

# The Comprehensive Urban Development Programme in Hanoi Capital City of the Socialist Republic of Vietnam (HAIDEP)

FINAL REPORT

**Summary**

March 2007

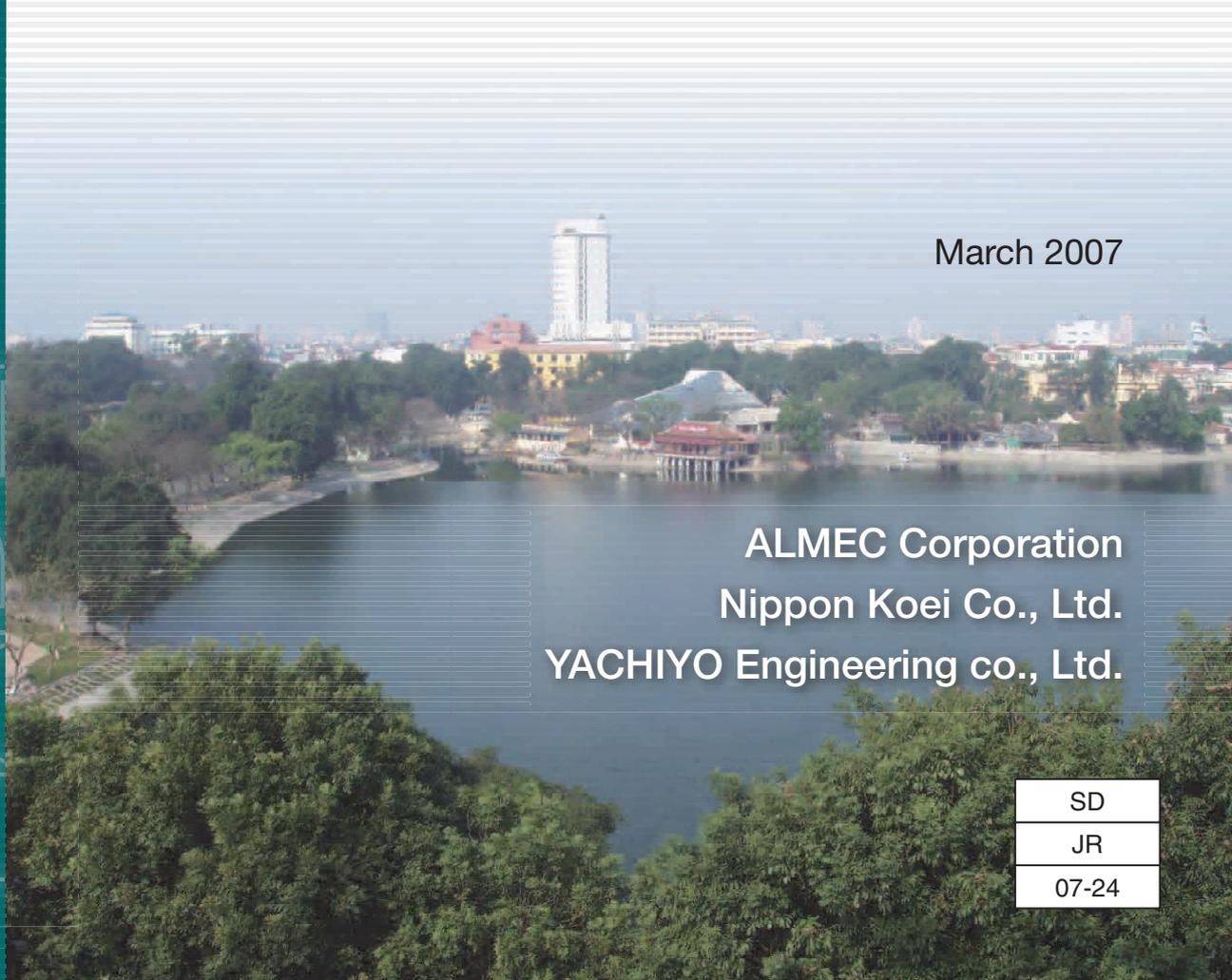
**ALMEC Corporation**  
**Nippon Koei Co., Ltd.**  
**YACHIYO Engineering co., Ltd.**

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HAIDEP



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Programme in Hanoi Capital City  
of the Socialist Republic of Vietnam  
(HAIDEP)

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J. Yen 115 = US\$ 1 = VND 16,000

(average in 2006)

## PREFACE

In response to the request from the Government of the Socialist Republic of Vietnam, the Government of Japan decided to conduct the Comprehensive Urban Development Programme in Hanoi Capital City and entrusted the program to the Japan International Cooperation Agency (JICA).

JICA dispatched a team to Vietnam between December 2004 and March 2007, which was headed by Mr. IWATA Shizuo of ALMEC Corporation and consisted of ALMEC Corporation, Nippon Koei Co., Ltd., and Yachiyo Engineering Co., Ltd.

In collaboration with the Vietnamese Counterpart Team, the JICA Study Team conducted the study including field surveys; demand forecast; conduct of pilot projects; formulation of comprehensive urban development program and subsector master plans for urban development, urban transportation, urban water and sanitation, and living conditions; and conduct of prefeasibility studies on the selected priority projects. It also held a series of discussions with the relevant officials of the Government of Vietnam. Upon returning to Japan, the Team duly finalized the study and delivered this report.

I hope that this report will contribute to the sustainable development of Hanoi City and to the enhancement of friendly relations between the two countries.

Finally, I wish to express my sincere appreciation to the officials of the Government of Vietnam for their close cooperation.

March 2007

MATSUOKA Kazuhisa  
Vice President  
Japan International Cooperation  
Agency

March 2007

***MATSUOKA Kazuhisa***

Vice President  
Japan International Cooperation Agency  
Tokyo

**Subject: Letter of Transmittal**

Dear Sir,

We are pleased to formally submit herewith the final report of the Comprehensive Urban Development Programme in Hanoi Capital City in the Socialist Republic of Vietnam.

This report compiles the results of the study which was undertaken both in Vietnam and Japan from December 2004 to March 2007 by the Team comprising ALMEC Corporation, Nippon Koei Co., Ltd., and Yachiyo Engineering Co., Ltd.

We owe a lot to many people for the accomplishment of this report. First, we would like to express our sincere appreciation and deep gratitude to all those who extended their extensive assistance and cooperation to the Team, in particular the Hanoi City People's Committee.

We also acknowledge the officials of your agency, the JICA Advisory Committee, and the Embassy of Japan in Vietnam for their support and valuable advice in the course of the Study.

We hope the report would contribute to the sustainable development of Hanoi City.

Very truly yours,

**IWATA Shizuo**

Team Leader  
Comprehensive Urban Development Programme in Hanoi Capital City

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## ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
BOD	Biochemical Oxygen Demand
BOT	Build-operate-transfer
BRT	Bus Rapid Transit
CAAV	Civil Aviation Authority of Vietnam
CBD	Central Business District
COD	Chemical Oxygen Demand
CPC	Commune People's Committee
CPRGS	Comprehensive Poverty Reduction and Growth Strategy
DOF	Department of Finance
DONRE	Department of Natural Resources and Environment
DPC	District People's Committee
EIRR	Economic Internal Rate of Return
FAR	Floor Area Ratio
FDI	Foreign Direct Investment
FIRR	Financial Internal Rate of Return
GDP	Gross Domestic Product
GIS	Geographical Information System
GRDP	Gross Regional Domestic Product
HAIDEP	The Comprehensive Urban Development Programme in Hanoi Capital City
HAPI	Hanoi Authority for Planning and Investment
HDI	Human Development Index
HIS	Household Interview Survey
HMA	Hanoi Metropolitan Area
HPC	Hanoi People's Committee
HSDC	Hanoi Sewerage and Drainage Company
HWBC	Hanoi Water Business Company
IT	Information Technology
ICD	Inland container depot
ITS	Intelligent Transportation System
IWT	Inland Waterway Transportation
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
KTT	Collective Apartment Areas
LURC	Land-use Rights Certificate
MARD	Ministry of Agriculture and Rural Development
MOC	Ministry of Construction
MOF	Ministry of Finance
MONRE	Ministry of National Resources and Environment
MOT	Ministry of Transport
MP	Master Plan
MPI	Ministry of Planning and Investment
NCCP	National Council for Construction Planning
NFEZ	Northern Focal Economic Zone
NIURP	National Institute of Urban and Regional Planning
NPV	Net Present Value
ODA	Official Development Assistance
PFI	Private Finance Initiative
PPP	Public Private Partnership
ROW	Right of Way
RRD	Red River Delta
SEDP	Socio-Economic Development Plan
SOE	State-Owned Enterprise
SWM	Solid Waste Management
TDM	Transportation Demand Manage
TSP	Total Suspended Particulate
TUPWS	Department of Transport and Urban Public Works Services
UCA	Urban Control Area
UDA	Urban Development Area
UGB	Urban Growth Boundaries
UMRT	Urban Mass Rapid Transit
VINACONEX	Vietnam Construction and Import-Export Corporation
WHO	World Health Organization
WTO	World Trade Organization
WWTP	Wastewater Treatment Plant

## HAIDEP in Pictures



The HAIDEP Exhibition in August 2006.



HAIDEP exhibition hall.



4<sup>th</sup> Steering Committee meeting on 31 March 2006.



Plenary working group meeting on 5 August 2005.



Technical working group meeting on the urban water subsector on 23 February 2005



Technical working group meeting on the urban development subsector on 14 June 2005.

## **EXECUTIVE SUMMARY**

### **STUDY OBJECTIVES AND SCOPE**

1. The Comprehensive Urban Development Programme in Hanoi Capital City of the Socialist Republic of Vietnam, or HAIDEP, was conducted between December 2004 and March 2007 at the request of the Vietnamese government for the Hanoi People's Committee (HPC) in order to update the existing urban master plan for the city up to 2020.<sup>1</sup> This was done based on a review of related plans and a further analysis of current socio-economic changes that affect, and the prospects that will have a significant impact on, the sustainable development of the city. The study included the conduct of pilot projects on urban planning and prefeasibility studies on priority urban transportation projects. Capacity building on urban planning and development throughout the study process was expected.

2. In consideration of Hanoi's significant role and development impact in the region, the HAIDEP study area covered 16 provinces in northern Vietnam<sup>2</sup>. A prerequisite in the HAIDEP planning work was the coordination/harmonization with the ongoing Hanoi Metropolitan Area Development Plan formulation by NIURP under the MOC, the existing Red River Delta Plan, and the Northern Focal Economic Zone Plan under the MPI. Hence the study area covered the provinces included in these plans. The study area encompassed 36,252 km<sup>2</sup> and 23.4 million population, of which Hanoi shares 921 km<sup>2</sup> and 3.2 million population.

### **MAIN DEVELOPMENT ISSUES AND NEED FOR COMPREHENSIVE PLANNING**

3. Hanoi City and the region stand at a critical stage of development for the first time in history as Vietnam ventures into a full-blown urbanization, albeit belatedly compared to other countries in Asia. While the level of urbanization as of 2005 was still low at 30%, this is expected to rise to 43% by 2030 and to further levels thereafter. This rapid urbanization process is associated with economic growth, industrialization, motorization, globalization, and increasing foreign direct investments, all of which bring about complex impacts, both positive and negative, on the socio-economy and the environment of the city and the region. While it is without doubt that economic growth increases incomes and contributes to the improved quality of life of the people, rapid increases in populations and concentration of functions and activities worsen traffic congestion, safety levels, living conditions, and the environment. Urban problems become increasingly complicated, people's demands become more exacting, and the number of stakeholders expands. Cities in Vietnam are thus faced with the enormous challenge of establishing workable mechanisms to guarantee their sustainable growth and development. This is particularly critical for large urban areas like the cities of Hanoi and Ho Chi Minh.

4. Current urban problems facing Hanoi may not be as serious as those faced by other large developing cities such as Metro Manila, Jakarta, or Ho Chi Minh. Most people are provided with housing, although small, and basic urban utilities, even if limited in suburban areas. Traffic congestion is increasing but average travel time for going to the offices in the morning is only about 20 minutes. Air pollution is tolerable in most parts of the city, although urban areas are threatened by occasional floods and inundations. Results of a 20,000-respondent Household Interview Survey conducted in the beginning of the HAIDEP Study showed that, in general, the people are not dissatisfied with their existing living conditions except in certain areas. However, as

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<sup>1</sup> The existing urban master plan was formulated in 1998.

<sup>2</sup> Including Hanoi City Hai Phong City and the northern Red River delta provinces of Ha Tay, Vinh Phuc, Bac Ninh, Hai Duong, Hung Yen, Ha Nam, Quang Ninh, Hoa Binh, Bac Giang, Thai Nguyen, Nam Dinh, Thai Binh, Ninh Binh, and Phu Tho.

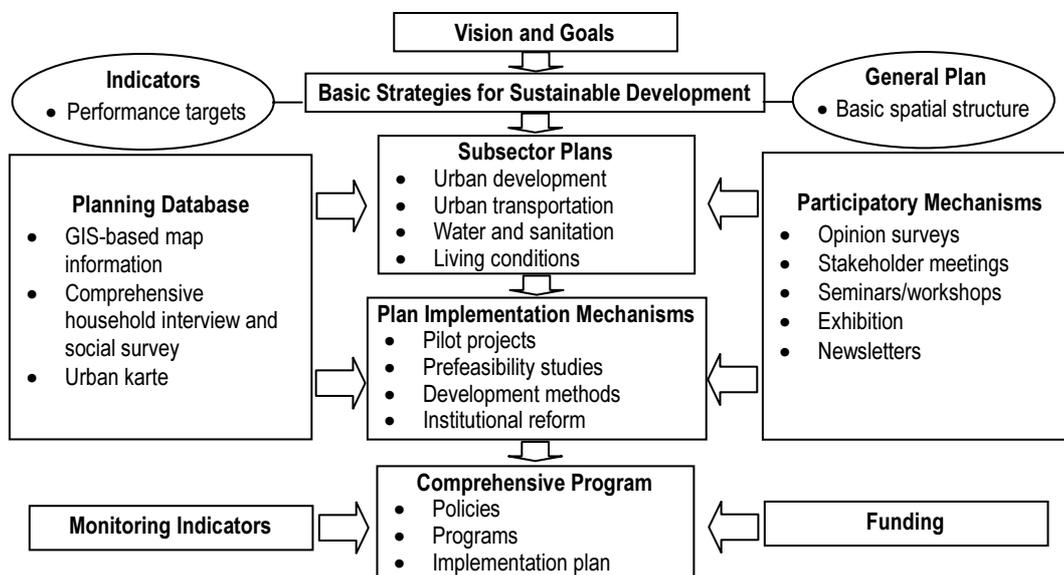
objective indicators showed relatively low scores compared to international benchmarks, problems are expected to surface and the people's dissatisfaction levels will grow as the demand-supply balance breaks down, something that has become already apparent in many areas in the city. Difficulties in attending to urban problems in big cities, like Hanoi, are attributed to the fact that all urban problems are interrelated and that a solution in one sector may impact negatively on another. The rapid growth of urban areas also makes the sustainability of solutions complicated. Many other cities in Asia, including those in Japan, have experienced and are experiencing this tenuous situation which Hanoi is currently faced with. As the situation becomes more serious, the current practices in urban planning and development in Hanoi are unable to keep up with it as effectively as before, resulting in a number of problems such as a mismatch between the plan and actual land use and population distribution, occurrence of informal and illegal developments, difficulties in securing land and space for public infrastructure development, uncertainty in promoting the envisioned development, among others.

## HAIDEP APPROACH AND MASTER PLAN FRAMEWORK

5. Hanoi currently faces the challenge of establishing a workable framework for a more effective urban planning and development. Therefore, a master plan is crucial to rein in a runaway development. It will serve not merely as a pointer of spatial development but as a guide with its system comprising a vision and goals, strategies, sector plans including projects and actions, as well as implementation and monitoring mechanisms supported with the necessary institutional setups. The planning process practiced in the HAIDEP Study showed the proposed approach to urban planning in Hanoi and the conceptual framework for an improved urban master plan for the city (see Figure ES.1). The main points are as follows:

- To identify the way to achieve the vision and goals for the study area by elaborating the strategies, projects, and actions.
- To plan the socio-economic, land-use, environmental, and spatial structure of the study area in an integrated manner.
- To plan the study area's urban development, transportation, and infrastructure services and living conditions in a comprehensive manner.
- To plan based on a spatial hierarchy of areas, i.e. regional, provincial, city, and district levels.
- To provide effective planning tools and development mechanisms to support the above-mentioned comprehensive approach.

**Figure ES.1 Basic Planning Approach and Conceptual Framework for the HAIDEP Master Plan**



Source: HAIDEP Study Team.

## VISION, GOALS, AND OBJECTIVES

6. The vision of Hanoi as stated in Order No. 1/2001/L-CTN and consented widely among stakeholders read: “Hanoi must be built as a modern and thriving capital city, symbolizing the whole country and functioning as a national and regional center for policy, culture, science, technology, education, economy, and international trade.” The primary aim is to develop Hanoi in an economically, socially, culturally, environmentally, and politically sustainable manner, making sure that the city’s beauty, resources, and amenities will be sustained for generations to come. It is intended that the envisioned sustainable development of Hanoi is achieved by (i) enhancing its cultural identity, (ii) developing a competitive urban economy, (iii) promoting livable environment, (iv) ensuring environmental sustainability, and (v) strengthening governance.

7. The vision and goals for the urban sector are further translated into specific objectives and orientations for subsectors and policy areas, namely (i) the role of Hanoi in the region, (ii) population and growth management, (iii) socio-economic development, (iv) transportation, (v) water and sanitation, (vi) environment, (vii) housing and living conditions, (viii) urban design and landscape, (ix) special development areas, and (x) implementation and management (see Table ES.1).

**Table ES.1 Objectives of Subsectors and Policy Areas**

Subsector/Policy Area	Main Objective
A. Hanoi’s Role in the Region	<ul style="list-style-type: none"> <li>Promote high and balanced growth</li> <li>Alleviate poverty and promote environmental sustainability</li> <li>Enhance regional governance</li> </ul>
B. Population and Growth Management	<ul style="list-style-type: none"> <li>Promote integration / coordination among cities / urban areas in Hanoi metropolitan area</li> <li>Promote organized expansion of urban areas</li> <li>Promote competitive and livable urban areas</li> </ul>
C. Socio-economic Development	<ul style="list-style-type: none"> <li>Achieve sustainable, high economic growth through knowledge-based industries, services, and FDIs</li> <li>Reduce inequalities and enhance quality of life of the people including the poor</li> <li>Further improve investment environment through institutional reform, infrastructure improvement, and human resource development</li> </ul>
D. Urban Transportation	<ul style="list-style-type: none"> <li>Promote development of public-transportation-based urban area and society</li> <li>Ensure equitable and safe mobility and accessibility for all</li> <li>Ensure efficient/effective transportation between Hanoi and the rest of region</li> </ul>
E. Urban Water and Sanitation	<ul style="list-style-type: none"> <li>Ensure the people’s safety and healthiness by improving water environment</li> <li>Promote sustainable use of water resources</li> <li>Enhance the city’s image by improving water environment and sanitation conditions</li> </ul>
F. Housing and Living Conditions	<ul style="list-style-type: none"> <li>Provide affordable housing especially for the poor through institutional and fiscal support including upgrading old housing stocks</li> <li>Ensure smooth provision of land for housing</li> <li>Improve living conditions based on a comprehensive assessment of areas</li> </ul>
G. Environment	<ul style="list-style-type: none"> <li>Ensure environmental sustainability and effective land use for Hanoi as well as its metropolitan area</li> <li>Ensure the people’s healthiness and safety by reducing pollution and improving disaster preparedness</li> <li>Conserve and enhance cultural and traditional values</li> </ul>
H. Urban Design and Landscape	<ul style="list-style-type: none"> <li>Enhance the image and identity of Hanoi appealing to the citizens and international society</li> <li>Ensure traditional tangible and intangible cultural values are preserved and enhanced</li> <li>Enhance public awareness of the importance of urban design and landscape</li> </ul>
I. Special Development Area	<ul style="list-style-type: none"> <li>Realize the concept of “water-greenery-culture” to enhance the charm and identity of Hanoi by regenerating historic areas</li> <li>Promote opportunities for new urban economic and social development toward the next millennium</li> <li>Establish effective mechanism for sustainable development with the participation of city stakeholders</li> </ul>
J. Implementation and Management	<ul style="list-style-type: none"> <li>Improve institutional framework for more effective urban planning and management</li> <li>Strengthen planning and development capacity of human resources and related organizations</li> <li>Strengthen coordination among related organizations at both central and local levels</li> </ul>

Source: HAIDEP Study Team.

