

## CHAPTER 6

# Development of Industrial Estates, Ports, and Metropolitan and Alternative Roads in the Greater Hanoi Area

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**CHAPTER 6**

**DEVELOPMENT OF INDUSTRIAL ESTATES, PORTS,  
AND METROPOLITAN AND ALTERNATIVE ROADS IN  
THE GREATER HANOI AREA**

*Nguyen Binh Giang*

**INTRODUCTION**

While Hanoi has a long history as the capital city of Vietnam, its urbanization has been considerably rapid during the past 20 years. This includes the modernization of inner districts, urbanization of peripheral areas and establishment of new urban districts. The urbanization process has been fed by two major factors: high economic growth (both industry and trade-service sectors) and mass immigration. Today, Hanoi is a first-level local administrative subdivision unit, with the country's second-largest urban population (2,644,536 people<sup>1</sup> or 41% nationally) after Ho Chi Minh City. Provinces around Hanoi also have been rapidly urbanized. A number of cities have been established by being upgraded from towns. Many towns have been established by being upgraded from townships. And, many townships have been newly established. Since the early 2000s, a metropolitan area and indeed a conurbation – the Greater Hanoi area – has been configured.

Urbanization in the Greater Hanoi area is closely linked to industrialization. A lot

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<sup>1</sup> Population census on April 1, 2009.

of industrial parks have been developed or transformed from unconcentrated industrial zones. Manufacturing plants have gradually been moved from Hanoi to industrial parks in its outskirts or in surrounding provinces. Many agricultural lands have been converted into roads, urban new towns, trade centers and industrial parks.

Although development of the transportation infrastructure in Greater Hanoi has not yet caught up with the area's economic growth and urbanization, it has still been impressive during the past two decades. Twenty years ago, few people would have expected an image of Hanoi with modern interchanges, elevated expressways, overfly bridges, pedestrian bridges and foot tunnels. Almost all old barges are now replaced by bridges. The old narrow bridges have been replaced by new large ones. Just 10 years ago, few Hanoians could have imagined that there would be six large bridges crossing the Red River. The Hanoi Government even has plans to develop more new ones. It would also like to construct a tunnel beneath the Red River and the large West Lake.

The first section in this chapter presents the evolution of Greater Hanoi as a metropolitan area. The second section shows the industrial park development of the area. The third and fourth sections examine the extent of harmonization in the transportation network of the Greater Hanoi area.

## **1. METROPOLITAN**

### **1.1. Hanoi's History of Urbanization**

Hanoi recently celebrated its millennial anniversary. During 1,000 years, Hanoi was repeatedly chosen as the capital of Vietnam under the reigns of Ly, Tran (then named Thang Long or City of the Ascending Dragon), Later Le, Mac (then called Trung Do or

Central Capital and Dong Do or Eastern Capital, Tonkin), and Tay Son (then called Bac Thanh or Northern Capital). From 1902 to 1945, Hanoi was the capital of the Indochinese Union, which included Vietnam, Laos, Cambodia, and even Guangzhouwan (modern Zhanjiang, Guangdong, China). Even Hanoi's history prior to the past millennium should be noted. In the 3rd century BC, Hanoi (precisely the Co Loa, Dong Anh) was the capital of the State of Au Lac. In the era of Chinese colonialization, Hanoi (then known as Tong Binh) was the head office of the Protectorate General to Pacify the South (or Annan Protectorate) of the Tang Dynasty.

One reason that Hanoi was chosen as the capital may be its special geographical location, lying at the head of the Red River Delta where many rivers and mountain ranges intersect. Historically, rivers have always been considered important traffic arteries. The big ones such as the Red, Ca Lo and Duong rivers may be seen as highways in modern times, and from Hanoi they reach the whole of Northern Vietnam. The fact that there are many old villages where rivers flow by shows that rivers were not geographical barriers. Even in the French colonial era, rivers held an important position in the transportation system. During industrialization, however, rivers became obstacles and are no longer important transportation infrastructure. The French developed rail and road systems to replace river transport. Bridges were built to cross rivers.

The history of Hanoi's urban development has different phases. Prior to the 19th century, the center of Hanoi was the southern and southeastern area of West Lake or around Ba Dinh District today. From 1888, when Hanoi was ceded by the Nguyen Dynasty to France as leased territory, the French developed a Western-style city there. The urban center of Hanoi was moved to the area of Hoan Kiem Lake. The urban areas

of Hanoi were then concentrated in what are now the eastern area of Ba Dinh District, the entirety of Hoan Kiem District, and the northeast and east areas of Hai Ba Trung District. Serving as transportation in Hanoi were the railway system with Hang Co, Gia Lam and Van Dien as hub stations and Giap Bat and Yen Vien as cargo stations; the tram system that included four lines; and the road system with the Long Bien, Kim Lien and Kim Ma bus terminals. With few manufacturing plants, there were no industrial parks.

After 1954, the central area of Hanoi remained as it was in the French colonial period. In 1961, Hanoi expanded its boundaries and the four urban districts of Ba Dinh, Hoan Kiem, Hai Ba Trung and Dong Da were established. Some new areas of dormitories (*khu tap the*) were developed, including Kim Lien, Trung Tu, Thanh Cong (in Dong Da), Giang Vo (in southern Ba Dinh), Nguyen Cong Tru, Minh Khai (in Hai Ba Trung) and Thanh Xuan Bac (in the former Tu Liem but in Thanh Xuan today.) In the mid-1990s, Hanoi's urban areas expanded with the addition of the Tay Ho (1995), Thanh Xuan and Cau Giay (1996), and Long Bien and Hoang Mai (2003) districts. The downtown area of Hanoi includes the Ancient Quarter (the area of the Thang Long ancient quarters) and the Old Quarter (or the French Quarter at the east and south of Hoan Kiem Lake and old Thang Long Castle).

Downtown, now demarcated by Ring Road 1, is today an area of conservation and limited development. According to a new proposal by Vietnam's Ministry of Construction, however, downtown is to be bordered by Ring Road 2 and the Greater Downtown area will be that between Ring Road 2 and the Nhue River (in the west of Hanoi). The area between the Nhue River and the future Ring Road 4 as well as the Me

Linh, Dong Anh, Long Bien and Gia Lam districts will be a location for new towns.<sup>2</sup> The rapid economic and population growth combined with a lack of urban and transport planning in Hanoi during the past 20 years led to the phenomena of diffuse urban sprawl and *desakota* development, together with unexpected and hard-to-solve problems such as the increasing dependency on motorbikes.

It is remarkable that just as manufacturing plants concentrated to the north of Red River so they could access Noi Bai Airport and Haiphong Port without being obstructed by the river, the expansion of Hanoi southward and westward on the south bank of the Red River was likewise in order to avoid separation by the river. In fact, development of the bridges spanning the Red River had important effects in the urban development of the northern bank of the river. Examples are areas in the Long Bien and Gia Lam districts thanks to the Chuong Duong and Vinh Tuy bridges, the Tu Son area (actually this is in Bac Ninh) thanks to the Thanh Tri and Phu Dong bridges, and Dong Anh and Me Linh thanks to the Thang Long and Nhat Tan bridges.

