CHAPTER 7

Development of Special Economic Zones, Industrial Estates, Ports, Metropolis and Alternative Roads in the Greater Ho Chi Minh City Area

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CHAPTER 7

DEVELOPMENT OF SPECIAL ECONOMIC ZONES, INDUSTRIAL ESTATES, PORTS, METROPOLIS AND ALTERNATIVE ROADS IN THE GREATER HO CHI MINH CITY AREA

Phi Vinh Tuong

INTRODUCTION

After twenty years of transformation and industrialization Vietnam has joined the ranks of low-middle income countries. During this development process, Ho Chi Minh City and its surrounding area (the Greater Ho Chi Minh City area) has emerged as a pillar of development. Other pillars include the capital city of Hanoi in the north and Da Nang, in the country's central region. Vietnam's economic boom has made the Greater Ho Chi Minh City area the center of economic activities in the country, providing business services for thousands of enterprises and jobs for millions of people, including not only its residents but also for immigrants from other cities/provinces of the country.

A large proportion of government budgets have been invested in enhancing the nation's economic infrastructure, to enable the country to attract foreign business. This has included the early development of industrial estates, as well as upgrading of airports, ports, roads and railroad capacity and building new airports to meet the

increasing demand of traffic and shipping to and from the area. Along with the expansion of economic activities, the urbanization process also speeded up, with new cities are planned to be developed in the future in this region.

The explosive growth posed challenges for capacity management, such as managing the prices of economic infrastructure at a competitive level to attract new businesses, reorganizing/reallocating urban and industrial estates, ports and airports in a way that minimizes out-of-operation costs for enterprises. Issues such as traffic congestion in Ho Chi Minh City are creating bottlenecks to ports and the airport. This threatens the sustainable development of this area in the coming decade for it reduces the attractiveness of the area for potential investors, especially foreign investors, and induces current investors to consider a reallocation of their manufacturing bases.

This paper examined the current status of infrastructure in the Greater Ho Chi Minh area, presenting some potential issues in their urban development projects that may become future obstacles for their economic development according to their past development experiences.

1. GREATER HO CHI MINH AREA

1.1. Historical Development

This research focuses on the Greater Ho Chi Minh area, which includes Ho Chi Minh City, Tay Ninh province, Binh Duong province, Dong Nai province, Ba Ria–Vung Tau province, Tien Giang province and Long An province. Greater Ho Chi Minh City area, together with Binh Phuoc province formed the Southern Focal Economic Region of Vietnam (Table A.1 in Appendix), under Decision 44/1998/QĐ-TTG by the Prime

Minister. Most of these cities/provinces are also part of the East Southern Region of Vietnam. Therefore, the development strategy of each of these cities/provinces is influenced by the development strategies of both the Southern Focal Economic Region and the East Southern Region.

Located at the center of Southeast Asia, the Greater Ho Chi Minh area has a strategic location, connecting Vietnam and neighboring countries (Indochina) to the world economy by air, sea, roads and rail. Ho Chi Minh City's international airport is capable of handling large-body aircrafts and serves as a regional hub, connecting Indochina to the world, promoting not only business activities but also tourism services.

Trans-Asia road and rail networks, upgraded national and provincial roads, and the country's waterways help to smoothly transfer raw materials and final products from manufacturing bases located in the region to international markets. Vung Tau Port in Ba Ria–Vung Tau province, located at the crossroads of many of the Southeast Asia shipping lines, has an advantage in consolidating and distributing large volumes of manufactured and processed goods, as well as raw materials and semi products to and from the Greater Ho Chi Minh area. Binh Duong province and Dong Nai province, the gateway to Ho Chi Minh City, have advantages in developing industries as well as logistic services along national backbone roads, including Ho Chi Minh roads, Trans-Asia roads and waterways.

The Greater Ho Chi Minh area covers 7.0% of the whole country's area and is home to nearly 19% of the country's population (2009). Its population density is much higher than that of the country as a whole, ranging from 1.23 times the national average (in case of Long An province) to 13.20 times (in case of Ho Chi Minh City).

With high population density (3.400 person/square km) Ho Chi Minh City is a metropolis[1] , though official statistic data of population of the city is less than 10 million people (Table A.2 in Appendix).

Over the past decade, this region has had significant achievements in terms of economic growth and became the center for dynamic development in Vietnam. The dynamic development of this region evolved from the Ho Chi Minh City – Binh Duong – Ba Ria–Vung Tau economic triangle to the Ho Chi Minh City – Binh Duong – Dong Nai – Ba Ria–Vung Tau economic rectangle.

Ho Chi Minh City, the largest city in Vietnam is generally considered the economic center of the country and of the region, in particular. With the advantage of being developed earlier than other provinces in the region, Ho Chi Minh City is restructuring to become a financial center as well as a services center for the region and the country. Ba Ria–Vung Tau is developing its logistic services to take advantage of it sea ports, while Binh Duong province, after significant industrialization, is shifting to become a human resource provider for the region and Dong Nai continues to develop into a manufacturing base.

Annual GDP growth rate of this region averaged 8.2% from 1996 – 2000 and 7.0% during the next five years (2001-2005). The region's economic growth is heavily dependent on the growth of Ho Chi Minh City and Ba Ria–Vung Tau province. In 2009, Ho Chi Minh City's GDP growth rate had decreased by 2 percentage points compared with 2008, due to the impact of the global economic crisis. As a result, the region's average annual GDP growth rate for the current five-year period (2006 - 2010) is

[1] Some definitions of metropolis are using the threshold of 10 million people while others using the criteria of population density with over 3,200 people per square kilometer.

expected to slow to around 6.4%. Although this result is not as good as in the past, it is still higher than that of the whole country.

The economic structure of the region (including Ho Chi Minh City) has changed significantly during the past 10 years (Table 1). Although the industrial sector still accounts for a large proportion of GDP, its relative contribution has decreased, concomitant with a small increase in the contribution of the service sector. The economic structure of the region has been relatively stable during the past decade, with a continuous decrease in the contribution from the agriculture sector and slightly increasing trend of contribution from service sector.

Table 1: Economic Structure of the City and Region Compared with the Country[2]

(Unit: %)

Sector	2000			2005			2008			2010		
	Ho Chi Minh City	Region	Whole Country	Ho Chi Minh City	Region	Whole Country	Ho Chi Minh City	Region	Whole Country	Ho Chi Minh City[3]	Region	Whole Country
Agriculture	2.0	6.9	24.5	1.2	4.3	21.0	1.3	5.7	22.0	1.1	5.1	21.3
Industry and Construction	45.4	57.6	36.8	48.2	60.6	41.0	46.0	56.1	39.9	47.3	56.2	40.3
Service	52.6	36.8	38.7	50.6	35.1	38.0	52.7	38.2	38.1	51.6	38.7	38.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Summary from GSO and SO data.

[2] Including Binh Phuoc Province and excluding Long An and Tien Giang Province.

[3] Based on in-depth interview in September, 2010.

The shift of the economic structure towards industrialization and modernization has led to a shifting of the employment structure, with an increase in the share of industrial labor and a decrease in the share of agriculture labor (Table 2). Nevertheless, the decrease level of proportion of people working in agriculture sector is not as significant as expected.

One of the reasons explains for the above issue lies in statistical approach. Statistical data on changes in economic structure often is for an administrative area rather than for a region. Development strategy in each of the provinces in the Greater Ho Chi Minh area, as well as in other provinces, is rather similarly focused on the development of the industrial sector without taking the relative advantages of the province into account. Therefore, cooperation between cities/provinces is rather weak, with the result that none of them are able to specialize on what they could do best.

Table 2: Labor Structure by Sector[4]

(Unit: Thousand person)

Year	Total labor	Agriculture Sector		Industrial Sector		Service Sector	
		Total	Share (%)	Total	Share (%)	Total	Share (%)
2000	5,138	1,608	31.3	1,408	27.4	1,616	41.3
2005	5,738	1,461	25.5	2,260	39.0	1,937	33.4
2008	6,249	1,375	22.2	2,478	40.3	2,314	37.5
2010	6,544	1,335	20.4	2,756	42.1	2,451	37.5

Source: Report on general socio-economic development project for the East Southern Region.

[4] Including Binh Phuoc Province and excluding Long An and Tien Giang Province.

In addition, the administrative procedure of managing residency, known as "Hokhau" system, as well as the central budget allocation to local government for welfare services such as healthcare and education based on "Hokhau" system instead of the real population, have deterred the incentives of encouraging people moving from agriculture sector (rural area) to industrial sector (urban area)[5]. Furthermore, economic infrastructure was developed inadequately, building industrial zones without having first considered the issue of accommodation for workers in these industrial estates, which also deterred the incentive for people living in the agriculture sector to move to the industrial sector.

Without cooperation and with underdeveloped infrastructure for industrial development, the shift of labor among economic sectors varied across cities/provinces. In addition, the supply of labor, especially trained and skilled labor, did not adequately meet the increasing demand for qualified labor generated through the high speed of industrialization and modernization in this region.

These are the two major issues that explain why a large proportion of labor remains in the agriculture sector and also explains why a large number of immigrants/laborers from outside this region, who met the requirements of those enterprises, have contributed to the rise in the population in the region, especially in Ho Chi Minh City.

1.2. Number of Enterprises and Population Growth

Population growth in Ho Chi Minh City and surrounding provinces has been the

[5] UNDP and VASS Workshop for launching "Human Development Report - 2009" subtitle "Overcoming barriers: Human mobility and development" in Hanoi, Vietnam.

result of not only natural growth, but also growth in the number of immigrants, which is related to the increase in the number of enterprises investing and operating in this region.

While development has not yet caught up with economic growth, some improvements in business conditions, especially in hard infrastructure, have raised the number of operating enterprises in Greater Ho Chi Minh area significantly over the past years. By 2007, the number of operating enterprises in Ho Chi Minh City alone has surpassed 45,000 firms, which was nearly four times the number operating in 2001 (Table 3).

The role of the private sector has increased significantly in recent years, as their number more than quadrupled over the seven years prior to the accession of Vietnam to the World Trade Organization (WTO) in 2007.

Most of the private enterprises are small in size. The average number of employees per enterprise in recent years has been less than 40 in the private sector, while employment is State-owned enterprises (SOEs) increased from nearly 500 employees to more than 630 employees and foreign enterprises average around 300 employees. This implies that while the government's reform of SOEs has resulted in the formation of large enterprises, most private sector enterprises are small in size. Nevertheless, the private sector has played an important role, providing 60% of total employment opportunities in Ho Chi Minh City in 2007 (Table 4).