## PROPOSED GENERAL PLAN

8. A primary objective of the HAIDEP Study was to update the spatial development plan of the 1998 Master Plan. HAIDEP proposes that the future land use and urban facility development be controlled and guided by a two-tier plan, namely the General Plan at the city level and the District Plan at the local level. The former provides the basic direction for urban growth and overall land use, while the latter determines land use and urban facilities on a more detailed level. An important role of the General Plan is the translation of the socio-economic development orientation of an area, including its vision and development strategies, into a spatial development plan. Integration is the key concept in the HAIDEP Study as a whole and in spatial planning in particular to generate the parallel effects of robust economic growth and reduced poverty levels. The main areas of integration are as follows: (i) socio-economic development with spatial development; (ii) regional plans; (iii) 1998 Master Plan; (iv) international, regional, and metropolitan levels; (v) Hanoi City's urban areas and those in adjacent provinces; (vi) main urban areas within Hanoi; (vii) urban and transportation infrastructure development; and (viii) urban-rural linkages.

9. The HAIDEP-proposed General Plan adopted the basic concept used in the 1998 Master Plan and updated it based on the master plan's achievements so far, the changes that have occurred since the plan was prepared, and the prospects that the city and the region now face. All these are embodied in the seven strategies that make up the HAIDEP-proposed General Plan, as described below (see Figure ES.2).

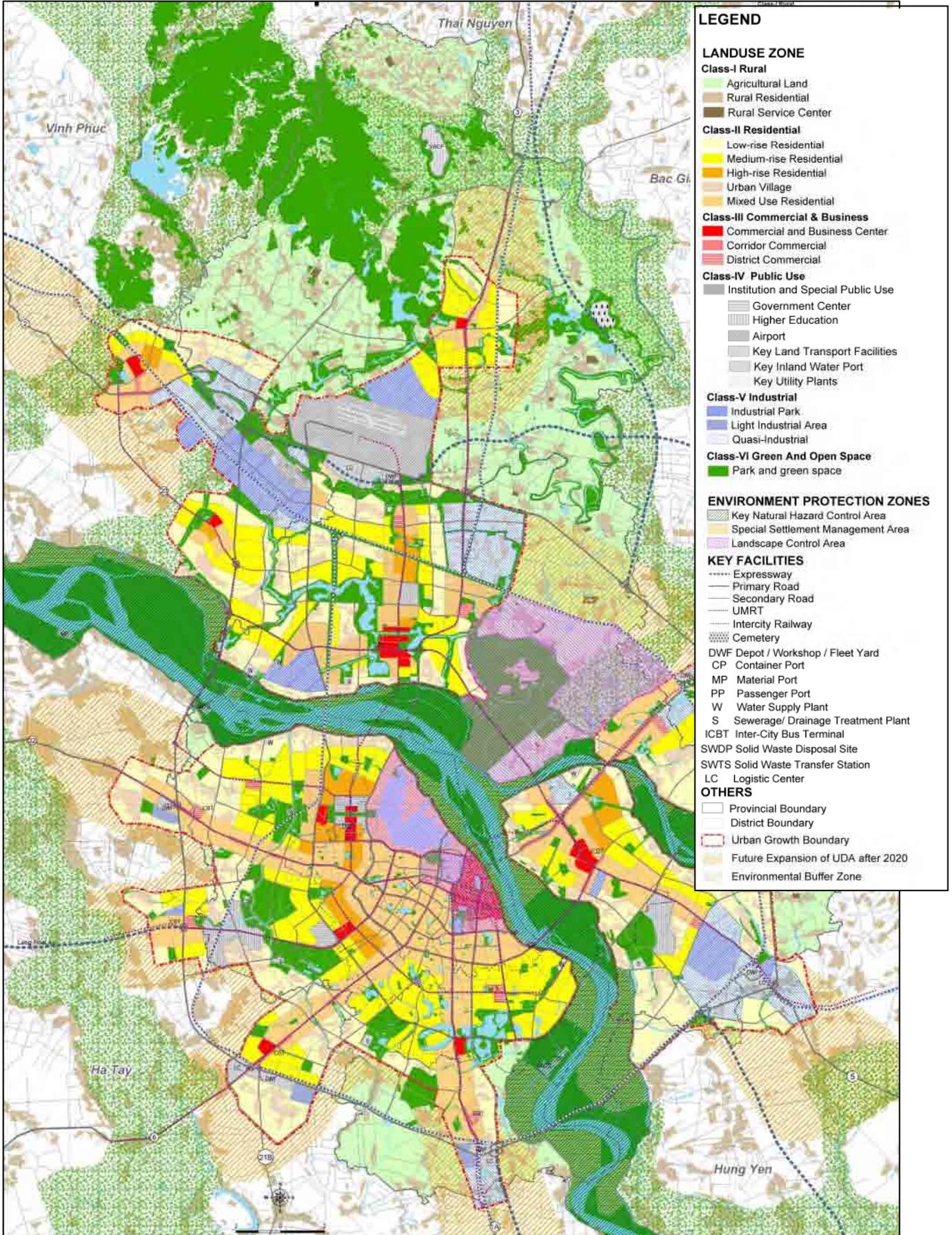
**Strategy 1: Establish a spatial backbone comprising "water," "greeneries," and "culture" to ensure environmental sustainability and enhance the identity of Hanoi.** For this, the Red River and its tributaries, Ho Tay, Co Loa, the Ancient Quarter, and the French Quarter, as well as the regional green belts will provide the foundation and integrate the main lakes, parks, cultural sites, and tree-lined streets. This comprehensive water-greenery-culture network aims at strengthening the city's image and identity.

**Strategy 2: Develop public-transportation-oriented urban areas to ensure mobility of the people and to promote an environment-friendly society.** For this, an urban mass rapid transit (UMRT) network will provide the urban areas with a quality transport backbone which can further extend to adjoining urban areas. The main urban centers and traffic-generating areas will be distributed in integration with the UMRT routes to improve accessibility and people's mobility. A comprehensive road network composed of radial and ring roads will improve traffic distribution within the urban areas and, at the same time, facilitate proper interface between urban and interprovincial transportation to avoid the entry of through traffic into the city center.

**Strategy 3: Upgrade and revitalize existing built-up areas both in the city center and fringe areas, including the Ancient Quarter and the French Quarter, to improve living conditions, preserve and enhance the cultural heritage, and promote economic development.** Existing urban areas must be constantly upgraded, for which the General Plan provides the orientation on the desirable land use and infrastructure development.

**Strategy 4: Develop modern and competitive new urban centers to attract diversified, quality investments that will generate employment opportunities, and improve the people's accessibility to needed services.** New urban centers will be developed in strategic locations to provide competitive space for business and commercial activities as the diversifying urban economy further grows and to provide employment opportunities within reasonable travel distances.

**Figure ES.2 HAIDEP-proposed General Plan**



Source: HAIDEP Study Team.

**Strategy 5: Develop efficient infrastructure and services to ensure convenient and competitive socio-economic activities and affordable services for all including the poor.**

Necessary infrastructure services including water supply, drainage, sewerage, and solid waste disposal are provided in compliance with the development of urban areas as directed in the General Plan.

**Strategy 6: Prepare effective disaster prevention measures to protect against natural and man-induced disasters, and environmental degradation.**

The proposed plan gives an integrated solution to disaster prevention by providing an extensive greenery network, redevelopment of outside-of-dyke areas of the Red River, development of new urban areas on lands with better development conditions, and other disaster-mitigating measures.

**Strategy 7: Strengthen institutions and public participation for effective urban management and capacity building, as well as efficient and effective delivery of services.**

The proposed General Plan incorporates a number of strategic institutional arrangements, such as growth boundaries, zoning, as well as the designation of key urban roads and facilities, for the effective management of urban development.

## HANOI'S ROLE IN THE REGION

10. The role of Hanoi in northern Vietnam as well as in the country will become increasingly important. At present, the region is beset with various issues such as: (i) widening inequalities, (ii) uncontrolled land use, (iii) degraded environment, (iv) untapped economic potentials, (v) weak transportation and infrastructure, and (vi) lack of strategic/coordinated planning.

11. As Hanoi's influence in the region grows, it is expected to contribute to the growth and balanced development of the region. For this, Hanoi must implement the strategies and actions listed in Table ES.2.

**Table ES.2 Proposed Regional Development Strategies and Actions**

Strategy	Action
Update regional development strategies	<ul style="list-style-type: none"> <li>• Complete coordinated and integrated/ coordinated regional development plans</li> <li>• Establish practical implementation mechanism including wider practices of PPP and PFI schemes</li> <li>• Identify and implement coordinated/integrated regional development projects</li> </ul>
Develop growth corridor with global competitiveness	<ul style="list-style-type: none"> <li>• Develop high-quality transportation/logistics corridor along Vin Phuc – Hanoi – Hai Phong / Quang Ninh</li> <li>• Develop urban areas and attractive industrial zones provided with competitive services</li> <li>• Establish conducive investment environment to encourage FDIs</li> </ul>
Strengthen poverty reduction strategies and expand program	<ul style="list-style-type: none"> <li>• Map and identify poverty in the region</li> <li>• Provide effective menus and programs for identified poverty issues</li> <li>• Establish coordinated mechanism for effective implementation of poverty reduction program</li> </ul>
Establish workable regional coordination mechanism	<ul style="list-style-type: none"> <li>• Strengthen coordination on regional development among provincial governments</li> <li>• Establish regional development coordinating council comprising provincial government representatives</li> <li>• Expand coordination with donors through Urban Forum</li> </ul>
Strengthen capacities of provincial governments	<ul style="list-style-type: none"> <li>• Establish common information database to aid regional planning and development</li> <li>• Establish permanent training system for capacity building of provincial officers under the central government</li> <li>• Strengthen planning departments of provincial governments</li> </ul>

Source: HAIDEP Study Team.

## FUTURE POPULATION AND URBAN GROWTH MANAGEMENT

12. How to manage the future growth of the population and urban areas is one of the challenges facing the city leadership. If this process is not properly managed, sprawl, disorderly land use and development, environmental harm, and congestion, among others, will worsen. This will be particularly critical in Hanoi where urbanization is making rapid progress. It was estimated that the population in Hanoi's integrated urban areas by 2020 would be 5.1 million, with Hanoi accounting for 4.5 million and the remaining 0.6 million would be in its directly integrated urban areas in adjoining provinces.

13. Growth management of Hanoi must be implemented at two levels. At the metropolitan level, the development of satellite cities and urban centers will help a balanced distribution of urban population and functions which will in turn help lessen the excessive load on Hanoi. At the city level, the future growth must be managed through an integrated development of a high-quality UMRT network and the urban area as well as an effective land-use control. At the same time, existing urban areas must also be upgraded to facilitate a more effective land-use and environmental improvement. Without a proper growth management, the expected positive impacts of various improvement measures undertaken in other subsectors will either diminish or not be realized at all (see Table ES.3).

**Table ES.3 Proposed Urban Growth Management Strategies and Actions**

Strategy	Action
Establish metropolitan growth and development strategies for areas within 30-50km radius of Hanoi	<ul style="list-style-type: none"> <li>• Complete a coordinated and integrated metropolitan development plan for areas within 30-50 km radius</li> <li>• Establish interjurisdictional coordination mechanism</li> <li>• Develop corridors by integrating all aspects including socio-economy, land use, infrastructure, etc.</li> </ul>
Establish strategies for mass transit-oriented urban development	<ul style="list-style-type: none"> <li>• Develop concrete physical and institutional concepts of TOD (transit-oriented development) in Vietnam's context</li> <li>• Establish a preparatory unit to promote TOD in Hanoi</li> <li>• Implement pilot projects to concretize development mechanism</li> </ul>
Develop competitive subcenters	<ul style="list-style-type: none"> <li>• Develop concrete concept and strategies for subcenter development</li> <li>• Identify projects and establish specific project management units for project implementation</li> <li>• Implement pilot projects to concretize development mechanism</li> </ul>
Upgrade/Redevelop existing urban areas	<ul style="list-style-type: none"> <li>• Diagnose existing conditions, problems and formulate improvement plans and strategies</li> <li>• Establish concrete mechanisms to upgrade existing urban areas including Ancient Quarter, French Quarter, outside-of-dyke areas, public housing areas, urban villages, etc.</li> <li>• Implement pilot projects to concretize development mechanism</li> </ul>

Source: HAIDEP Study Team.

## ECONOMIC AND SOCIAL DEVELOPMENT

14. Further economic growth of the city is critical for its sustainable development and that of the region. Hanoi's economic development needs to be addressed at both the regional and city levels. The locations and the promotion of FDI-led manufacturing industries which have contributed to the growth of Vietnam can be handled at the regional level in coordination with Hanoi and concerned provinces in accordance with regional development strategies. On the other hand, at the city level, policy orientations should support an industrial structure that favors knowledge-based industries and services. Polluting industries must be relocated to properly organized industrial estates.

15. The city's industrial development must likewise address the condition of small and medium enterprises as well as the informal sector, since they are significant sources of employment. Adequate land-use policy for the city center, for areas along transportation corridors, and within communities will attract these types of industries.

16. Proposed strategies and actions are summarized in Table ES.4, while the main socio-economic indicators of Hanoi in 2005 and by 2020 are in Table ES.5.

**Table ES.4 Proposed Socio-economic Development Strategies and Actions**

Strategy	Action
Establish competitive economic base	<ul style="list-style-type: none"> <li>Establish interministerial coordination mechanism to promote new urban economics involving private sector and higher education</li> <li>Develop new types of urban industries which combine culture, technology, and human resources</li> <li>Provide strategic supporting infrastructure to enhance competitiveness of existing industries</li> </ul>
Update industrial development strategies	<ul style="list-style-type: none"> <li>Relocate polluting industries</li> <li>Establish concrete strategies for developing industries and industrial estates/zones in close coordination with other provinces in the region</li> <li>Provide necessary supporting environment for industrial estates including housing, accessibility, and amenities for workers</li> </ul>
Improve investment environment further	<ul style="list-style-type: none"> <li>Improve Hanoi's competitiveness in Vietnam and Asia on providing conducive environment for FDIs</li> <li>Further improve investment information system for Hanoi and region</li> <li>Establish coordinated one-stop center for Hanoi and region</li> </ul>
Establish concrete support system for low-income groups and urban poor	<ul style="list-style-type: none"> <li>Define and identify the urban poor in Hanoi</li> <li>Establish adequate policy on providing support for the poor in a sustainable manner</li> <li>Establish adequate monitoring mechanism</li> </ul>
Strengthen capabilities of communities	<ul style="list-style-type: none"> <li>Define and identify issues at the community level</li> <li>Establish adequate policy on providing needed support in sustainable manner.</li> <li>Establish adequate monitoring mechanism</li> </ul>

Source: HAIDEP Study Team.

**Table ES.5 Major Socio-economic Indicators of Hanoi, 2005 and 2020**

Indicator		2005	2020	
Population	Total (000)	3,183	4,500	
	Urban, 000 (%)	1,990 (62.5)	3,950 (87.8)	
Economy	GRDP growth rate (%)	11.2	11.0	
	Per Capita GRDP (US\$)	1,350 <sup>1)</sup>	6,000	
	Sector Share (%) (Pri/Sec/Ter)	1.7 / 40.8 / 57.4	1.0 / 45.0 / 54.0	
	FDI (US\$ mil.)	9,241	n.a.	
Employment	Total (000)	1,517	2,000	
	Sector Share (%) (Pri/Sec/Ter)	22.3 / 21.9 / 55.8	7 / 35 / 58	
	Government Workers (000)	544	n.a.	
	Unemployment (000) <sup>2)</sup>	47.7	n.a.	
Social Environment	No. of Students (000)	Primary	203	289
		Secondary I/II	181 / 109	221 / 192
		Tertiary	380	517
	Enrolment (%) (Pri/Sec I/Sec II)	98 / 97 / 63	100 / 100 / 100	
	Poverty Index	16.08 <sup>3)</sup>	negligible	
HDI	0.798 <sup>4)</sup>	n.a.		
Vehicle Ownership	Motorcycle (% of HHs)	83.9 <sup>5)</sup>	72	
	Car (% of HHs)	1.6 <sup>5)</sup>	20	
Visitors to Hanoi	Domestic Arrivals (000)	3,600	19,000	
	Foreign Arrivals (000)	1,050	4,000	

Source: HAIDEP Study Team.

1) Hanoi City 5-year Socio-economic Plan.

2) Number of registered job applicants.

3) Viet Nam Living Standards Survey 1997-1998. The index denotes the share (%) of people living below the poverty line to the total population of a province.

4) Index as of 1999. Hanoi is ranked second among all provinces in Vietnam.

5) HAIDEP HIS, 2005.

## URBAN TRANSPORTATION

17. Transportation infrastructure and services are the foundation of urban development, affecting economic development, land use, living conditions, environment, provision of utilities and services, and property value. Transportation development in Hanoi must also be undertaken at both the regional and the city levels.

18. **Regional Transportation Development Strategies:** Regional transportation must be developed in a way that it enhances the region's competitive edge for attracting more investments, strengthens interprovincial integration, and facilitates balanced development. Strategic corridor development is proposed, covering the: (i) completion of Ring Road No. 4 (RR4) and ring rail, (ii) extension of the UMRT toward satellite cities and urban areas, (iii) development of a high-quality expressway linking Hanoi and Haiphong/Quang Ninh, and (iv) completion of the regional ring road.