## **1.2. Urban Agglomeration**

Hanoi's expansion was planned many times, with some plans implemented and others abandoned. In 1961, Hanoi was expanded to the south, north and east. Gia Lam and Dong Anh, and parts of the Dan Phuong, Hoai Duc, Thanh Tri, Tu Liem (in former Ha Dong Province), Tu Son, Tien Du, Thuan Thanh (in Bac Ninh), Yen Lac and Kim Anh (in Vinh Phuc) rural districts were annexed into Hanoi. The size of Hanoi after this expansion was 584 square kilometers. In the late 1960s and early 1970s, there was also

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<sup>2</sup> *VnExpress*, "Hà Nội sẽ có 8 tuyến tàu điện và nhiều đường cao tốc" (There will be eight urban railway lines and many expressways in Hanoi), October 30, 2010. Retrieved on October 30, 2010, from <http://vnexpress.net/GL/Xa-hoi/2010/10/3BA224A3/>.

the intention to expand to Phuc Yen Town and move the administrative center of Hanoi to Xuan Hoa (Xuan Hoa Ward in today's Phuc Yen Town). Some preparatory work was conducted, but the plan was soon canceled.<sup>3</sup>

In the 1980s, Hanoi was expanded to the west by merging Son Tay Town and five other rural districts of the former Ha Son Binh Province, including Dan Phuong, Hoai Duc, Ba Vi, Phuc Tho and Thach That. The size of Hanoi after the second expansion was 2,136 square kilometers. In 1991, however, in order to re-establish Ha Tay Province, those administrative units were split from Hanoi.

On August 1, 2008, the reach of Hanoi was tripled by merging all of Ha Tay Province, the Me Linh District of Vinh Phuc Province, and part of the Luong Son District of Hoa Binh Province (Figure 1). This annexation expanded Hanoi significantly to the north, west and south for a total size of 3,344.6 square kilometers and a population of 6,451,909 people (as of April 1, 2009), of which 2,644,536 were living in the urban area. Hanoi today consists of 10 urban districts (quan), a town (thi xa) and 18 rural districts (huyen).

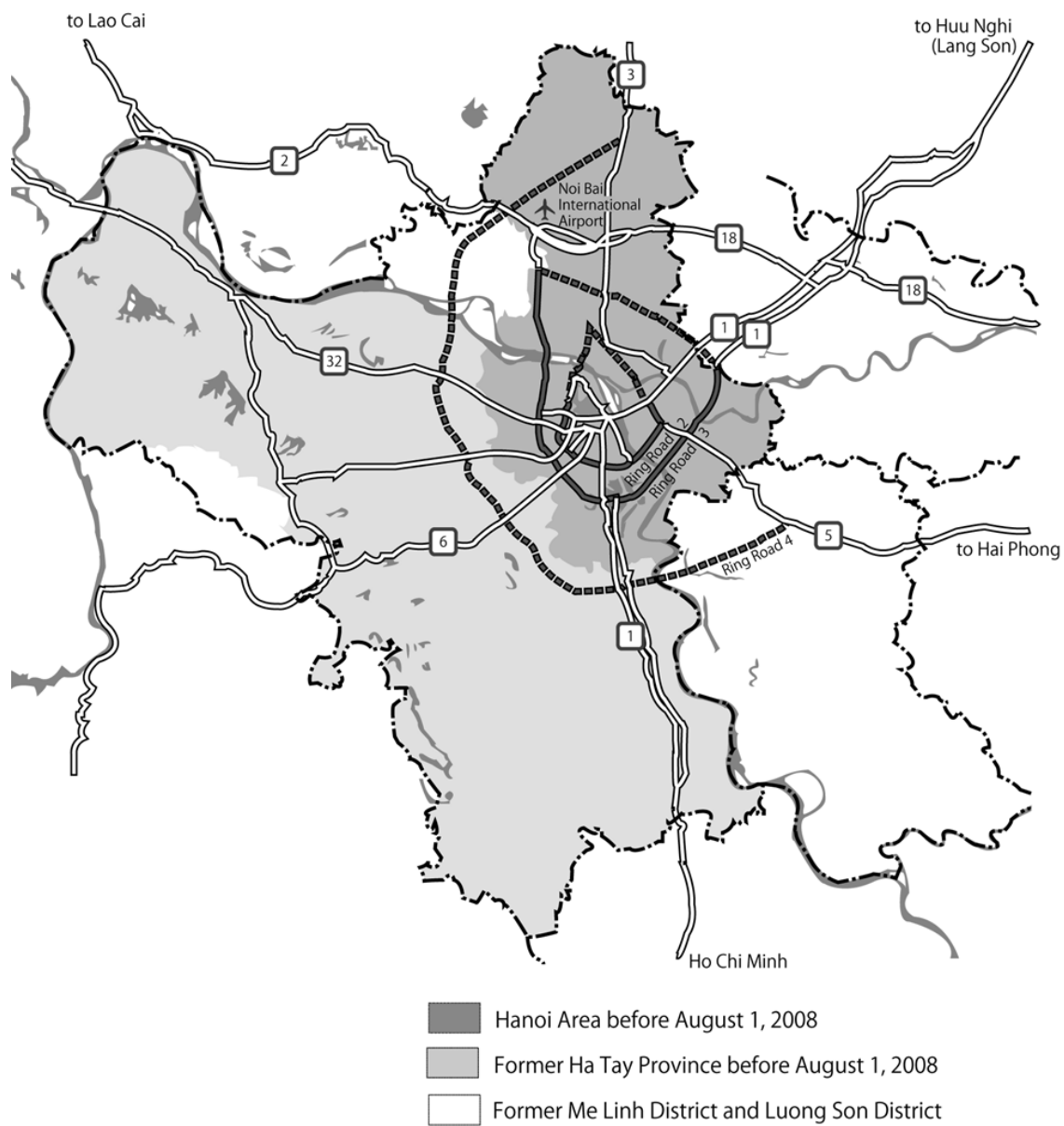
### **1.3. Transboundary Agglomeration**

The Greater Hanoi area has taken shape from the 1990s with the expansion of network traffic into the neighboring provinces, the rapid urbanization in other localities in the region, and the establishment of industry and new urban areas as support for Hanoi. In the early 2000s, a study was conducted by Vietnam's Ministry of Construction on urban planning of the Hanoi Capital Region. This study referenced international experiences

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<sup>3</sup> *Pháp luật Thành phố Hồ Chí Minh*, "Nhân chuyện Ba Vi nhớ thủ đô hut Xuân Hòa (The case of Ba Vi reminds the fail Capital of Xuan Hoa)," June 14, 2010. Retrieved on October 29, 2010, from <http://phapluattp.vn/20100613113955584p0c1085/nhan-chuyen-ba-vi-nho-thu-do-hut-xuan-hoa.htm>.

**Figure 1: The Transborder Agglomeration of Hanoi**



Source: Drawn by author and editor.



and the opinions of foreign experts. On June 11, 2003, Vietnam's Prime Minister issued Decision 118/2003/QĐ-TTg on establishing the steering committee for planning and construction of the Hanoi Capital Region. Five years later, in May 5, 2008, the Prime Minister issued Decision 490/QĐ-TTg to approve the planning for establishing the Hanoi Capital Region through 2020, with a vision to 2050. These decisions created a legal framework for planned development throughout the region.

According to the above Decisions, the Hanoi Capital Region (Vung Thu do Ha Noi) consists of Hanoi and six surrounding provinces, including Vinh Phuc, Hung Yen, Bac Ninh, Hai Duong, Ha Nam and Hoa Binh. The region's population is 12,878,391 people (as of April 1, 2009), of which 3,761,801 live in the urban area. Its size is 13,824.2 square kilometers. The urban area of this region consists of the special-class, centrally-controlled city of Hanoi; the second-class, provincial city of Hai Duong; the six third-class provincial cities of Bac Ninh, Hoa Binh, Vinh Yen, Phu Ly, Hung Yen and Son Tay; and the three fourth-class cities of Tu Son Town, Chi Linh Town and Phuc Yen Town. Hai Duong City will be developed and upgraded to a first-class city and a location for manufacturing. Cities in the western part of the region will be developed into locations for services and high technology but not manufacturing. Cities in the eastern part of the region, including Phu Ly, Tu Son, Bac Ninh, Chi Linh, Vinh Yen and Hung Yen, will be developed into satellites of Hanoi. The areas along the axes from Hanoi to the seaports, that is National Highways 5 and 18, will be developed into engines for economic, industrial and service growth.