Table 3: Number of Operating Enterprises in Ho Chi Minh City

(Unit: Operating Enterprise)

	2001	2004	2005	2006	2007
State-Owned Enterprise	727	708	503	461	451
Private Enterprise	10,055	21,992	28,752	35,090	43,117
FDI enterprise	664	970	1,222	1,324	1,508
Total	11,446	23,670	30,477	36,875	45,076

Source: Statistic Office in Ho Chi Minh City.

Table 4: Number of Employees by Type of Ownership in Ho Chi Minh City

(Unit: Person)

	2001	2004	2005	2006	2007
State-Owned Enterprise	355,705	363,000	283,963	246,612	288,512
Private Enterprise	380,377	639,625	832,286	891,408	1,020,452
FDI enterprise	194,109	342,718	383,392	409,333	446,717
Total	930,191	1,345,343	1,499,641	1,547,353	1,695,681

Source: Statistic Office in Ho Chi Minh City.

1.3. Motorcycles and Accident Issue

Although the city provides public buses on many routes and some enterprises provide company cars for their employees, most employees in Ho Chi Minh City, particularly, and most Vietnamese people, in general, prefer to use their own vehicles to commute. Motorcycles became very popular in Ho Chi Minh as well as in other Vietnamese cities/provinces due to convenience in getting around; this continues today, even though public transportation, e.g. buses, is now available.

Higher economic growth than other cities/provinces led to higher income among residents in the Greater Ho Chi Minh area. As a result, many households in the region were able to afford to buy motorcycles. Even though many households were able to

afford to buy cars, they still chose to buy motorcycles instead due to problems of parking, especially in high density residential areas, as well as limitation of transportation space in the city. According to a survey, over 90% of the households in Ho Chi Minh City owned motorcycles, with 53% owning two or more motorcycles[6].

The official population of the Greater Ho Chi Minh area reached 15.92 million in 2008, and Ho Chi Minh City account for 44% of the region's population. With an annual growth rate of 3.1% during the period 1995-2009 (official data), the population of Ho Chi Minh City increased to nearly 7.2 million people in 2009. In the same year, the cumulative number of registered vehicles in Ho Chi Minh City was around 4.5 million units, of which the number of cars was only 408,688 units; the rest were motorcycles.

By the end of the first half of 2010, the cumulative number of cars registered in Ho Chi Minh City had increased to 433,000 units[7]. At the same time, the number of motorcycles had surpassed 4.7 million units. In other words, there were over 275,000 motorcycles registered in Ho Chi Minh City within the first 6 months of 2010 or over 2,000 motorcycles registered in a working day. Compared with 1,300 registered motorcycles per working day provided by Dapice, *et al.*, (2010, page 3) in the past year, this number shows a hike in the number of motorcycles registered in Ho Chi Minh City recently.

The study by Dapice, *et al.*, (2010) points out that the actual number of vehicles may be higher than the officially-registered numbers, as the statistical estimates of the population in Ho Chi Minh City as well as the Greater Ho Chi Minh area "ignored" the

[6] JICA, 2004.

[7] According to the in-depth survey with official governments in September 2010.

number of immigrants, who are contributing to the population growth of this area. Immigrants often come with their family. They either choose to buy vehicles and register them in Ho Chi Minh City or bring their owned vehicles with them. Most of the immigrants will choose the latter course, to save costs during the beginning of their work away from their hometown. These vehicles will never be accounted in statistical data for either Ho Chi Minh or the Greater Ho Chi Minh area.

The economic boom has also changed the face of the Greater Ho Chi Minh City area. Many new residential areas, such as Phu My Urban and Thu Thiem Urban, have been established and industrial estates are moving out of the city center[8], leading to the development of new services such as banking, telecommunications or training systems in these areas. Nevertheless, it does not change the Vietnamese people's custom of preferring to live in or near the center of the area. This characteristic stems from the fact that good services such as medical care, education, leisure in the center of the city are available and of much better quality than that of the outer areas, even though they are newly built. Given this characteristic, people are willing to make the tradeoff between travelling time and living near the center of the area, leading to an increase in the density of transportation as well as the probability of congestion during the rush hours.

[8] Located in District 2, the original Cat Lai Industrial Estate included four zones from zone 1 to zone 4 with the total area of nearly 600 hectares. Given the economic development, there is only one industrial zone left for enterprises to invest in, namely Cat Lai Industrial Zone 2, which was constructed in 2003. After two stages of development, the total area of this industrial zone is 124 ha. Recently, this industrial zone development's strategy focused on high tech and low carbon emission businesses only. The rest of the three industrial zones, which had been developed since 1996, have changed its uses from providing land for manufacturing to housing. During 2010, the People's Committee of Ho Chi Minh City approved an Urban Project based on the usage transformation of Cat Lai Industrial Zone III with the total area of 110 ha. During the first phase, 44.23 ha will be used for construction. The maximum number of people living in this area is expected not to surpass 18,000 or 180 people/km^2.

In addition, obsolete plans of residential areas development, industrial estates, as well as lack of alternative roads that alter the connection between places of manufacturing and ports, are major issues that worsen the quality of the current roads. It not only intensifies the congestion in the city but also causes many social issues that need to be addressed. In Ho Chi Minh City, there were 1,021 land road accidents, causing the death of 857 people and wounded 419 other people in 2009. Compared with the same numbers of dead and wounded in 2008, these results decreased 1.8% and 9.3%, respectively. The major reasons for these accidents were violations of traffic regulations, especially speed limits and consumption of alcohol.

1.4. Future Development

The Greater Ho Chi Minh area aims to become the economic growth center for the country in the next decade of development. Given the important role of Ho Chi Minh City in the Southern Focal Economic Region, as well as in the country during the course of industrialization and modernization, the government approved its plan of enlargement[9], aiming at correcting some illogical issues of prior plans/projects relating to the development of industrial estates, ports, and high density residential areas, as well as overloaded roads.

Recently, there has been improvement in the level and scope of cooperation between cities/provinces in the region, which should lead to faster economic development. In this course of cooperation and development, Ho Chi Minh City clearly states that its socio-economic development will be placed in the context of the general economic development of the focal economic zone, taking into account its comparative

[9] See Decision 123/1998/QĐ – TTg, dated 10 July 1998.

advantage in the region as well as the connection of this region with other economic regions of Vietnam.

The orientation development of Ho Chi Minh City is to become the region's service center. In order to achieve this development target, promoting the development of services such as banking and financial services, telephones and telecommunications services, human resource development are keys to the success. In addition, taking into account issues such as controlling the population growth, reallocating the residents across districts to maintain or to reduce the current population density and building advance socio-economic infrastructure, especially urban transportation are necessary to reduce or mitigate the impacts and to facilitate the development target.

The city plans to develop new urban areas similar to Phu My Hung Urban and Thu Thiem Urban, making the target of balancing the population density across residential areas to be more feasible. Thanks to the development of construction technology, wetlands on the east bank of the Saigon River in Ho Chi Minh City could be utilized to provide more space for business activities during the course of development. Nevertheless, the development of new urban areas on the foundation of wetlands challenges Ho Chi Minh City to solve the problem of flooding because the natural land reserved to dissipate flooding is being used for housing and office land.

In the Greater Ho Chi Minh area, the development strategy of Binh Duong province aims at shifting the economic structure toward the development of industry and service sectors and becoming a new human resource center for the region. This will result in moving labor from low productivity industries into higher productivity sectors, which will push up the level of exports, and cooperating with Ho Chi Minh City to develop new urban areas. The strategy also embraces upgrading and

modernizing national and provincial roads to improve connections with international airports in Ho Chi Minh City and Dong Nai province (in the future when Long Thanh International airport comes into operation), and with Thi Vai Port in Ba Ria - Vung Tau province.

Dong Nai province aims to become the region's manufacturing base. In its development strategy, Dong Nai plans to develop its transport infrastructure, such as a new international airport (Long Thanh International airport), and to upgrade its railway system to join the Trans-Asia railroad (sector from Singapore to Kunming, China) in order to become a new gateway of the region to the world.

The economic rectangle (Ho Chi Minh City – Binh Duong province – Dong Nai province – Ba Ria–Vung Tau province) will see the development of a new urban area, northeast of Ho Chi Minh City (towards Thuan An of Binh Duong province and Bien Hoa of Dong Nai province). Currently, within 1,000 square km of the triangle area of Ho Chi Minh City – Bien Hoa City (Dong Nai) – Thu Dau Mot (Binh Duong), the population is around 6 million people. By 2020, the population of this area may reach 13-14 million people, of whom over 10 million people will be from Ho Chi Minh City, 1.5–2 million people from southern of Binh Duong province and the rest from southern of Dong Nai province. Therefore, the needs of designing and constructing a public transportation system, as well as other infrastructure, e.g. gas and electricity, water supply, communication system, which are relevant to a metropolitan level, have become evident.

It is also possible to expand to the south and south-east (District 7), as well as to the north (along National Road No. 22 – Trans-Asia Highway from Hoc Mon, Cu Chi to Tay Ninh and along national road No.13 to the vicinity of Binh Duong province),

taking advantages of these routes for socio-economic development.

Three more provincial urban and some satellite cities are going to be constructed on the eastern outskirts of Ho Chi Minh City. This includes Dong Nai city, (with the orientation of separating cities and districts, such as Bien Hoa, Long Thanh, Nhon Trach and Trang Bom, that are located near the Dong Nai river) with a designed population of 1.5-2 million people, Binh Duong city with a designed population of 1.1-1.2 million people and Ba Ria–Vung Tau city.

Other independent and satellite cities include Nhon Trach, Long Thanh, Thong Nhat (Dong Nai province), Thuan An, Di An and My Phuoc (Binh Duong province), Phu My, Ngai Giao (Ba Ria–Vung Tau province), Trang Bang, Go Dau, Moc Bai, Xa Mat (Tay Ninh province).

Many other cities within the combination of industry – service – investment along the Trans-Asia corridor are going to develop either in the connection with current large city or independently. In addition, there will be a new urban corridor that connects Ho Chi Minh City and its surrounding area.

2. INDUSTRIAL ESTATES, EPZS, SEZS, AND FUTURE DEVELOPMENT

2.1. Legal Framework and the Development of Industrial Estates, EPZs, SEZs

During the process of industrialization and modernization, the Greater Ho Chi Minh area has become the most favored investment destination for domestic enterprises as well as foreign investors. Investments from these enterprises have been not only in labor-intensive and resource-intensive industries (e.g. textiles and garments, shoes and

leather, forestry and agriculture products processing industries), but also in capital intensive industries, including crude oil and refinery, electricity, machinery, electronics and electrical appliances, chemicals industries, etc.