19. **Urban Transportation:** Urban transportation planning and development is one of the main components of the HAIDEP Study. While the traffic situation is getting worse with each passing day, effective measures, such as accelerated road development, improved traffic management, and enhanced public awareness, are not enough to keep up with the rapidly increasing demand. Without immediate and effective implementation of needed measures in a comprehensive manner, the situation in the future may become out of control, as seen in other large urban areas in Asia. The proposed urban transportation development orientation is shown in Table ES.6, while the key aspects are briefly described as follows:

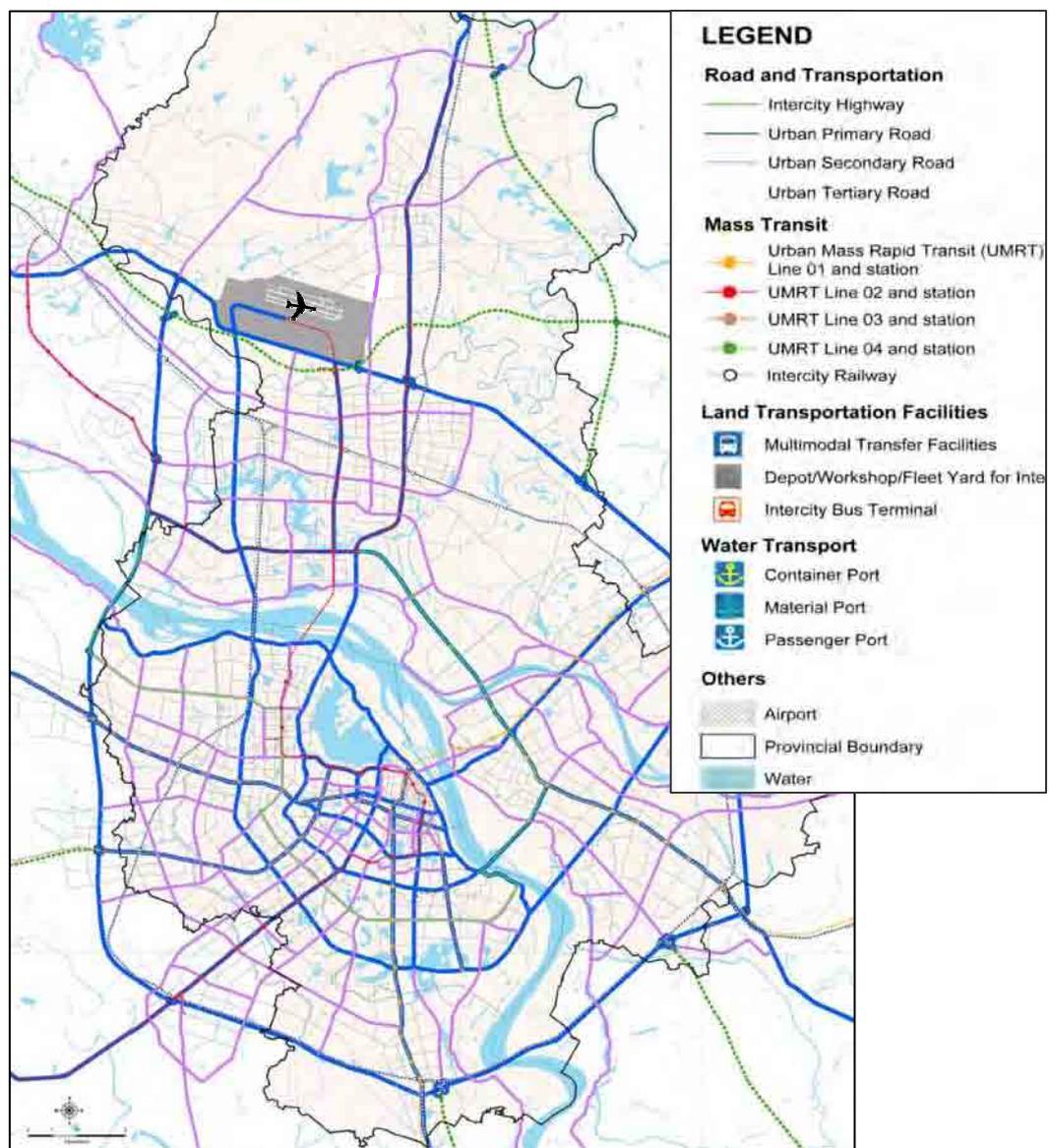
- (a) **Urban Road Network:** The proposed road network consists of 8 radial and 4 ring roads. With this plan, the road network in Hanoi City will increase from 624km to 1,143km in length and from 5.9km<sup>2</sup> to 21.8 km<sup>2</sup> in area. Since road construction in Hanoi has become increasingly complex due to difficulties in obtaining land and resettling, it is necessary to develop alternative schemes to address road development issues more comprehensively, as can be done through the land readjustment scheme adopted by many successful cities in Japan.
- (b) **Bridges across the Red River:** Providing bridges across the Red River will greatly affect the urban development pattern and traffic circulation in the city. In order to meet future traffic demand, a total of 8 bridges, including the existing Chuong Duong, Long Bien, and Thang Long bridges, new bridges such as the recently completed Thanh Tri, Vinh Thuy, Nhat Than, and two bridges along the ring road/rail routes, are necessary.
- (c) **Ring Road No. 4:** RR4 is important for the future of Hanoi both in terms of managing urban growth and in establishing an effective interface between urban and regional road functions.
- (d) **UMRT Development:** In order to maximize the benefits of UMRT development and minimize the financial burden for the government, the following measures must be considered: (i) integration with urban development, (ii) development as a network, and (iii) phased development. The proposed 193km-long UMRT network is composed of four lines, comprising urban rail and BRT. When the four UMRT lines are completed, the UMRT system can serve 2.6 million passengers a day with an average trip length of 7.8km per passenger.
- (e) **Public Transportation Development:** While the UMRT is expected to form the city's transportation backbone, buses will remain as the most important road-based public transportation mode, providing services in areas not covered by the UMRT or providing feeder services to it.
- (f) **Traffic Management:** Traffic management and safety are serious weaknesses which usually limit the efficient use of available facilities and endanger life and property. The proposed approach to improve traffic management includes the following: (i) implementing traffic management on 16 main corridors, (ii) strengthening basic traffic engineering measures, and

(iii) implementing TDM measures including improved pricing for parking, compulsory provision of garages, introduction of area licensing scheme, etc. Traffic safety in Hanoi is largely blamed on the undisciplined driving behavior of motorists and the lax enforcement of traffic rules, implying that many of the accidents can be immediately reduced when awareness of the road users and enforcers is improved.

(g) **Sidewalk Improvement:** Sidewalks in Hanoi are very important not only for pedestrian traffic but also as space for various activities including vending, resting, parking, etc. Sidewalk improvement and management can be done with the active involvement of communities.

(h) **Investment Costs:** Excluding committed projects, the total investment cost in the transportation sector will be about US\$ 12.7 billion, of which roads share US\$ 6.8 billion (54%), public transportation at US\$ 5.4 billion (43%), and others at US\$ 0.4 billion (3%). Regional transportation projects will cost US\$ 10.5 billion comprising expressways (US\$ 3.1 billion), roads (US\$ 1.4 billion), railway (US\$ 2.3 billion), airport (US\$ 3.3 billion), and IWT (US\$ 0.2 billion). If the proposed master plan projects are implemented, travel speeds will improve and areas that can be reached within 30 and 60 minutes will expand.

**Figure ES.3 Proposed HAIDEP Road Network**



Source: HAIDEP Study Team.

**Table ES.6 Proposed Transportation Development Strategies and Actions**

Strategy	Action
Establish coordinated urban transportation policy	<ul style="list-style-type: none"> <li>• Establish effective modal policy to ensure sustainable urban transportation including management of private transportation</li> <li>• Establish clear strategy for effective interface of urban and regional transportation network and services</li> <li>• Establish rational and transparent framework for prioritization transportation policy and projects</li> <li>• Establish workable mechanism for effective coordination among relevant sectors and organizations</li> <li>• Establish sustainable funding mechanism to promote private sector participation</li> </ul>
Enhance public awareness and understanding of urban transportation issues	<ul style="list-style-type: none"> <li>• Expand transportation education, campaigns and public information to appeal to mind and heart of the people</li> <li>• Implement various experimental projects for policy test with the involvement of communities and transportation users</li> <li>• Strengthen research and studies on urban transportation issues</li> </ul>
Promote realization of mass transit-oriented urban development	<ul style="list-style-type: none"> <li>• Develop mass transit and public transportation system in full integration with urban growth strategy, land use and urban development</li> <li>• Integrate transportation master plan with overall urban /regional master plan as one coordinated statutory plan</li> <li>• Establish effective institutional framework and practical development methods for transit-oriented development (TOD)</li> </ul>
Expand attractive public transportation system	<ul style="list-style-type: none"> <li>• Develop UMRT network as the city's public transportation backbone</li> <li>• Expand and strengthen bus system and services in a coordinated manner with UMRT to provide public transportation services in the entire city</li> <li>• Develop supplementary public transportation services including taxi, xe om, cyclo, water transportation, school buses, company buses, etc.</li> </ul>
Strengthen effective management of traffic and demand	<ul style="list-style-type: none"> <li>• Strengthen traffic control and management to regulate traffic flow for enhanced safety, comfort, and efficiency</li> <li>• Enhance enforcement capacity in parallel with social awareness</li> <li>• Establish workable parking policy</li> <li>• Introduce phased TDM measures</li> <li>• Expand introduction of information technology (IT) for effective transportation management</li> </ul>
Focus on need for comprehensive development of transportation space and environment	<ul style="list-style-type: none"> <li>• Establish shared concept of comprehensive development of transportation space and environment</li> <li>• Strengthen comprehensive management and improvement of transportation corridors</li> <li>• Establish comprehensive management of traffic and transportation related issues in CBD</li> <li>• Provide adequate transportation environment for pedestrians bicycle users</li> <li>• Provide adequate transportation services and environment at district and community levels both in urban and rural areas</li> </ul>
Strengthen capacity for effective transportation sector administration and management	<ul style="list-style-type: none"> <li>• Strengthen planning and project preparation capacities including database, planning tools and human resources</li> <li>• Develop alternative methods for smooth acquisition of lands for infrastructure development</li> <li>• Expand participation of private sector and communities</li> </ul>

Source: HAIDEP Study Team.

## URBAN WATER AND SANITATION

20. The improvement of water supply and the environment is critical in guaranteeing the people's safety and health, support various urban activities, and enhance the city's image. While many parts of the city are not covered by adequate services, the development of necessary infrastructure and the provision of services must be provided in accordance with urban growth strategies and population distribution. While the proposed strategies and actions are shown in Table ES.7, the main points are briefly explained in the next pages.

- (a) **Urban Water Supply:** The water supply plan was formulated based on Decision No. 50 issued in 2000, the *Hanoi Metropolitan Area Development Plan* by MOC (July 2005), and the National Strategy for Environment Protection until 2010 and Vision toward 2020 by MONRE (July 2004). It was assumed that urban water supply services would cover 100% of the future urban areas (590km<sup>2</sup>) including 231km<sup>2</sup> in the southwest, 123km<sup>2</sup> in the southeast, and 236km<sup>2</sup> in the north of the city. Rural areas would also be provided with rural water supply services. The current total demand of 555,000 m<sup>3</sup>/day would increase to 1.3 million m<sup>3</sup>/day by 2020, 70% of which would come from new urban areas. Domestic use would share 62%, while nondomestic and industrial use would each account for 19%. In order to meet the future demand and to avoid groundwater pollution and ground subsidence, the policy is to shift water sources from groundwater to surface water. The shift to surface water must be done in conformity with the other planned water supply projects. The capacity of water treatment plants must also be expanded. Five such projects which would have a total capacity of 750,000 m<sup>3</sup>/day when completed are proposed. The proposed projects will cost about US\$ 533 million to construct and more than US\$ 13 million a year to operate and maintain. With the completion of the five water treatment plants, the future water demand would be met effectively. In parallel to the physical improvements, the operation and management of these plants must be improved by: (i) reducing water leakage and loss through the installation of new pipes, adoption of modern technologies, and use of reliable materials; (ii) establishing a water quality monitoring system in the Red River and the Duong River to take prompt measures in case of water pollution; and (iii) further improving the operation and management system.
- (b) **Drainage System:** All future urban areas totaling about 400km<sup>2</sup> will be provided with a drainage system to protect them from inundations of up to 310 mm/2 days of rainfall or equivalent to a 10-year return period intensity. The drainage plan has set a 90% to 100% coverage of Hanoi's urban centers by 2020. Providing Hanoi with an adequate drainage system would require large regulating reservoirs with a total area of 1,020ha and pumping stations with capacities of 292 m<sup>3</sup>/sec, due to the city's flat topography and the rivers' high water levels, requiring huge investments. While investments for ongoing and committed projects up to 2010 total US\$ 170 million with an additional US\$ 100 million for land acquisition, the proposed projects will cost about US\$ 2.2 billion.
- (c) **Sewerage System:** As the development of an adequate sewerage system requires huge investments and a lengthy implementation time, setting priorities and clear criteria for investments is important. Urban areas with an expected population of 100 persons/ha or more will be given initial priority, but final prioritization will be based on factors such as water supply amount, affordability of user charges, environmental standards to be met, groundwater use, etc. The proposed investment plan covers 2,848ha with wastewater treatment capacities of 893,600m<sup>3</sup>/day, requiring about US\$ 1.6 billion.
- (d) **Lake Improvement:** There were 900 lakes and ponds in Hanoi with areas larger than a hectare. But this number and their areas have decreased due to various development projects and encroachments which have also caused the deterioration of hygienic conditions around the lakes, lake water quality, and surrounding landscape. Lake and pond management must thus involve the following: (i) protect lakes from illegal construction, encroachments, solid waste dumping, etc.; (ii) develop lakefronts with promenades/walkways, green spaces, and other amenities; (iii) increase the lakes' storm water retention capacities by increasing their effective depths; and (iv) improve lake water quality. A lake improvement strategy was worked out for main areas including the To Lich and the Nhue river basins and for Long Bien, Gia Lam, and Dong Anh districts together with the overall drainage system development plan. Needed

measures to improve lake management include: (i) control water levels through pumps and gates in the lakes to regulate floods; (ii) maintain lake structures such as revetments, pumps, and gates; (iii) monitor and improve water quality; (iv) clean lake water surfaces and surrounding areas; (v) manage commercial, cultural, and tourism activities in/around the lakes; and (vi) strengthen lake management organization and institutional arrangements.

- (e) **Flood Protection:** Floodwaters from the Red River are a constant threat to the city. While the average highest water level during the last century reached around 11m, the height of urban areas is about 9m in Hoan Kiem. The 1971 flood reached 14m high and caused serious damage to the city. From 1998 to 2002, dyke strengthening projects were carried out on the right bank of the Red River with ADB financing. It aimed to prevent flooding in Hanoi through structural/physical and nonstructural/nonphysical measures. However, about 160,000 people residing in areas outside the dyke remain vulnerable to it. Meanwhile, the impact of development in these areas on flood flow in the Red River will be most critical at the narrowest section of the Red River between the Long Bien and Chuong Duong bridges. The proposed measures to comprehensively address the issues from the urban development and management viewpoints are to: (i) strengthen the dykes around Hanoi, secure remaining heights, and strengthen deteriorated embankments; (ii) develop an early warning and flood fighting/evacuation system to ensure a timely and periodic warning system; and (iii) conduct a study on the redevelopment of the Day River flood diversion channel to divert flood upstream and help protect Hanoi.

**Table ES.7 Proposed Urban Water and Sanitation Development Strategies and Actions**

Strategy	Action
Enhance public awareness and understanding of water, sanitation and related environmental issues	<ul style="list-style-type: none"> <li>Establish "Water Forum" with participation of extensive stakeholders to discuss and disseminate water, water environment and related issues</li> <li>Conduct regular media campaign on water and sanitation</li> </ul>
Ensure stable supply of safe water for all	<ul style="list-style-type: none"> <li>Address water pollution issues immediately</li> <li>Expand water supply coverage</li> <li>Shift gradually from groundwater to surface water as raw water source</li> <li>Improve operational efficiency of water supply</li> </ul>
Promote improvement of sanitary conditions in urban areas	<ul style="list-style-type: none"> <li>Improve drainage conditions</li> <li>Develop sewerage systems</li> <li>Improve solid waste management</li> <li>Establish workable mechanism for consolidation of graveyards</li> </ul>
Promote improvement of water quality of lakes, ponds, and rivers	<ul style="list-style-type: none"> <li>Monitor water quality of lakes, ponds, and rivers in Hanoi</li> <li>Develop water quality improvement measures</li> <li>Establish common guidelines on waterfront use and management in coordination with urban land use and communities</li> </ul>
Protect urban areas from flood and promote disaster preparedness	<ul style="list-style-type: none"> <li>Ensure urban areas shall be protected from flood</li> <li>Establish effective early warning system</li> <li>Redevelop outside-of-dyke area</li> </ul>

Source: HAIDEP Study Team.

- (f) **Solid Waste Management:** There are two master plans on solid waste management, the 1998 Master Plan and the Environment Master Plan up to 2020 prepared by JICA. Estimates on the total amount of waste generated by 2020 are 1.42 million tons/year in the former plan and 1.17 million tons/year in the latter plan based on that year's population forecast of about 3.5 million. This estimate will increase if it is based on a population of 4.5 million, as projected in the HAIDEP Master Plan. Therefore, one of the most significant problems in this field is that the capacity for solid waste disposal would not be enough to handle generated waste in the

near future. Following the National Environmental Strategy, the waste reduction rate (the rate of the amount of reused and recycled waste against the amount of total collected waste) should reach more than 30% by 2020 through the promotion of the three Rs (reduce, reuse, recycle). The possible facilities that may be needed to implement the measures on solid waste management include transfer stations, recycling centers, composting plants, incinerators, or other intermediate treatment plants.

- (g) **Cemetery:** Securing land for new cemeteries around Hanoi, especially those near residential areas, has become very difficult due to objections from nearby residents. Common high-density, large-scale cemeteries are also proposed and proper locations should be found within reasonable distances from Hanoi, preferably in green belts.

## HOUSING AND LIVING CONDITIONS

21. **Housing:** Providing affordable housing is a critical policy agenda which must be seriously attended to. A survey conducted in the study indicated that most people cannot afford to rent or purchase available housing in the market. For the low-income group, the situation is worse. Rebuilding of old public housing and upgrading of existing housing stock are also urgent concerns. The required housing stocks will far exceed those that have been developed in the last few years. A total of about 500,000 units with 46 to 54 million m<sup>2</sup> of floor area need to be supplied by 2020, or an annual average of about 33,000 units with 3.1 to 3.6 million m<sup>2</sup> of floor area. Demand is composed of new building and rebuilding of old and small housing. Demand due to resettlement and in-migrating students and workers is also on the rise. Therefore, an alternative development mechanism is required, where various factors must be incorporated such as supply of lands, design standards, access to housing loans, incentives and conditions for developers, government subsidy, etc. Government's role in the supply of housing should be to: (i) formulate a comprehensive and phased housing development program; (ii) establish a sustainable mechanism; (iii) improve current institutional mechanisms for the private sector; (iv) expand financial access for affordable housing provision; and (v) prepare realistic design standards for affordable housing.

22. Social housing provision should be promoted with the following actions: (i) development of low-cost housing, (ii) formulation of public housing cooperation, (iii) development of rental housing market, (iv) criteria for distribution of social housing. Institutional arrangements are necessary to further promote housing development in Hanoi.

23. **Living Conditions:** Results of the subjective assessment of the living conditions in Hanoi City showed that the people in urban areas are relatively satisfied with their living conditions, albeit in varying degrees per locality. However, results of the objective indicators of living conditions in Hanoi are relatively low compared to benchmarks set in counterpart cities in Asia. The improvement of living conditions must be done comprehensively, guaranteeing that key elements, such as safety, convenience, healthiness, and amenity, are improved in a balanced manner. It also requires both city- and local-level action.

24. **Proposed Development Direction:** Improvement of the housing and living conditions subsector requires a comprehensive approach including policy setting, institution building, technical improvement, financing support mechanism, and supply of lands (see Table ES.8).

**Table ES.8 Proposed Housing and Living Conditions Development Strategies and Actions**

Strategy	Action
Establish coordinated housing policy	<ul style="list-style-type: none"> <li>Identify existing and future housing market together with housing supply mechanism to define issues and agenda</li> <li>Establish clear policy on role-sharing between public and private sectors in housing supply</li> <li>Establish adequate institutions to promote private sector participation in the housing market</li> </ul>
Establish concrete mechanism to ensure affordable housing for low-income groups	<ul style="list-style-type: none"> <li>Identify types of affordable housing for different categories of customers</li> <li>Develop adequate design standards of affordable housing to improve living conditions</li> <li>Establish adequate mechanism to supply affordable housing by both public and private sectors</li> </ul>
Provide adequate supportive measures to rebuild old public housing	<ul style="list-style-type: none"> <li>Formulate basic sustainable redevelopment methods for old public housing areas on equitable sharing of costs and benefits between residents and government</li> <li>Redevelop old public housing areas to benefit residents and serve public interest</li> <li>Introduce PFI (private financing initiatives) schemes</li> </ul>
Establish improved mechanism for smooth supply of lands for housing	<ul style="list-style-type: none"> <li>Improve existing registration system</li> <li>Introduce land readjustment mechanism to define land issues and develop housing areas</li> </ul>
Establish practical living envt. improvement mechanism based on comprehensive assessment of living conditions at community level	<ul style="list-style-type: none"> <li>Develop comprehensive living conditions assessment methods (ie urban karte)</li> <li>Establish practical mechanism to improve the living environment</li> <li>Establish participatory mechanism to improve living conditions at community level</li> </ul>

Source: HAIDEP Study Team.

## ENVIRONMENT

25. The environment is the sole foundation for the city's sustainable development, especially since Hanoi is endowed with diverse and distinct natural assets as well as a rich cultural heritage that spans over a thousand years. The resulting fusion of natural, cultural, and social environment, form the core of Hanoi and must therefore be preserved and enhanced for future generations. The impacts of urbanization and industrialization on the environment need proper measures at the regional, city, and local levels. Key areas that must be considered in environmental management include the following: (i) establishment of environmental zones and green belts; (ii) mapping of hazard areas and land development suitability; (iii) environmental and social considerations; (iv) development of a green network in Hanoi in integration with regional green belts (see Table ES.9).

**Table ES.9 Proposed Environmental Management Strategies and Actions**

Strategy	Action
Establish comprehensive environmental planning and management system	<ul style="list-style-type: none"> <li>Develop through effective interagency coordination comprehensive environmental mapping and information systems using GIS for easy access by all stakeholders</li> <li>Establish a practical environmental impact assessment system by selecting a set of indicators agreed upon by all stakeholders</li> <li>Strengthen interagency coordination among environmental organizations on indicators and environmental issues</li> <li>Establish an effective environmental monitoring system</li> </ul>
Establish green belts in coordination with adjoining provinces	<ul style="list-style-type: none"> <li>Identify and designate green belts based on a comprehensive study</li> <li>Establish a green belt management council involving Hanoi and adjoining provinces</li> <li>Formulate an effective green belt development and management system</li> </ul>
Develop a park and green space network	<ul style="list-style-type: none"> <li>Establish a network of parks, water bodies, streets lined with trees, etc. to cover the entire city including districts and communes</li> <li>Provide parks at community level</li> <li>Integrate parks and green space with overall land use, infrastructure, cultural sites, and socio-economic activities</li> </ul>

Source: HAIDEP Study Team.