## **2. INDUSTRIAL PARKS**

From the 1960s to the 1980s, nine industrial zones were established in Hanoi. These were Thuong Dinh in the western part of Hanoi; Van Dien-Phap Van, Cau Buou and Giap Bat-Truong Dinh in the southern part; Minh Khai-Vinh Tuy-Mai Dong in the eastern area but on the southern bank of the Red River; Duc Giang-Cau Duong in the eastern area on the river's northern bank; Chem and Dong Anh in the northern area of the river; and Cau Dien-Mai Dich in the northwestern part of Hanoi. In the former Ha Tay Province, there were industrial zones in Ha Dong, Thach That and Quoc Oai. During that time, however, there were no incentives in terms of transportation infrastructure, electricity, water supply and wastewater treatment inside and outside the zones. Those zones were not the same as today's industrial parks. With expansion of the Hanoi inner city, some of these industrial zones now are surrounded by dormitory areas.

In the second half of the 1990s, thanks to the policy on establishing industrial parks to attract foreign direct investment, six more industrial parks were established. These are Noi Bai, Thang Long (also called Bac Thang Long) and Nam Thang Long in the northern suburbs, and Sai Dong A, Sai Dong B and Dai Tu in the eastern suburbs along National Highway 5. All of them are on the northern bank of the Red River. The old industrial zones in the suburbs were extended in order to combine with new industrial parks so that plants from the inner city could move out to them. Gradually, the old inner-city industrial zones were removed. Currently, the total number of industrial parks in Hanoi is 17.

Since the early 1990s, when the Government of Vietnam permitted the establishment of export processing zones and industrial parks to attract foreign direct

investment, a lot of industrial parks have been established throughout the country. The Government of Vietnam and the local governments in the Greater Hanoi area have facilitated the establishment of industrial parks. Most industrial parks in the Greater Hanoi area have been developed by Vietnam's major park developers such as Viglacera Land, Kinh Bac Citi, VID Group, Thang Long Industrial Park Corporation, VSIP and VNT.

Industrial Zones Authorities were established in Bac Ninh and Vinh Phuc in 1998, Hai Duong, Ha Tay and Hung Yen in 2003, and Ha Nam in 2007. In 2008, the Haiphong Economic Zones Authority and the Hanoi Industrial and Export-Processing Zones Authority were established. These provincial government organizations were set up to provide assistance to local governments in the overall management of industrial parks, participate in the designing and planning of industrial parks, promote investment into the parks, and develop human resources for them. The organizations also directly invested to develop a number of industrial parks. Such was the case with the Hanoi Industrial and Export-Processing Zones Authority.

Thanks to Hanoi and Haiphong being metropolises and a system of ports, roads and railways, the Greater Hanoi area has become home to many industrial parks. Up to October 2009, the Greater Hanoi area had more than 50 parks in operation, representing 71.2% of industrial parks in Northern Vietnam and 23.3% of those throughout the country. Most of these industrial parks are gathered around the Noi Bai international airport, and Highways 1, 2, 5 and 18 (Table 1). In other words, most parks in the Greater Hanoi area are in favorable geographic locations. Enterprises in different industrial parks can easily link together. This may be the first step of establishing a chain of industrial parks - one of the most important premises for production

agglomeration.

The number of industrial parks under 200 hectares in size is 25, or nearly 50% of the Greater Hanoi area's parks. Notably, there are eight such facilities under 100 hectares, four being in Hanoi, three in Hai Duong, and one in Quang Ninh. The industrial parks over 300 hectares in size account for 29.4% and are mainly concentrated in Bac Ninh. The industrial parks in Greater Hanoi are smaller than those in the Southern Key and Central Key Economic Regions. In particular, industrial parks covering more than 300 hectares account for 38.2% of parks in the Southern Key Economic Region and 33.3% of parks in the Central Key Economic Region.

With one of the highest population densities in the world, the Greater Hanoi region is the heart of the Red River Delta. Many residential areas are located along its roads. This practice of placing houses along or near the large roads makes land clearance for industrial zones in the area difficult. Many industrial park development projects are based on agricultural land clearance to avoid high costs. Consequently, the industrial parks in the region are often small. Many industrial park developers themselves are not big enterprises and do not have enough financial capacity. Some developers do not dare clear the whole land area of approved planning at the beginning but instead wait for new tenants to come to clear the land and make the roads.

Many developers and many small industrial parks compete with each other. Industrial park developers have the same working methods, strategies and projects to attract investment.

**Table 1: Distribution of Notable Industrial Parks in Greater Hanoi Area**  
**(Continues)**

<b>Highway</b>	<b>Province</b>	<b>Industrial parks</b> (only IPs with at least one leasing contract has been signed)
<b>In North of Hong River</b>		
Highway 5	Hanoi  Hung Yen       Hai Duong	<ul style="list-style-type: none"> <li>• Dai Tu</li> <li>• Sai Dong B</li> <li>• Nhu Quynh A</li> <li>• Nhu Quynh B</li> <li>• Pho Noi (also called Pho Noi A)</li> <li>• Det may Pho Noi (Pho Noi B)</li> <li>• Thang Long II</li> <li>• Minh Duc</li> <li>• Phuc Dien</li> <li>• Tan Truong</li> <li>• Dai An</li> <li>• Phia Tay thanh pho Hai Duong</li> <li>• Viet Hoa-Kenmark</li> <li>• Nam Sach</li> <li>• Phu Thai</li> </ul>
Hanoi-Bac Ninh Expressway (Highway 1)	Hanoi Bac Ninh	<ul style="list-style-type: none"> <li>• Ninh Hiep</li> <li>• Tu Son</li> <li>• VSIP Bac Ninh</li> <li>• Hanaka</li> <li>• Dai Dong-Hoan Son</li> <li>• Tien Du</li> <li>• Dai Kim</li> </ul>
Highway 18	Bac Ninh	<ul style="list-style-type: none"> <li>• Yen Phong II</li> <li>• Yen Phong</li> <li>• Dai Kim</li> <li>• Que Vo</li> <li>• Que Vo III</li> <li>• Que Vo II</li> <li>• Nam Son-Hap Linh</li> </ul>

**Table 1: Distribution of Notable Industrial Parks in Greater Hanoi Area  
(Continued)**

<b>Highway</b>	<b>Province</b>	<b>Industrial parks</b> (only IPs with at least one leasing contract has been signed)
Highway 2 (Hanoi-Lao Cai Expressway)	Hanoi Vinh Phuc	<ul style="list-style-type: none"> <li>• Noi Bai</li> <li>• Kim Hoa</li> <li>• Binh Xuyen</li> <li>• Binh Xuyen II</li> <li>• Ba Thien</li> <li>• Khai Quang</li> </ul>
Bac Thang Long-Noi Bai Expressway and Highway 3	Hanoi	<ul style="list-style-type: none"> <li>• Thang Long (Bac Thang Long)</li> <li>• Quang Minh</li> <li>• Noi Bai</li> </ul>
Highway 38	Bac Ninh	<ul style="list-style-type: none"> <li>• Nam Son-Hap Linh</li> <li>• Thuan Thanh I</li> <li>• Thuan Thanh II</li> </ul>
Highway 282	Bac Ninh	<ul style="list-style-type: none"> <li>• Thuan Thanh III</li> <li>• Gia Binh</li> </ul>
<b>In South of Red River</b>		
Highway 32	Hanoi	<ul style="list-style-type: none"> <li>• Nam Thang Long</li> </ul>
Thang Long Boulevard (Lang-Hoa Lac Expressway)	Hanoi	<ul style="list-style-type: none"> <li>• An Khanh</li> <li>• Thach That-Quoc Oai</li> <li>• Hoa Lac High-Tech</li> </ul>
Highway 6	Hanoi	<ul style="list-style-type: none"> <li>• Phu Nghia</li> </ul>
	Hoa Binh	<ul style="list-style-type: none"> <li>• Luong Son</li> <li>• Nhuan Trach</li> </ul>
Highway 21A	Hoa Binh	<ul style="list-style-type: none"> <li>• Nam Luong Son</li> <li>• Lac Thinh</li> </ul>
Highway 1	Hanoi	<ul style="list-style-type: none"> <li>• Bac Thuong Tin</li> <li>• Dai Xuyen</li> </ul>
	Ha Nam	<ul style="list-style-type: none"> <li>• Dong Van (Duy Tien)</li> <li>• Dong Van II</li> <li>• Chau Son (Phu Ly)</li> <li>• Hoang Dong</li> <li>• Hoa Mac</li> </ul>

*Note:* Outside the Greater Hanoi area but also along the National Highway 5, there are several industrial parks in Haiphong, in which the most notably is Nomura Haiphong Industrial Zone (NHIZ).