Although the business environment for the development of private domestic enterprises changed significantly since the onset of “Doi Moi”, the business environment for foreign-owned companies changed a bit later.

The earliest change to the legal framework that paved the way for cities to create a favorable business environment for foreign-owned enterprises, especially for FDI enterprises, was Decree No. 322/HDBT on the establishment of Export Processing Zones (EPZs), which was promulgated on 18 October 1991. Before the promulgation of this decree, most of the foreign investment in Vietnam focused on the service sector, e.g. hotels or offices, but investment in the industrial sector was not enough due to difficulties in investment procedures as well as weakness of infrastructure. Therefore, the process of industrialization and modernization was slow. Industrial zones become places where firms could gather and exchange idea as well as cooperation to develop.

After 15 years of development, especially after the deregulation in issuing investment licenses, the development of industrial estates helped the Greater Ho Chi Minh Area boost its economic development, industrialization and modernization. Nevertheless, some of the problems have emerged during this process, such as excessive competition for foreign investment among cities/provinces, leading to the loss of welfare at the national level. The promulgation of Decision No.1107/DQ-TTG dated 21 Aug 2006 by the Prime Minister approved a national development project for industrial estates, EPZ, SEZ in the country through 2020. Later, Decree No. 29/2008/ND-CP was promulgated to set down detailed procedures for establishment of

an industrial estate, as well as management mechanisms to regulate these industrial estates.

2.2. Current Situation

Following the promulgation of Decree No.322/HDBT, Tan Thuan Export Processing Zone (EPZ) with 300 hectares in area – the first export zone in Ho Chi Minh City and in Vietnam – was established under Decision 394/CT dated 25 November 1991 by the government. This EPZ is located at Tan Thuan East Ward in District 7, which is 4 km away from the center of the city. After the establishment of Tan Thuan EPZ and Linh Trung EPZ (1992), ten more industrial estates were established during 1996 – 1997 in Ho Chi Minh City. The latest industrial zone located in Ho Chi Minh City approved by the government in 2002 was Phong Phu industrial zone. By the year 2010, three export processing zones and 12 industrial estates in Ho Chi Minh City (Table 5) have attracted 1,187 investment projects, of which 477 project with total registered capital of 2.8 billion USD are from abroad.

Following Ho Chi Minh City, provinces such as Binh Duong and Dong Nai also created favorable environments to attract foreign investors, making them the industrial manufacturing bases of the Greater Ho Chi Minh area, as well as of the whole country (Table 6). The arrival of foreign investors, as well as of domestic investors, allowed these two provinces to speed up the process of industrialization and urbanization.

To date, the Greater Ho Chi Minh area has 84 industrial estates, EPZs, SEZs, including those in production, infrastructure development or clearing land and compensation process. The total area of industrial estates in Greater Ho Chi Minh is more than 31,000 hectares, of which industrial land available for lease is

approximately 21,000 hectares. Nearly 10,000 hectares have been leased already, with an average occupancy ratio of 50%.

Table 5: Distribution of Industrial Estates in Ho Chi Minh City

District	Number of Industrial Estate	Total Area (hectare)
BinhChanh	3	507
BinhTan	1	303
CuChi	2	922
District No.2	1	124
District No.7	1	300
District No.9	1	300
NhaBe	1	962
TanPhu	1	110
ThuDuc	3	149
Total	15	3,677

Source: Summary by the author.

Table 6: Industrial Estates in Greater Ho Chi Minh Area

Province/ City	Quantity	Approved Area (ha)	Leased Area (ha)	Occupation Ratio (%)
Tay Ninh	4	3,470	250	11.43
Binh Duong	26	7,410	2,309	56.33
Dong Nai	29	9,080	3,660	61.20
Ba Ria - Vung Tau	10	7,900	2,029	38.31
Ho Chi Minh City	15	3,677	1,516	61.01
Long An	-	-	-	-
Region	84	31,437	9,764	53.69

Source: Calculate by the author.

Industrial Zones, EPZs are mainly located in Binh Duong province, Dong Nai province, Ba Ria-Vung Tau and Ho Chi Minh City. In these four cities/provinces, there are 80 zones, with total area of 28,000 hectares, accounting for 95% of the number of industrial zones and 63% of the total area of industrial estate in the region. Dong Nai has the greatest amount of both industrial zones (29) and approved area (9,080 hectares) (Table 6).

The industrial sector plays an important role not only in the economic development of the Greater Ho Chi Minh area, but for the entire country as well. The total number of industrial establishments[10] in the Greater Ho Chi Minh area at the end of 2007 was 72,694 units (Table 7), the majority of which were in Ho Chi Minh City (58.13%), Dong Nai province (16.34%), Tay Ninh province (9.7%) and Binh Duong province (9.1%).

In terms of regional gross output value, in 2007, Ho Chi Minh City showed its importance, with the highest contribution of 45.0%. The next two positions were Binh Duong province (19.7%), Dong Nai (19.0%). Most of the industrial establishments were small in size and scattered across the region, while large enterprises tended to be located in cities with favorable business environment, like Binh Duong province, Ho Chi Minh City and Dong Nai province. This is especially true in the case of Tay Ninh province. Although the number of operating enterprises in Tay Ninh Province is greater than that in Binh Duong province or Ba Ria–Vung Tau province, the gross output value created by enterprises in the former is much lower than that of the latter (Table 7).

[10] An enterprise may have more than one establishment.

Table 7: Gross Output (GO) Value and the Number of Establishment in Industrial Sector

	Province/ City	2000		2007		Annual Growth rate of Output Value (%)	Change in Number of Establishment (times)
		GO Value (billion VND)	Number of Establishment	GO Value (billion VND)	Number of Establishment		
1	Tay Ninh	1,505	5,316	5,265.0	7,097	19.59	1.34
2	Binh Duong	9,198	3,342	65,878.0	6,662	32.48	1.99
3	Dong Nai	17,922	7,604	63,538.6	11,883	19.82	1.56
4	Ba Ria- Vung Tau	29,069	3,165	48,709.8	4,791	7.65	1.51
6	Ho Chi Minh City	57,599	27,870	150,065.0	42,261	14.66	1.52
7	Long An	-	-	-	-	-	-
8	Tien Giang	-	-	-	-	-	-
A	Whole Region	115,293	47,297	333,455	72,694	16.38	1.54

Source: MPI , 2010.

A glance at the distribution of industries across major city/provinces showed that:

- Major industries that contributed significantly to the development of Ho Chi Minh City included: Machinery, garments and textiles, leather and shoes, plastic and agriculture and forestry processing industry, electronic and electrical appliance industry, chemical industry, pharmaceuticals, construction material and non-metallic industry, and other transportation vehicle industry.
- In Binh Duong province, many enterprises took part in the agriculture and forestry processing industry, the machinery industry, especially supporting industries for automobile assembly industry, the garments and textiles industry and the construction material and non-metallic industry.

- In Dong Nai province, enterprises specialized in the agriculture and forestry processing, automobiles and trailer, garments and textiles, electronics and electrical appliance and construction material and non-metallic industries.
- In Ba Ria–Vung Tau, enterprises invested in the mining, food processing, garments and textiles, shoes and leather, construction material and non-metallic, electricity and gas industries.

As an economic center of Vietnam, Ho Chi Minh City is responding to the growing need for financial and business services in the country by shifting from being a manufacturing base to become the financial and service center of the region, as well as of the country. Generally, firms that are providing financial and business services often locate in the center of large cities to utilize the existing business infrastructure, such as modern offices that are equipped with high-speed internet access. Finding more space for manufacturing in Ho Chi Minh City is becoming more difficult due to high rental prices (Table 8).

Table 8: Rental price of Industrial Estate across Provinces/City

(Unit: US$/$m^2$/year)

Ho Chi Minh City	1.98 US$/$m^2$/year - 2.67 US$/m^2/year
Binh Duong	0.52 US$/$m^2$/year - 1.04 US$/m^2/year
Ba Ria - Vung Tau	0.76 US$/$m^2$/year - 1.50 US$/m^2/year
Dong Nai	0.03 US$/$m^2$/year - 1.65 US$/m^2/year
Tay Ninh	0,70 US$/$m^2$/year
Long An	0.66 US$/$m^2$/year - 1.30 US$/m^2/year
Tien Giang	0.44 US$/$m^2$/year

Source: Calculated by the author.

The cost of leasing land for industrial production in Ho Chi Minh City is much higher than in other provinces in the Greater Ho Chi Minh area (Table 8). With the exception of Tien Giang and Long An provinces, where industrial zones have not yet developed, other provinces have attracted a lot of FDI and domestic enterprises. Among these provinces, Binh Duong province seems to have advantages in attracting investment for having not only lower average rental price compared with other provinces of the development rectangle but also good transportation infrastructure and industrial structure. Although the lease price in Tien Giang province and Long An province are low, much of the efforts should be paid to develop transportation infrastructure, especially bridges to connect them with ports and airports to create an incentive for attracting FDI and private enterprises.

EPZ and Industrial Zone Authorities are planning to focus on enhancing infrastructure and engaging in investment promotion activities aimed at raising the occupation ratio. In addition, new EPZs are needed to be established in the future. After 2010, provinces and cities will be allowed to further consider establishing or widening industrial zones and EPZs based on what they have learned from the development of current industrial zones and EPZs. According to the master plan of development to 2020, Ho Chi Minh City will have 22 export processing and industrial zones, with total area of 5,918.47 ha.

With cooperation among Ho Chi Minh City, Binh Duong province, Dong Nai province and Ba Ria–Vung Tau province, the trend of specialization among cities/provinces in the Greater Ho Chi Minh area will become clearer for international and domestic investors. While Ho Chi Minh City is developing new urban areas to become the financial and business center, Binh Duong province is investing in other

infrastructure, such as universities and hospitals that meet international standards, to become the region's human resource center. Dong Nai is focusing on higher value-added manufacturing industries and Ba Ria–Vung Tau will specialize in logistics services.