26. The development of infrastructures, especially roads, in built-up urban areas involves involuntary resettlement, which often requires lengthy durations and large compensation costs that often set back project completion, create more difficulties for affected families, and delay the benefits that are expected from the projects. While there are resettlement options, these do not meet the demands of the affected families. And while the efforts of the government to improve the compensation policy have been commendable, there are still limitations pertaining to eligibility, entitlement, and restoration of livelihoods.

## URBAN DESIGN AND LANDSCAPE

27. The landscape of Hanoi has an extraordinary charm that appeals to the people and visitors alike. The attractiveness of the landscape extends widely, from the unique physical setting and lifestyles in the Ancient Quarter and the French Quarter, the avenues with spacious sidewalks and lined with abundant trees, the historical buildings, the widely distributed lakes and ponds, to the immense vistas created by the Red River and the rustic suburbs dotted with traditional villages. However, many of these assets have been spoiled by various developments and people's activities. A common understanding of the desired landscape for Hanoi is also lacking.

28. Results of an analysis of public opinion on Hanoi's landscape confirmed that: (i) Hanoi's landscape is an important aspect in urban planning and development for both experts and residents, and (ii) current institutional arrangements and capacities to manage landscape issues are insufficient. The landscape in Hanoi has ample opportunities for improvement, something which is very much critical to establishing an identifiable image. For this, the landscape must be dealt with not only from the aesthetic viewpoint but more specifically in the context of urban design which integrates the physical, socio-economic, and aesthetic aspects and translates them into feasible actions.

29. In order to improve the urban design and landscape aspect, there is a need to implement extensive measures as summarized in Table ES.10.

**Table ES.10 Proposed Urban Design and Landscape Development Strategies and Actions**

Strategy	Action
Establish comprehensive landscape policy and workable mechanism to ensure conservation and enhancement of desired landscape	<ul style="list-style-type: none"> <li>• Develop comprehensive landscape policy and guidelines</li> <li>• Organize "Urban Design and Landscape Forum"</li> <li>• Establish a mechanism for effective management including adequate rules and regulations and enforcement organizations</li> <li>• Enhance people's awareness and understanding of the desired landscape</li> </ul>
Promote improvement of landscape for urban space of strategic importance	<ul style="list-style-type: none"> <li>• Promote desired landscapes for different areas such as Ancient Quarter, French Quarter, Thang Long, Co Loa, new urban areas, rural areas, etc.</li> <li>• Promote desired landscape for transportation corridors and gateways</li> <li>• Promote desired landscape for waterfront and green network</li> </ul>
Establish concrete mechanism to ensure cultural preservation	<ul style="list-style-type: none"> <li>• Complete inventory of tangible assets including sites and facilities with cultural value</li> <li>• Establish adequate mechanism to preserve and restore tangible assets in harmony with landscape in surrounding buffer areas</li> <li>• Establish adequate mechanism to preserve prime rural landscape</li> </ul>
Develop new opportunities to improve urban design and landscape	<ul style="list-style-type: none"> <li>• Develop underground space in harmony with the urban design at ground level to create additional space for public services and businesses</li> <li>• Develop new landmarks with distinctive designs including high-rise buildings, towers, bridges, other facilities</li> <li>• Establish adequate mechanism to preserve and further expand network of street trees and greeneries</li> </ul>

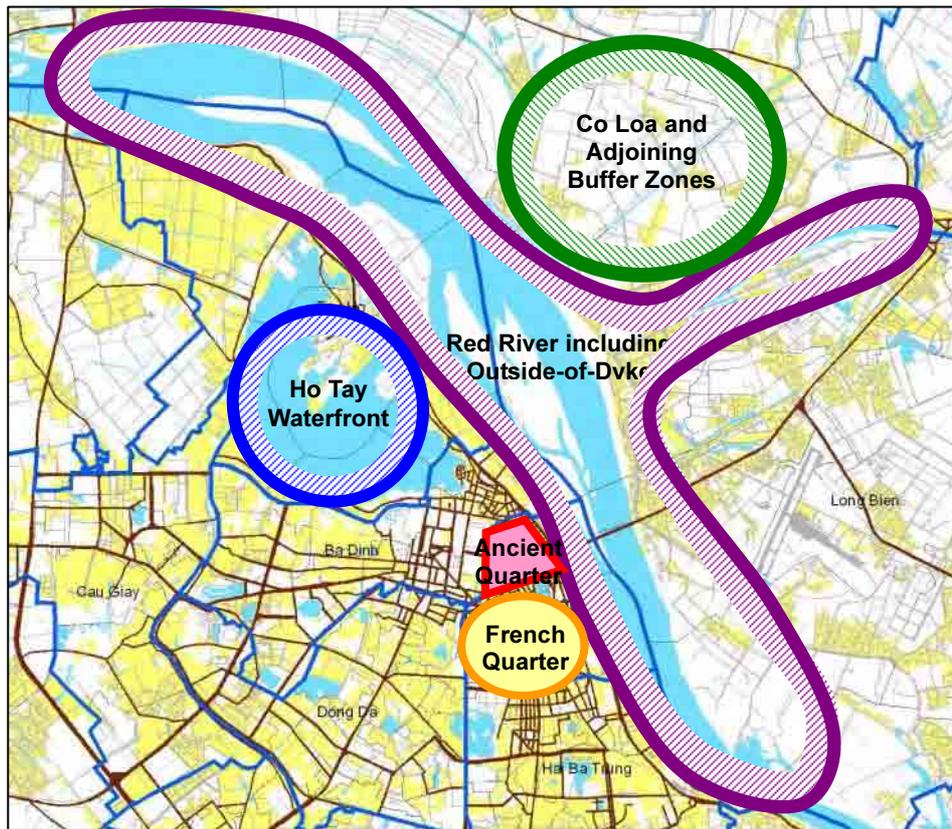
Source: HAIDEP Study Team.

## SPECIAL AREAS

30. While the general plan provides the vision and the basic urban development orientations for the future, translating them to a tangible form which the people and visitors can easily understand and appreciate is another matter. To explain the development orientation, key areas were selected (see Figure ES.4) and their development concepts, including physical plans, development strategies, and necessary institutional arrangements, were proposed. While the proposed development direction is summarized in Table ES.11, the main points are explained as follows:

- (a) **Red River Space:** The Red River used to be the backbone of Hanoi, integrating the important areas and resources in the city. However, in the process of development and with the occurrence of disasters, the Red River somehow no longer plays a key role in the socio-economic life of the city and is slowly losing its cultural and environmental importance. The main goals are thus: (i) to revive the Red River as the cultural and environmental backbone of the city; (ii) to promote socio-economic development by reorganizing the use of its ample space; and (iii) to establish adequate institutional and technical frameworks. The river's development must be for the long term, even beyond the term of the master plan. A policy or shared idea must be in place as to what the Red River will be in the future. The overall development direction and management of the entire river space must be as follows: (i) environmental and cultural backbone, (ii) mobility and transportation axis, (iii) reintegration of outside-of-dyke areas, (iv) planning framework for outside-of-dyke areas, and (v) landscape management and urban design. Recommendations for the development of areas outside the dyke are: (i) amend the dyke ordinance, (ii) build consensus on the construction of the second dyke; (iii) make a detailed land-use plan, and (iv) prepare a relocation plan.
- (b) **Thang Long-Co Loa Zone:** This zone is an integrated space comprising Co Loa, Ho Tay, and their surrounding areas, together with the Ancient Quarter which form the heart of Hanoi being located in the middle of the Red River space. The planning considerations to take account of are the following: (i) ensure an open vista along the Thang Long-Co Loa axis by clearing existing facilities and restricting future developments; (ii) construct transportation facilities connecting Thang Long and Co Loa; (iii) restore heritage sites and improve the Co Loa Citadel and its adjacent areas; (iv) redevelop the areas outside the dyke of the Red River; and (v) develop the Dong Hoi and Xuan Canh areas to match the development vision of the Thang Long-Co Loa zone.
- (c) **Ancient Quarter:** The Ancient Quarter, also known as the 36 streets, risks losing its traditional cultural value because of the internal and external impacts of rapid urban development. And while economic activities are promoted in streetfronts, livelihoods and community relations are rooted and strengthened inside residential blocks. To preserve and revitalize these values—be they tangible or intangible—improve its living conditions, strengthen street identity, and boost its socio-economy in a comprehensive manner, there is a need for a common vision and sustainable development solutions. Specifically, there is a need for an integration of: (i) block redevelopment planning, (ii) street development planning, and (iii) establishment of a business model, with the community's participation. To establish a sustainable preservation and development mechanism for the Ancient Quarter, it is significant to establish a proper business model wherein local resources and citizens are key to the implementation of actions and projects. While the residents and organizations, including businesses, in the Ancient Quarter are eager to preserve and develop the area, there is also a lack of an effective institutional setup and adequate capacities. Hence the specific proposals for the Ancient Quarter are on institutional arrangement and capacity development.

Figure ES.4 Location of Special Areas in Hanoi City



Source: HAIDEP Study Team.

- (d) **Ho Tay Waterfront Area:** The Ho Tay (West Lake) is expected to form one of the most important cultural and environment backbones of the city which is based on the water-greenery-culture concept. In the past, there were 16 ancient villages around the lake; but now, they have almost disappeared, and with it the area's charm and character. The Ho Tay area in the future should provide the people with better access to the lake, showcase revitalized traditional villages, and stronger commercial value particularly in areas linked to public transportation.
- (e) **French Quarter:** The French Quarter is located in the southern part of the city center and bounded by Trang Thi and Trang Tien streets in the north, Dai Co Viet and Tran Khat Chan streets in the south, the Vietnam railway line in the west, and Tran Quan Khai and Tran Khanh Du streets (the dyke road) in the east. When the nation was known then as Tonkin during the French colonial period from the end of the 19th to the early 20th century, the quarter's wide boulevards and tree-canopied streets were developed. In addition to unique architectures, various scales of parks and lakes have created a beautiful landscape and atmosphere. The area's tranquil ambience has attracted various interests such as politics, diplomacy, and economic activities. The French Quarter has been preserved largely due to its relatively sufficient infrastructure and unique charm. The future development of the French Quarter should thus not be physically oriented alone, but should lean more toward the strengthening of both its economic potentials and its natural as well as cultural assets.

31. The proposed orientation for the development of the special areas intends to: (i) realize the concept of "water-greenery-culture" to enhance the charm and identity of Hanoi by regenerating historic areas, (ii) promote opportunities for new urban economic and social development toward the next millennium, and (iii) establish an effective mechanism for sustainable development with the participation of city stakeholders.

**Table ES.11 Proposed Development Strategies and Actions for Special Areas**

Strategy	Action
Ensure sustainable development of Ancient Quarter	<ul style="list-style-type: none"> <li>• Prepare master plan for sustainable development of Ancient Quarter based on HAIDEP exercise</li> <li>• Strengthen management capacity of Ancient Quarter Management Board</li> <li>• Establish feasible mechanism of Ancient Quarter development based on public-private participation (PPP) and community involvement</li> </ul>
Establish feasible mechanism for desired development of the French Quarter	<ul style="list-style-type: none"> <li>• Prepare development strategy and guidelines for the French Quarter</li> <li>• Establish a French Quarter Development Council involving main stakeholders to manage development in the area</li> <li>• Implement model projects</li> </ul>
Prepare plan and effective mechanism for development of Thang Long - Co Loa heritage zone	<ul style="list-style-type: none"> <li>• Prepare master plan and development strategy and guidelines</li> <li>• Establish Thang Long - Co Loa Development Council involving main stakeholders</li> <li>• Implement model projects on a PPP scheme</li> </ul>
Establish effective mechanism for redevelopment of outside-the-dyke areas	<ul style="list-style-type: none"> <li>• Prepare master plan and development strategy and guidelines</li> <li>• Establish a task force under HPC involving central government agencies to manage the development process</li> <li>• Implement model projects on PPP basis</li> </ul>
Establish effective mechanism for sustainable development of Ho Tay environmental zone	<ul style="list-style-type: none"> <li>• Prepare master plan and development strategy and guidelines</li> <li>• Establish Ho Tay Environmental Zone Council to manage development</li> <li>• Implement model projects on a PPP scheme</li> </ul>

Source: HAIDEP Study Team.

## PILOT PROJECTS

32. **Objectives:** Three pilot projects on different topics were conducted in separate areas to study the respective development issues in more detail and to find out a workable mechanism to improve the urban planning and development processes.

33. **Preservation and Sustainable Development of the Ancient Quarter:** Even as the Ancient Quarter is on channel for application as a UNESCO World Heritage Site, it is under enormous external and internal pressure as the country urbanizes and shifts to a market economy. Whereas the value of the Ancient Quarter lies in its unique blend of cultural, social, and economic activities, it is this same feature that poses a challenge in setting an effective policy framework for its sustainable development. This pilot project was thus aimed at seeking a possible mechanism for the sustainable development of the Ancient Quarter, wherein the cultural values are preserved and enhanced, while socio-economic development is promoted in a way that they enhance the core value of the area. It was implemented on a selected block on Hang Buom Street.

34. The pilot project was carried out with the full participation of the block residents and other concerned stakeholders, from identifying the problems, the cultural values, and issues in the block to formulating the plan and implementing it. An integrated solution of: (i) increasing the floor space, (ii) improving the living environment, (iii) preserving and revitalizing traditional values, and (iv) strengthening economic competitiveness was reached, and the lessons learned from the pilot project are as follows:

- (a) Participation of the residents and stakeholders is a must: The people's willingness to participate was high and their contribution to planning and outputs was significant.
- (b) Opportunities for development balanced with conservation are large: The locational advantages of the Ancient Quarter provide ample opportunities for a balanced development such that socio-economic and socio-cultural sustainability can be promoted together.

(c) Need for improved institutional framework for public-private partnership: For the next steps, a more active policy commitment and the provision of improved institutional arrangements are necessary, wherein the role of the private sector must be clearly defined to guide or regulate their investments.

35. Without a sustainable development mechanism tested through pilot projects, the Ancient Quarter may give in to the relentless pressure of urban development, thereby forever losing its cultural identity and with it a place in the World Heritage Site list, among other dire consequences.

36. **District Planning:** This pilot project aimed at delineating the role of the District Plan vis-a-vis the General Plan and Detailed Plan.<sup>3</sup> HAIDEP proposes that the General Plan should indicate the overall orientation and structure of the entire city, while the District Plan should define the orientation of the General Plan by introducing the concepts of growth boundaries, zoning, and designating locations of key urban infrastructure such as main roads, utilities, parks, and other public facilities.

37. This pilot project on district planning for Dong Anh District intended: (i) to delineate the roles and functions of the District Plan to effectively address urban development issues, (ii) to identify an alternative mechanism to implement the planned urban development, and (iii) to propose a district planning system in conjunction with the General Plan proposed in the study. In this pilot project, a set of maps for the District Plan was developed. The Land-use Plan as the statutory plan was prepared to control land use through zoning. Spatial development control measures, such as floor area ratio, building control ratio, height control, setback, etc. were also adopted. The proposed District Plan is expected to be a practical tool for effective urban control and offers implementation measures that comply with the socio-economic development plans and the General Plan, which enable both HPC and the district governments to control and monitor urban development.

38. **Improvement and Development of Outside-of-dyke Area:** The outside-of-dyke area along the Red River has an important place in Hanoi's history, especially since the river used to be the lifeline through which goods and people were transported to and from the city. Traditional villages developed and various socio-economic and cultural activities thrived in the area. At present, a total of 160,000 people reside in the area comprising those with and without legal certificates. Even after the dyke was constructed to protect the inner city from frequent floodings and due to the area's prime location, the inflow of people and development activities continues. This pilot project aimed at seeking a workable mechanism to manage this area in consideration of the following: (i) protection of life and property of the residents, (ii) formulation of a mechanism to regulate land use, and (iii) restoration of the waterfront space and landscape of the Red River.

39. For this pilot project, the outside-of-dyke area facing the existing urban areas was selected for overall concept planning, while the three communes of Yen Phu, Phuc Xa, and Phuc Tan with a total population of about 53,000 and an area of 310ha were selected for a more specific study on living conditions and development activities.

40. The area's proximity to the city center attracts a constant inflow of people and investments. Although floods are a constant threat, clearing the area to make way for open spaces is neither realistic nor advisable. Alternative plans were thus made: The outside-of-dyke area was classified into three zones based on the degree of threat from flooding, that is: (i) a zone where no development would be allowed, (ii) a zone where development would be controlled, and (iii) a zone

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<sup>3</sup> At present, statutory urban planning under the Construction Law follows a two-tier plan, i.e. the General Plan and the Detailed Plan. However, the functional classification between these two plans is not very clear except in the required scale of base maps to be used.

where development would be encouraged. To support this zoning system, the improvement of the existing dyke and the implementation of disaster prevention measures must be provided. In this process, the resettlement of people can be undertaken within the area itself.

41. It is also important that the outside-of-dyke area be redeveloped to become more closely integrated with the existing urban area in the same way the Ancient Quarter was once directly connected to the Red River. The outside-of-dyke area must play a critical role in integrating the Red River and the urban areas in Hanoi.

## **PREFEASIBILITY STUDIES**

42. From the viewpoint of growth and development of urban areas in the city, two priority projects were selected for prefeasibility study. The UMRT is expected to promote a public-transportation-based urban development, while Ring Road No. 4 is expected to contribute to effective urban growth management and interface of urban and interprovincial transportation.

43. **Prefeasibility Study of the Urban Mass Rapid Transit Line 2:** UMRT Line 2 was selected for prefeasibility study to further analyze and verify if a mass transit line, in general, can contribute to the promotion of the envisioned urban development of Hanoi and, more specifically, to check the viability of UMRT Line 2 from the technical, economic, financial, social, and environmental viewpoints. UMRT Line 2 will function as the north-south public transportation backbone of the city. The project cost of UMRT 2 is estimated to be a grand total of US\$ 2.8 billion, which includes civil works, workshops/depot, railway systems, rolling stock, land, and others.

44. The impacts of UMRT Line 2 on the future development of Hanoi in terms of traffic, urban economy, environment, and communities in the influence area will be quite significant. The benefits from the reduction in traffic congestion and savings in travel costs alone resulted in an EIRR of 22.5%. When additional benefits due to effective land use and integrated development are considered, higher economic returns can be expected. Although resettlement of households may become an issue, the number of potential project-affected households is minimal (less than 30 permanently affected structures) because Phase 1 will be underground, and integrated development at and around stations are planned. While all of the impacts are largely positive, the UMRT Line 2's financial viability is less significant, with an FIRR of 4%, as is always the case in UMRT development in the world. However, it is estimated that revenues can sufficiently cover the operation and maintenance cost with a revenue-to-O&M cost ratio of 1.8 at the start of Phase 1, which will gradually increase to 3.2 when the line is fully completed.

45. The proposed funding strategy calls for the UMRT 2 to be developed using public funds. However, the operations and maintenance of the system should come from fare revenues and ancillary revenue sources. On the off chance that revenues could not cover O&M cost, support from the state (eg MOT) and/or HPC should be readied so as not to jeopardize the upkeep and safe operation of the line. To develop and operate UMRT 2 as well as other UMRT lines, it is recommended that HPC create the Mass Transit Authority which will plan, design, build, finance, and initially run UMRT Line 2.

46. **Prefeasibility Study of the Ring Road 4 West:** The objective of this prefeasibility study is to examine more closely the viability of Ring Road 4 (RR4) West, the western segment of the fourth circumferential road in Hanoi as proposed in the HAIDEP Urban Transportation Master Plan. Without RR4, the future urban development orientation in the HAIDEP General Plan would not be realized. RR4 West is estimated to cost US\$ 639 million, which includes construction, engineering, contingency, and land. Land cost is US\$ 128 million or 20% of the project cost. Additionally, operating and maintaining RR4 West would require approximately US\$ 30 million/year on average.

Since RR4 West will be a tolled expressway, a flat charge of VND 25,000 per car will be imposed by 2020, which is considered a revenue-maximizing level.