*Source:* Survey results conducted by Institute of World Economics and Politics (IWEP).

Moreover, the Greater Hanoi area has a higher per capita income than other regions in Northern Vietnam, higher even than many areas of the country. Many of Vietnam's famous traditional handicraft villages are concentrated in this area, especially in Hai Duong, Hung Yen, Ha Nam, Bac Ninh and the former Ha Tay (now the western and southern parts of Hanoi). As a result, the wages of jobs in some of the industrial parks are not very attractive. In the case of Bac Ninh, due to its small population but large number of industrial parks, there are not enough local workers for the industrial parks. Consequently, parks in the area have to bring in workers from other places. Due to a lack of dormitories resulting from high rent in this area, many of the workers who are from other areas come but then quit. This obviously affects the productivity of enterprises.

### **3. COMMUTING AND LINKAGES**

#### **3.1. History**

During the French colonial era, to exploit the northern provinces (Tonkin) of Vietnam, France made a major effort to develop the highway and railway networks in Greater Hanoi. The transportation planning at that time set Hanoi as the economic center of Tonkin, placed Haiphong as the gateway to the sea for Tonkin, and linked Tonkin with the regions under the influence of France in South and Southwest China such as the Guangzhouwan Leased Territory, Yunnan and Guangxi. The planning for the purpose of exploiting Tonkin and the southwest region of China helped Tonkin obtain systems of railways, roads, waterways and seaports that were the most modern and harmonized in French Indochina and Southwest China.

The most significant effort by France in developing the transportation infrastructure of Tonkin came in 1899-1902 with the railway-road Long Bien Bridge (the French called it Pont Paul-Doumer) crossing the Red River. At the time, it was one of the longest bridges in the world, spanning 2,500 meters. The French also developed railways from Kunming to Hanoi via Lao Cai at 855 kilometers long, from Hanoi to Lang Son, from Hanoi to Haiphong, from Hanoi to Saigon (now Ho Chi Minh City), highways, and the port of Haiphong. In Hanoi, they also built a number of street tramway lines.

From 1954 and during the Vietnam War, Vietnam tried to maintain the transportation infrastructure mentioned above. After the war, with the assistance of socialist countries, some of the existing transportation projects were renovated and new ones were constructed. These include the 3,500-meter railway-road Thang Long Bridge and the 1,230-meter Chuong Duong Bridge (both completed in 1985) replacing the old Long Bien Bridge. There were also new bridges in Haiphong, port expansions in Haiphong, upgrades of a number of national highways, and the connection of the railway from Lang Son to China's inland railway network via Nanning. During the Vietnam War, the delegations from Hanoi to China and Eastern Europe used the railway.

Today, Hanoi faces serious traffic congestion. According to the Hanoi Police Department, there are 91 road intersections that have the potential for traffic congestion, with 68 of these points often experiencing congestion during rush hour.<sup>4</sup> In the evenings and right after holidays and weekends, traffic jams can occur even on

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<sup>4</sup> *VnExpress*, "Sở Giao thông Hà Nội xin 60 tỷ đồng để chống ùn tắc (Hanoi Department of Transportation requests 60 billion Dong for the sake of controlling congestion)," June 11, 2009. Retrieved on November 1, 2010, from <http://vnexpress.net/GL/Xa-hoi/2009/06/3BA10048/>.



highways around Hanoi because a large portion of the area's population leaves the city to visit hometowns in the provinces and then travels back. At times of the university entrance examinations and big festivals, a lot of people from all over Northern Vietnam visit Hanoi and then leave, which also creates terrible traffic jams. Many reasons are named, including a lack of static and dynamic traffic facilities, unsuitable traffic coordination, a lack of cooperation from the people, and underdevelopment of the public transportation system. As traffic congestion can really occur at any time and any place, the Government of Hanoi promulgated regulations prohibiting trucks, coaches, and minibuses (except public buses) to circulate in some zones inside Ring Road 2 in ad-hoc and regular timeslots. This is an obstacle for many enterprises.

The industrial development of Hanoi, its expansion and the conurbation of Greater Hanoi require a modernized and harmonized transportation system that facilitates the commuting between areas and cities and links cities and industrial parks. Not only a large force of traffic police but also traffic inspectors (from the Hanoi Department of Transportation), volunteer college students and volunteer local persons are temporarily mobilized to guide traffic during rush hour.

### **3.2. Road and Highway Networks**

Since the beginning of Doi moi, the need to develop the transportation infrastructure has increased rapidly along with economic growth, and Vietnam has been fortunate to receive ODA from many countries. The road infrastructure in the Greater Hanoi area has rapidly developed.

### 3.2.1. National Highways and Expressways

Many national highways have been expanded or replaced by new ones. National Highway 1 from Hanoi via Bac Ninh to the Vietnam-China border (at the Huu Nghi-Pingxiang border gates) was renovated and expanded in the second half of the 1990s. It is now more easy to use in comparison to the former one thanks to the elimination of many hill and mountain obstacles. The section from Hanoi to Bac Ninh is an expressway with four lanes.

The 110-kilometer National Highway 5 from Hanoi past Hung Yen and Hai Duong to Haiphong (and past the ports of Haiphong on the Cam River) was expanded to four lanes and includes bypasses over some townships and Hai Duong City. Several overfly bridges and bicycle and pedestrian bridges have been constructed. Highway 5 intersects with old Highway 1 in Cau Chui (Gia Lam, Hanoi) and new Highway 1 in Sai Dong (Gia Lam), and with new Highway 10 in An Duong (Hai Phong). These two important highways are also linked together by National Highway 38. The project for extending Highway 5 westward (duong 5 keo dai) by 13.5 kilometers began in 2005. Construction of the roadway is basically completed. Dong Tru Bridge which carries the Highway 5 Extension across the Duong River is still under construction. When it is finished, the highway will not only complete the north section of Ring Road 2 but also (by connecting to Highway 3) facilitate northern Hanoi's access to Haiphong Port.<sup>5</sup>

The 341-kilometer National Highway 18 from Hanoi passes Bac Ninh, Hai Duong and Quang Ninh to reach the Vietnam-China border (at the Mong Cai-Tongshing border gates) and the port of Cai Lan. It was upgraded in the second half of the 2000s.

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<sup>5</sup> *VnExpress*, "Khởi công quốc lộ 5 kéo dài và cầu Đông Trù (Start the construction of Extending National Highway 5 and Dong Tru Bridge)," May 17, 2005. Retrieved on October 25, 2010, from <http://vnexpress.net/GL/Xa-hoi/2005/05/3B9DE4BB/>.

The section from Hanoi to Bac Ninh was completed in 2008 as an expressway with four lanes. Many bypasses and bridges on this highway are newly developed.

Highways 5 and 18 are two corridors which connect the Greater Hanoi area with seaports. The section of Highway 18 from Hanoi to Dong Trieu is nearly parallel to National Highway 5. These two corridors are linked together by the Hanoi-Bac Ninh Expressway, National Highways 38 and 183, Provincial Highway 188 in Hai Duong Province, and the old and new National Highways 10 in Haiphong and Quang Ninh Provinces.

