

In Vietnam, there is an information gap which impedes business interaction between FDI assemblers and local suppliers. A supporting industry database can greatly reduce the cost of finding potential suppliers.

However, domestic and international experiences show that most such databases fail to be used by targeted groups because of poor design or lack of proper maintenance.

To be effective, a supporting industry database must understand and respond to the supplier selection criteria of assemblers. In addition to basic information such as company name, contact address and main products, manufacturers usually need to know (i) company policy introduction, delivery on time experience, (ii) equipment and facilities, (iii) economic and technical indexes, (iv) ISO certificate (v) customer list, (vi) annual revenue, (vii) capital, (viii) number of labors[5]...

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

[5] For details, see Junichi Mori, “Designing and Managing Supporting Industry Database” in VDF, *Building Supporting Industries in Vietnam,* Vol. 1, 2007.

receiving business opinions and responding to their needs.

Industry association:

It is common international practice to establish an industry association with the participation of manufacturers of a certain industry in that country. Such an association performs various functions which are beneficial to member companies, such as data collection, symposiums and trade fairs, programs to improve productivity and competitiveness, interface with policy makers, public relation activities, international cooperation, and so on.

At present, Vietnam does not have an industry association that exclusively and comprehensively represents the interest of all motorcycle producers. As a result, above-mentioned functions are largely absent for the motorcycle industry. To receive technical assistance or strengthen international cooperation, such an association is a must. For instance, Vietnam currently cannot join the Federation of Asian Motorcycle Industry (FAMI), a regional organization consisting of seven countries and areas, because an eligible association does not exist in Vietnam.

The association of Vietnam Automobile, motorcycle and bicycles (VAMOBA) mainly promotes the interests of some producers in the industry (there are some Vietnamese motorcycle manufacturers) and promotes the interests of automobile industry, not motorcycle industry.

With an increasing size of Vietnam's motorcycle industry, such an industry association should be set up in Vietnam as a matter of priority. This can be done either by creating an entirely new association or restructuring VAMOBA. In either case, the new association should take a lead in light of their dominance in Vietnam's motorcycle market.

Developing the supporting industries and industrial human resource for the motorcycle production

Encouraging intensive investment, innovating technology to improve production and product quality, participating in production, part distribution system in the region and in the world.

As mentioned, supporting industries and human resources for motorcycle production are two conditions to develop motorcycle industry. To improve the international competitiveness for motorcycle products, both facilities and human resources should be paid attention to.

In the new context, modern technology and equipments play key roles in product quality improvement. Depending on the financial capability and the facility, the supporting enterprises can invest in key stages in their production process, and then expand to other stages. Besides, re-structuring the production is also rather important for part suppliers, they can focus on what they have advantage.

Enterprises need to have good engineers and workers to use modern equipments and technologies. To develop the industrial human resources, enterprises need government supports in policies, investment in education and vocational training, and association support like propaganda programs, information, practicing opportunity... Training programs with the participation of FDI enterprises and local part suppliers are also needed.

In order to participate in the part production and distribution network in the region and in the world, enterprises' effort should be combined with international competitiveness improvement, and trade promotion. This combination can be built by setting an information center or a database for the industry with government and international support.

Product quality and environment protection

Product development should be together with environment protection and emission standards.

Environment protection, especially atmosphere protection is what people pay attention to. In Vietnam, one of the policy targets is to reduce the emission from motorcycles and automobiles and step by step improve the quality of the atmosphere in urban areas of Vietnam to 2020 by reasonable solutions in the context of motorcycle increase.

To be a member of APEC, Vietnam must follow the EURO regulation on emission management and the Decision 249/2005/QD-TTg of the Prime minister on the application agenda of emission for traffic means.

To build supporting industries for motorcycle industry with international competitiveness, Vietnam should have national standards for product quality and environment in accordance with international regulations or it may impede the import export activities and the part purchasing system creation. The cost, because of that, will increase (design cost, part production to match with Vietnam regulations).

For example, Vietnam requires that there should be only one headlight, while most other ASEAN countries allow both one-beam and two-beam headlights. Vietnam's regulation is also unique and stricter on beam angles. This makes it difficult to export Vietnamese motorcycles to other ASEAN markets without significant and costly re-modeling. The lack of consistent standards encourages importation of low-quality finished products as well as low-quality parts, making Vietnam a dumping ground for defective goods. This is an undesirable situation for consumer protection as well as for healthy industrial development.

The Vietnamese government should provide timely information and effective guidance on industrial, safety and environmental laws in other countries which may affect enterprises in Vietnam. For example, in January 2006, EU introduced the Law on the Restriction on Hazardous Substances (ROHS) which prohibited importation of products containing any of the six substances, namely, cadmium, lead, hexavalent chrome, mercury, PBB, and

PBDE. Although Vietnam has not adopted a similar environmental law, any firm that wants to remain internationally competitive and continue to do business with EU would adopt ROHS as soon as possible. However, local suppliers in Vietnam have not been informed of ROHS and are not prepared to supply ROHS-consistent parts.

Finally, to implement national standards effectively, Vietnam needs to establish testing centers and accrediting agencies with sufficient staff and measuring equipment. In Vietnam, the Directorate of Standards and Quality (STAMEQ) is currently responsible for setting standards, metrology and testing, and accreditation. STAMEQ has testing laboratories in Hanoi, Da Nang, and HCMC, but they focus mainly on textiles and food processing products. They can help suppliers to check and prove their product quality, eliminate low-quality products, and save testing costs which are too large for individual producers. Moreover, entry of private accreditation organizations should also be welcomed in order to expand services and introduce competition.

Moreover, it is necessary to keep doing research and to develop the production of engines and motorcycle using environment friendly energy like electrics, gas, bio-diesel... This is a good development to protect the environment. Big motorcycle producers in Vietnam, especially FDI companies, should lead in this new field so that from now to 2010 Vietnam can have stable production technology for motorcycle engines and environment friendly motorcycles and after 2015 these products will be launched on the market and exported.

PART 3

MASTER PLAN FOR THE DEVELOPMENT OF VIETNAM'S MOTORCYCLE INDUSTRY IN THE PERIOD OF 2006 -2015, WITH A VISION TO 2020

I. DOMESTIC DEMAND FORECAST FOR 2015, WITH A VISION TO 2020

I.1. Domestic demand forecast

I.1.1. A review of motorcycle registration in the period 2001- 2005

Vietnamese motorcycle market is expected to continue growing in near future. However, as the domestic market approaches the saturation point, increases in the ownership and sales of motorcycles are likely to slowdown. In Vietnam, the urban market is already near saturation (2.16 persons per motorcycle), while the rural market has less motorcycles at present (6.14 persons per motorcycle) with more room to grow before saturation is reached.

The number of motorcycles registered in Vietnam in 2005 was 15.7million, an increase of 9.3 million compared to 2000, and the annual growth rate was 19.7% in the period 2001-2005 (Table 19).