47. The economic benefits derived from RR4 West stems from the decongestion of roads within urban Hanoi and the distribution of traffic. Based on transportation cost savings alone, RR4 West was assessed to be very economically viable with an EIRR of 18.6%. If the benefits accruing from efficient urban development are factored in, the impact of RR4 West is expected to become even more significant. The possible environmental impacts of RR4 West are: (i) flooding due to unabsorbed surface water flow; (ii) increased air pollutants from motor vehicle emission; (iii) and split of communities. During construction, the impacts of earthworks, noise and vibration have also been identified. The financial evaluation of RR4 West showed that the project is moderately viable with a 9.5% FIRR against a widely used benchmark in Vietnam of 12%. The relatively low financial indicator may be due to the high cost of the Red River Bridge. With proper cost-sharing between the government and the investors, the project could be carried out under a PPP or PFI scheme.

## INVESTMENT PLAN AND STRATEGIC ACTIONS

48. **Investment Costs:** After identifying the subsector projects, they were prioritized based on the overall urban development policy, as well as their economic, financial, social, and environmental viabilities, to optimize limited government funds. Projects and project packages which comprise the HAIDEP-proposed Master Plan were categorized into urban and regional transportation, urban water and sanitation, and living conditions (see Table ES.12).

**Table ES.12 Total Investment Cost by Subsector**

Sector	Component	Project Cost (US\$ mil)
Urban Transportation	Urban Roads	7,993
	Traffic Management and Safety	444
	Public Transportation (Bus + UMRT)	5,468
	<b>Subtotal</b>	<b>13,905</b>
Regional Transportation	Road	4,610
	Rail	2,582
	Airport	3,350
	IWT Port	178
	<b>Subtotal</b>	<b>10,720</b>
Urban Water and Sanitation	Water Supply	581
	Drainage	2,085
	Sewerage	1,046
	Flood Control	223
	Lake Improvement	114
	<b>Subtotal</b>	<b>4,047</b>
Living Conditions	Housing	2,562
	Park and Green Space	5,223
	<b>Subtotal</b>	<b>7,785</b>
<b>Total</b>		<b>36,457</b>

Source: HAIDEP Study Team.

49. The investment cost of the HAIDEP Master Plan by subsector will be US\$ 13,830 million for urban transportation; US\$ 10,720 million for regional transportation; US\$ 4,047 million for urban water and sanitation; and US\$ 7,785 million for living conditions.

50. **Budget Envelope:** In order to provide a possible budget envelope for the city, three scenarios were assumed using various percentages of the future GRDP (see Table ES.13). Based

on the assumptions that the GRDP would grow at an average annual rate of 11% through 2020 and that 4.0%, 6.0%, and 8% of it would be allocated for urban sector development, the possible budget envelope for the city between 2006 and 2020 would be US\$ 6.6 billion, US\$ 9.9 billion, and US\$ 13.1 billion, respectively.

**Table ES.13 Possible Budget Envelope for the Urban Sector**

Year	GRPD <sup>1)</sup> (US\$ billion)	Assumed Share of Urban Sector in GRDP (US\$ mil.)		
		4.0%	6.0%	8.0%
2005	4.3	173	260	346
2006 - 2010	4.7- 7.2	1,189	1,784	2,378
2011 - 2015	8.0 - 12.2	2,005	3,008	4,010
2016 - 2020	13.6 - 20.6	3,378	5,067	6,756
Total (2006-2020)	-	6,572	9,859	13,144

Source: Estimated by the HAIDEP Study Team.

1) An average annual growth rate of 11% through 2020 was assumed.

51. **Funding Opportunities:** The estimated investment cost of the proposed infrastructure far exceeds the budget envelope of the city. Funding will become more and more critical as urban development pressure increases. While funding for urban sector projects can be obtained from various sources including development allocations from the central government, local governments, private capital, as well as overseas sources, including FDIs and ODA, there is a need to: (i) expand its local revenue bases by applying user charges and service fees to recover operational and maintenance costs of providing urban services; (ii) optimize existing funding sources by applying innovative project implementation methods such as public-private partnerships/private financing initiatives, leverage ODA funding, and earmark taxes for special purposes; and (iii) develop long-term borrowing capacity including issuance of local government bonds, project bonds, etc. and access capital markets.

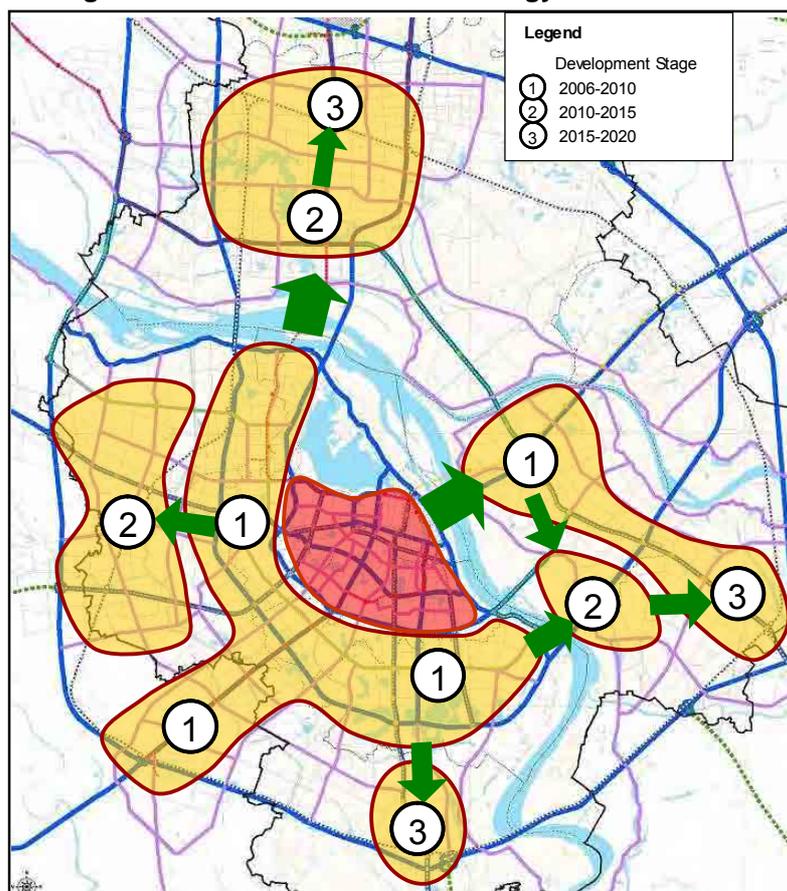
52. It is also important to consider that these infrastructure costs can be financed by the private sector partly or substantially, so that the cost to government can be reduced. For example, public-private partnership arrangements or user charges can be adopted for public transportation, water supply, drainage/sewerage, and even urban roads and traffic management. As substantial parts of the project cost are due to increased cost of lands, it is also possible to integrate infrastructure development with urban development to reduce the cost or to gain more development benefits. Regional transportation costs must be shouldered by or shared with the central government.

53. **Coordinated Investment:** Infrastructure development must be undertaken in a way that it will support and promote the desired growth pattern of urban areas. This is particularly important for Hanoi where future expansion of urban areas is unavoidable and expected to be significant. Main transportation infrastructures will play a key role in guiding the urban expansion, while environmental projects and utility service projects must be implemented in coordination with the development of urban areas. In this process, adequate institutional and support measures should be provided to encourage an orderly private sector investment. The planned growth strategy is illustrated in Figure ES.5.

## IMPLEMENTATION AND MANAGEMENT

54. It is important for the city to have integrated plans with stakeholder consent in order to have a sound basis for policy implementation and further coordination with various government and private organizations. Plans need constant monitoring and updating. Moreover, it is also the view of the Study Team that existing institutional arrangements need reform for more effective urban development and management.

Figure ES.5 Planned Growth Strategy for Urban Areas



Source: HAIDEP Study Team.

55. **Overall Institutional Framework:** The proposed overall institutional development orientation for the HAIDEP Master Plan for Hanoi is aimed at promoting the government as an enabler of urban development and services and not merely as a provider. For this, further improvements on institutions and administrative framework are necessary including reform of the statutory urban planning system, urban land management and development system, urban sector funding, and capacity building for urban planning and development organizations. Moreover, as Vietnam progresses toward a market economy, the government should pave the way for the private sector to be more actively involved, while it sets policies, establishes sector priorities, monitors private sector operations, promotes economic growth, and takes proactive measures to improve the quality of urban life.

56. **Public Involvement and Participatory Planning:** As urban problems and issues become complicated and the people's concerns and awareness levels increase, their involvement in planning and implementation becomes critical. Although it is not easy to practice the participatory process in urban planning and development in big cities, like Hanoi, it has been proven in the HAIDEP at both the master plan formulation and pilot project levels that the people are willing to participate and can provide affirmative inputs. The participatory mechanism merely needs further refinement and institutionalization for wider practice in future undertakings.

57. **Planning Database:** Planning for large urban areas require a set of reliable data and information which must be regularly updated to enable a deeper understanding and accurate interpretation of cross-cutting problems and issues. This is particularly important in formulating comprehensive master plans. For this, HAIDEP conducted extensive surveys, including a 20,000-respondent Household Interview Survey (HIS) and a mapping survey, the results of which

became the bases for producing a number of organized planning systems, as follows:

- (a) **GIS-based Map Information System:** Various types and sizes of maps were prepared in the study and organized into a software package which can be used for various planning activities.
- (b) **Urban Karte:** Based on available data and those collected from the comprehensive HIS, living conditions were systematically assessed at the commune level, providing common information for the city authorities and the people.
- (c) **STRADA and Related Database:** The system for traffic demand analysis (STRADA) software developed by JICA was made available to the Vietnamese Counterpart Team together with the requisite input data for further analysis of and planning for urban transportation projects for the city.

58. **Monitoring Indicators:** A set of indicators measuring the performance of urban development and management was worked out to monitor the implementation of the plan and the level of infrastructure and services in the future.

59. **Donor Coordination:** Throughout the study process, donors were consulted and necessary coordination was made regarding related projects and issues through the Urban Forum, workshops, seminars, and individual meetings with concerned authorities.

60. **Proposed Strategic Actions:** To promote the envisioned urban development, Hanoi must undertake a wide range of projects and actions in compliance with its strategies and the confirmed priorities of stakeholders. Of the actions identified in HAIDEP, a number were considered more critical in ensuring an effective urban development and management (see Table ES.14). Since implementing these actions in a coordinated manner will not be easy, relevant sector departments need to adopt concrete implementation strategies for their respective action plans.

**Table ES.14 HAIDEP-proposed Strategic Actions**

Sector	Project/Action		Schedule			Project Component			Support Scheme			Related Projects /Actions
			ST	MT	LT	Infra Services	O&M	Inst'n	Fund-ing	TA	PPP	
	Code	Title										
A. Regional Development (Regional Role of Hanoi)	PA1.	Develop globally competitive strategic growth corridors				⊙	⊙	⊙	⊙	⊙	⊙	PC1, PC3 PD15
	PA2.	Cross-border transportation and regional development				△	○	⊙	△	⊙		PA3
	PA3.	Establish coordinated regional investment promotion program and one-stop center				△	⊙	⊙	△	⊙	△	PA3, PA4, PC1, PC3
	PA4.	Establish regional planning database and management system				△	⊙	○	○	⊙	△	PA3, PA5, PA6, PJ1
	PA5.	Establish regional coordinating councils among northern provinces				△	○	△	△	△	—	PA3, PA4, PA6
	PA6.	Establish planning capacity building institutions on urban/regional development				○	⊙	○	○	⊙	△	PA3, PA4, PA5
B. Urban Development Growth Management	PB1.	Establish development and growth strategy for key urban corridors				⊙	⊙	⊙	⊙	⊙	⊙	PD6, PD9, PH3
	PB2.	Strategic development of new CBD in Dong Anh				⊙	⊙	⊙	○	⊙	⊙	PB1, PD9
	PB3.	Establish strategies, mechanism for upgrading/rebuilding of existing urban areas				⊙	⊙	⊙	△	⊙	○	PD5, PG3, PH3, PI1-2
	PB4.	Establish strategies and mechanism for other identified action areas				○	○	⊙	○	⊙	○	PI 1-6
C. Economic and Social Development	PC1.	Establish updated urban economic devt. strategies and conducive investment envt.				—	—	○	—	○	○	PA1, PA3, PJ6
	PC2.	Establish supporting mechanism for SMEs including informal sector				—	—	○	△	○	△	PC6
	PC3.	Establish competitive urban industrial estates/zones				○	○	△	○	○	○	PA1, PA3, PC6
	PC4.	Strengthen capacity and technological linkages of higher educ. and urban industries				○	⊙	○	○	⊙	○	PC1
	PC5.	Strengthen tourism promotion, infrastructure and services				○	○	△	△	○	○	
	PC6.	Develop effective mechanism to address urban poverty and rural issues				○	⊙	○	○	⊙	○	PC2, PC3, PF1
D. Urban Transportation	PD1.	Establish coordinated mechanism for preparation, monitoring, and upgrading of urban transportation master plan				—	○	△	△	○	—	PD2
	PD2.	Develop and conduct capacity building program on transportation planning and management				△	○	△	△	⊙	△	PD1, PJ4
	PD3.	Strengthen traffic management and safety improvement capacity				○	○	△	○	○	△	PD10, PD11
	PD4.	Complete key sections of main roads in Hanoi				○	△	—	○	△	—	PB3
	PD5.	Develop urban roads in integration with urban development				○	○	⊙	△	⊙	○	PB3, PD12
	PD6.	Comprehensive improvement /development of sidewalk network and space				○	○	○	○	○	○	PB1, PD11
	PD7.	Expand and improve bus services				○	⊙	○	○	○	○	PD8
	PD8.	Establish clear policy and support measures for paratransits				○	○	○	△	○	○	PD7
	PD9.	Integrated development of UMRT network				⊙	⊙	⊙	⊙	⊙	○	PB1, PB2, PD14
	PD10.	Establish comprehensive parking policy and facility development				⊙	⊙	⊙	○	⊙	○	PD3
	PD11.	Comprehensive improvement of traffic environment in CBD				○	⊙	○	○	⊙	○	PD3, PD6
	PD12.	Comprehensive improvement of transportation and urban environment in key corridors				○	○	○	○	○	○	PD5, PH4
	PD13.	Develop water transportation services in Hanoi				○	○	△	○	○	○	PE4
	PD14.	Improve inter-city public transpo services between Hanoi & satellite cities/urban areas				○	○	△	○	○	○	PD9
	PD15.	Improve public transportation services between rural and urban areas				○	○	△	○	○	○	PA1

Source: HAIDEP Study Team.

Sector	Project/Action			Project Component			Support Scheme			Related Projects /Actions		
	Code	Title	Schedule			Infra Services	O&M	Inst'n	Fund-ing		TA	PPP
			ST	MT	LT							
E. Water and Sanitation	PE1.	Develop surface water resources and related water distribution systems				⊙	○	△	⊙	⊙	○	PG3
	PE2.	Develop drainage systems with multipurpose flood protection reservoir				⊙	○	○	⊙	⊙	△	PE4
	PE3.	Develop sewerage system for the urban core				⊙	○	○	⊙	⊙	△	PG3
	PE4.	Develop water flow diversion system for environmental maintenance of rivers & lakes				⊙	⊙	○	⊙	⊙	△	PD13,PG2, PG3, PI4
F. Housing and Living Conditions	PF1.	Establish policy and inst'l framework for sustainable provision of affordable housing				⊙	⊙	⊙	○	⊙	△	PC6
	PF2.	Establish participatory monitoring system of living conditions at community level				△	○	○	△	⊙	○	PG4, PJ1
	PF3.	Improve technical standards for buildings and their maintenance				△	⊙	⊙	△	⊙	△	
	PF4.	Improve adequate mechanism and promote lands and housing supply				△	⊙	⊙	△	⊙	△	PJ3
	PF5.	Establish effective mechanism to promote redevelopment of old public housing areas				△	⊙	⊙	△	⊙	△	PB3
G. Environment	PG1.	Develop comprehensive environmental mapping and information system using GIS				△	○	○	○	⊙	△	PJ1, PJ4
	PG2.	Develop green belts around Hanoi				○	⊙	⊙	⊙	○	△	PE4, PI3
	PG3.	Strengthen urban environmental monitoring system				△	⊙	⊙	○	⊙	△	PE1, PE3, PE4
	PG4.	Develop parks at community level				⊙	⊙	○	⊙	○	△	PF2
H. Urban Design and Landscape	PH1.	Formulate comprehensive landscape guidelines and operate				△	○	⊙	△	⊙	△	PH4, PI 1,2,3
	PH2.	Implement landscape improvement model project along main gateway corridors				○	○	○	○	○	△	
	PH3.	Implement two model projects for underground space development				⊙	⊙	⊙	⊙	⊙	○	PB1, PB3 PI1, PI2
	PH4.	Improve tree planting in Hanoi				△	⊙	△	△	⊙	○	PD12, PH1
I. Special Areas	PI1.	Sustainable development of Ancient Quarter				⊙	⊙	⊙	⊙	⊙	⊙	PB3, PH1, PH3, PJ6
	PI2.	Formulate and operate development guidelines for French Quarter				△	⊙	⊙	△	⊙	⊙	PB3, PH1 PH3, PJ6
	PI3.	Improve Thang Long – Co Loa historical, cultural and environmental core zone				⊙	⊙	⊙	⊙	⊙	⊙	PG2, PH1
	PI4.	Establish effective mechanism for and implement devt. of outside-of-dyke areas				⊙	⊙	⊙	⊙	⊙	⊙	PB3, PE4, PJ6
	PI5.	Construct spiritual tower at An Duong				○	○	△	○	○	⊙	PJ6
	PI6.	Establish sustainable development mechanism for Ho Tay environmental zone				○	○	○	○	○	⊙	PE4, PJ6
J. Implementation & Management	PJ1.	Establish and open to the public urban planning information system				△	⊙	⊙	△	⊙	△	PA4, PF2, PG1
	PJ2.	Improve and operate urban planning institutions				△	⊙	⊙	△	⊙	△	PJ5
	PJ3.	Develop and adopt alternative urban development methods				△	⊙	⊙	△	⊙	△	PB1-4 PF4
	PJ4.	Establish and operate urban facilities management information system				○	⊙	○	○	⊙	○	PD2, PG1
	PJ5.	Develop and implement urban planning human resources				△	⊙	○	○	⊙	△	PJ2
	PJ6.	Expand and strengthen funding mechanism for urban development				△	⊙	⊙	△	⊙	△	PC1, PI 1-6

Source: HAIDEP Study Team.

## CONCLUSION AND RECOMMENDATIONS

61. **Conclusion:** In order to realize the vision of the city under a rapidly progressing urbanization, the currently practiced urban planning and development system in Vietnam, in general, and in Hanoi, in particular, requires improvement in various aspects. The need for establishing a workable mechanism to promote sustainable urban development is urgent. The following were derived through the study process of updating the existing master plan:

- (a) The improvement of the institutional framework must guide the large volume of active and diverse development activities within the context of a progressive market economy, wherein the contents and operation of the urban planning system must provide useful and effective tools.
- (b) The improvement of the existing urban planning system in Vietnam can be done based on the experiences and outputs of the HAIDEP Study as well as the existing systems adopted in various developed countries like Japan.
- (c) The improved urban planning system must be associated with the introduction of a range of project implementation methods and the development of organizations and human resources to facilitate smooth urban development.

62. The General Plan proposed in the HAIDEP was prepared by updating the 1998 Master Plan and expressing the shared vision and goals as a spatial development strategy. The plan is based on the strategic “water-greenery-culture” concept and aims at realizing a public-transportation-based urban development and land use while ensuring the city’s competitiveness, livability, and environmental sustainability. The plan also proposes a structure integrating Hanoi with its neighboring urban areas and provinces. The HAIDEP General Plan was prepared in response to the statement made in (a) above and is different in its contents and operational purposes.

63. The sustainable urban development of Hanoi can be achieved by implementing policies and actions for different subsectors such as urban development, transportation, water and sanitation, as well as living conditions in an integrated and coordinated manner. This makes it possible to promote effective and efficient urban development, smooth acquisition of lands for public infrastructure, as well as increased development benefits and municipal revenues. Opportunities for private sector participation will also increase and the financial burden on governments may also be lessened.