This trend of specialization among provinces/cities within the Greater Ho Chi Minh area can be found in the Ministry of Planning and Investment (MPI) Reports on General Project for the Socio-economic Development of the South-Eastern Area Toward 2020, (2010), which discusses the orientation of the region's development. In that orientation, developing new labor-intensive industries should be limited, especially in large cities. The distribution of industries among provinces in the region should be changing on the basis of each of the location advantages of the nature resources and available spaces in provinces with low growth rates. There are suggestions that industries such as agriculture processing, agriculture supporting industries and textiles and garments should move to Tay Ninh province and Binh Phuoc province[11] and some of these provinces already started to implement this development orientation, creating a trend of redistributing enterprises from Binh Duong province to Tay Ninh province.

2.3. Future development of Industrial Estates, EPZ, SEZ in Greater Ho Chi Minh

The viewpoint of government on future development of industrial zones, EPZ and SEZ could be summaries as following:

General view point:

- Taking a long-term view on the development of industrial zones with socio-economic and environmental efficiency as utmost objectives in line with

11 MPI, (2010), p.49.

development orientation of the whole country as well as regions in the country.

- Prioritizing industrial structure reform and measures to shift the industrial structure in the region's industrial zones toward the development of high-tech industries and industries that require less land occupation. Prioritizing industries with high level of investment capital/hectare (operating and production investment capital/hectare)
- Facilitating favorable conditions for the development of high-tech industrial zones to foster industrialization in the region and country wide.
- Limiting the intensification of industrial zones in Ho Chi Minh City, Bien Hoa city of Dong Nai province as well as Ho Chi Minh City's outskirts. Projecting industrial estates so that the infrastructure advantages of other provinces within the region could be utilized toward even and sustainable development among provinces in that region.
- Establishing residential and industrial belts in the East Southern Region to limit the development of new industrial estates within Ho Chi Minh City. Facilitate favorable conditions on land, services and infrastructure to enable the development of large-scale combined developments of industry, services and residential, similar to the high-tech residential models in Long Thanh, Phu My, Binh Duong and Binh Phuoc.
- Industrial zones in these combined developments will be designed to attract large-scale production and low skilled requirement industries such as textiles, footwear, garments industry; those industries that require shipping large volumes of production materials, as well as finished products, etc. Residential areas in these combined developments will accommodate not only labor from within the Greater

Ho Chi Minh area but also immigrant labor from outside the region, thus reducing the pressure of housing and transportation demand in the center of Ho Chi Minh City.

- Technical infrastructure systems, especially transportation systems, need to be established to links these combined developments with international ports such as Thi Vai Deep Water Seaport, Long Thanh International Airport. This belt has 2 routes: North East and South West. The North East route starts from Thi Vai port to the east of Long Thanh International Airport via Thong Nhat District of Dong Nai province, south of Tan Uyen, south of Ben Cat, and north Cu Chi, reaches Moc Bai border gate, and links with Trans-Asia Highway to Cambodia. The South West route starts from the contact point of the North East route with Ho Chi Minh road, goes along this road to Duc Hue before linking with No.2- Duc Hoa-Thanh Hoa at Thu Thua, and then goes between the two Vam Co Rivers toward Can Duoc and Tan Tap port on the Soai Rap river.

In addition to the general viewpoints above, the government also expressed its specific viewpoint with relation to the allocation of industrial zones toward the general target of sustainable development for the whole country as following:

- Developing industrial clusters in district centers of six regional provinces/cities:
  - Allocating these industrial zones toward the formation of a “cluster” of industrial zones having cooperation within the region. In the Greater Ho Chi Minh City area, the central industrial “cluster” includes high-tech parks, export processing zones (EPZs) and industrial zones of Ho Chi Minh City.
  - A cluster of industrial zones covering industrial complexes and industrial estates of Bien Hoa city, Thu Dau Mot, Nhon Trach city.

- A south-eastern industrial “cluster” to be located along the National Road No. 51, which includes industrial zones of Vung Tau, Phu My, Chau Duc, and along the Thi Vai River.
- An eastern industry “cluster” to be located along National Road No. 1A, which includes Bau Xeo and Long Khanh industrial zones.
- A western industry “cluster” to be located along National Road No. 13, which includes Chon Thanh, Hoa Lu and My Phuoc industrial zones.
- A north-western industry “cluster” to be located along National Road No. 22, which includes Trang Bang, Go Dau, Moc Bai, Xa Mat border gate and Bourbon An Hoa industrial zones;

- Develop industrial zones in conjunction with the development of satellite residential areas. These industrial zones will be positioned at the outskirt of large cities. In addition, industrial cluster of large scale cities. In particular,

- Establishing residential areas with population of 70,000-100,000 in Phu My, Long Son, Long Hai (Ba Ria-Vung Tau), Di An, Tan Uyen (Binh Duong), Tam Phuoc, Nhon Trach (Dong Nai)
- Establish a new residential area of 6,000 hectares along the border of Ho Chi Minh City and Tay Ninh (Duc Hoa, Trang Bang and Cu Chi). For other large residential areas, synchronously refurbish and modernize the inner districts and upgrade infrastructure such as electricity, water supply and sanitation systems, especially urban transport systems.

3. PORTS AND HARBORS

3.1. The Role of Ports in the Greater Ho Chi Minh Area

Rivers play an important role in the development of the Greater Ho Chi Minh City area. For the agriculture sector, they not only provide water to irrigate paddy fields in the southern region, which is known as the rice "basket" of the country, they also provide an efficient and economic means of distributing agriculture products. For the industrial sector, rivers also play important roles in shipping materials to the production base and final products to the market and, in many sectors, the rivers also provide water for industrial production.

There are three rivers that cross some provinces/cities of the Greater Ho Chi Minh area, namely Dong Nai River, Sai Gon River, and Tien Giang River (a branch of the Cuu Long River in Vietnam and the Mekong River).

The Dong Nai River is the second largest river in the Southern area. Rising in the central highlands, Lam Dong, it flows west and southwest, crossing Dong Nai province, Binh Duong province and Ho Chi Minh City of the Greater Ho Chi Minh area. Along this river, there are two large ports: Cai Lai port and Binh Duong port.

The Sai Gon River, rising from Dau Tieng lake (Tay Ninh province), crosses Binh Duong province and Ho Chi Minh City before joining the Dong Nai River, southwest of Bien Hoa.

The southern region, which includes the Greater Ho Chi Minh area, can be differentiated from other regions in Vietnam, in that it has developed a large waterway network that facilitates transportation. Its rivers have a number of branches, which supports people trading large volume of commodities and continued development of

river ports will be key to future prosperity in the region.

In the Greater Ho Chi Minh area, most of the trading activities concentrate on these two rivers above. Currently there are 24 ports, with total area of 857 hectares, located along the two rivers within the Greater Ho Chi Minh area (Table 9). These ports provide shipping services for a variety of cargo, which is either loaded onto containers or transported in bulk. Over the past decade, this system had handled millions of tons of cargo. The throughput of these ports increased two fold, from more than 32 million tons in 2003 to more than 73 million tons in 2009 (Table A.4 in Appendix).

In the Greater Ho Chi Minh area, Sai Gon Port has the highest throughput, supporting both import/export activities (Table A.4 in Appendix). Over the past 130 years of development, this port has contributed significantly to the region's economic growth.

Saigon Port is an international port in the Southern of Vietnam. It has 5 terminals, namely NhaRong, KhanhHoi, TanThuan I, TanThuan II and CanTho, with 2,830 meters of wharves, 250,000 square meters of open yards, and 80,000 square meters of warehouses (Table 10). Recently, Saigon Port has started providing container transshipment services.

Compared with Sai Gon Port, Saigon Newport Company (SNP) is much younger with only 21 years of operation. By 2010, Saigon Newport Company (SNP) was changed to Saigon Newport Corporation under the SOEs reform with ten subsidiaries along the country. Nevertheless, SNP has become the most modern, professional and biggest container terminal operator in Vietnam, with seaport operation services that include: cargo handling, logistics, maritime services, salvage, pilot, multi-modal

transportation services. The import/export container throughput of SNP accounts for more than 80% of the market share in the Greater Ho Chi Minh area.

Table 9: Port System in Greater Ho Chi Minh Area

No	City / Province	Name of the Port	Area (hectares)	Function
1	Binh Duong	BinhDuong Port	4.5	Container, General Cargo, Oil (food)
2		TanCang - SongThan ICD	50.0	
3	DongNai	DongNai Port	44.3	Container, General Cargo
4	DongNai	NhonTrach Newport Deport (Dong Nai)	0.8	International container terminal
5	DongNai	LongBinh Newport ICD (Dong Nai)	230.0	International container terminal
6	Ho Chi Minh	CatLai Newport	80.0	International container terminal
7	Ho Chi Minh	Vietnam International Container Port	20.0	Container
8	Ho Chi Minh	Newport ICD	38.2	Cargo, Container
9	Ho Chi Minh	CatLai Newport	80.0	
10	Ho Chi Minh	Saigon Port	50.0	General Cargo, Bulk Cargo, Steel, Container, Passenger
11	Ho Chi Minh	BenNghe Port	32.0	Container, General Cargo
12	Ho Chi Minh	Tan Thuan Dong Port	3.0	Cargo (Dry)
13	Ho Chi Minh	Vegetable Port	7.2	General Cargo, Bulk Cargo, Steel, Container, Passenger
14	Ho Chi Minh	Cat Lai Petroleum Port	12.6	Petro Oil
15	Ho Chi Minh	Saigon Petro Port	26.0	Petro Oil, Liquidize Gas
16	Ho Chi Minh	NhaBe Petroleum Port	130.0	Petroleum
17	Ho Chi Minh	BongSen Port	15.0	Container, General Cargo
18	Tien Giang	MyTho Port	4.5	Container, Cargo (Dry)
19	Ba Ria - Vung Tau	Ben Dam Port (Con Dao)	4.4	General Cargo, Passenger
20	Ba Ria - Vung Tau	CaiMep Interflour Port	5.0	General Cargo
21	Ba Ria - Vung Tau	CaiMep Newport (BaRia - VungTau)	60.0	International container terminal
22	Ba Ria - Vung Tau	SP-PSA Port	27.0	Container
23	Ba Ria - Vung Tau	Ba Ria Vung Tau Commerce Port		Container, General Cargo, Liquid
24	Ba Ria - Vung Tau	Phu My Port	13.0	General Cargo

Source: Survey by VIE.