Table 19. Motorcycle registration 2001–2005

(Unit: 1000 units)

	Unit	2000	2001	2002	2003	2004	2005
Whole country	unit	6,387	8,412	10,558	11,927	13,957	15,670
New registration	unit	-	2,025	2,145	1,369	2,030	1,713
of which: scooter	%	-	1.43	2.73	5.84	6.83	10.33
Five large cities	unit	2,340	666.8	677.4	330.5	391.9	323.6
of which: scooter	%	-	2.37	6.14	13.72	19.04	25.9

Source: Traffic Police Road and Railroad Department

During 2001–2005, the number of newly registered motorcycles in five centrally controlled municipalities (Ha Noi, Hai Phong, Da Nang, Ho Chi Minh City, and Can Tho) accounted for 25.8% of that in the whole country. However, the annual growth rate was slowing down, from 32.9% in 2001 to 18.9% in 2005, showing that motorcycle demand in the large cities was reaching saturation point.

Number of newly registered scooters is increasing yearly, its percentage in the total newly registered motorcycles was only 1.43% in 2001, but rose to 10.33% in 2005. From 2001 to 2005, this number in the five large cities accounted for 54% of that in the whole country, and for 10.93% of the total newly registered motorcycles in these cities. These statistical figures indicate that motorcycle demand in urban area, where transportation infrastructure is more developed and per capita income level is higher, is shifting from manual transmission motorcycles to scooters.

In 2000 and 2001, inexpensive motorcycles were highly consumed, accounted for over 80% in annual consumed motorcycles. Nevertheless, this rate kept decreasing yearly to less than 50% in 2005. Obviously, consumers tend to have higher demand on product quality.

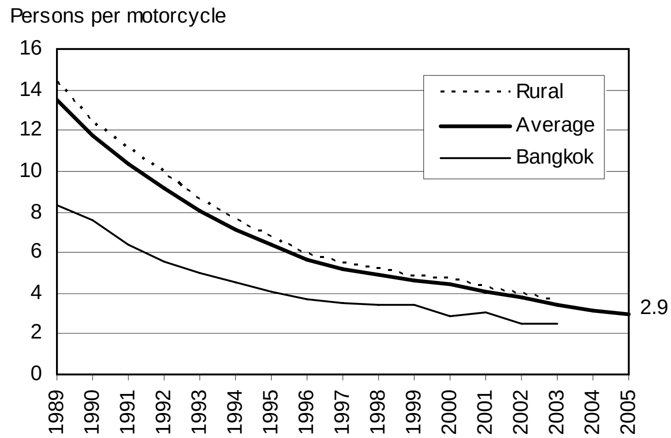
I.1.2. Forecast method and results

For projection purposes, we take Thailand as a benchmark. Past and current Thailand has many similarities with Vietnam regarding climate, culture, road traffic situation, and economic development patterns. Vietnam is expected to reach the per capita income level of current Thailand by 2020 or earlier.

Thailand has the population of 65.4 million and the motorcycle stock of 22.4 million in 2005, which means that there is one motorcycle for every 2.9 persons (Figure 10). Moreover, the urban-rural gap is small—there was one motorcycle for every 2.5 persons in Bangkok, and for very 3.6 persons in the rest of Thailand (2003 data)[6]. This situation can be regarded as reasonably close to saturation at the national level. In the future, motorcycle production in Thailand will mainly satisfy replacement demand and exports. In any country, the person-to-motorcycle ratio of between two and three is the maximum limit, since that implies almost everyone, except very young, old, and weak, has a motorcycle.

[6] IDE-JETRO, *Motorbike Industries in Asia*, 2005 (in Japanese).

Figure 10. Thailand as the benchmark: Motorcycle ownership



Source: See footnote 1. Regional division is unavailable for 2004 and 2005.

In projecting the motorcycle market in Vietnam, it is assumed that relatively high economic growth will continue from present to 2020, people's living standards will rise, and urbanization will proceed rapidly. Up to 2010, large urban transport infrastructure is implemented as planned, while rural roads will continue to be upgraded gradually. For these reasons, popular demand for motorcycles is likely to be robust in the future. The saturation point of motorcycles for the country is expected some time between 2015 and 2020. However, even after saturation, Vietnamese people may continue to use motorcycles in various travel needs.

The demand will be forecasted in two types: stock demand (circulation) up to 2020 under three alternative approaches and flow demand (annual sales) projected under different assumptions.

Motorcycle stock demand

Approach 1—Persons per motorcycle

In this approach, it is assumed that the person-to-motorcycle ratio will reach 3.67 by 2010 and about 3 by 2015, after which this ratio stabilizes. This development is considered to be consistent with the expected GDP growth, construction of urban and rural infrastructure, and people's attitude in the coming years (Table 20).

Table 20. Stock projection from the person-to-motorcycle ratio

	2000	2005	2010	2015	2020
Population (x1000)	77.635	83.120	88.633	94.154	99.675

Motorcycle stock (x1000)	6.387	15.670	24.151	31.702	33.561
Persons per motorcycle	12.16	5.30	3.67	2.97	2.97
Growth in motorcycle stock (%/year)	--	19.7	9.0	5.6	1.1

Approach 2—Motorcycles per household

The saturation point in terms of household ownership of motorcycles is considered about two motorcycles per family at the national level. By 2020, the average urban household is expected to have 4-5 family members and own 2.65 motorcycles, while the average rural household is expected to have 6-7 family members and own 1.51 motorcycles. Saturation at the national level will begin from 2015, but even after that, there will be a shift of motorcycle use from urban to rural families (Table 21).

Table 21. Stock projection from the motorcycle-to-household ratio

	2000	2005	2010	2015	2020
Households (million)	12.244	13.176	14.181	15.199	16.233
Urban	4.037	4.555	5.318	6.120	6.977
Rural	8.207	8.621	8.863	9.079	9.256
Motorcycles per household	0.52	1.19	1.69	2.00	2.00
Urban		2.32	3.08	3.34	2.65
Rural		0.59	0.85	1.10	1.51
Motorcycle stock (million)	6.387	15.670	24.108	30.398	32.465
Urban		10.562	16.600	20.423	18.511
Rural		5.108	7.508	9.975	13.954
Growth in motorcycle stock (%)		19.66	9.0	4.75	1.32

Approach 3—Actual motorcycle use in urban and rural areas

The motorcycle stock in five centrally controlled municipalities in 2005 almost reached 5 million, an increase of about 2.4 million compared to 2000, and an average person-to-motorcycle ratio was 2.69. This ratio in Ho Chi Minh City was relatively higher, which was 2.03.

The speed of increase in motorcycle stock in the large cities tends to slow down. The newly registered motorcycles in the five large cities in 2005 were as much as 50% of that in 2001. In coming years, motorcycle demand in the next tier of economically dynamic cities are assumed to be similar with that in centrally controlled municipalities, meaning that the increase of motorcycles in the formers will be relative high, and then tend to slow down.