64. **Recommendations:** Hanoi being a large city must carry out various tasks simultaneously, and these are listed in the form of strategic actions. It is also important to emphasize a number of projects/actions of strategic importance to propel urban development. These are:

- (a) Establishment and Practice of Comprehensive Urban Planning System: This aims to promote capacity building on urban planning administration for institutions and individuals.
- (b) Development of Mass Transit and Implementation of Integrated Development: In parallel to the development of the UMRT Line 2 which was found feasible in the prefeasibility study, related urban development should be undertaken in an integrated manner, while effective development mechanisms, such as PPP schemes, should be established.
- (c) Development of the Ancient Quarter and the Co Loa Area: These areas comprise the heart of Hanoi where development pressure has been increasingly strong. If the current situation continues without proper interventions, the area’s importance will be spoiled with the progress of disorderly development.

65. Role-sharing between the central government and the local government needs to be reviewed from the viewpoint of promoting a more effective urban development. Specifically, a coordination mechanism between the city plan and various plans of the ministries must be streamlined to harmonize policies and projects. For example, urban transportation needs to be properly segregated from and, at the same time, integrated with the regional transportation system. Also, the conversion of agricultural lands for housing and urban development needs to be accelerated in urban development promotion areas. As Hanoi is the country's capital and plays a critical role in the economic development of northern Vietnam and the country, the government's stable financial support is necessary.

## **SUMMARY**

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## 1 INTRODUCTION

1.1 **Study Background:** Since the mid-90s Vietnam has experienced strong economic growth which is expected to continue. While Hanoi enjoys the fruits of economic prosperity, the city also carries the brunt of the various ill effects it engenders such as rapid urbanization, traffic congestion, deteriorating living conditions, degraded environment, and rising traffic accidents. These are expected to worsen unless useful measures are taken. To address these urban problems, master plans have been prepared for various sectors such as transportation, water, drainage and sewerage, among others. Against this backdrop, the Japan International Cooperation Agency (JICA) at the request of the Vietnamese government conducted together with the Hanoi People's Committee (HPC), a study to integrate these plans into a comprehensive master plan on sustainable urban development for Hanoi City and the region. The study is titled "The Comprehensive Urban Development Programme in Hanoi Capital City" or the Hanoi Integrated Development and Environment Program (HAIDEP).

1.2 **Study Objectives:** The HAIDEP Study aimed to update the existing Urban Master Plan<sup>1</sup> by translating the urban development vision of Hanoi into a concrete, integrated master plan and to establish a mechanism to implement this plan. Specifically, these are: (i) to formulate the Comprehensive Urban Development Program for the Hanoi Metropolitan Area up to 2020, (ii) formulate a short-term implementation plan, (iii) implement pilot projects and a feasibility study on priority urban transportation projects, and (iv) strengthen planning and management capacities of government bodies.

1.3 **Study Area:** Besides Hanoi City, the study area covered Hai Phong City and the northern Red River delta provinces of Ha Tay, Vinh Phuc, Bac Ninh, Hai Duong, Hung Yen, Ha Nam, Quang Ninh, Hoa Binh, Bac Giang, Thai Nguyen, Nam Dinh, Thai Binh, Ninh Binh, and Phu Tho due to their significance to Hanoi's and Vietnam's overall development, as well as their inclusion in existing plans and those currently being prepared. They include the following (see Figure 1.1):

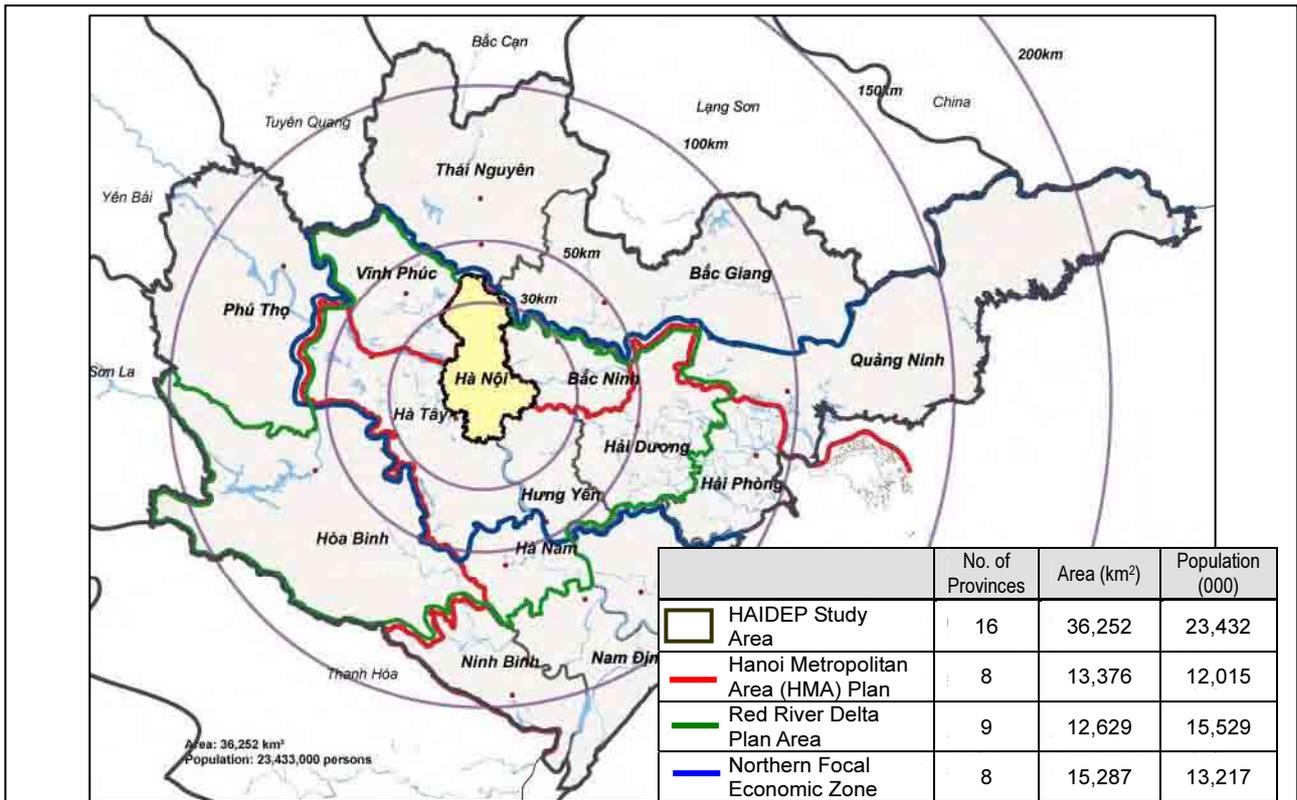
- (i) Hanoi Metropolitan Area Development Plan which has been recently formulated by NIURP of MOC and is being discussed prior to finalization.
- (ii) Red River Delta Development Plan which was formulated by the Ministry of Planning and Investment (MPI) and approved by the Prime Minister in Decision No. 677/TTg-1997.
- (iii) Northern Focal Economic Zone Development Plan which was formulated by MPI and approved by the Prime Minister in Decision No. 747/TTg-1997.

1.4 **Study Organization:** The HAIDEP commenced in December 2004 and was completed in March 2007. For the smooth implementation of the study, a Steering Committee was organized chaired by Mr. Do Hoang An, HPC Vice Chairman, and with members from key government ministries, such as the Ministry of Construction (MOC), Ministry of Transport (MOT), MPI, Ministry of Finance (MOF), and Ministry of Natural Resources and Environment (MONRE), as well as Hanoi city government's HAPI and HAUPA. Four technical working groups were also organized for each of the urban subsectors of urban planning and development, urban transportation, urban water and sanitation, as well as living conditions. The PMU of HAPI acted as the counterpart to the HAIDEP Study Team. JICA also organized an advisory team headed by Professor Takashi Ohnishi (see Appendix 1 for a complete list of study members).

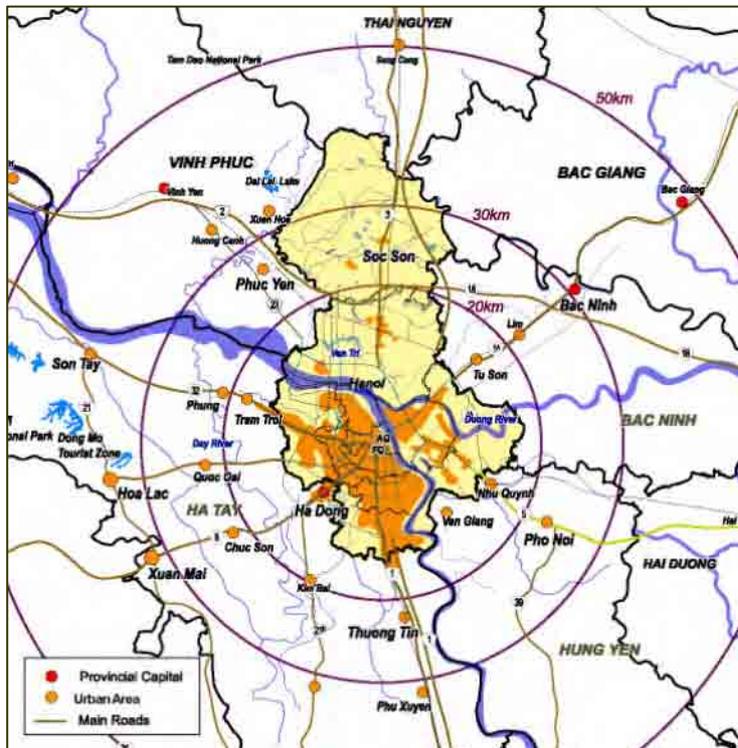
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1 The existing Urban Master Plan was prepared and approved by the Prime Minister in 1998.

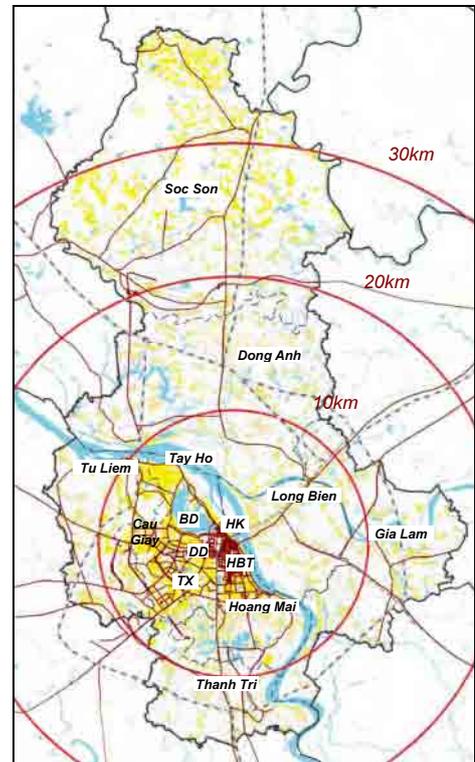
**Figure 1.1 HAIDEP Study Area: Hanoi Region**



**Hanoi Metropolitan Area**



**Hanoi City**



Source: HAIDEP Study Team.

## 2 PROFILE OF HANOI

### 2.1 Historical Development of Hanoi

#### Origin of Hanoi

2.1 Hanoi's origin dates back to more than 2,000 years when the capital of the Au Lac dynasty, which lasted for only 50 years, was in Co Loa. The ensuing thousand years witnessed the rise and fall of various dynasties bringing with them changes in the location of the capital as well. In 939, Co Loa became the capital again when Ngo Quyen took power. In 968, the capital was moved to Hoa Lu by Dinh Bo Linh. In 1010 (year of Canh Tuat), Ly Thai To, the first king of the Ly dynasty, moved the capital from Hoa Lu to Dai La citadel and named the new capital Thang Long (Soaring Dragon). The Thang Long citadel developed on the right bank of the Red River, whose commercial center is now called the Ancient Quarter. In the 15th century, the Hanoi citadel (a new royal citadel) was constructed on the site of the former Thang Long citadel and it reigned for over 460 years until it was pulled down in 1895.

2.2 In 1883, France's colonization of Vietnam began and the French Indochina Union was born. Hanoi became the capital of French Indochina during 1902 - 1953. During 1894 - 1897, after completing the invasion of Vietnam, the French leveled the citadel for the planning and construction of Hanoi's streets as they are seen today. Up to the end of the 19th century, France exercised a lake-centered planning and expanded the city area from the Hanoi citadel and the Ancient Quarter toward the southeast. Throughout the centuries, Hanoi's population never exceeded 400,000.

#### Expansion and Densification of the Urban Area

2.3 In the late 1950s, the city developed only at the right bank of the Red River with Ba Dinh, Hoan Kiem, and southern Ho Tay as the center. The land area was 70km<sup>2</sup>. In the 1960s, the city grew toward the south of the Red River and further on to the northeast (Gia Lam - Dong Anh). The city was divided into four urban and four rural districts with a total area of about 200 km<sup>2</sup>.

2.4 Urbanization centering on the Ancient Quarter and the French Quarter during the period of state planning and administration leading up to the Doi Moi was contained within Ring Road No. 2 (RR2) parallel to the To Lich River, which effectively blocked the outward sprawl of urbanization. The urban population then never went beyond a million. During this period, uniform high-rise apartment blocks, just like those in Kim Lien, Giang Vo, Thanh Xuan, and other residential blocks, were constructed within this boundary with the assistance of the former Soviet Union and other allied countries.

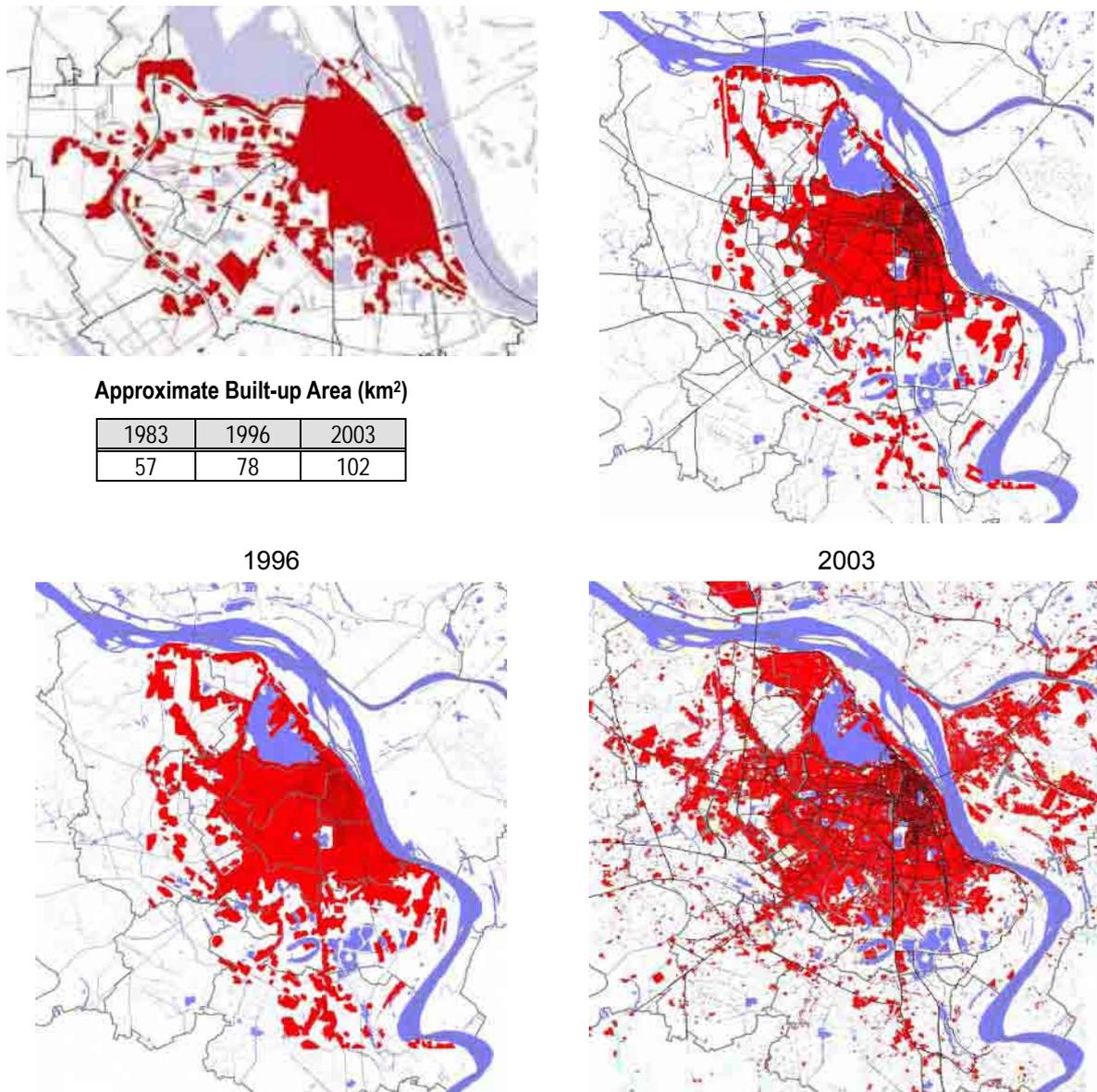
2.5 Rapid urbanization in Hanoi started after Doi Moi and has progressed since the 1990s, with in-migration from other provinces and cities and rural-to-urban transfer. Total population increased at an average annual rate of 3.2% between 1990 and 1995 and 3.1% between 1995 and 2005. Developments took place in the fringes of built-up areas and along major roads. The built-up area in the center has expanded roughly from 57km<sup>2</sup> to 102km<sup>2</sup> during this period.

2.6 Such rapid urbanization created Hanoi's compact urban areas which have high population densities. While the urban core comprise four districts occupies 35km<sup>2</sup> only, it has a population density of 316 persons/ha. In residential areas, the density increases to 399 persons/ha. In the urban fringe, population density is moderate at 62 persons/ha, except in Thanh Xuan, which has 215 persons/ha and Cau Giay which has 142 persons/ha. However, the density in residential areas sharply increases to 111 persons/ha in the urban fringe<sup>1</sup>.

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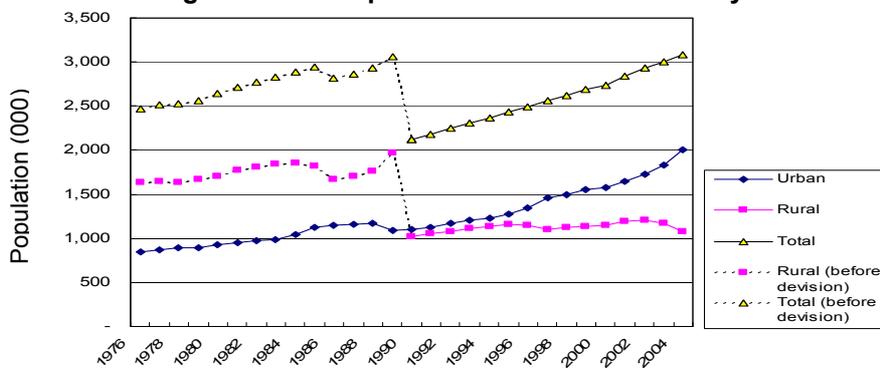
<sup>1</sup> Hanoi is classified into urban core (Ba Dinh, Hoan Kiem, Hai Ba Trung and Dong Da districts), urban fringe (Tay Ho, Thanh Xuan, Cau Giay, Hoang Mai, and Long Bien districts), suburban areas (Tu Liem and Thanh Tri districts), and rural areas (Soc Son, Dong Anh, and Gia Lam districts).

**Figure 2.1 Expansion of Urban Areas in 1983, 1996, and 2003**



Notes: Worked out by the HAIDEP Study Team based on maps and images. Satellite imageries of Long Bien and Gia Lam are available for 2003 only.

**Figure 2.2 Population Growth in Hanoi City**



Source: HAIDEP Study Team.

1) In 1990, the rural area of Hanoi was split into Hanoi, Ha Tay, and Vinh Phuc provinces. As a result, the total area of Hanoi changed from 2,141km<sup>2</sup> to 921km<sup>2</sup>.

## 2.2 Current Physical Setting

### Topography, Geology, and Hydrology

2.7 The Red River, extending to Vietnam, China, and Laos, covers 310,500km<sup>2</sup> in Vietnam. It has three main tributaries, namely the Da River, the Thao River, and the Lo River. The river system has affected Hanoi's development for so long in its history as is evidenced from its name "Ha" meaning "river" and "Noi" for "inside." Because of the river's significance, developments in Hanoi must consider the opportunities and the threats posed by the Red River system. Inundations often occur along urban rivers, especially during the flood season, as the water levels of the Red River can rise up to 4m to 6m higher than the ground level, putting the city under the threat of inundation. The annual fluctuation of the water level of the Red River is 2 - 12m (14.13m in 1971).