Greater Hanoi connects with China via National Highway 2 and National Highway 70 at the Lao Cai-Hekou and Thanh Thuy-Tianbao international border gates, via National Highway 3 at the Ta Lung-Shuikou international border gates, via Highway 1 at the Huu Nghi-Pingxiang international border gates, and via Highway 18 at the Mong Cai-Tongshing international border gates, with the linkages between Highway 5 and Highway 18 as alternatives. The region connects with Lao P.D.R via National Highway 1, Ho Chi Minh Highway, National Highways 8, National Highway 12, and National Highway 8.

Highway 2 connects to the Bac Thang Long-Noi Bai Expressway in Noi Bai. Highway 3 interchanges with Highway 18 and connects to the Highway 5 Extension. The first expressway (by Vietnam's definition) in the Greater Hanoi area is Bac Thang Long-Noi Bai with four lanes, which was developed during the first half of the 1990s. After that, several other expressways were constructed, including Hanoi-Bac Ninh (four lanes, completed in 2001), Phap Van-Cau Gie (four lanes, completed in 2002), Noi Bai-Bac Ninh (four lanes, completed in 2008), and Lang-Hoa Lac (six lanes, completed in 2010 and renamed as Thang Long Boulevard).

In addition, the Hanoi-Thai Nguyen, Hanoi-Lao Cai, Hanoi-Haiphong and Cau Gie-Ninh Binh expressways are under construction. These are actually the first sections of National Highways 1, 2, 3, 5 and 18 from Hanoi extended to Northern Vietnam. A 105-kilometer Hanoi-Haiphong Expressway (aka Highway 5B) project was started simultaneously in Hanoi, Hung Yen, Hai Duong and Haiphong in February 2009.<sup>6</sup> This expressway will go from the north of Thanh Tri Bridge to Dinh Vu, Haiphong. It will be more convenient for container trailers than the current Highway 5. Furthermore, a highway from Tan Cang Dinh Vu Port (in Haiphong) to Ha Long City with an exchange to the Hanoi-Haiphong Expressway has been planned. This will shorten the route from Haiphong to Ha Long City by approximately 50 kilometers when compared to new Highway 10 and Highway 18.<sup>7</sup>

The Noi Bai-Lao Cai Expressway project was started in the third quarter of 2008. Plans call for construction to be completed in 2012. In addition, the Government has approved the detailed planning of the North-South Expressway.<sup>8</sup> Moreover, the Hanoi-Lang Son, Noi Bai-Ha Long, Western (upgraded from Ho Chi Minh Highway) and Eastern expressways are at the design stage.<sup>9</sup> Thang Long Expressway is going to

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<sup>6</sup> VnExpress, “Khởi công tuyến cao tốc rộng nhất Việt Nam (To begin the largest expressway in Vietnam),” February 3, 2009. Retrieved on October 10, 2010, from <http://vnexpress.net/GL/Xa-hoi/2009/02/3BA0AE20/>.

<sup>7</sup> Báo Công thương, “Xây dựng tuyến đường nối Hạ Long với đường cao tốc Hà Nội - Hải Phòng (Construct a roadway to connect Ha Long to Hanoi-Haiphong Expressway),” October 20, 2010. Retrieved on October 20, 2010, from <http://www.baocongthuong.com.vn/Details/tin-tuc-su-kien/xay-dung-tuyen-duong-noi-ha-long-voi-duong-cao-toc-ha-noi-hai-phong/32/0/39491.star>.

<sup>8</sup> Tuổi Trẻ, “Quy hoạch đường cao tốc Bắc Nam phía đông dài 1.811km (Plan of Eastern 1,811 kilometer-long North-South Expressway),” January 21, 2010. Retrieved on November 7, 2010, from <http://tuoitre.vn/Chinh-tri-Xa-hoi/360020/Quy-hoach-duong-cao-toc-Bac-Nam-phia-dong-dai-1811km.html>.

<sup>9</sup> VnExpress, “Hà Nội sẽ có 8 tuyến tàu điện và nhiều đường cao tốc (There will be eight urban railway lines and many expressways in Hanoi),” October 30, 2010. Retrieved on October 30, 2010, from

be extended to Hoa Binh City.<sup>10</sup>

### 3.2.2. Ring Roads

Currently, there are three ring roads (numbered as 1, 2 and 3) in Hanoi. Besides, there are two projects for outer ring roads (4 and 5) in the Greater Hanoi area.

Ring Road 1, which was developed in the French colonial era, is now under renovation.

Ring Road 2, planned to extend about 46 kilometers across the Long Bien, Hai Ba Trung, Dong Da and Cau Giay urban districts, is now under construction from the existing inner roads. (In fact, Ring Road 2 was also developed in the colonial area but only sections in the south and southwest were completed.) The Vinh Tuy and Nhat Tan bridges carry Ring Road 2 across the Red River, and the Dong Tru Bridge carries it across the Duong River. Ring Road 2 overlaps some sections of Highway 5 and the Highway 5 Extension, connects to Highway 3, and interchanges with Highway 1.

Ring Road 3 extends 65 kilometers across the Cau Giay, Thanh Xuan and Hoang Mai urban districts and the Gia Lam, Dong Anh, Soc Son and Tu Liem rural districts of Hanoi. It crosses the Red River by the Thang Long Bridge to the north and the Thanh Tri Bridge to the south. The first phase of Ring Road 3's development has been completed, and the second phase is under way for an elevated urban expressway.<sup>11, 12</sup>

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<http://vnexpress.net/GL/Xa-hoi/2010/10/3BA224A3/>.

<sup>10</sup> *Hànộimới*, “Khởi công xây dựng đường cao tốc Hòa Lạc-TP Hòa Bình (To begin the construction of Hoa Lac-Hoa Binh City Expressway),” October 3, 2010. Retrieved on November 7, 2010, from [http://www.hanoimoi.com.vn/newsdetail/quy\\_hoach/381622/khoi-cong-xay-dung-duong-cao-toc-hoa-la-ctp-hoa-binh.htm](http://www.hanoimoi.com.vn/newsdetail/quy_hoach/381622/khoi-cong-xay-dung-duong-cao-toc-hoa-la-ctp-hoa-binh.htm).

<sup>11</sup> *Decision No. 90/2008/QĐ-TTg* dated 07/9/2008 of the Prime Minister of Vietnam approved the transportation planning of Hanoi until 2020.

<sup>12</sup> *Lao Động Newspaper*, “Khởi động Dự án đường vành đai 3, giai đoạn 2 (Beginning of the second phase

Ring Road 3 links National Highways 1, 5 and 32 together and connects to the Lang-Hoa Lac, Bac Thang Long-Noi Bai, Hanoi-Bac Ninh and Phap Van-Cau Gie expressways.

Ring Road 4 will extend across the east of Vinh Phuc, the west of Bac Giang, the west of Bac Ninh, the north of Hung Yen and the south, west and north of Hanoi. The Ring Road 4 project began in October 2010 and is planned for completion in 2020. The main functions of this ring road are to link national highways and expressways at Hanoi and connect the industrial parks and townships adjacent to Hanoi.<sup>13</sup>

Ring Roads 2.5, 3.5 and 4.5 also are proposed by the Hanoi Government.

### **3.2.3. Bridges**

Many new bridges have been constructed, most notably the Thanh Tri, Vinh Tuy, Phu Dong and Nhu Nguyet bridges (Table 2).

Several new bridges crossing the Red River will be constructed, including the Tu Lien Bridge (in the north of West Lake in Hanoi), Hong Ha Bridge (carries part of Ring Road 4 between Dan Phuong and Soc Son, both in Hanoi), Me So Bridge (Ring Road 4, linking Thanh Tri in Hanoi to Highway 5 and the Hanoi-Haiphong Expressway), Thuong Cat Bridge (Ring Road 4), and Vinh Thinh Bridge (connecting Son Tay in Hanoi with Vinh Phuc).