Table 22. Increase of motorcycles during 2001-2005

Unit: thousand units

Annual increases	**2001**	**2002**	**2003**	**2004**	**2005**
In five large cities	666.8	677.4	330.6	391.9	323.6
In developing cities	166.5	157,6	102.1	157.9	125.3
In other areas	1.191.8	1,310.3	936.5	1,480.2	1.264.1

In the period 2006-2015, motorcycle stock will increase annually 500,000 in urban areas, and about one to 1.2 million in rural areas.

After 2015, motorcycle use in urban area will become relative stable since part of urban citizens will use other transportation means (private car, bus, train…) due to a number of factors that restrict the growth of motorcycles to reduce congestion and environment pollution, as well as improvement in rural life and rural infrastructure… will lead to motorcycle-to-person average ratios in both areas to converge to a similar level.

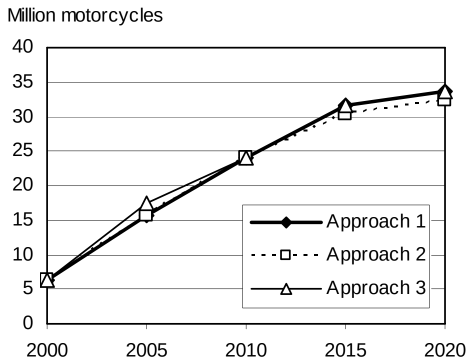
Table 23. Stock projection from the urban and rural person-to-motorcycle ratios

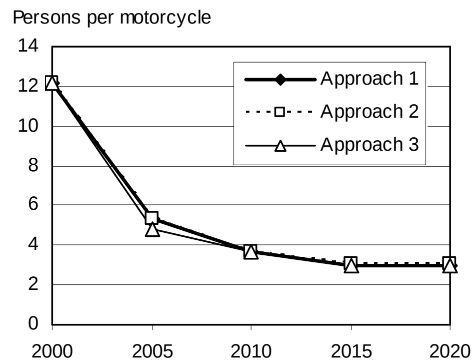
	2000	**2005**	**2010**	**2015**	**2020**
Urban					
Population (million)	20.185	22.775	26.590	30.600	34.886
Persons per motorcycle	8.63	4.82	3.61	3.10	3.21
Motorcycle stock (million)	2.340	4.730	7.368	9.868	10.868
Increase over previous period (million)	--	2.390	2.638	2.500	1.000
Rural					
Population (million)	57.450	60.345	62.043	63.554	64.789
Persons per motorcycle	14.20	5.52	3.30	2.92	2.84
Motorcycle stock (million)	4.047	10.939	18.802	21.802	22.802
Increase over previous period (million)	--	6.892	7.863	3.000	1.000
All nation					
Persons per motorcycle	12.16	5.30	3.39	2.97	2.96
Motorcycle stock (million)	6.387	15.669	26.170	31.670	33.670

The results of these three approaches are fairly similar, with the stock demand for motorcycles of about 24 million in 2010, about 31 million in 2015, and about 33 million in 2020 (Figure 11).

The above projections show that, even if other transport modes develop, Vietnam will continue to be a country that uses a large number of motorcycles in near future.

Figure 11. Alternative Forecasts for Motorcycle Stock



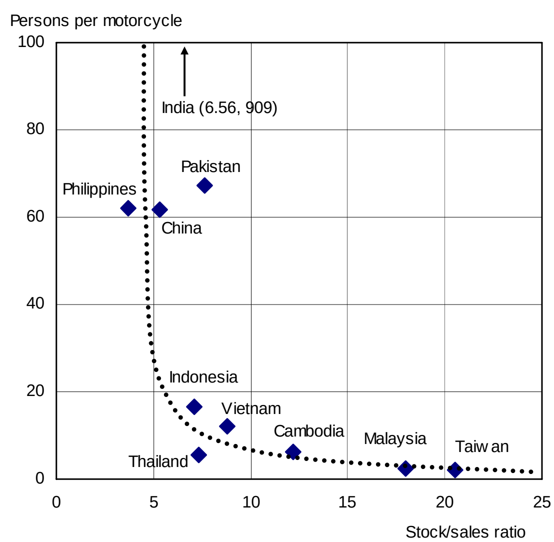


Flow demand

Based on the stock demand projections above, annual demand for new motorcycles is now forecasted. In general, the ratio of motorcycle stock to annual sales will indicate growth of motorcycle demand to be high or low.

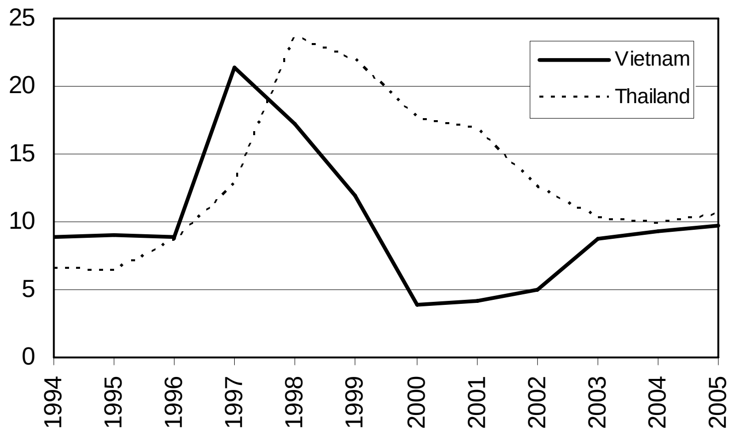
First, a period of dynamic growth of the motorcycle market is associated with a relatively low stock-to-flow ratio of 5 to 10. In such a country, annual sales are large compared with the stock, because there is significant new demand (by first-time users) in addition to replacement demand (by existing users). Currently, this situation is observed in China (stock-to-flow ratio of 5.4), India (6.6), Indonesia (7.1), Thailand (7.4) and Vietnam (8.8).

Figure 12. Motorcycle Density and Stock-to-flow Ratio, 2005



By contrast, in a more mature market, where there is only replacement demand and little new demand, the stock-to-flow ratio tends to rise to 15-20. Taiwan (20.5) and Malaysia (17.9) belong to this group[7] (Figure 12).

Figure 13. Vietnam and Thailand: the Motorcycle Stock-to-flow Ratio



Source: Honda, World Motorcycle Facts and Figures, 2006.

Vietnam, with its dynamically growing motorcycle market, has a stock-to-flow ratio of about 10 at present. However, this does not mean that each motorcycle is on average used for 10 years before it is scrapped. Because annual demand is a sum of new demand and replacement demand, even if Vietnamese people ride each motorcycle for 20 years, the stock-to-flow ratio can be much lower than 10 if vigorous new demand exists. Nevertheless, when the saturation point is reached and new demand is diminished, the stock-to-flow ratio may rise toward 15-20.

There are two possible reasons that may make Vietnamese people continue to purchase a large amount of new motorcycles even after the saturation point. The one is concerned with economic life cycle and the other is concerned with physical life cycle of motorcycles.