2.8 Hanoi, with 920km<sup>2</sup> of administrative area, is situated in the middle of the Red River delta on low-lying land with an elevation of 5m to 10m above the sea level. The terrain is relatively flat with a 1 - 2% slope, except for the northern mountainous area in Soc Son District which is 500m above the mean sea level.

2.9 The geology of Hanoi area is typical of an ancient delta. The top layer is clay, silty clay or silt, the thickness of which varies from 5m to some tens of meters. A quaternary cobblestone-gravel aquifer is located under the top soil layer.

2.10 Hanoi has a large number of ponds and lakes. The largest is West Lake with an area of 446ha. Most of the lakes and ponds are shallow with a depth of 2m to 4m. As part of the sewerage and drainage system for wastewater treatment, they regulate the flows. They are also used for recreational purposes and fish farming. However, in the process of urbanization, up to 50% of ponds and lakes have been reclaimed for urban development.

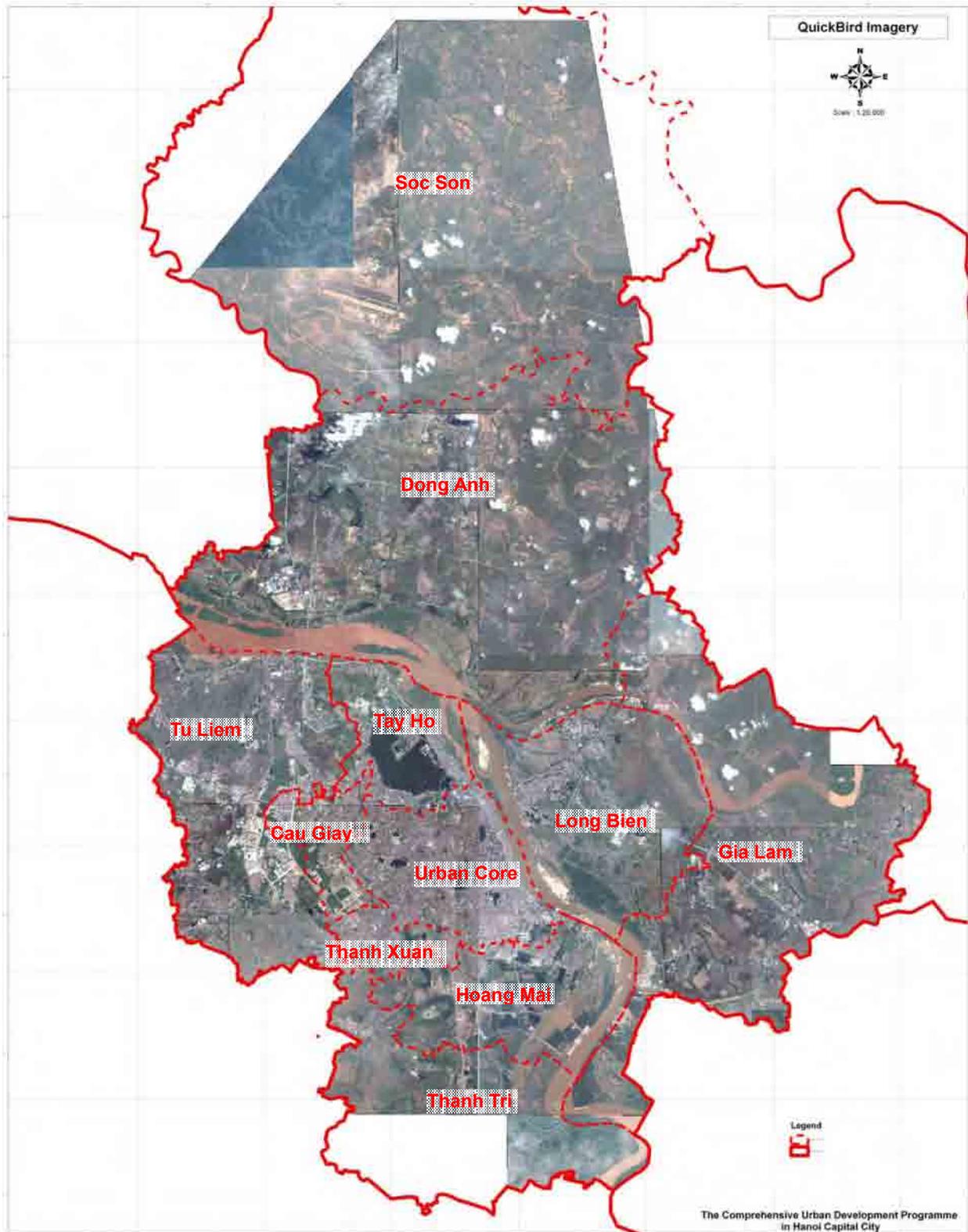
### Land Use

2.11 **Overall Land Use:** Of the total land area of 921km<sup>2</sup>, 626.2km<sup>2</sup> (68% of land) falls under rural use. In urbanized areas, Hanoi has 62.5km<sup>2</sup> (6.8%) of residential land, 3.6 km<sup>2</sup> (0.4%) of commercial land, 23.9 km<sup>2</sup> (2.6%) of institutional land, 16.8km<sup>2</sup> (1.8%) of industrial land, 2.6km<sup>2</sup> (0.3%) of parks, and 34.9 km<sup>2</sup> (3.8%) of land for urban facilities. Other areas account for 16.3% of Hanoi's total land area. Land-use patterns highlight the fact that the main economic and social functions are highly concentrated in the urban core districts even though their actual land size is very small. Currently, there are insufficient urban lands in Hanoi, as large areas are still used for the primary sector.

2.12 **Transportation Land:** Hanoi has a main road length of 624km, a railway length of 123.2km, and an inland waterway length of 80.7km. The ratio of road area to Hanoi's total land area is 1.9%, which is absolutely low compared to major cities in other countries. Other main transportation lands include airport, port, and railway yards, accounting for roughly 20 km<sup>2</sup>, which include 10km<sup>2</sup> of Noi Bai Airport.

2.13 **Parks and Green Spaces:** Hanoi has a total of 622km<sup>2</sup> of green spaces, most of which are rice fields and other agricultural land (501km<sup>2</sup>), followed by water surface (81km<sup>2</sup>), forest area (37km<sup>2</sup>), and parks (3km<sup>2</sup>). While 90% of the agricultural area is in suburban and rural districts, 84% of parks are in urban core and urban fringe areas. In the 9 urban districts, there are 175ha of park areas, including water surface. In the old developed areas, such as Hoan Kiem and Hai Ba Trung districts, the average per capita green space is relatively higher. But in rapidly urbanizing districts, such as Dong Da and Gia Lam districts, the average per capita green space is only 0.05m<sup>2</sup>. The average park area per person is still low compared with figures in other countries.

Figure 2.3 Physical Setting of Hanoi



Source: Quickbird Satellite Image (2003).

Note: The urban core covers Ba Dinh, Hoan Kiem, Hai Ba Trung and Dong Da districts.

## 2.3 Population and People's Profile

2.14 **Population:** During the last decade, Hanoi has grown rapidly in many aspects. Its population has continuously increased at a rate of nearly 3% per year. As of 2005, Hanoi had a population of 3,183,000, 63% of which resided in urbanized areas. Besides natural population increases, in-migration from surrounding provinces and cities has contributed to the rapid population growth. About 50,000 people migrated to Hanoi each year in the 1999-2004 period.

2.15 Although such rapid population growth can be seen in the entire city, it is particularly significant in the city's urban fringe districts. Urban areas expanded beyond RR2, then further to RR3. The more recent growth has even spilled onto suburban areas. While developments in peri-urban areas have accelerated, it is also of note that: (i) growth in the urban core has been active in spite of its already high population density, and (ii) growth in rural areas has been moderate, and development pressure in these areas has not been that intense.

2.16 **Profile of Households:** The average household has 4.3 members with a household income of VND 2.7 million per month. 89% of households have land-use rights and 92% own houses which are mostly detached. The ratio of apartments and high-rise residents is still low and only high-income class households live in such kinds of housing. No matter how low or high the income, 83% of households in Hanoi own motorcycles with 40% of them having more than two. Car ownership is still low at 2% in the whole city.

2.17 Households in Hanoi can be classified into four household types by composition. Their socio-economic characteristics are summarized below (see Table 2.2).

- (1) **Single Households:** This household type mainly comprises the elderly living alone, 80% of whom are in their 50s and 60% in their 60s. 60% are female. Since most are retired or jobless, this type has the lowest average household income and lower than average vehicle and goods ownership. Per capita average living area, however, is the highest at 61m<sup>2</sup>. The share of apartment dwellers is 24%, which is higher than average (12%).
- (2) **Shared Households:** This household type is common among students and workers who share rooms with friends and colleagues, and among the elderly who share rooms with relatives or others. The share of people in their 20s and are working in the tertiary sector are higher than average. The income level per gainfully employed worker is average. Per capita floor area is almost average but quite low considering the small household size.
- (3) **Nuclear Households:** This household type is fast becoming popular among 30- and 40-year-olds. Socio-economic conditions, housing standard, and area distribution are almost in line with the city's average. However, some households, such as those comprising single parents and children, have poorer conditions: motorcycle ownership is only 46% and average monthly household income is only VND 1.46 million. For households with both parents and children, it is VND 2.24 million.
- (4) **Multihouseholds:** This household type comprises members spanning more than 2 generations. It accounts for 61% of total households of Hanoi City and includes 58% with children and 42% without. Socio-economic conditions are slightly higher than average owing to its large number of gainfully employed members. Per capita floor area is the lowest at 18-21m<sup>2</sup> due to its large household size.

2.18 In general, the quality of life of Hanoi households is relatively higher compared to those in the same income levels in other countries. Ownership of basic household commodities and housing, as well as the coverage of urban services, is likewise relatively higher.

**Table 2.1 Hanoi's Population by District**

	Area (km <sup>2</sup> )	Population (000)		Annual Pop. Growth 99-05 (%/yr)	Pop. Density, 2005 (no/ha)	Population Density, 2003
		1999 no.	2005 no.			
<b>Hanoi City</b>	<b>921</b>	<b>2,675</b>	<b>3,183</b>	<b>2.9</b>	<b>35</b>	
<b>Urban Core</b>	<b>35</b>	<b>963</b>	<b>1,094</b>	<b>2.1</b>	<b>316</b>	
Ba Dinh	9	198	231	2.6	249	
Hoan Kiem	5	165	179	1.3	338	
Hai Ba Trung	10	272	312	2.3	310	
Dong Da	10	328	372	2.1	374	
<b>Urban Fringe</b>	<b>144</b>	<b>673</b>	<b>896</b>	<b>4.9</b>	<b>62</b>	
Tay Ho	24	91	108	2.9	45	
Thanh Xuan	9	149	196	4.6	215	
Cau Giay	12	122	171	5.8	142	
Hoang Mai	40	161	236	6.6	60	
Long Bien	60	151	186	3.6	31	
<b>Suburban</b>	<b>139</b>	<b>343</b>	<b>427</b>	<b>3.7</b>	<b>3</b>	
Tu Liem	75	193	262	5.2	35	
Thanh Tri	63	150	165	1.6	26	
<b>Rural</b>	<b>604</b>	<b>696</b>	<b>766</b>	<b>1.6</b>	<b>13</b>	
Soc Son	307	246	266	1.3	9	
Dong Anh	182	261	288	1.7	16	
Gia Lam	115	188	212	2.0	18	

Source: HAIDEP HIS (2005).

**Table 2.2 Characteristics of Households in Hanoi**

		Household Size						Total	
		Single	Nonfamily household <sup>1)</sup>	Nuclear Household			Multihousehold		
				Without Children	Single Parents	With Children	Without Children		With Children
<b>Household</b>									
Number of HH (000)		7	17	53	13	205	266	194	755
% to Total		1%	2%	7%	2%	27%	35%	26%	-
Average Size		1.0	2.8	2.0	2.6	3.8	4.5	5.4	4.3
<b>Household Member</b>									
Gender (%)	Male	38.7	33.4	50.0	35.3	50.4	51.2	48.2	49.5
	Female	61.3	66.6	50.0	64.7	49.6	48.8	51.8	50.5
<b>Housing</b>									
Living Space (m <sup>2</sup> )	Per HH	61	65	81	67	79	93	98	88
	Per capita	61	23	40	26	21	21	18	21
Housing Type (%)	Traditional house	6.0	5.5	4.1	2.4	3.1	4.0	4.6	3.1
	Apartment	23.7	24.4	21.6	13.4	11.8	14.6	11.4	11.8
	High-rise apartment	5.2	1.3	0.9	0.4	0.7	0.5	0.3	0.7
	Detached house	65.1	68.8	73.3	83.8	84.5	80.9	83.7	84.5
Period of Stay (year)		34	36	39	30	39	45	52	44
<b>Economic Conditions</b>									
Household Income (mil VND/month)		1.08	1.98	1.81	1.46	2.24	3.21	2.89	2.69
Vehicle Ownership (%)	Bicycle	45	65	63	79	81	75	88	79
	Motorcycle	29	72	57	46	84	92	91	85
	Car	0	1	1	1	2	2	2	2
Access to Urban Services (%)	Electricity	100.0	99.4	99.8	97.8	99.5	99.8	99.5	99.6
	Piped water supply	76.3	74.8	74.7	61.8	57.6	65.9	57.0	62.2
	Toilet facility	87.1	82.8	83.3	73.0	77.5	81.3	76.7	79.2
	Gas	69.8	78.2	81.3	62.9	73.7	80.4	73.5	76.4
	Telephone (fixed)	67.7	79.9	82.9	59.2	74.5	88.5	82.2	81.8
	Solid waste collection	87.2	88.5	87.4	81.6	82.0	87.1	80.8	84.0
	Internet	9.2	10.7	7.9	4.9	7.5	12.0	9.4	9.7
House Goods (%)	Air-con	14.2	16.8	23.2	11.4	18.0	19.9	18.0	18.9
	Washing machine	25.8	35.7	41.5	25.0	38.6	45.0	39.2	40.8
	Refrigerator	59.7	71.5	75.8	51.2	67.0	76.1	70.0	71.4
	TV	93.4	96.9	97.6	91.9	98.1	98.9	98.7	98.3
	Radio	56.2	50.9	60.6	39.5	51.8	63.4	59.0	58.2
	Computer	16.1	32.3	18.8	25.6	25.8	38.8	32.3	31.7
	Mobile phone	20.4	38.8	22.7	18.7	35.7	54.2	42.8	42.8

Source: HAIDEP Study Team.

Note: "Single household" has only one member. "Shared household" comprises same-gender friends, brothers or sisters, which are often seen among students or young workers in Hanoi City. "Nuclear household" comprises three types (one without children, one with a parent and child/children (less than 16 years old), and one with both parents and child/children). "Multiple household" comprises members spanning more than 3 generations.

## 2.4 Socio-economic Conditions

2.19 Hanoi's socio-economic conditions have improved substantially since the introduction of Doi Moi in 1985, particularly during the last decade. Economy has grown significantly, poverty has been reduced substantially, per capita GRDP reached US\$ 1,350 in 2005, and 84% of households own motorcycles. Employment opportunities have expanded and enrolment in primary and secondary education has reached almost 100% (see Table 2.3). The strong and stable growth of Hanoi has attracted a constant inflow of people from neighboring provinces which has further sustained the city's growth, although at the same time it has magnified the need for adequate economic and social infrastructure and services.

### 2.20 Overall Economy and Poverty:

During the last decade, Hanoi's GRDP increased by 11% per year, and employment followed suit. The share of the tertiary sector (services) decreased, from 64% in 1995 to 60% in 2000 and to 58% in 2003. Meanwhile, that of the secondary sector (industries) increased from 31% in 1995 to 36% in 2000 and 38% in 2003. Since appropriate locations for the secondary sector within Hanoi are getting constrained, it is expected that there will, and should, be more work opportunities in the tertiary sector.

2.21 With a growing economy, poverty incidence in the Red River Delta, to which Hanoi belongs, quickly decreased from 62.7% in 1993, 29.3% in 1998, and 22.4% in 2002.<sup>2</sup> Hanoi's human development index (HDI)<sup>3</sup> can further contribute to competitive national economic development and help eradicate poverty. In 1999, it ranked second overall in HDI, at 0.798.

2.22 **Industry:** The city's economic structure has likewise changed. The contribution of the secondary and the tertiary sectors has become dominant, while that of the primary sector has declined to an insignificant share of the city's economy despite a 22% share in the employment pie, indicating low productivity compared with the secondary sector. The share of manufacturing (electricity, motors, textile, machines) geared toward export was 50% of total gross outputs in 2004. Other industries, such as food and beverage, garments and medicine, which mainly target the domestic market take the next higher position. As other provinces around Hanoi have developed a similar industrial structure, the city's role in industrial development is expected to change from conventional manufacturing to nonpollutive, high-tech, and knowledge-based industries.

**Table 2.3 Major Socio-economic Indicators of Hanoi, 2005**

Indicator		2005	
Population	Total (000)	3,183	
	Urban, 000 (%)	1,990(62.5)	
Economy	GRDP (VND bil) @ Current Prices	70,326	
	Per Capita GRDP (US\$ mil.)	1,350 <sup>1)</sup>	
	Sector Share (%) (Pri/Sec/Ter)	1.7 / 40.8 / 57.4	
	FDI (US\$ mil.)	9,241	
Employment	Total (000)	1,517	
	Sector Share (%) (Pri/Sec/Ter)	22.3 / 21.9 / 55.8	
	Government Workers (000)	544	
	Unemployment (000) <sup>2)</sup>	47.7	
Social Environment	No. of Students (000)	Primary	203
		Secondary I / II	181 / 109
		Tertiary	380
	Enrolment (%) (Pri/Sec I/Sec II)	98 / 97 / 63	
	Poverty Index <sup>3)</sup>	16.08	
	HDI <sup>4)</sup>	0.798	
Vehicle Ownership <sup>5)</sup>	Motorcycle (% of HHs)	83.9	
	Car (% of HHs)	1.6	
Visitors to Hanoi	Domestic Arrivals (000)	3,600	
	Foreign Arrivals (000)	1,050	

Source: Various publications.

1) Hanoi City 5-year Socio-economic Plan.

2) Number of registered job applicants.

3) Viet Nam Living Standards Survey 1997-1998. The index denotes the share (%) of people living below the poverty line to the total population of a province.

4) Index as of 1999. Hanoi is ranked second among all provinces in Vietnam.

<sup>2</sup> Vietnam Development Report, 2004.

<sup>3</sup> HDI is an indicator showing an increase of basic human capacity which is calculated based on average life expectancy, educational level and income.

2.23 While the industrial investment plan has allotted around 2,300ha in Hanoi City as industrial areas, only 1,684ha have been occupied. The city has also offered incentives to polluting factories (84 enterprises including large SOEs and small and medium factories) to move out from the inner city, but the program has not been successful due to lack of funds and issues about the proximity of relocation sites to the old factory sites.

2.24 **Commercial/Business:** As urbanization associated with economic growth advances, new and diverse types of business (eg IT software, financing, etc.) emerge and the need for much improved services for the people and corporations increases. The movement of these business activities at different scales is already evident all over the city. However, there is no clear policy to manage this type of development in a way that it will contribute to economic growth, improve services and living environment, and help control the negative impacts due to mixed land use and considerable development activities

2.25 **Tourism:** As the capital city, Hanoi functions not only as the gateway to the country but also as one of the three major hubs of Vietnam tourism. Considering the importance of tourism in economic development, local governments in the northern region have created tourism development bureaus to promote and develop tourism. In the last five years, the growth rate in the number of international tourists to Hanoi has been high, hovering at a stable rate of 30%. The growth rate of domestic tourists has likewise increased with travel demand associated with economic development. Tourism's remarkable contribution to Hanoi's economy has been stable at around 10% of total GRDP in the past five years since 2001.

2.26 **Education:** Due to the many higher education facilities in Hanoi, including 51 colleges and universities, that attract students from other provinces, it has a large population in the tertiary education compared with the lower education levels. In 2005 there were 380 thousand tertiary students in Hanoi City, or 28.5% all over Vietnam, while that for primary and secondary education is about only 3.0%. Student populations are concentrated in Hai Ba Trung District and Dong Da district at 17%, followed by Cau Giay Thanh Xuan District at 15%.