Table 10: Wharves of Saigon Port

Terminal	Quay	Length	Depth
NHARONG	MM1	139 m	-9.1m
KHANHHOI	MM2	142 m	-9.1m
	MM3	141 m	-9.1m
	MM4	147 m	-9.1m
	K1	119 m	-8.2m
	K2	146 m	-8.2m
	K3	95 m	-8.2m
	K4	94 m	-7.3m
	K5	110 m	-7.3m
	K6	116 m	-7.3m
	K7	128 m	-7.3m
	K8	117 m	-10.0 m
	K9	100 m	-10.0 m
	K10	140 m	-10.0 m
TANTHUAN I	K12	188 m	-11.0 m
	K12A	132 m	-11.0 m
	K12B	204 m	-12.1 m
	K12C	189 m	-11.0 m
TANTHUAN II	TT2	222 m	-10.5 m
PHUMY		230 m	-14.0 m
BARGES	K12C1	70 m	

Source: Survey by VIE.

Within the Greater Ho Chi Minh area, Saigon Newport Corporation includes: Saigon Newport Terminal, Newport-Cat Lai Terminal, Newport-Hiep Phuoc in Ho Chi Minh City, and Newport-Cai Mep deep sea terminal in Ba Ria-Vung Tau (Figure 1). In addition, Saigon Newport also set up many International Container Depots (ICD, e.g. Newport-Song Than ICD in Binh Duong province, Newport-Long Binh ICD in Dong Nai province, Newport ICD in Ho Chi Minh City, and Nhon Trach depot in Dong Nai. It also provides logistics services and established barging routes connecting Cambodia, Mekong Delta to Newport-Cat Lai, ICDs in Ho Chi Minh City, and terminals in Cai

Mep.

Newport–Cai Mep, international container terminal, located in Tan Thanh District is a deep water port in Ba Ria-Vung Tau, 5 km away from the Cai Mep–Thi Vai confluence and 33 km away from the Vung Tau pilot station. Currently, the flow of cargo from industrial estates in Dong Nai province to the port uses waterways. Nevertheless, after National Road No. 51 has been upgraded, manufacturers will be able to save time and distribution costs by trucking goods from their place of manufacturing to final destinations via Newport–Cai Mep. Currently the port can accommodate vessels of up to 110,000 DWT (over 9.000 TEU).

Figure 1: Newport – Cai Mep

Source: Survey by VIE.

Berth information:

- Length 300 m
- Starting day of construction: 9 January 2007
- Completed day: 31 August 2008
- Operation day: 3 June 2009
- Expected productivity per vessel: 3 cranes x 30 moves/crane
- For vessels with capacity of 110,000 DWT

Water draft:

- Water depth at berth: 14.5 meter
- Saigon Newport is opening tender for deepening water depth in front of CaiMep berth.
- The dredging works here was started from August 15 and was completed by November 30, 2008
- The minimum water depth at berth after dredging: 15.8 m

3.2. Future Development

In Vietnam, the development of the port system is under the control of Ministry of Transport. Recently, the Prime Minister approved the seaport development project, subject to the submission from the Ministry of Transport. The general orientation is promoting the development of the nation's seaports system to accommodate the industrialization and modernization of the country in the next decade.

Concrete targets include: (1) guaranteeing the county's import/export activities; (2) Concentrating on construction of deep water seaports that can accommodate container vessels of 4,000–8,000 TEU or over and vessel of 80,000–100,000 DWT; (3) Upgrading and deepening the berths and equipping them with modern facilities to enhance productivity and international competitiveness of the seaports.

According to the development project, eight waterway routes, managed by the central government, in the Greater Ho Chi Minh area will be upgraded to serve the

needs of residents and promote tourism in the area. They include: 332 km of the Sai Gon – Ca Mau route (passing Te channel, Doi channel–Xa No), 320 km of the Sai Gon – Kien Luong (Kien Giang province) route, 288 km of the Sai Gon–Ha Tien route, 129 km of the Sai Gon–Moc Hoa route, 156 km of the Sai Gon–Ben Keo (Tay Ninh province) route, 127 km of the Sai Gon – Dau Tieng route, 94 km of the Sai Gon – Hieu Liem (Dong Nai river) route and 55 km of the route connecting with the Thi Vai river.

For the river ports in the Greater Ho Chi Minh Area, the government plans to upgrade the Ton That Thuyet, Phu Dinh and Long Binh ports in Ho Chi Minh City so that their overall capacity could increased to 3.9 million tons/year and be able to accommodate vessels of 300 DWT (500 DWT in case of Long Binh port) or barges of 250–600 DWT.

Other ports on the Saigon River (Ba Lua and An Tay) will upgrade to accommodate vessels of 300 DWT or barges of 400 DWT with total capacity of 1.1 million tons/year. In Dong Nai River, capacity of Long Binh Tan port will upgrade to 1.0 million tons and accommodate vessels of 5,000 DWT or barges of 300–500 DWT.

The master plan for seaport development project classified seaports in Greater Ho Chi Minh area into Group No. 5 (Table 11 summarizes the development projects for group 5). This group has been divided into three sub-groups: Ho Chi Minh City group, Ba Ria–Vung Tau sub-group and Dong Nai sub-group.

Ports in the Ho Chi Minh sub-group (Nha Be, Cat Lai and Hiep Phuoc ports) will be developed to handle bulk vessels of 10,000–30,000 DWT, liquid cargo vessels of 15,000–30,000 DWT and passenger vessels of 50,000 GRT, raising its throughput to 35 million tons by 2020 and 326,000 rounds of passenger per annum.

Table 11: Development Project of Port System in Greater Ho Chi Minh Area (Continues)

Name of Port	Current Situation	Size of ship (1,000 DWT)	Function	2015 Capacity (million ton/year)	2015Ship size (1,000 DWT)	2015 Capacity (million ton/year)	2015 Ship size (1,000 DWT)
Vung Tau Port	In operation		National general, international gateway, IA type				
Cai Mep, Sao Mai Ben Dinh berth area	In operation	10-50	Container, specialized wharf	55.0 - 60.0	80 - 100 (6000 - 8000 TEU)	75.0 - 80.0	80 - 100 (6000 - 8000 TEU)
Phu My, My Xuan berth area	In operation	10 - 30	Mixed, container, specialized wharf	20.0 - 25.0	50 - 80 (4000 - 6000 TEU)	25.0 - 30.0	50 - 80 (4000 - 6000 TEU)
Long Son berth area	Not yet	-	Specialized for refinery, mixed wharf	20.0 - 22.0	200 - 300 (import crude oil); 30 - 80 (others)	28.0 - 30.0	200 - 300 (import crude oil); 30 - 80 (others)
Dinh River wharf zone	In operation	5 - 20	Specialized for oil exploitation, rig reparation, local level general function	3.5 - 3.8	5 - 30	4.5 - 5.0	5 - 30
Sao Mai - Ben Dinh passenger berth	Not yet	-	Passenger berth tourism service contact	100 GRT (passenger ship)	-	100 GRT(passenger ship)	
Con Dao wharf	In operation	1 - 5	Satellite local	0.5 - 0.6	1 - 5	0.8 - 1.2	1 - 5
Dong Nai port	In operation		National level general function, local level contact, I type				
Phuoc An, Go Dau berth area	In operation	5 - 15	General function, container, specialized wharf	6.5 - 8.0	30 - 60	15.0 - 18.0	30 - 60

Table 11: Development Project of Port System in Greater Ho Chi Minh Area (Continued)

Name of Port	Current Situation	Size of ship (1,000 DWT)	Function	2015 Capacity (million ton/year)	2015Ship size (1,000 DWT)	2015 Capacity (million ton/year)	2015 Ship size (1,000 DWT)
Phu Huu, Nhon Trach berth area	In operation	5 - 20	Specialized, general berth	4.5 - 6.0	10 - 30	10.0 - 12.0	10 - 30
Berth area on Dong Nai River	In operation	1 - 5	Local level general and specialized function	1.2 - 1.5	3 - 5	2.0 - 2.5	3 - 5
Ho Chi Minh City Port	In operation		National level general function, local level contact , I type				
Hiep Phuoc berth area	In operation	10 - 20	General function, container, specialized wharf	18.0 - 20.0	20 - 50 (4000 TEU)	45.0 - 50.0	20 - 80 (4000 - 6000 TEU)
Cat Lai berth area	In operation	20 - 30	General function, container, specialized wharf	25.0 - 30.0	20 - 30	20.0 - 22.0	20 - 30
Berth area on Sai Gon River, Nha Be	In operation	10 = 30	Local level general and specialized function	8.0 - 10.0	10 - 30; 50 - 60 GRT (passenger ship)	10.0 - 11.0	10 - 30; 50 - 60 GRT (passenger ship)
Can Giuoc, Go Cong berth area on Soai Rap River	On project		Local level general and specialized function	2.0 - 2.5	20 - 50	5.0 - 6.0	20 - 50

Source: Survey by VIE.

Ports in Ba Ria-Vung Tau sub-group (Phu My and Cai Mep areas) will be enhanced to accommodate bulk cargo vessels of 30,000–70,000 DWT, container vessels of 50,000–80,000 DWT equivalent, liquid cargo vessels of 25,000-70,000 DWT, and passengers vessels of 100,000 GRT. The throughput capacity of this subgroup will be 41 million tons in 2020. This sub-group will become the gateway of this region in the future.

The final sub-group in Dong Nai province will upgrade to accommodate general cargo vessels, bulk cargo vessels of 15,000–30,000 DWT, and liquid cargo vessels of 15,000–30,000 DWT.

In addition to the upgrade schedule, the master plan is also designed to reallocate other ports on the SaiGon River, including BaSon factory out of inner Ho Chi Minh City to alleviate traffic congestion in the center and facilitate logistics services for the region.

3.3. Implementation Process

Some of the development projects under the master plan have been implemented, as follows[12]:

Ho Chi Minh City port:

- HiepPhuoc area on SoaiRap River: Two wharves of Saigon Premier container terminal were put into operation. Saigon–HiepPhuoc berths are under construction (Replacing existing NhaRong – KhanhHoi area of Saigon Port). These berths are

[12] This section is extracted from the summary of execution situation of seaport development project as per approved master plan (presented at the conference dated March, 09th 2010).

being constructed to accommodate vessels 50,000 DWT or container 4,000 TEU.

- Cat Lai area on Dong Nai River continues to upgrade and expand to be able to accommodate general container vessels of 30,000 DWT.

Dong Nai Port:

- Go Dau – My Xuan: This area is under investment preparation phase, with the promotion of building new general and dedicated berths for vessels 10,000 - 30,000 DWT; Activities such as survey and detailed design are being undertaken and construction design is planned to submit at either the end of 2010 or at the beginning of 2011.
- Phuoc An area: Completing investment preparation for general container berth for vessels of 50,000 DWT and logistics, investment and construction proposed beginning early 2011.
- Phu Huu – Nhon Trach: Investment preparation for some dedicated berths accommodating vessels of 10,000-30,000 DWT.