First, purchase frequency will be high if the motorcycle is regarded as a fashion product rather than a practical product. In this case, people (especially young people) will switch to new models even if old ones still run. Producers may also cultivate such consumer behavior through business and marketing strategy.

Second, if some existing models are low quality, and break down quickly or fail to pass quality and environmental tests required by the government, consumers are forced to buy other products. In the past, Vietnamese people

[7] These figures are for 2005, except Indonesia (2003), China (2003) and India (2001). The original data comes from Honda, *World Motorcycle Facts and Figures*, 2006.

usually repaired motorcycles many times before scrapping them. This tendency may continue, but there is also a possibility that they will abandon them sooner as income rise. In the future, an increase in wages will lead to the rises of the repair cost as well as charges, penalties (for noncompliance of various standards), and insurance fees… these factors are reasons for consumers to scrap old motorcycles sooner.

Currently, Vietnam's motorcycle scrap market is virtually non-existent. However, as the stock rises and market characteristics change, Vietnam may have more "normal" second-hand and scrap markets for motorcycles as in advanced countries. Old models will then be sold in the second-hand market, exported, or scrapped.

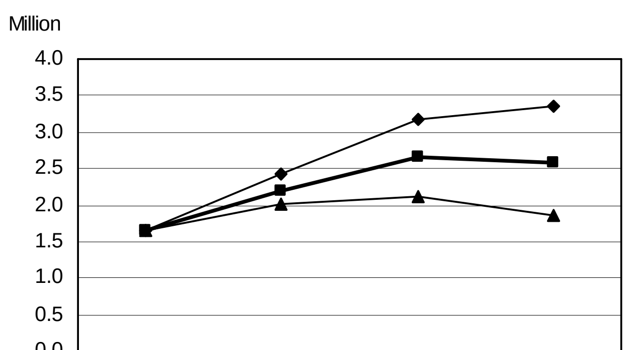
Since the future stock-to-flow ratio cannot help to identify annual demand exactly, three alternative scenarios can occur:

* *High Scenario*—the stock-to-flow ratio will stay at 10 throughout the period. In this case, annual demand will be 2.43 million in 2010, 3.18 million in 2015, and 3.35 million in 2020.

* *Middle Scenario*—the stock-to-flow ratio will gradually rise to 11, 12 and 13 in the years 2010, 2015 and 2020, respectively. Annual demand will be 2.21 million in 2010, 2.65 million in 2015, and 2.58 million in 2020.

* *Low Scenario*—the stock-to-flow ratio will rise sharply to 12, 15 and 18 in the years 2010, 2015 and 2020, respectively. Annual demand will be 2.02 million in 2010, 2.12 million in 2015, and 1.86 million in 2020.

Figure 14. Alternative Scenarios for Annual Domestic Demand



	2005	2010	2015	2020
High	1.65	2.43	3.18	3.35
Middle	1.65	2.21	2.65	2.58
Low	1.65	2.02	2.12	1.86

The results (Figure 14) indicate that annual demand will be significantly affected by consumer behavior and market characteristics, even under the same assumed path of stock demand.

This master plan uses the middle scenario as a benchmark for analyses because this scenario does not cause a significant change in the development progress and is appropriate to the general situation of socio-economic development in Vietnam.

By comparing stock forecasts and these flow demands, it is possible to calculate the implied share of replacement demand in total annual sales. For the middle scenario, this share is 28% in 2010, 46% in 2015, and 85% in 2020. The rising share of replacement demand is consistent with our assumption of approaching saturation. The high and low scenarios also produce similar results[8].

I.2. Production capability forecast for 2015, with a vision to 2020

In the context of international integration, and Vietnam's accession to the WTO, motorcycle assemblers and manufacturers can make decisions based on market signals. Annual production capability is evaluated about 2.43 million in 2005, in which, the share of Japanese FDI enterprises accounts for 50.62%, VMEP is about 8-10%, and domestic enterprises are about 39-41%. However, capability of domestic enterprises tends to slow down since their market share is narrowing down. By contrast, FDI firms, especial Japanese affiliated ones have a trend of upgrading their production capacity. Honda Vietnam targets at 1.3 million per year in 2010, whilst Yamaha will raise the capacity to 640 thousand units per year in 2010. As a result, motorcycle production capability will continue increasing (Table 24).

Table 24. Production capability forecast to 2020

		2005		**2010**		**2015**		**2020**	
	Producers	*mil.*	*%*	*mil.*	*%*	*mil.*	*%*	*mil.*	*%*
1	HONDA	0.76	31.26	1.30	39.88	1.30	39.88	1.30	39.88
2	YAMAHA	0.35	14.40	0.640	19.63	0.64	19.63	0.64	19.63
3	SUZUKI	0.12	4.94	0.120	3.68	0.12	3.68	0.12	3.68
4	VMEP	0.20	8.23	0.20	6.13	0.20	6.13	0.2	6.13
5	Domestic and Chinese	1.00	41.15	1.00	30.67	1.00	30.67	1.00	30.67

[8] The share of replacement demand in total flow demand is 35% in 2010, 55% in 2015, and 88% in 2020 under the high scenario, and 22% in 2010, 33% in 2015, and 79% in 2020 under the low scenario.

	Total	2.43	100.0	3.260	100.0	3.260	100.0	3.260	100.0

Domestic demand until 2010 is forecasted about 2 million per year, which is surpassed by the total production capability in any scenario (high, middle or low). Therefore, the producers will have to compete fiercely in the domestic market to gain market share.

In the future, for survival and development, the motorcycle manufacturers have to increase investment, strengthening competitiveness to control domestic market share, as well as develop new market for export. Weak manufacturers will become suppliers of the winners or shift to other production activities. Consumers will get more benefits from this competition.

II. FACTORS INFLUENCING THE DEVELOPMENT OF MOTORCYCLE INDUSTRY IN THE FUTURE

Consumers’ demand and rights

By 2020, besides other transportation means, motorcycles still play an important role in road traffic. Motorcycle market will continue growing in long term. This is natural and is a favorable condition for the development of domestic motorcycle industry.

Consumers’ rights and harsh competition will force the producers to adjust production strategy to meet requirements on better quality, more diversified models and functions, stricter safety and environment standards, and reasonable prices.

These are society’s legitimate requirements that motorcycle manufacturers in Vietnam have to satisfy. In addition, the improvement in competition environment will strongly influence the development of the industry in the future.

International integration

Vietnam’s deeper integration in global economy through the accession in the WTO will have big effect on the development of motorcycle industry. Local content regulations are lifted, tariff will be cut down, technical requirements are increased, and competition is harsher since domestic and foreign markets are open for every investor and producer. Consumers will have more option in choosing products. These factors force producers to continue to improve quality of products and services, cut down production and service costs.

Theoretically, deeper integration will accelerate the growth of export market, but it also puts pressure on enterprises to strengthen competitiveness for survival. Production capability of the enterprises will be a decisive factor.