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of Ring Road 3 project),” June 19, 2010. Retrieved on November 1, 2010, from <http://www.laodong.com.vn/Tin-Tuc/Khoi-dong-Du-an-duong-vanh-dai-3-giai-doan-2/2995>.

<sup>13</sup> *VTCNews*, “Hà Nội khởi công đường vành đai 4 vào tháng 10 (Hanoi is going to begin the construction of Ring Road 4 this October),” March 18, 2010. Retrieved on November 1, 2010, from <http://vtc.vn/2-242189/xa-hoi/ha-noi-khoi-cong-duong-vanh-dai-4-vao-thang-10.htm>.

**Table 2: Important Bridges in the Greater Hanoi Area**

Bridge	Crosses	Carries	Beginning date of construction	Completion date
Phu Dong	Duong	New Highway 1	1998	2001
Nhu Nguyet	Cau	New Highway 1	1998	2001
Yen Lenh	Hong	Highway 38	2001	2004
Pha Lai	Thai	Ring Road 5	2000	2005
	Binh	Highway 18		
Thanh Tri	Hong	Ring Road 3	2002	2007
Vinh Tuy	Hong	Ring Road 2	2005	2009
Dong Tru	Duong	Extending Highway 5, Ring Road 2	2006	Under construction
Phu Dong II	Duong	New Highway 1	2008	Under construction
Nhat Tan	Hong	Ring Road 2	2009	2012

*Source:* Survey results conducted by Institute of World Economics and Politics (IWEP).

### 3.3. Railways

The Greater Hanoi area possesses Vietnam's most-developed railway network. Its routes include Hanoi-Haiphong (from Hanoi across Hung Yen and Hai Duong to Haiphong going parallel to National Highway 5), Hanoi-Dong Dang (from Hanoi across Bac Ninh and Bac Giang to Lang Son), Hanoi-Ho Chi Minh City (from Hanoi southward to Ho Chi Minh City), Hanoi-Lao Cai (from Hanoi across Vinh Phuc, Phu Tho and Yen Bai to Lao Cai), and Hanoi-Quan Trieu (connecting Hanoi and Thai Nguyen). There is also a rail line which connects Pha Lai to Bai Chay and extends parallel to National Highway 18.

There is an outer railway ring route which extends across Bac Hong, Phu Dien, Tay Mo, Ha Dong, Ngoc Hoi, Yen So, Cu Khoi, Phu Dong, Yen Thuong and Dong Anh (Table 3).

**Table 3: Railway routes in Greater Hanoi Area**

Rail route	Gauge (mm)	Length (km)	Beginning date of construction	Opened
Hanoi-Haiphong	1,000	90	1901	1902
Hanoi-Lang Son (Lang Son-Pingxiang)	Dual	163 km	1889	1903 1955
Hanoi-Lao Cai	1,000	294	1901	1906
Hanoi-Ho Chi Minh	1,000	1,726	1900	
Hanoi-Thai Nguyen	Dual	75	1959	1960
Thai Nguyen-Bac Giang	1,435	69	1970	
Bac Giang-Ha Long	Dual	106	1970	

*Source:* Survey results conducted by Institute of World Economics and Politics (IWEP).

While roads have been upgraded over the past 20 years, the railways have not, except for replacing all the steam locomotives with diesel locomotives. Basically, the rail gauge is 1,000 mm. Even the new railway projects are implemented with the intention of continuing to use some sections of 1,000 mm gauge. The average speed of a cargo train is about 50 km/h. The shortage of facilities for handling cargo in railway stations, complicated procedures, narrow station yards, and a lack of railroad cars for containers are hindrances. While industrial parks are often located in suburbs and near the small railway stations, the main stations are right in the heart of downtown in the cities. For enterprises, even though rail transport is cheaper than trucks, it takes much more time. Therefore, container transport by rail is rarely done.

The 128-kilometer Yen Vien-Cai Lan Rail Route project was started in February 2007.<sup>14</sup> This route's primary function is to transport goods from Hanoi and other

<sup>14</sup> *Công an nhân dân*, "Khởi công xây dựng tuyến đường sắt Yên Viên - Phả Lại - Hạ Long - Cái Lân (Beginning the construction of Yen Vien - Pha Lai - Ha Long - Cai Lan Rail Route)," February 25, 2008. Retrieved on October 29, 2010, from



localities to Cai Lan Port.<sup>15</sup> From 2020, the Hanoi-Haiphong Rail Route will be electrified.

### 3.4. Inland Waterways

Inland waterways play a crucial role in conveying commodities such as rice, fertilizers, iron-steel, minerals, gasoline and diesel, sand and stone in the Greater Hanoi area. Barges up to 1,000 tons are the main vehicles.

There are inland water routes in the area, including the Hanoi-Ha Giang Route in the Red and Lo rivers, the Hanoi-Haiphong Route in the Red, Luoc, Duong, Thai Binh and Cam rivers, the Hanoi-Ba Lat River Mouth Route in the Red River, the Hanoi-Thai Binh Route in the Red and Luoc rivers, and the Hanoi-Ninh Binh Route in the Day River. The unstable depths of rivers and the low capacity of ports and berths, however, limit waterway transport, especially for container movement and loading.

Every province in the Greater Hanoi region has ports for inland waterways. In the entire area, currently there are 21 cargo ports and two ports for passengers (Table 4). In addition, at least four cargo ports will be developed by 2020. The ports of Hanoi and Khuyen Luong (both in the Red River, Hanoi) are hub ports for the area. For container shipping, currently there is only Khuyen Luong Port.

This facility has, however, only four berths, four container cranes, about 20,000 square meters of container store and 50,000 square meters of container yard. Besides, the roads accessing the port are very poor. New inland container terminals are planned, including one in the Red River at Gia Lam, Hanoi, which has been approved by

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<http://ca.cand.com.vn/vi-vn/toisuxahoi/tintucsukien/2008/2/123348.cand>.

<sup>15</sup> *Công an nhân dân*, “Dự án đường sắt Yên Viên-Hạ Long: Liên tục lỡ tiến độ (Project of Yen Vien-Ha Long does not continuously match the planned schedule),” June 30, 2010. Retrieved on October 29, 2010, from <http://ca.cand.com.vn/vi-vn/bandocvaCAND/DTtheoyeucau/2008/8/165033.cand>.

**Table 4: River Ports in Greater Hanoi Area According a Plan of Ports Expansion and New Development until the Year of 2020**

	<b>River port</b>	<b>Province</b>	<b>Largest size of ship/barge</b>	<b>Capacity</b>
<b>I</b>	<b>For cargo</b>		<b>(tons)</b>	<b>(thousands tons/year)</b>
1	Hanoi	Hanoi	1,000	500
2	KhuyenLuong	Hanoi	1,000	1,680
3	Phu Dong	Hanoi	600	1,100
4	Chem	Hanoi	400	400
5	Bac Hanoi (new)	Hanoi	400	2,000
6	Son Tay	Hanoi	300	400
7	Hong Van	Hanoi	400	300
8	Chu Phan	Vinh Phuc	200	800
9	Duc Bac	Vinh Phuc	200	500
10	Vinh Thinh	Vinh Phuc	400	500
11	Nhu Thuy	Vinh Phuc	400	500
12	Hung Yen	Hung Yen	1,000	350
13	Trieu Duong	Hung Yen	400	300
14	Me So	Hung Yen	1,000	350
15	Nhu Trac (new)	Ha Nam	600	200
16	Dap Cau	Bac Ninh	200	500
17	Duc Long	Bac Ninh	200	300
18	Ben Ho	Bac Ninh	200	300
19	Kenh Vang	Bac Ninh	200	300
20	Cong Cau	Hai Duong	600	500
21	Hoa Binh	Hoa Binh	300	550
22	Ba Cap	Hoa Binh	200	250
23	Ben Ngoc	Hoa Binh	200	300
<b>II</b>	<b>For passenger</b>		<b>Seats</b>	<b>Thousands times of passengers/year</b>
1	Hanoi	Hanoi	100	322
2	Hung Yen	Hung Yen	100	100

*Source:* Decision 13/2008/QD-BGTVT issued on August 06, 2008 by Minister of Transportation on approving the revised master plan of inland water transport of Vietnam till 2020.