Ba Ria–Vung Tau Port:

- Cai Mep berth area: Two Cai Mep container berths (finance by Japan ODA), two SP-SSA container berths (finance by Vinaline, Saigon Port and SSA America), two CMIT container berths (finance by Vinaline, Saigon Port and Mark Lines) are under construction and plan to put into operation during 2010 - 2011. Two of the four container berths out of New Port have been put into operation for the first phase. Cai Mep Germadept and Cai Mep Ha general container berths have accomplished the investment preparation phase and are transferring to the detailed

design phase. These berths are designed to accommodate vessels container vessels 6,000 TEU, 80,000 DWT or more.

Phu My berth area – Thi Vai:

- Two of the four SP-PSA container berths have been put into operation. These berths safely accommodated the first vessel of 109,000 DWT in February 2010. Two "Thi Vai" general berths are under construction (finance by Japan ODA), Three other SITV container berths for vessels of 50,000–60,000 DWT are under construction with the plan to complete and put into operation by the end of 2010
- Dedicated berths of riverside large-scaled industry – service premises for accommodating vessels of 30,000–60,000 DWT have been put into operation for the first phase, continuously constructed and improved, including Posco Steel Mill berth, Phu My Steel, Petro service, Phu My electricity.

Long Son and Ben Dinh–Sao Mai area:

This area is under the investment preparation phase. Activities such as detailed survey and design are going to complete.

4. AIRPORTS IN THE GREATER HO CHI MINH AREA

4.1. Current Situation

The only international airport currently operating in this area is Tan Son Nhat International Airport, located at Tan Binh District. Before 2008, the Southern Airports

Authority (SAA), an agency of Civil Aviation Administration of Vietnam (CAAV)[13], managed the operation of this airport. From 2008, the Southern Airports Authority had reorganized to establish the Southern Airports Cooperation (SAC) with registered capital of VND 4.109 billion (USD 241.8 million - 2008).

The GDP growth rate of the economy over the past ten years (2001-2010) is expected to average 7.2% per annum. Together with successfully controlling the birth rate, this achievement helped Vietnam in raising its GDP per capita to around US$ 1,200 by 2010[14] and moved from less developed country (LDC) designation to become a low-middle income country. In the Greater Ho Chi Minh area, Ho Chi Minh City achieved the highest level of GDP per capita.

Thanks to the economic growth and increased personal income, the Vietnamese people's demand to travel by air is increasing annually. The frequency of flights to and from Ho Chi Minh City, though varying across observed years, showed an increasing trend (Figure 2). Between 2000 and 2008, the number of domestic and international flights to and from Tan Son Nhat Airports increased by nearly 2.04 times and 1.32 times, respectively. This allowed both domestic and foreign carriers to adapt to the increasing travelling demand to and from Vietnam, as well as to the increased demand to ship cargo timely across countries and/or regions.

One of the interesting points from Figure 2 is that the number of domestic flights is gradually catching up with the number of international flights. This implies that the

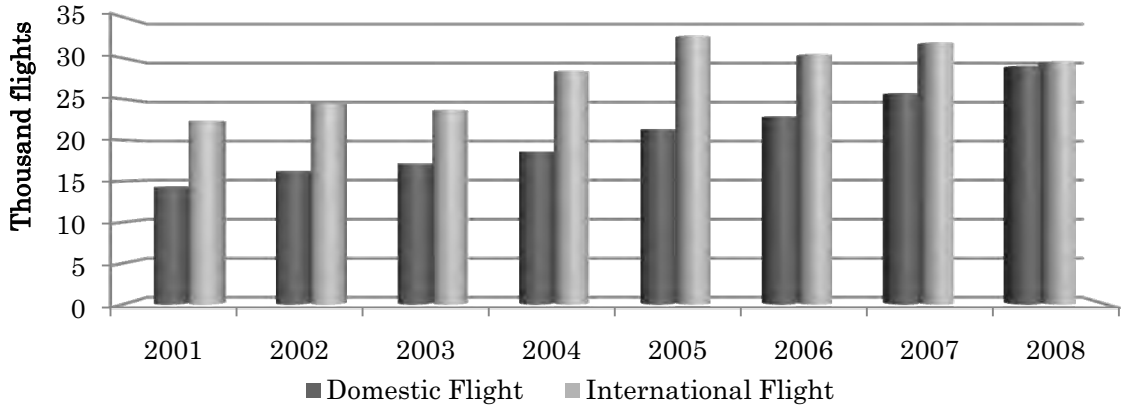
[13] The Government of Vietnam decided to re-establish the Civil Aviation Administration of Vietnam (CAAV) on 30 June 1992. In 1995, the Government decided to manage CAAV directly by Resolution No. 32-CP, dated 22 May 1995. In 2002, under Decision No. 121/2002/QD-TTg, the governance of CAAV was assigned to the Ministry of Transport of Vietnam. In 2009, the Prime Minister signed Decision No. 94/2009/QD-TTg to regulate the functions, tasks, rights and organization structure of CAAV.

[14] MDG 2010 report (2010).

significant improvement in personal income had allowed Vietnamese people to travel by air more frequently. This point can be seen more clearly when we look at the trend of domestic passenger vs. international passenger. (Figure 3)

Due to the impact of global economic crisis, the number of passengers (both international and domestic) declined in 2008 compared with 2007. Nevertheless, it was the first time the number of domestic passengers surpassed the number of international passengers. This also implies that the load factor is higher for domestic flights than for international flights. In 2009, the total number of (both international and domestic) passengers handled by Tan Son Nhat Airport surpassed 13 million and the Airport handled more than 330 flights per day[15].

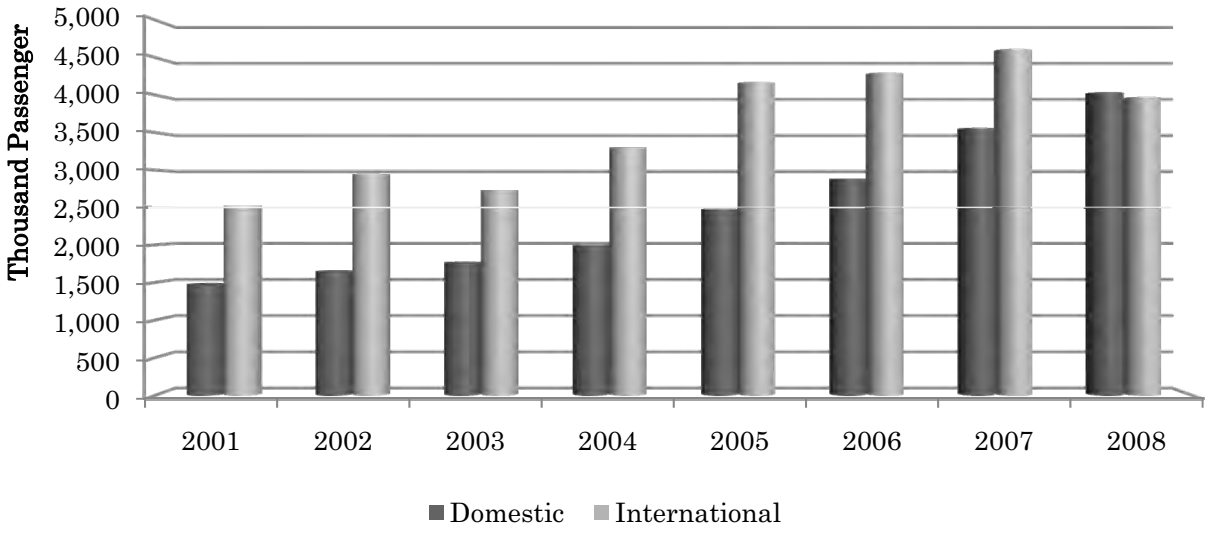
Figure 2: Number of Flight to and from Tan Son Nhat Airport



Source: Calculate from the survey data of VIE.

[15] According to in-depth interview with Southern Airports Cooperation (SAC)

Figure 3: Number of Passengers to and from Tan Son Nhat Airport



Source: Calculate from the survey data.

4.2. Alternative development project

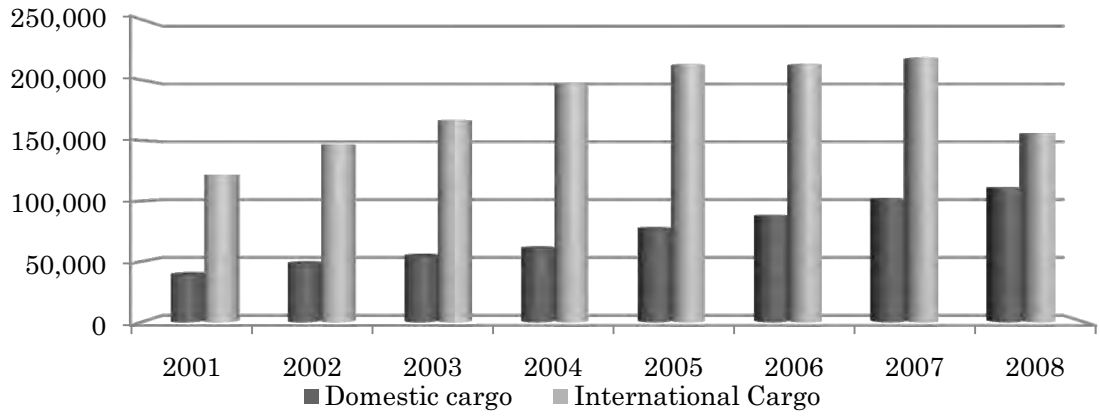
With an increase in the number of enterprises invested in Ho Chi Minh City, especially FDI enterprises, the demand for shipping cargo (materials as well as final products) by air internationally also increased. Figure 4 also demonstrates that domestic cargo transportation has tended to grow gradually and does not appear to have been affected by the global economic crisis. Nevertheless, international demand felt sharply, leading to a decline in the amount of cargo shipped, as well as the revenue of shipping international cargo to and from Tan Son Nhat airport.