Generally, some domestic firms will get into difficulties, even of bankruptcy unless appropriate adjustments are carried out.

Accession in the WTO will foster the creation of a fare competition environment, in which domestic and foreign economic sectors are not discriminated. Government can no longer support domestic enterprises directly by financial instruments, taxations or other preferential treatments.

Capital market will be expanded to help enterprises realize the plan to become a center of motorcycle manufacturing in the region. Part suppliers will have more options in participating in international motorcycle production – distribution network.

Environment, legal institution

Environment, legal institution related to production and business activities will be more improved to create a transparent and fare competition environment for the healthy development of enterprises.

Administration reform, improvement in public services of state administration organizations will strongly influence the development of economy in general and motorcycle industry in particular.

Markets of labor, finance, and science & technology will be improved gradually, which will facilitate more development of the industry.

Possible policy measures to reduce motorcycles' negative effects on society

In past few years, government's policy measures regulating the development of motorcycle industry had great effects on motorcycle market.

Besides economic development, society also pays more attention on improvement of living standards, such as reducing air pollution and traffic accidents. Under the circumstances of undeveloped transport infrastructure, traffic congestion in large cities at the peak times, Vietnam being world-ranking traffic accidents, and high pressure from public opinion, the government may have to regulate the development of motorcycle by administrative and economic measures, such as levying/raising registration fee, road tax, fuel levy, and motorcycle entry regulation on certain streets… These measures will influence the future of motorcycle industry.

Development strategy of the major producers

Motorcycle producers will apply different development strategy depending on different conditions. From survey results, development strategy of the major producers can be summarized as follows.

Japanese affiliated manufacturers have stood firm in the shock of "Chinese motorcycles". They will continue to diversify models to supply mainly for domestic market. Export has not been included in their strategy yet because they already built up production bases in other ASEAN countries, such as Thailand, Malaysia, Indonesia… In the future, depending on the changes of international market, they may have plans to export motorcycle or components to other countries or other enterprises within the same group in the region and the world.

Taiwanese affiliated manufacturers have targeted to build up a regional-level motorcycle production base in Vietnam for export to other countries in ASEAN and Europe. Their research and development activities in Vietnam are in progress while supporting industries system is nearly completed.

Domestic manufacturers are facing with difficulties in finding market. A certain number of manufacturers have developed their own models that, however, cannot grow strongly in the future due to small market share. They tend to merge into a group or a holding – subsidiary company to gain competitiveness, long-term prestige and trademark. Small enterprises can be subcontractors or suppliers for other enterprises that control the market.

Chinese affiliated manufacturers produce mainly complete knock down (CKD) at present to supply for domestic manufacturers. In the future, they will develop their own trademark and models, switch to producing small motorcycles for domestic uses.

In addition, specialized motorcycle market (sport motorcycle, fire motorcycle, three or four-wheeled motorcycles for invalid people, touring motorcycle, and vegetable-transporting motorcycle…) is a potential market but not been developed. Some enterprises have made samples of specialized motorcycle but not produced on a large scale yet. In the future, this market will be occupied by the enterprises that can find an appropriate way to enter.

Development trend of motorcycle industry

Global motorcycle market was occupied and divided by multi-national groups. Where market volume was considerable, these groups established their production and assembly bases, which depended on imported components at the beginning, and then developed local supplier system and imported only necessary components.

Opportunities in motorcycle industry for developing countries are to develop supporting industries, to supply parts and components for the multi-national motorcycle producers, or to find niche markets.

In the future, to protect air quality and comply with standards of emission, besides improving fuel quality, countries will pay more attention in the development of motorcycles that can meet international standards on emission.

Motorcycles using clean energy, such as electricity, gas, bio-diesel… will be developed and manufactured on a large scale.

III. MASTER PLAN FOR THE DEVELOPMENT OF VIETNAM'S MOTORCYCLE INDUSTRY IN THE PERIOD OF 2006-2015, WITH A VISION TO 2020

III.1. Viewpoints on development

According to the analyses of current situation of the industry, as well as the demand forecasts for the period 2006-2015, with a vision to 2020, it can be concluded that motorcycle industry in Vietnam is still in favorable conditions to develop and that Vietnam is able to become a world-ranking motorcycle producer.

Under a circumstance of deeply international integration, general viewpoints on the development of motorcycle industry in the period from now to 2015, with a vision to 2020 are as follows:

- Development of motorcycle industry must comply with the Master Plan for Industrial Development in Vietnam, the Master Plans for Socio-Economic Development in all provinces and cities, and the Master Plan for Road Traffic Development in Vietnam until 2020.

- Development of motorcycle assemblers must be correspondence with development of supporting industries, which targets at industrialization, strengthening competitiveness, and satisfying requirements of domestic and export markets.

- Development of motorcycle industry must comply with regulations on quality, traffic safety, environment protection, and intellectual property rights…; and harmonize benefits of consumers, society, government and enterprises.

- Focus mainly on development of supporting industries to establish industrial base for other assembly industries.

III.2. Development targets

III.2.1. General targets:

By 2015, Vietnam will become a center for designing, manufacturing and assembling motorcycles in a large scale, have competition capability in the region, and integrate fully in regional and international markets.

By 2020, supporting industries for motorcycle assembly will be able to support other assembly industries.

III.2.2. Specific targets:

** From now to 2015:*

- Satisfy 100% "normal" motorcycles demand in rural area, and 90% demand in urban area.
- Occupy 60% market share of domestic scooter market, and 90% of domestic manual transmission market.
- Products will comply with a roadmap of implementing international commitments on emission standards.
- Be able to produce big-bore motorcycle models with engine capacity over 125cm^3, high-class scooters, sport motorcycles, three or four-wheeled motorcycles for invalid people, touring motorcycles, and vegetable transporting motorcycles… for domestic and export markets; production capability of these models will share 30% of industrial capability.
- Export revenues of motorcycles and components will reach about 400 million US dollar.
- Supporting industries of motorcycle industry will have international competitiveness, take part in production and supply chains of international motorcycle groups.

** Period 2016-2020:*

- Research and manufacture engines, motorcycles using "clean" fuel to supply for domestic and export markets.
- By 2020, revenues from export of motorcycles and components will reach 500 – 800 million US dollars, in which "clean" fuel-use engines and motorcycles account for 15% - 25%.
- Supporting industries of motorcycle industry will meet demand on parts and components of other assembly industries, such as electric equipments, electronics, automobile, and consuming industries…

III.3. Master plan until 2015, with a vision to 2020

III.3.1. Development orientation

- Promote cooperation, joint venture, coordination to strengthen competitiveness of small and medium enterprises in motorcycle parts and assembly industries.

- Diversify products and produce parts and components for other industries, such as automobiles, consuming mechanics, electronics, chemicals, plastics… to utilize existing material and technical facility.