Vietnam's Prime Minister, and another in the Duong River adjacent to the Yen Phong (Viglacera) industrial park.<sup>16, 17</sup>

### 3.5. Mass Transit Systems

During the 1990s, Hanoi's bus system declined due to competition from motorbikes and cuts in the subsidies for state-owned bus companies. In the early 2000s, however, the bus system returned to rapid growth. Ridership increased from 1.2 million trips per month in 2001 to 24 million in 2006.<sup>18</sup> Today, the Greater Hanoi area has the most-developed public bus system in Vietnam, with 60 routes in Hanoi and seven high-frequency all-day routes from Hanoi to Bac Giang, Bac Ninh, Hai Duong, Hung Yen and Phu Ly cities as well as to Thuan Thanh Township. There are five companies which provide bus service with "Minibus" painted in red and yellow. Hanoi has, however, only one bus lane, which is between Ha Dong and Ring Road 2. The bus riding trips account for only 10% of total trips.<sup>19</sup>

Two rapid bus routes are planned for development in Hanoi by 2020.

As for coach transport, currently there are five coach terminals: My Dinh, Giap Bat, Nuoc Ngam, Luong Yen and Ha Dong. Other provinces in the region have their

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<sup>16</sup> *Diễn đàn doanh nghiệp*, "Hà Nội xây dựng cảng container (Hanoi to develop an inland container depot)," April 14, 2004. Retrieved on October 29, 2010, from <http://ddd.com.vn/31770cat119/ha-noi-xay-dung-cang-container.htm>.

<sup>17</sup> *InfoTV*, "Sẽ xây dựng cảng container nội địa tại KCN Yên Phong (An inland container port will be developed in Yen Phong industrial park)," February 22, 2010. Retrieved on October 29, 2010, from <http://infotv.vn/index.php/bat-dong-san/qui-hoach-du-an/42139-se-xay-dung-cang-container-noi-dia-tai-kcn-yen-phong>.

<sup>18</sup> World Bank (2007), Vietnam - Hanoi Urban Transport Development Project, Hanoi, World Bank. Available online at [http://207.190.239.143/uploadedFiles/Documents/Project\\_Proposals\\_For\\_Endorsement/GEF-HUTD%20C EO%20endorsement%20July%202007\(2\).pdf](http://207.190.239.143/uploadedFiles/Documents/Project_Proposals_For_Endorsement/GEF-HUTD%20C EO%20endorsement%20July%202007(2).pdf). Page 17.

<sup>19</sup> *Ibid.*

own coach terminal in their capital cities. Coach service is provided by plenty of small and micro private enterprises using 16 to 29-seat minicoachs. They have established many coach routes between Hanoi and other localities in Vietnam.

In the transportation planning for Hanoi through 2020, the Vietnam Government has approved an urban rail transit system which will consist of five lines. The system is now in the pilot phase with the construction of Line 2 and Line 3 officially starting in September 2010. The 12.5-kilometer Line 2 will consist of a 4-kilometer underground rail (from Kim Ma to the Hanoi Railway Station) and a 8.5-kilometer ground rail. Meanwhile, the 13.05-kilometer Line 3 will be an elevated light rail. The two lines will interchange in Cat Linh. In fact, ground was broken several years ago but the project could not proceed due to problems in site clearance work.

### **3.6. Pedestrian Walkways and Bicycle Paths**

One of the problems that emerged during the rapid urbanization of Hanoi was that not enough walkways for pedestrians were developed. The sidewalks are occupied by street vendors and parked motorbikes. During traffic congestion, motorbike drivers even ride on the sidewalks.

The first pedestrian bridge, constructed in 2007, is the one on Giai Phong Road at the front of Bach Mai Hospital. Since then, the Hanoi Government has planned 20 pedestrian bridges as part of the project to celebrate Hanoi's millennial anniversary, and six of these have already been constructed. Although there is high demand for pedestrian bridges, few of the completed ones are well utilized because their locations are not good.<sup>20, 21, 22</sup> Besides, their poor designs are much criticized. Most of them

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<sup>20</sup> *Công an nhân dân*, "Hà Nội chọn địa điểm xây cầu vượt cho người đi bộ còn chưa hợp lý (Hanoi chose

are for pedestrians only and not for cyclists.

There are also about 20 bicycle and pedestrian tunnels which have been developed since 2002. Currently, those in road junctions are little used, and the ones on Ring Road 3 are also not used. Some tunnels are mainly used as playgrounds or jogging paths. Some are occupied by homeless people, street vendors and motorbike keepers. Others are flooded with wastewater or rain water. Some are even are locked.<sup>23, 24</sup>

Besides pedestrian crosses at junctions, there are also a lot of crosswalks at other points on busy roads. Few of them, however, are equipped with priority crosswalk signals, of which the first were installed in 2005. Motorists in the Greater Hanoi area do not give the right of way to pedestrians using pedestrian crossings. Moreover, pedestrians often lack the patience to wait until signals turn green.

### 3.7. Other Urban Transportation Infrastructure

Hanoi started projects for road interchanges in the inner city during the early 2000s. Currently, inner Hanoi has about 10 such interchanges, most of them along Ring Roads 2

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poor locations for pedestrian bridges,” August 02, 2010. Retrieved on October 29, 2010, from <http://www.cand.com.vn/vi-VN/xahoi/2010/8/134794.cand>.

<sup>21</sup> *Kinh tế đô thị*, “Nhiều cầu vượt được xây dựng không đúng vị trí (Most pedestrian bridges are constructed at unsuitable places),” August 10, 2010. Retrieved on October 29, 2010, from <http://www.ktdt.com.vn/newsdetail.asp?NewsId=236039&CatId=48>.

<sup>22</sup> *VietnamPlus*, “Cầu vượt bộ hành Hà Nội: Bao giờ hết dở dang? (Pedestrian bridges in Hanoi: when pedestrians will say OK?)” August 10, 2010. Retrieved on October 29, 2010, from <http://www.vietnamplus.vn/Home/Cau-vuot-bo-hanh-Ha-Noi-Bao-gio-het-do-dang/20108/55985.vnplus>.

<sup>23</sup> *VietnamPlus*, “Hầm đường bộ ở Hà Nội rơi vào cảnh ... chợ chiều (Hanoi’s pedestrian tunnels are rarely used),” August 28, 2010. Retrieved on October 29, 2010, from <http://www.vietnamplus.vn/Home/Ham-duong-bo-o-Ha-Noi-roi-vao-can-cho-chieu/20108/58205.vnplus>.

<sup>24</sup> *Bien phòng*, “Hà Nội, người đi bộ bỏ qua hầm bộ hành, vì sao? (Hanoi: Why people do not use pedestrian tunnels?)” Retrieved on October 29, 2010, from <http://www.bienphong.com.vn/nd5/detail/phap-luat/doi-song-phap-luat/ha-noi-nguoi-di-bo-bo-qua-ham-bo-hanh-vi-sao/38134.037064.html>.

and 3. In addition, a road tunnel was opened in June 2009. These infrastructures have had a large positive impact on controlling traffic congestion in Hanoi.

## **4. PORTS**

### **4.1. Airports**

During the French colonial period, Hanoi's Bach Mai Airport was built in 1929, serving domestic flights in Indochina, and its Gia Lam Airport was built in 1936, for international flights to Paris, Yunnan, Hong Kong and Tokyo. During the Indochina War, both airports were repeatedly attacked by Vietnam's army.

Gia Lam Airport, located north of the Red River and east of Hanoi, used to be the main airport in Hanoi and Northern Vietnam. Currently, it serves only helicopter flights, including those for travel purposes.