In order to meet the increasing demand for transportation to and from Ho Chi Minh City, Tan Son Nhat Airport needs to upgrade its capacity so that it could operate normally. Nevertheless, with the enlargement of Ho Chi Minh City, Tan Son Nhat

Airport is gradually become the source of pollution (both air and noise) like Itami Airport, Osaka in Japan. In addition, the enlargement of the city made the current location of the airport a disadvantage in connecting with places of manufacturing (industrial zones), raising the distribution cost of enterprises there.

In the short-term, the city continues to reform and upgrade Tan Son Nhat International Airport's capacity to meet the requirement of serving 15 million passengers annually and to be able to handle Boeing B-747 or equivalent type aircraft. Nevertheless, due to the disadvantageous location that is the result of the enlargement process of Ho Chi Minh City, the Southern Airports Cooperation (SAC) decided not to further upgrade Tan Son Nhat Airport's capacity.

Figure 4: Quantity of Uploaded Cargo



Source: Calculate from VIE survey data.

Instead of upgrading Tan Son Nhat International Airport, it will continue to invest in Long Thanh International Airport. The designed capacity of Long Thanh International Airport is 80-100 million passengers per year. During the first phase of operation (2015-2020), this airport could reach the designed handling capacity of 20–25 million passengers per year, making it able to handle the forecasted traffic demand to and from Ho Chi Minh City by aviation. When the Long Thanh International Airport starts its operations, some international flights will be rerouted to Long Thanh International Airport instead of Tan Son Nhat International Airport. Nevertheless, the process of rerouting will take time.

5. CITY TRANSPORTATION

5.1. Current Situation

Ho Chi Minh City is facing many development challenges in promoting economic growth. The highest priority in Ho Chi Minh City's action plans is solving the socio-economic infrastructure's bottle-necks, starting with the urban traffic issue.

Transport infrastructure in Ho Chi Minh city is underdeveloped; the lack of a transportation network and the high speed of urbanization are main reasons that have made the traffic issue worse. Researchers forecast that sooner or later this problem will cause economic activity in the city to slow to a standstill unless significant measures to be implemented.[16]

Urban traffic needs are increasing with the process of industrialization and urbanization. Thanks to the boom of economic activities in Ho Chi Minh City, a lot of

[16] Thanh, Nguyen Xuan (2010).

jobs were available not only for residents, but also for people who live in other cities/provinces. Official statistical data showed that the population of Ho Chi Minh City almost doubled after a decade of development. In 1985, the population of the City was over 3.7 million. It increased to over 6.2 million in 2005 and 7.2 million four years later (2009), although the total area of Ho Chi Minh City unchanged over the past decade.

It seems that statistical data has, for a long time, underestimated the true number of population in Ho Chi Minh City. With the establishment of industrial estates in the city, as well as in surrounding provinces, the number of immigrants seeking jobs in the city has grown and is continuing to grow. When they move to the city, of course, their families come with them.

Immigrants are contributing significantly to rapid population growth. Some studies, based on the number of registered vehicles a day, the number of housing construction licenses issued as well as growth of employees in enterprises invested in the city, estimated that the population of Ho Chi Minh City was more than 8.7 million in 2007[17]. Thus, by the year 2009, the population of the city could have increased to 9.8 million based on this estimation method (2.6 million people higher than that of official data in the same year).

In fact, the development of transport infrastructure has not been adequate to keep pace with the increase in population above. To date, road transportation is the only popular mode of urban traffic within Ho Chi Minh City as well as within other cities/provinces in Vietnam. With only 3,800 roads, covering a length of 3,670 km (nearly 4.6% of the country's total length of road), the road capacity of the city is

[17] Dapice, David, *et al.* (2010).

unable to meet the increasing traffic demand.

The inability to accurately forecast the enlargement speed of the city is also contributing to the bad traffic situation. Past projects of city enlargement, establishment of industrial zones, industrial park and processing zones or reallocation of ports did not account for the high speed of urbanization. Therefore, many industrial zones are now located very near the center of the city, rather than in areas adjacent to the city's boundaries, and many ports are still located in the inner city. Demand for transporting commodities between ports/airports and enterprises located at industrial estates around the City has also increased in conjunction with the take-up rates in these industrial estates.

Furthermore, with the ring road systems still under construction, logistics service providers have limited options to bypass the city when trucking goods between industrial estate and ports/airports located in the inner city. This is one of the reasons enterprises' cost of transportation has been rising, since they have to either lie idle to avoid restriction time periods or find another way, which will be longer, to meet the loading requirements at the ports/airports.

The work of Dapice, *et al.*, (2010), showed that official data underestimated the real population of the city by ignoring the fact that immigrants often come with their dependents. Again, this confirmed that actual population of Ho Chi Minh City already surpassed 10 million people[18], 10 years faster than it was forecast in Decision 123/1998/QD-TTG dated 10 July 1998. Projecting the residential area in Vietnam

[18] According to Dapice, *et al.*, (2010), based on the population of the City in 2002 is 6.5 million and the estimated annual growth rate of 6%, then the estimated population of the city in 2010 is 10.3 million people. An in-depth interview with local government in September 2010 also had the same result on the estimation of population in Ho Chi Minh City by the year 2010.

could not ignore the custom that Vietnamese people prefer to live in the center where services such as medical care, education are available rather than at the vicinity of the cities/provinces. Therefore, they are not willing to take jobs far from the center and are willing to spend time travelling to work from the center rather than living far away from it. Immigrants have also contributed to an increase in the number of registered vehicles, mainly motorcycles, over the past years, as they need economic and convenient vehicles to commute.

The combination of an influx of immigrants and the increasing numbers of local residents has led to an overall increase in the number of private vehicles, which, given that road density and number of parking areas are extremely low[19], it is overloading the transportation infrastructure.

Ho Chi Minh City, like other cities and provinces, is lacking a sound transportation network. The process of reallocating ports[20] outside the inner city has been slow compared with the targets set in Decision No.101/QD-TTg dated 22 January 2007.

Road-based transportation is too simple and insufficient and connections between the international airport and other centers, industrial zones are very weak. Therefore, traffic congestion is happening more frequently as the city has grown up and as the need to transport manufactured goods to and from ports and the airport has increased. During rush hours, motorcycles can only move at the 10 km/hour, while cars can move at only 8 km/hour. Traffic congestion is going to cost the city millions of dollars a day.

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[19] Current parking area supports 1/100 of the required area.

[20] According to this decision, Sai Gon New Port, some parts of Sai Gon Port, Tan Thuan Dong Port and the Vegetable Ports need to be moved outside the inner before 2010. Other ports will be moved latter.

5.2. Development Project

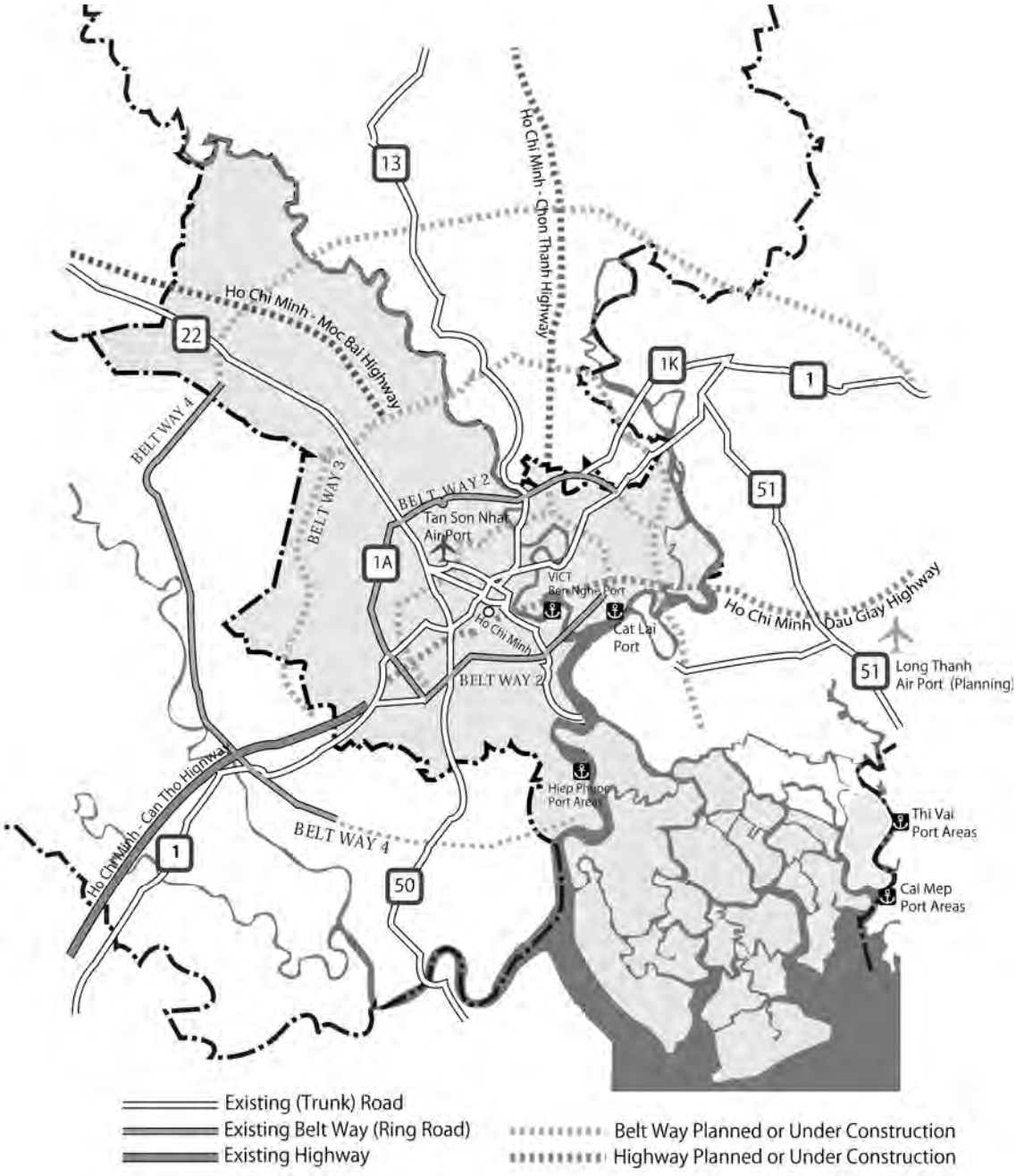
Understanding these situations, the Prime Minister approved a city project for a transport system toward 2020 and a vision for after 2020 under the document No.101/2007/QD-TTg dated 22 January 2007. This project has radius of 30-50 km., including Ho Chi Minh City and surrounding areas, including Tay Ninh, Binh Duong, Dong Nai, Ba Ria–Vung Tau, Long An, Tien Giang, and Binh Phuoc.