- Large enterprises that have built their own trademark and prestige, especially FDI enterprises will play a leading role in producing high-class motorcycles for domestic and export markets. Estimated investment capital is about 65 million US dollar.

- Other enterprises will concentrate on in-depth investment, apply new technology to improve quality of normal motorcycles to meet regional and international quality standards, produce models that are suitable to rural market, and step by step take part in market of high-class motorcycles. Estimated investment capital is 1,000 billion Vietnamese dongs.

III.3.2. Research and Development (R&D)

- Encourage enterprises to promote R&D activities in many ways (independence, cooperation, buying design...) depending on their capability with a target of high quality motorcycles and non-infringement on intellectual property rights.

- Government will provide science and technology fund to support designing activities, sample producing, as well as training and technology transfer.

- Estimated investment capital is about 8-10 billion Vietnamese dongs.

III.3.3. Development of supporting industries and industrial human resources

- Formulate a program (specific plan) for development of supporting industries of motorcycle industry to initiate development direction for enterprises in the future.

- Establish databases for supporting industries in conjunction with business matching service between FDI assemblers and local suppliers.

- Promote the development of materials used in parts industry. Provide incentives for investments that concentrate on modernizing and applying new technology.

- Establish one or two industrial zones for supporting industries in two economic centers of the North and the South to absorb more investments in these industries. Besides, encourage development of supporting industries in the areas surrounding existing motorcycle assemblers.

- Reorganize VAMOBA or establish a motorcycle association with participation of all motorcycle assemblers and suppliers in Vietnam, which serves the interests of all members, and complies with international general rules.

- Encourage domestic assemblers to reorganize for better utilizing their advantages to improve products' quality and competitiveness.

- Promote development of industrial human resources in both terms of quality and quantity by various measures (see Part 4).

PART 4

MEASURES AND POLICY SUPPORTING THE DEVELOPMENT OF MOTORCYCLE INDUSTRY

Policy directions for the development of the industry are presented in some parts of the master plan, which are very necessary, diversified, and under the authorities of many ministries and organizations. In the circumstance of limited human resource and budget, in this part selects and proposes essential policy measures to support current general policy system.

I. INVESTMENT ORIENTATIONS

1. Encourage production cooperation and allocation among enterprises in the industry to take full advantage of technology and equipment invested, to reduce the initial investment cost and to avoid overlapped investment.

2. New invested projects must be conformity with the master plan's orientation and approved motorcycle industry development strategy, using advanced technology, ensuring intellectual property rights and meeting air disposals standards and the quality of products to serve the market demands.

II. DEVELOPMENT OF SUPPORTING INDUSTRIES AND INDUSTRIAL HUMAN RESOURCES

1. Enhance the attraction of investment in five targeted sectors of the supporting industries, i.e. pressure processing (forging, pressing), casting, welding, thermal treatment, and mold and die.

Formulate a program (master plan) to develop supporting industries of the motorcycle industry, which will play a leading role in the development of supporting industries for other assembly industries. The program will focus on important technological processes, i.e. pressure processing (forging, pressing), casting, welding, thermal treatment, mold and die in order to foster manufacturing industry.

Draw up and effectively implement a program for FDI attraction to strengthen Vietnam's supporting industry base.

Prepare industrial parks or rental factories specifically designed to receive targeted FDI part suppliers in two main economic zones in the North and the South[9].

[9] It is necessary to building factories to attract special investors. Most FDI suppliers are small enterprises and do not have much international business experience. They are afraid of risks when invest in a foreign country. It will be more risky when they come to the foreign

- Promote FDI marketing based on prepared strategy and receiving locations, and

- Activate investment marketing in the targeted industries. Utilize effectively activities of Investment Promotion Offices in foreign countries, especially promotion services of public organizations or non-governmental organizations (NPO)[10].

2. By the year 2010, Ministry of Industry and Commerce will be mainly responsible for building a database for supporting industries.

Build a supporting industry database in conjunction with business matching service between FDI assemblers and local suppliers to narrow the information and perception gap between enterprises. For effective operation of the database, these two activities should be synchronized and integrated as one. The implementer must have enough specialists, and close relationships with manufacturers. The operation of the database can be transferred to the industry association later.

3. Advertise and utilize more effectively training programs conducted or funded by domestic and foreign organizations to improve quality of industrial human resources.

Intensive investment through international cooperation to upgrade two to three colleges and vocational schools under the Ministry of Industry and Commerce to become the pilot institutions specializing in education and training of industrial human resources in response to the actual requirements of the labor market for the supporting industries, which are not limited to the above targeted industries. For this purpose, a close and continuous cooperative mechanism between training institutions and manufacturers that may hire students upon graduation should be established.

4. Encourage the development of collaborative training programs with the participation of FDI enterprise and local suppliers[11]. In these programs, training

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countries by themselves, rather than following a big assembler. These enterprises often start their business in a small scale because the demand of Vietnam market is also small. To minimize the risk and investment cost for new investors, Vietnam can build factories, workshops for rent in small areas of 300-400m^2, together with supporting services. Renting such factories and worksops is a good marketing way to show the desire of the host country to reduce costs for FDI investors.

[10] After Hanoi established its independent investment promotion offices in Tokyo, Da Nang, Ha Tay and Lam Dong also establish their investment promotion offices without any staff in Vietnam Study Institute in Tokyo.

[11] One of the most successful training program is the Penang Skill Development Center (PSDC) in Malaysia. For more detail, please see Junichi Mori, "Development of supporting industries for Vietnam industrialization: Increasing positive vertical externalities through colaborative training", master thesis, Fletcher School, Tufts University, 2005.

methods and materials need to be developed with strong involvement of client firms[12].

Learn from international experiences and apply the national certification system of Industrial Expertise (*Industrial Meister* - highly skilled engineers or multi-skilled workers who can retrain others) of some developed countries such as Japan, in order to broaden the base of good engineers and skilled workers. The government should also encourage enterprises to recruit and provide preferential treatments to industrial expertise.

Implement reasonable measures for foreign retired experts to work with Vietnamese young employees in order to transfer their skills and experiences in some targeted programs[13].

Promote labor export to advance countries, such as Japan, Korea, and Taiwan... through trainee programs to improve manufacturing skills and continue their job when they come back to their enterprise.

III. DEVELOPMENT OF SCIENCE AND TECHNOLOGY CAPACITY

1- Increase support through science and technology fund to enterprises that are implementing research and development projects, especially domestic enterprises that volunteer to build their own trademarks and product designs in the previous time; to enterprises that improve their production capability of parts and components, develop engines and motorcycles using “clean” energies.

2- Encourage enterprises to build their owned trademark, designs through the financial supports in acquiring patents or design licenses.

IV. IMPROVEMENT OF ORGANIZATION STRUCTURE AND ACTIVITIES OF AN INDUSTRY ASSOCIATION

- Improve and enhance a focal point role of an industry association in gathering all motorcycle assemblers and part suppliers in Vietnam together, improving their product quality and productivity.