Since 1978, Noi Bai Airport also north of the Red River has served as the main airport, with construction of the Thang Long Bridge connecting Hanoi and the airport. Noi Bai Airport was upgraded once in the first half of the 1990s, with expansion of the old international terminal from 900 to 5,000 square meters. In 2001, the new terminal T1 (three floors and a basement with a total area of 90,000 square meters) was put into use. The old terminal was converted into a cargo facility. Runways and aprons were also expanded.

Currently, the airport has two parallel 45-meter-wide runways, which are separated by a distance of 250 meters. There is a civil taxiway, a 94,100-square-meter apron at the west of terminal T1, a 44,000-square-meter apron at the east of Terminal 1, a 21,800-square-meter apron, a 18,600-square-meter apron for the cargo terminal, and 24

parking positions with six for Airbus A321-size aircraft, three for Boeing B747-size aircraft and two for Boeing B767-size aircraft.<sup>25</sup> There are two warehouses for cargo and a cargo terminal which is only 12,800 square meters wide. The ordinary cargo warehouse is small at just about 4,000 square meters. Loading capacity is 1.2 million tons per year.

The construction project for passenger-cargo terminal T2 is expected to begin in early 2011, with completion in 2013. It has currently finished the site clearance phase. This terminal is located at the south of Terminal 1 and is also along the Bac Thang Long-Noi Bai Expressway. Noi Bai Airport will be connected to inner Hanoi by an urban railway line and the new Nhat Tan-Noi Bai Expressway.

There is still an airport shortage for the Greater Hanoi area. There are two airports for passengers and cargo. Cat Bi Airport is in Haiphong and only serves flights between Haiphong and Ho Chi Minh City. Noi Bai Airport is in the northwest of Greater Hanoi. The Vietnam Government is studying development of a large new international airport (50-80 million passengers per year) for Northern Vietnam. The airport would be located on the axis of Hanoi-Haiphong. Tien Lang (Haiphong)<sup>26</sup> and Thanh Mien (Hai Duong)<sup>27</sup> are being considered as locations for the new airport.

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<sup>25</sup> “Giới thiệu về Cảng hàng không quốc tế Nội Bài (Introduction on Noi Bai International Airport),” in the official website of North Airports Corporation. Retrieved from <http://nacorp.com.vn/32/198/553/1221.html> on October 30, 2010.

<sup>26</sup> VnEconomy, “Sớm trình phương án tối ưu về sân bay quốc tế tại Hải Phòng (Urgent to submit the optimal plan of an international airport in Haiphong),” May 13, 2010. Retrieved on November 6, 2010, from <http://vneconomy.vn/20100513105323394P0C9920/som-trinh-phuong-an-toi-uu-ve-san-bay-quoc-te-tai-hai-phong.htm>.

<sup>27</sup> *VietNamNet*, “Cảng hàng không quốc tế mới: Hải Dương 'đắc địa' (Hai Duong is a good location for a new international airport),” November 20, 2007. Retrieved on November 6, 2010, from <http://vietnamnet.vn/xahoi/2007/11/755744/>.

## 4.2. Seaports

The main seaport for the Greater Hanoi area is the port of Haiphong. This port is in fact not a seaport because it lies on the Cam River and in the inner city of Haiphong. The two main terminals of the port are Hoang Dieu Terminal (or Central Terminal) and Chua Ve Terminal (Table 5). The Hoang Dieu Terminal was originally developed by the French in 1876 during the colonial period and was expanded much later. It serves bundle cargo and domestic containers. Chua Ve Terminal is an international container port. Plans call for moving their functions to new terminals.

The Tan Cang Dinh Vu Terminal (also called Tan Cang Haiphong, Haiphong New Port or simply Dinh Vu) is new and has been under development since 2003. Construction of six berths has been completed, and work on the last berth began in mid-2010.<sup>28</sup>

A characteristic of the port of Haiphong is that it is not deep enough to receive large container vessels. Two 8.5-meter-deep terminals in the Cam River can receive only 5,000-10,000 DWT vessels, while 8.7-meter-deep Tan Cang Dinh Vu only receives up to 20,000 DWT vessels. In comparison, Hong Kong Port is capable of docking vessels up to 150,000 DWT. That is why Vietnam has to depend on Hong Kong Port for international container transshipment.

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<sup>28</sup> *The official website of the Port of Haiphong* at <http://www.haiphongport.com.vn/NewsManagement/Story.aspx?ArticleID=609> (in Vietnamese).



**Table 5: Capacity of the Port of Haiphong**

	<b>Lifting Capacity/ Productivity</b>	<b>Hoang Dieu Terminal</b>	<b>Chua Ve Terminal</b>
Length (meters)		1,717	848.0
Depth (meters)		- 8.4	- 8.5
Berth		11.0	5.0
Jib crane	5 -40 tons	26.0	5.0
Mobile harbour crane	25 - 70 tons	6.0	3.0
Forklift	3 - 45 tons	36.0	22.0
Electronic Weighing Bridge	80 tons	3.0	1.0
Quayside Gantry Crane (QC)	35.6 tons		6.0
Rubber-tyred Gantry Crane (RTG)	35.6 tons		12.0

Source: Official website of the Port of Haiphong at:

<http://www.haiphongport.com.vn/GeneralInfo/Berth.aspx>.

<http://www.haiphongport.com.vn/GeneralInfo/Equipment.aspx>.

The Vietnam Government has a plan to develop Tan Cang Dinh Vu Terminal so that it can receive 30,000 DWT vessels. Moreover, the future main terminal of Haiphong Port is planned to be the Lach Huyen Terminal (also called Ben Got-Lach Huyen) in Cat Hai District, Haiphong. This will be the new international container terminal for Northern Vietnam, with expectations for it to handle 50,000 DWT vessels. The under-construction Hanoi-Haiphong Expressway will connect to this terminal. According to the Government's approved plan, the first phase of the terminal's development will be finished by 2015. However, the project still has not begun.<sup>29</sup>

Moreover, just as with other ports in Vietnam, the roads for accessing Haiphong Port and both terminals on Cam River and Tan Cang Dinh Vu are very poor. Container

<sup>29</sup> Web portal of Việt Nam Government, "Thực hiện 2 bến khởi động cảng Lạch Huyện (To begin the construction of the first two berths of Lach Huyen Port)," September 29, 2010. Retrieved on October 29, 2010, from <http://baodientu.chinhphu.vn/Home/Thuc-hien-2-ben-khoi-dong-cang-Lach-Huyen/20109/36701.vgp>.

trailers have to cross inner Haiphong to reach those terminals. They often form long queues to enter the terminals, making traffic in Haiphong worse.

In Quang Ninh Province, there is the Cai Lan Port which can receive 40,000 DWT vessels. Although it is a deep seaport, the depth of the navigation channel is only 8 meters. Besides, to access the port, vessels have to cross Ha Long Bay - a UNESCO World Heritage Site. The port is planned for further development so that it can receive 50,000 DWT vessels by 2015.<sup>30</sup> Currently, it is equipped with only two 40-tons quay gantry cranes, four 40-tons rubber tyred gantry cranes, and a 64-tons and a 100-tons harbour mobile crane.

## **CONCLUDING REMARKS**

In this chapter, I have outlined the urbanization as well as the development of the industrial parks and transportation infrastructure in the Greater Hanoi area.

In concluding, I should note that the transportation infrastructure in Greater Hanoi has been growing very fast during the past 20 years. It has not, however, caught up with the rapid urbanization and industrial park development. The low-capacity and ill-harmonized transportation infrastructure is considered a huge obstacle to the economic development of the Greater Hanoi area. This has given rise to conflicts such as traffic congestion, traffic accidents, pollution (roadway noise and air pollution by motor vehicles), suspended plans and ghost estates.

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<sup>30</sup> Decision 2190/QD-TTg.

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