To help address the road transportation problems, the project aims to upgrade and improve six radial national roads, (including national roads No. 1 and No.1K, No. 13, No.22, No.50) as shown in Figure 5. In addition, the project calls for constructing and widening two radial roads, constructing 7 highways (including the route Ho Chi Minh City–Vung Tau, Ho Chi Minh City–MocBai, Ho Chi Minh City–Trung Luong–CanTho) and 3 ring roads (including No. 2, No. 3 and No. 4), and constructing and improving 80 different level intersections and upgrading and widening 33 same level intersections.

For rail transport, the project aims at establishing an urban railway system that serve the core of the city by constructing six metros/underground and one monorail (Figure 6). The project will also undertake reforming and upgrading the national railway (including Thong Nhat route in Ho Chi Minh administrative area), building up a new railway system to connect with urban railway and to connect the city with ports (Hiep Phuoc, Cat Lai) or to join the Trans-Asia railway.

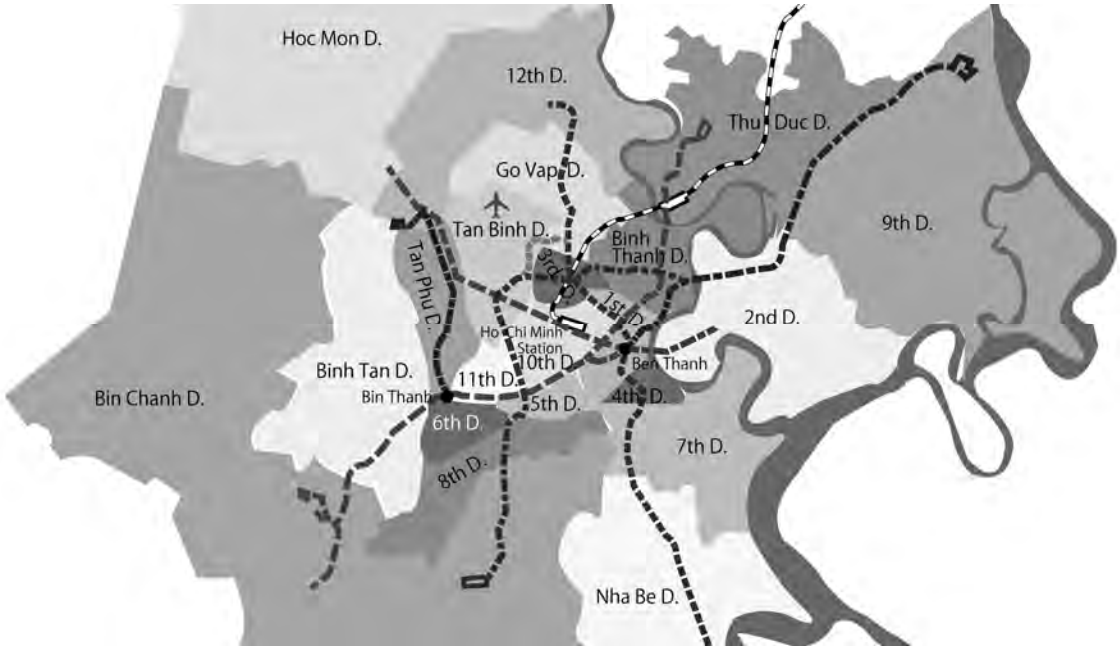
For waterways, the project aims at moving ports (Saigon New Port, some parts of Saigon Port, Tan Thuan Dong Port need to move before 2010) on the Saigon River in accordance with detail project for seaport group 5 made by Ministry of Transport of Vietnam, and constructing and developing ports in Ho Chi Minh City (Cat Lai port and

Figure 5: Development Project of Airport System in Greater Ho Chi Minh Area



Source: Drawn by author and editor in accordance with the Ho Chi Minh City Planning and Investment Office Map.

Figure 6: Urban Railway System (Planning)



Source: Drawn by author and editor in accordance with Ho Chi Minh City Planning and Investment Office Map.

Hiep Phuoc port) Dong Nai and Ba Ria–Vung Tau, so that their throughput capacity will be significantly enhanced by 2020.

CONCLUDING REMARKS

This paper argues that the infrastructure is one of the most important issues that Ho Chi Minh City and surrounding provinces have to cope with in order to sustain their future development. The recent economic boom has changed the Greater Ho Chi Minh City area in a way that went beyond all expectations, so that many development projects in the past quickly became inappropriate in a current context and requires that new

development projects must be introduced. The actual population of the city is growing faster than that which has been reported in statistical data, making the challenges of solving traffic congestion and urban development more difficult. Addressing these problems requires intensified cooperation between local governments, drawing on lessons learned from past experiences, and the central government for the development of urban and economic infrastructure projects.

Even with the development of new river ports and seaports, moving many ports out of the inner of Ho Chi Minh City as well as the development of MRT toward solving the problems of urban congestion, there still are many questions that must be addressed. Among them are the cooperation between local governments and the central government in the overall development strategy of each province/city, lowering the adjustment cost of local government to align with development projects of some central government.

At the current stage, new challenges are emerging under the impact of climate change and the pressure of urbanization. Given the limitation of land for urban development, shifting the usage of wetland as a drainage area for the city when the tide coming to residential area increases the frequency and the level of flooding in some districts of Greater Ho Chi Minh City, threatening the quality of built land roads and raising the cost of developing infrastructure. In addition, changing the habits of generations of Vietnamese people of using motorcycles has not been paid enough effort. Some observations showed that people tend to use motorcycles for travelling even when they owned cars. Therefore, even when the MRT system is available (in the long-term), traffic jams may continue in this area. It also suggests that there needs to be more research on the determinants of using motorcycles in the city and suggestions for

changing this behavior, as well as the prospects for developing new drainage areas for the city so that flooding will not damage the built transport infrastructure as well as other infrastructure that facilitate economic development of the Greater Ho Chi Minh city area.

APPENDIX

Table A.1: List of City and Provinces in comparison with the Southern Economic Focal Zone

No	Southern Economic Focal Zone	Ho Chi Minh City and Its Surrounding Area
1	Ho Chi Minh City	Ho Chi Minh City
2	Dong Nai Province	Dong Nai Province
3	Binh Duong Province	Binh Duong Province
4	Ba Ria – Vung Tau	Ba Ria – Vung Tau
5	Binh Phuoc Province	
6	Tay Ninh Province	Tay Ninh Province
7	Long An Provicen	Long An Province
8	Tien Giang Province	Tien Giang Province

Source: Summary by the author.

Table A.2: Population of the Reseached City/Provinces (2009)

No	City / Province	Area (km^2)	Population (thousand)	Density (people/km^2)
A	The whole country	331,051.0	86,024.6	259
B	The researched area	23,707.0	16,330.6	688
1	Ho Chi Minh City	2,095.0	7,165.2	3,419
2	Dong Nai Province	5.903.0	2,491.3	422
3	Binh Duong Province	2,695.0	1,497.1	555
4	Ba Ria – Vung Tau	1,987.0	996.9	501
5	Tay Ninh Province	4,049.0	1,067.7	263
6	Long An Province	4.494.0	1,438.5	320
7	Tien Giang Province	2.484.0	1,673.9	673
C	Comparision B to A	7.16%	18.98%	

Source: Calculated by the author with data from General Statistic Office.

Table A.3: Land Utilization Across City/Provinces (as of 1st January 2009)

(Unit:Thousand ha)

	Total Area	*Of which*			
		Agriculture	Forestry	Specially used	Homestead
Whole Country	33,105.1	9,598.8	14,757.8	1,629.5	633.9
Region	2,370.8	1,424.5	401.2	223.9	83.0
Tay Ninh	404.9	277.1	69.5	20.9	8.6
Binh Dương	269.5	201.2	12.5	33.8	8.1
Dong Nai	590.3	287.5	179.2	45.2	14.5
Ba Ria - Vung Tau	198.7	106.1	35.2	30.2	4.9
Ho Chi Minh City	209.6	75.3	34.4	30.6	21.2
Long An	449.4	301.8	60.4	43.6	17.2
Tien Giang	248.4	175.5	10.0	19.6	8.5

Source: Summary from SO data.

Table A.4: Cargo Throughput in Greater Ho Chi Minh Area

No	Name	Cargo Throughput (Unit: Metric Ton)							
		2003	2004	2005	2006	2007	2008	2009	Container (TEUs)
1	Ba Ria Vung Tau Commerce Port	85,126	217,274	274,809	414,665	643,480	855,455	578,318	
2	Binh Duong Port				941,822	552,185	355,685	600,000	
3	International Container Port of Vietnam					8,579,970	536,176	3,300,000	
4	Phu My Port	1,422,035		2,267,512	2,633,222	3,001,682	2,743,017	3,132,615	
5	Dong Nai Port	1,420,872	1,620,000	1,612,000	1,814,000	2,922,280	2,803,091	2,365,992	
6	Sai Gon New Port	7,500,000	11,048,823	14,570,000	20,000,000	25,600,000	2,018,104	33,000,000	2,460,000
7	Sai Gon Port	10,888,806	10,533,524	10,744,131	11,127,000	13,618,000	13,165,933	14,008,122	378,226
8	Ben Nghe Port	3,002,584	3,170,000	3,384,000	3,680,000	4,059,990	4,198,829	4,353,556	140,922
9	Tan Thuan Dong Port	358,200	388,258	304,072	314,530	531,353	555,593	695,979	
10	Vegetable Port	939,883	921,634	868,645	991,191	485,003	308,057	299,292	295
11	Cat Lai Petrolium Port	1,427,746	1,428,758	1,207,632	1,306,000	1,100,000	1,100,000	1,971,470	
12	Saigon Petro Port	856,901	1,037,646	1,035,803	941,822	810,400	808,098	982,891	
13	Nha Be Petrolium Port	3,682,416	3,300,000	4,012,112	3,900,000	3,900,000	4,500,000	4,700,000	
14	Bong Sen Port	520,000	517,822	800,000	864,572	1,200,000	1,133,700	1,126,942	
15	My Tho Port	138,267	142,804	172,709	279,710	321,735	286,039	210,132	
17	Ben Dam Port (Con Dao)	85,000	156,000	204,290	236,417	224,350	250,000	265,000	
18	Cai Mep Interflour Port						153,048	271,612	
19	SP-PSA Port							1,056,000	

Source: Survey by VIE.

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