- Organize meetings to exchange information among manufacturers, draft a plan for restructuring the existing association or establishing a new association with an aim to build up an industry association that will serve all members’

[12] Many FDI manufacturers want to participate in these colaborative training programs. They can even send their experienced engineers and contribute machines to the programs.

[13] Vietnam should launch and implement a program in which retired Japanese talents work with Vietnamese managers and engineers in Vietnam in order to transfer their manufacturing skills and attitude in practical setting. The program can call for sponsors from the government, domestic and foreign NGOs.

interests, providing data on joint ventures, business linkages, information services, market surveys, research and development, technology transfer, building and proposing sectoral development policy to the government, promoting international cooperation, seeking and receiving supports from government and international organizations… to support the implementation of policy measures for the development of the industry.

V. IMPROVEMENT OF PRODUCT QUALITY AND ENVIRONMENT PROTECTION

- Design and begin to implement a comprehensive standard system of quality, safety and environment equivalent to international standards.

- Encourage all economic sectors develop a testing system and maintenance system for motorcycle

- Check and install exhaust fumes treatment system for second hand vehicle used over 5 years

- Should have a survey on the compatibility of quality, safety and environment standards of Vietnam and other countries, with the active participation of assembling manufacturers and motorcycle parts and accessories suppliers in Vietnam. There are some exception, if any, - to meet a specific conditions of Vietnam. A compatible standard set should apply to all entities in order to reduce design cost and production cost of motorcycle manufacturers in Vietnam. This work can be hosted by the industry association, after that, the outcomes and recommendations will be submitted to relevant authorities.

VI. PROTECTION OF INTELLECTUAL PROPERTY RIGHTS

- Strengthen the enforcement of Law on Intellectual Property. Promote the protection of industrial property rights and motorcycle quality check and registration.

- Shorten protection time of intellectual property rights. Promote quantitative evaluations of differences in industrial designs.

- Encourage the establishment of independence assessment organizations, which have enough capacity, expertise, facilities and credit to examine the implementation of the Law.

- Improve the process of invention patent certification to avoid law swerving or utilizing protection for monopoly, unfair competition, which harm interests of other producers and consumers.

VII. MARKET DEVELOPMENT

1. Domestic market:

- Industry associations play main roles in the establishment of linkages, cooperation among member enterprises to improve product quality and develop supporting industries.

- Besides, improve motorcycle consumers' awareness and knowledge so that they will become a "channel" of examining and evaluating the product quality.

2. Export market:

- Strengthen trade promotion and international cooperation to explore export market; Enhance cooperation with international associations, multinational motorcycle groups to promote direct and indirect export of motorcycle parts and components.

- Actively participate in international specialization and cooperation in production and investment abroad.

VIII. BUILDING A FAIR COMPETITION BUSINESS ENVIRONMENT

- Stipulate social responsibilities of motorcycle manufacturers and assemblers in management of transportation and traffic safety by collecting road using fee per motorcycle sold and traffic safety training fee to implement solutions on improvement of road traffic safety, and regulating enclosures of guide-books on implementation of the Road Traffic Law and motorcycle safely using techniques...

- Propagandize and increase awareness, knowledge of motorcycle consumers so that they can select qualified products, identify high quality and illegal products as well as utilize manufacturers' compulsory warranty services.

IX. URBAN TRANSPORT PROBLEMS AND TRAFFIC SAFETY

1. Implement supplementary research and improve regulations in the Road Traffic Law to enhance traffic safety in motorcycle management and using.

2. Enhance propaganda activities and public education on road traffic safety, including the field of motorcycle production and using.

In order to reduce centralized traffic congestions and traffic conflicts in urban areas, some temporary solutions can be implemented as follows:

- Limit motorcycle entries in narrow streets with specific regulations and guidance, and strict enforcement.

- Introduce time-based vehicle parking fee and design a proper vehicle parking areas basing on the current situation of roads, pavements in each particular area.

- Limit automobiles and trucks in certain areas in Hanoi's ancient quarter.

To minimize the traffic accidents: It is necessary to specify regulations on motorcycle management and using in the Road Traffic Law, regarding to:

Speed limits, using helmets, using mobile phones and other devices when riding motorcycles, stopping, parking;

Driver licensing, driver training and retraining;

Duties of motorcycle owners in motorcycle maintenance to ensure motorcycle's safe conditions and environment protection;

Motorcycle inspection system, insurance system...

CONCLUSIONS AND RECOMMENDATIONS

From now to 2020, motorcycles still are important in people life. With the huge potential market, Vietnam has conditions to become one of the biggest countries for motorcycle manufacturing. At present, the motorcycle industry of Vietnam is capable for manufacturing motorcycles to meet the domestic demand. In a near future, Vietnam will be able to produce high quality motorcycles.

Supporting industries for motorcycle industry have been established. However, it is still small in scale and its international competitiveness is weak. This industry needs more investment, training, and human resource support from the State. If the industry can develop smoothly, it can become an important manufacturing industry to support other assembling industries to develop.

The motorcycle market in Vietnam has developed competitively. The production capability has exceeded the domestic demand and it is still developing. The local enterprises are facing with to options. The first is to enhance cooperation, linkage, and intensive investment to develop the enterprise prestige, and brand name. The second option is to be a link in production chain of FDI motorcycle enterprises.

The future development of Vietnam motorcycle industry depends much on the macro policies of the government. On one hand, Vietnam should take initiatives in participating into the export market. On the other hand, it should be able to meet the domestic demand.

In the coming time, manufacturers, assemblers in Vietnam will do their business in a competitive environment in accordance with AFTA and WTO entrance agenda. Tax policies and technical tools like product quality, IPR, environment protection regulation, traffic congestion regulation, motorcycle using restriction in big cities in order to adjust the motorcycle market will be implemented.

The “Master Plan for the Development of Vietnam’s Motorcycle Industry in the period of 2006-2015, with a vision to 2020” has concretized the content of “The motorcycle development strategy of Vietnam to 2015, vision 2020” approved by the government on 13th September 2006 with supplementation and adjustment.

The IPSI proposes to the Minister of the Ministry of Industry the followings:

1. Approve “The Master Plan for the Development of Vietnam’s Motorcycle Industry in the period of 2006-2015, with a vision to 2020”.

2. The Ministry of Industry to report to the Prime Minister and other related ministries, industries, local authorizes to implement this master plan.

3. Assign the IPSI to cooperate with local and foreign partners to formulate a detailed master plan for the development of supporting industries for Vietnam’s

motorcycle industry until 2015, with a vision to 2020, submit to the Minister of the Ministry of Industry and Trade for approval in 2008. This will be the orientation for the development of supporting industries in motorcycle industry.

APPENDIXES

Appendix 1

Registered Motorcycles and Automobiles by Province, 2005

City or Province	Population x1000	Number of Motorcycles	Number of Automobiles	Motorcycles/ 1000 persons	Automobiles/ 1000 persons
Ha Noi *	3,145	1,565,641	163,796	498	52.1
HCMC *	5,891	2,619,525	275,160	445	46.7
Da Nang *	777	315,041	17,311	405	22.3
Binh Duong	915	313,002	20,775	342	22.7
Dong Nai	2,193	640,143	29,913	292	13.6
Quang Tri	622	178,920	5,605	288	9.0
Ba Ria-Vung Tau	913	253,990	13,640	278	14.9
Khanh Hoa	1,123	301,272	12,900	268	11.5
Can Tho *	1,135	268,001	9,722	236	8.6
Tay Ninh	1,039	242,062	7,593	233	7.3
Hai Phong *	1,793	409,229	5,352	228	3.0
Lam Dong	1,161	252,009	8,996	217	7.7
Tien Giang	1,701	357,664	9,026	210	5.3
Phu Yen	861	180,187	3,892	209	4.5
Thai Nguyen	1,109	222,809	9,352	201	8.4
Thua Thien-Hue	1,136	222,797	7,972	196	7.0
Dak Lak	1,711	329,385	10,994	193	6.4
Binh Thuan	1,151	220,155	5,587	191	4.9
Ninh Thuan	562	105,737	2,922	188	5.2
Quang Ngai	1,269	237,587	6,180	187	4.9
Binh Dinh	1,557	283,446	12,417	182	8.0
An Giang	2,194	393,462	5,541	179	2.5
Gia Lai	1,115	198,743	12,612	178	11.3
Long An	1,413	243,945	5,638	173	4.0
Quang Ninh	1,079	180,049	16,991	167	15.7
Quang Nam	1,463	240,007	8,396	164	5.7
Dong Thap	1,655	268,252	4,560	162	2.8
Ving Long	1,055	170,386	4,364	161	4.1
Ben Tre	1,352	217,577	2,166	161	1.6
Hai Duong	1,711	271,244	16,352	158	9.6
Kon Tum	375	56,790	2,299	151	6.1
Binh Phuoc	796	118,980	5,181	149	6.5
Phu Tho	1,328	196,855	11,644	148	8.8
Bac Ninh	998	147,935	4,883	148	4.9

Vinh Phuc	1,169	166,740	7,679	143	6.6
Tuyen Quang	727	103,232	3,252	142	4.5
Tra Vinh	1,028	145,205	2,807	141	2.7
Nam Dinh	1,961	270,991	6,508	138	3.3
Bac Giang	1,582	217,321	4,974	137	3.1
Ninh Binh	919	125,595	5,316	137	5.8
Bac Lieu	798	104,795	2,866	131	3.6
Ha Tay	2,526	325,896	15,786	129	6.3
Yen Bai	732	94,275	2,796	129	3.8
Lang Son	739	94,971	4,678	128	6.3
Dak Nong	398	50,435	4,544	127	11.4
Quang Binh	842	106,472	3,807	126	4.5
Lao Cai	576	72,644	3,617	126	6.3
Hung Yen	1,134	140,647	4,165	124	3.7
Thai Binh	1,861	230,223	4,443	124	2.4
Bac Kan	299	36,611	1,692	122	5.7
Kien Giang	1,655	199,828	5,660	121	3.4
Nghe An	3,042	360,325	13,596	118	4.5
Cao Bang	515	58,652	3,864	114	7.5
Soc Trang	1,272	142,964	3,436	112	2.7
Ha Tinh	1,301	138,697	7,608	107	5.8
Son La	989	103,385	4,532	105	4.6
Hoa Binh	813	83,231	3,701	102	4.6
Thanh Hoa	3,677	367,736	12,418	100	3.4
Dien Bien	450	44,875	2,421	100	5.4
Ha Nam	823	74,007	5,265	90	6.4
Ca Mau	1,219	84,498	2,671	69	2.2
Ha Giang	673	45,297	2,578	67	3.8
Hau Giang	791	27,733	648	35	0.8
Lai Chau	314	10,958	805	35	2.6
Total or average	83,120	16,251,066	887,865	196	10.7

Source: National Traffic Safety Committee. The asterisk shows five cities under central administration.

Appendix 2

Authority of IPR-related Organizations

	Judge violation	Inspect	Decide punishment	Strength	Weakness	Issues
National Office for Intellectual Property (under MOST)	No more	No	No	Expertise	No more enforcement functions	
Inspectors (under MOST)	Yes but executed only infrequently	Yes	Penalty up to VND 5 million; Chief Inspector can give penalty up to VND 20 million	Authority to inspect anytime, anywhere	Small personnel in ministerial level; weak power in local level	Few inspections conducted
Minister of MOST	Yes but executed only infrequently	Yes	Penalty up to VND 20-100 million	Authority to penalize serious cases	Too busy with other issues	
Market Management Department (under MOT)	Yes but executed only infrequently	Yes	Financial penalty	Authority to inspect anytime, anywhere	Investigation	Budget and human resource constraints; response only to requests by IPR holders
Economic Police (under MOP)	Yes but executed only infrequently	Yes	Financial penalty	Investigation	Complicated procedure (by law)	Budget and human resource constraints; response only to requests by IPR holders
Ministry of Industry	No	Yes	Order to stop production	Authority to prevent violation at every stage of project	Inspection only in response to order or request	Checking prior to granting production permit only; inability to examine FDI suppliers which are under MPI's authority
Vietnam Register (under M of Trans)	No	Yes	Suspend model approval	Authority to prevent violation at initial stage	Inspection only in response to order or request	
Provincial PCs	No	No	Penalty up to VND 10 million	Local power and guidance to local MMDs	Inspection only in response to order or request	Tendency to avoid heavy penalty to violators
Steering Committee 127 (inter-ministerial under M of Trade chairmanship)	No	Yes	Penalty up to VND 10 million	Coordination	Too many industries	Weak coordination with local authorities; Issuance of document that limits MMD's power to examine infringements in transit.

Appendix 3

Foreign-funded Technical Training Programs Currently Available in Vietnam

Program	Location	Sponsor	Main activities
Association for Overseas Technical Scholarship (AOTS)	On demand	Japan	Supporting technical training in Vietnam and Japan
Vietnam Japan Cooperation Center (VJCC)	Hanoi, HCMC	Japan	Business courses, training, customized advice
JETRO - Business matching between Japanese and Vietnamese enterprises	Hanoi, HCMC	Japan	Japanese enterprises come to Vietnam to look for partner companies
JICA - Human Resource Project	HCMC	Japan	Upgrading teaching and administrative staff at universities
Vietnam-Singapore Technical Training Center (VSTTC)	Binh Duong, Hanoi	Singapor e	Technical and vocational training
GTZ Vietnam	On demand	Germany	Consulting service, training of vocational school teachers

Abbreviations--AOTS: Association for Overseas Technical Scholarship; JICA: Japan International Cooperation Agency; JETRO: Japan External Trade Organization; JODC: Japan Overseas Development Corporation; GTZ: Deutsche Gesellschaft fur Technische Zusammenarbeit.