2.27 **Health:** As of 2005, there are 31 hospitals and 233 district or commune-level clinics in Hanoi City. Hanoi has the highest level of health care service in Vietnam. The number of beds and doctors per 10,000 person in Hanoi are 34.9 beds and 9.7 doctors respectively, while national average is 15.9 beds and 5.4 doctors. On the other hand, most of provinces surrounding Hanoi City has lower standard of health care than national average except for Thay Nguyen province, which has resulted in heavy concentration of patients into Hanoi City.

2.28 **Lifestyle:** Most households live in detached houses and own one or more motorcycles, although many in the lowest income group do not own any vehicle. Car ownership is still low at 2%. While increases in incomes have altered the people's lifestyles with expanded ownership of and demand for various household and personal goods, as well as diverse services, it is still mostly the high-income households that can afford most electric appliances such as air conditioner, washing machine, and refrigerator, except for TVs. Factors such as local characteristics, convenience, and affordability should be carefully considered in planning. In addition, urban-rural linkages should be enhanced to avoid the further widening of disparities. It is expected that the urban economy of Hanoi will further shift to a greatly improved and diversified tertiary sector to respond to the changing needs of society.

## 2.5 Urban Services

2.29 Urban services in Hanoi have been improving. However, the situation varies by type of services and particularly by district. Based on the responses made in the HIS, various urban services were assessed by district in terms of service coverage and people's satisfaction with them. Results show that while city centers are provided with better services, in outer areas, where urban development activities are fast increasing, the coverage is still insufficient. The people's satisfaction rates are generally higher in spite of the low service coverage.

2.30 **Water Supply:** In Hanoi, 61.6% of households are supplied with piped water. The urban core and fringe areas are well connected to the water service. On the other hand, connection in the rural areas is still poor, especially in Soc Son and Dong Anh districts, where service coverage is 1.2% and 6.0% respectively. Most households without piped water supply depend on private wells. Hanoi currently depends on groundwater as a source of drinking water. Because water in the south is heavily polluted and consumption is expected to increase with urbanization, it is necessary to seek other sources, such as surface water from rivers. Moreover, groundwater extraction will cause land subsidence in the city. Identification of new water sources as well as water supply service coverage areas by water companies and the communes is being sought. In addition, water quality and water supply pressure should meet certain standards.

2.31 **Drainage System:** With continuous dyke management combined with the strengthening of dykes along the Red River, Hanoi has been protected from destructive floodwaters from the river, except for areas developed outside the dykes. Due to the lack of drainage capacity and recent rapid urbanization, rain water is frequently observed, especially in the urban core and urban fringe. In a typical year they can have depths of around 50 to 60cm in the city center. More than 30% of Dong Da households and 20% of Thanh Tri, Tu Liem, and Cau Giay households suffer from flooding every time it rains heavily. Inundation by storm water also causes overflow of wastewater. In districts experiencing such overflows, the people have a low satisfaction with the drainage system.

2.32 **Wastewater Disposal System:** Wastewater from toilets in urban areas goes through septic tanks or tanks, or is discharged directly into drainage systems. According to the Household Interview Survey (HIS), 43.6% of households are connected to the urban sewerage system and 40.0% to on-site sanitation facilities (e.g. septic tanks), the sewage of which is collected by the public sector. Meanwhile, 16.5% have no access whatsoever to sewage treatment.

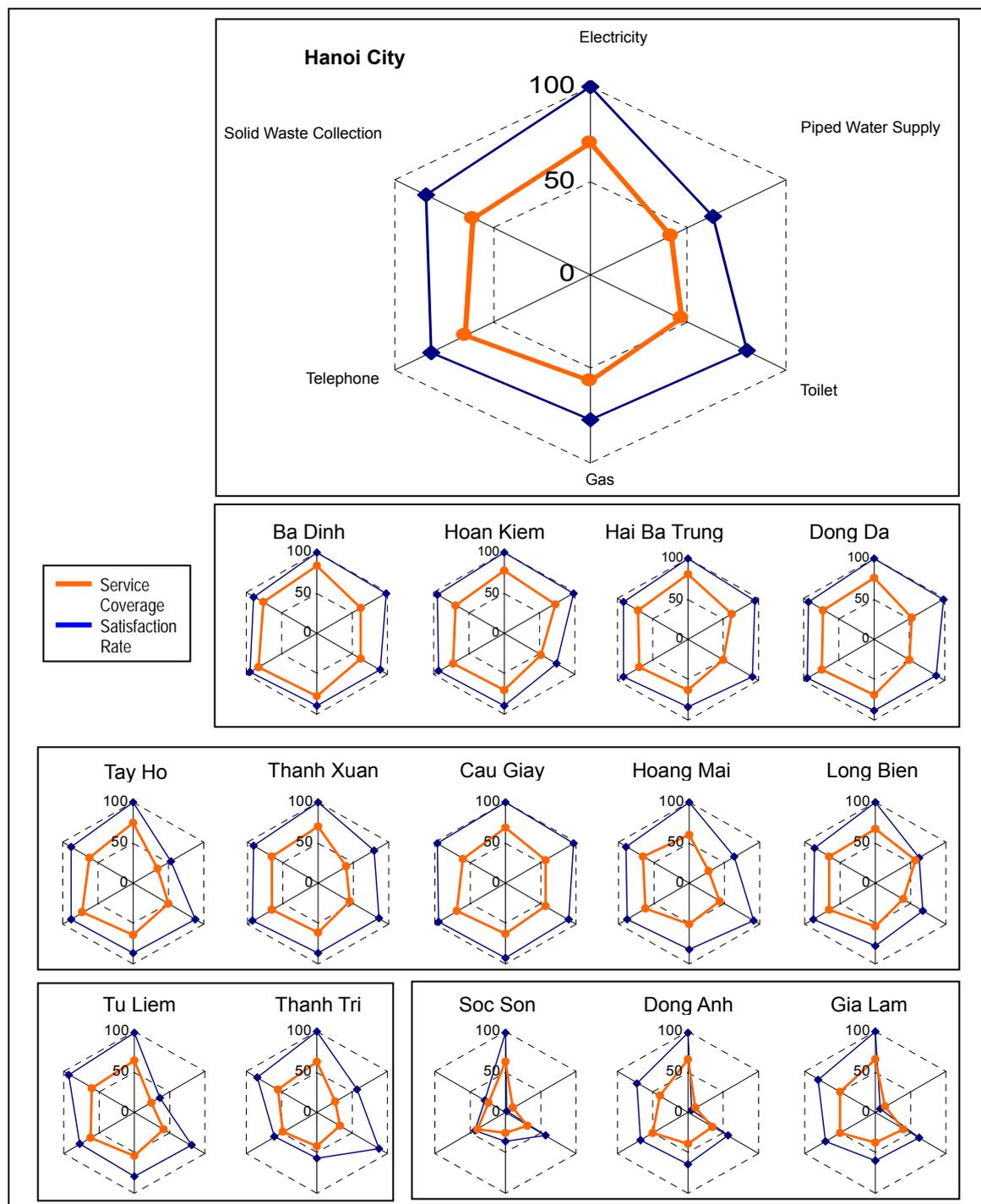
2.33 **Toilet:** About 80% of households have access to toilet facility. In urban core and urban fringe districts, 90% of households use flushing toilet, while suilabh and simple toilet had higher share in suburban and rural districts. Hoan Kiem district has lower coverage of toilet, where about 13% of households share toilet with others.

2.34 **Solid Waste Collection:** Currently, public solid waste collection covers around 84% of Hanoi, while private or community level collection service covers other areas. Only Soc Son District has a low coverage at 30%, while others achieve more than 70% of solid waste collection coverage. The existing Nam Son landfill site is expected to reach its capacity earlier than expected, due to increased waste generation. Therefore, waste reduction, the introduction of new methods to treat solid waste, and search for alternative landfill sites are being considered.

2.35 **Electricity:** Most of households in Hanoi have access to electricity, of which coverage is over 99% even in rural districts. It is observed that people's satisfaction is lower in suburban and rural districts in spite of its high coverage. It may be partly because of its unstable services and frequent blackout.

2.36 **Flood Protection:** Hanoi is prone to flooding because many of its urban areas lie lower than the Red River and inundations occur when the river is occasionally at a high water level. A fairly wide area in Hanoi suffers from flood or inundation either regularly or whenever it rains. Crippling flooding from the Red River may occur at the rate of once in 100 years.

**Figure 2.4 Coverage of and Satisfaction with Urban Services**



Note: Worked out by the HAIDEP Study Team based on HIS conducted in HAIDEP.

## 2.6 Urban Environment

### Air and Noise Pollution

2.37 Currently there is not serious air pollution observed in Hanoi except for total suspended particulate materials (TSP) for the whole city. Generally major pollutants sources causing air pollution include industrial activities, transport activities, construction, and somehow household cooking. According to DONRE, 17 factories out of 400 in Hanoi have generated pollutants to the air, where major pollutants are TSP and carbon mono-oxide (CO). Higher level of air pollution area observed particularly around industrial areas.

2.38 Emissions from traffic have become major source of air pollution in urban areas. The heavy pollution of dust at traffic intersection was indicated in some environmental surveys. The levels of TSP, SO<sub>2</sub>, NO<sub>2</sub> and CO at traffic intersection were slightly higher than those of ambient air around industrial areas, partly because of higher concentration of vehicle emissions. Since leaded gasoline was phased out in 2001, the lower concentrations of lead have been observed.

2.39 Noise and vibration pollution has been observed along the major highways and around major industrial area. Some industrial areas have seen improvement on the level of noise pollution, while the others have seen deterioration. Particularly along the certain highways, noise pollution level exceeds the standards even during the night.

### Water Quality

2.40 While quality of ground water is good in general, deterioration has been observed both for quality and quantity due to uncontrolled exploitation and infiltration of contaminants from wastewater and solid waste. The hygienic contamination of ammonium has been serious problem particularly in the southern area of the city. The highest value is found in Phap Van water plant. Such high contamination of ammonium cannot be removed with the current water treatment technology. Alarming sign of ground water contamination is shown in arsenic in some areas of Hanoi City, which is originated from geological formation and fluctuated by season and area.

2.41 Most of domestic wastewater has been treated by septic tanks before released into drainage system or water bodies. However, ineffective septic tanks and lack of regular suction has deteriorated water quality of surface water bodies. Wastewater from industrial and hospitals are rarely treated or only 6% of total are treated. It has contributed the water pollution with a lot of pollutants.

2.42 Four main rivers flow through Hanoi City, Kim Nguu, To Lich, Set and Lu rivers, where wastewater is discharged. Kim Nguu river receives the highest load of pollutants from 14 main outlets. The ammonia concentration of those rivers ranges from 28.9 mg/l to 10.0 mg/l, which is almost the same as the groundwater in the southern part of Hanoi City.

2.43 In general, water running in the Red River is not polluted, where most of quality parameters pass the Vietnamese Standard. Due to high content of suspended solid and turbidity, however, the Red River cannot be used for water supply in Hanoi. Another major river system in Hanoi City is the Nhue river, which is originated from the Red River and run through Hanoi, Ha Tay and Ha Nam provinces. Un-treated industrial and domestic wastewater in Cau Dien and Ha Dong areas are discharged to Nhue river, resulting in higher content of COD and BODs compared to the Red River.

2.44 Hanoi has abundant resources of lakes and ponds. The quality of surface water varies by lakes and even within in one lake by distance from the inlet, where wastewater is

discharged. Some lakes at the upstream of wastewater drainage system are heavily polluted such as Van Chuong, Giam, Linh Quang, and Truc Bach.

### **Solid Waste Management**

2.45 The total amount of municipal solid waste in Hanoi City is about 490,000 tons per year or 1,300-1,500 tons per day, which account for 70% of total non-hazardous solid waste. 13% and 16% of them are from industries and construction. Hazardous waste from industries and hospitals amount 19,500 tons per year. Those waste are not properly disposed, resulting in the risk for human health and urban environment.

2.46 Solid wastes are collected without being segregated and transported to treatment sites. The collection efficiency is about 80% and recycle and reuse rate, mostly by scavengers, is estimated at 20%. Most of collected solid waste is disposed at land fill site. There are one sanitary landfill and three simple ones. Serious issues are observed not only for the capacity but also for the quality of the leachate discharged from landfills.

2.47 Hazardous healthcare waste have been burned in incinerators installed at several hospitals and in the centralized incinerator at Cau Dien. Since the Cau Dien incinerator started operation in 2000, the rate of hazardous healthcare waste treatment has improved from 33% in 2003 to more than 90% in 2004.

### **Parks, Green Spaces, and Landscape**

2.48 Another important elements of urban environment in Hanoi are abundant green areas and those forming landscape. Central Hanoi has a number of parks with water bodies and many green fields extend in suburban and rural area. However the residential areas particularly in the peripheries of the urban core have limited greeneries. People strongly demand for community parks within walking distances from their residences, where people enjoy exercise and walking in their daily life.

2.49 The exquisite blend of diverse landscape resources, such as rivers and lakes, parks, historical buildings and cultural activities, makes Hanoi stand out from other cities, attracting people from other provinces and countries. However, the charm of Hanoi is being threatened as urban development progresses. Landscape blights, such as excessive advertisement materials, crisscrossing electric wires, disorderly parking on roads, and unregulated building/housing construction, have increased thereby spoiling the vista. Hanoi's landscape must be preserved or improved, depending on the area, to showcase the city's socio-economic status and cultural identity

### **Illegal Housing Area**

2.50 There are some areas where housing development has been conducted without any legal procedures such as issuance of land use right certificate, housing ownership certificate, and construction permit, mainly due to termination of housing subsidy, relaxation of control on population movement and institutionalization of land market at Doi Moi. Those areas are typically observed outside of the Red River, in the fringe of urbanization process and some open spaces in urban districts.

2.51 Such illegal housing area has formulated "Squatters" with undesirable living conditions. Since infrastructure is not well provided, such as road and drainage, inundation is frequently occurred causing deterioration of sanitary condition. While basic urban services such as electricity, water supply, and solid waste collection are generally provided formally or informally, households have difficulty to access to social services such as school and health care services due to lack of legal registration.

## 2.7 Urban Transportation

**2.52 Urban Transportation Demand:** Vehicle ownership in Hanoi, compared to other Asian cities, is characterized by significantly high levels of motorcycle ownership: more than 80% of households own motorcycles, with 40% owning more than 2. Urban transportation demand has increased rapidly due to increases in population and vehicle ownership rates, and travel distances. Modal shift is also notable between 1995 and 2005. Motorcycle traffic increased by 6.4 times and car/ taxi traffic by more than 30 times. Meanwhile, walking and bicycle trips decreased. Motorization will further accelerate. The number of cars has increased steadily and will become more significant as the economy grows and incomes increase, as other Asian cities have experienced. Hanoi must be prepared for this.

**2.53 Traffic Congestion:** Congestion in Hanoi is not as bad as that in other big Asian cities like Bangkok, Kuala Lumpur, Manila, even Singapore and Tokyo. The average travel time spent in going to offices 18-20 minutes in Hanoi and HCMC, 40-50 minutes in Manila and Jakarta, and 30-40 minutes in Tokyo and Osaka. However, the future scenario will be different if no countermeasures are implemented. When car traffic increases, congestion will become very serious and road traffic will not flow as is now being experienced in many large cities such as Bangkok, Manila, and Kuala Lumpur. Causes of traffic congestion are many and complex including lack of efficient road network, inefficient traffic management, illegal parking, bad driving, joyriding, and poor enforcement of traffic rules and regulations. Since the causes are interrelated, comprehensive solutions are necessary.

**2.54 Public Transportation:** Since the tram disappeared in the late 1980s, bus passengers decreased. Bus services did not improve in the 1990s. In 2002 the "Model Bus" policy was introduced, including new bus routes, new vehicle fleet, new bus shelters, and information schemes. Hanoi achieved an initial success in the revitalization of bus services through modernization, with the share of bus in terms of person trips increasing to about 7% of the total in 2005 from a very dismal 1-2% in the previous 5 years. Bus operations covered 41 bus routes and 687 bus units carrying 284,600 passengers. However, to further increase bus transportation demand, the next step is service improvement including the provision of segregated bus lanes and the improvement of the network and operations. While more than 98% of bus users said bus services have improved and are important, they believe that services must be expanded.

**2.55 Traffic Safety:** Traffic safety is one of the most serious problems in Vietnam. In Hanoi safety levels worsened as traffic grew. While the number of accidents decreased, the number of fatalities continuously increased from 247 in 1990, 385 in 2000, and 452 in 2004. More than 60% of accidents involved motorcycle users. Main causes of accidents are man-induced such as reckless/ undisciplined driving, drunk driving, and violation of traffic rules. Driving motorcycles with excessive number of passengers without helmets make traffic accidents more serious. Vietnam is the only Asian country where motorcycle users do not wear helmets. An immediate solution which can significantly reduce accidents and casualties is for people to observe simple traffic rules and driving etiquette.

**2.56 Satisfaction:** Generally travel conditions in Hanoi are considered good. People's satisfaction varies by transport mode; bus users rated safety highly and motorcycle users preferred its convenience. Seeing by travel time, there seems to be a certain relationship between travel time and people's evaluation. Motorcycle and bicycle users considered a 20- to 30-minute duration as a kind of yardstick for evaluating a trip as "bad" or "good". This value tended to be longer for car and bus users.

**Table 2.4 Vehicle Ownership Rates among Hanoi and HCMC Households**

Vehicle Type	Hanoi <sup>1)</sup>	HCMC <sup>2)</sup>
Car	1.8	1.7
Motor-Cycle	More than 2	44.7
	one	39.8
Bicycle	11.5	4.4
None	2.3	1.3
Total	100.0	100.0

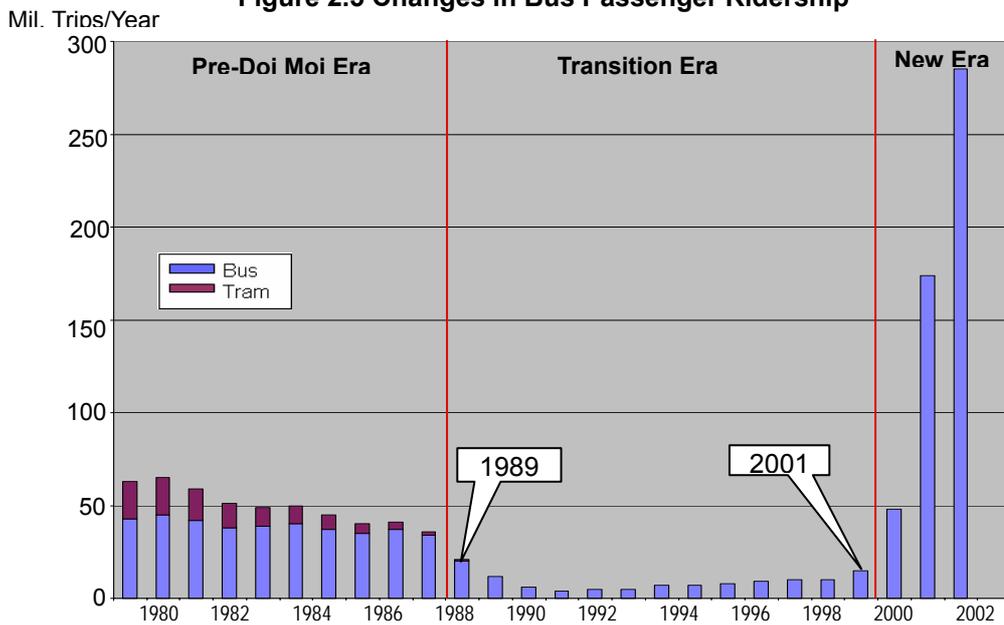
Source: HOUTRANS (2002) and HAIDEP (2005).  
 1) As of 2005      2) As of 2002.

**Table 2.5 Urban Transportation Demand in Hanoi**

Mode		No. of Trips (000/day)			Modal Share (%)	
		1995	2005	2005/1995	1995	2005
Vehicle	Bicycle	2,257	1,592	0.7	73.2	25.1
	Motorcycle	632	4,047	6.4	20.5	63.8
	Car/ Taxi	7	227	32.4	0.2	3.6
	Bus	21	427	20.3	0.7	6.7
	Others	165	47	0.3	5.4	0.7
	Subtotal	3,082	6,340	2.1	100.0	100.0
Walking		3,141	2,173	0.7	50.5	25.5
Total		6,223	8,513	1.4	100.0	100.0

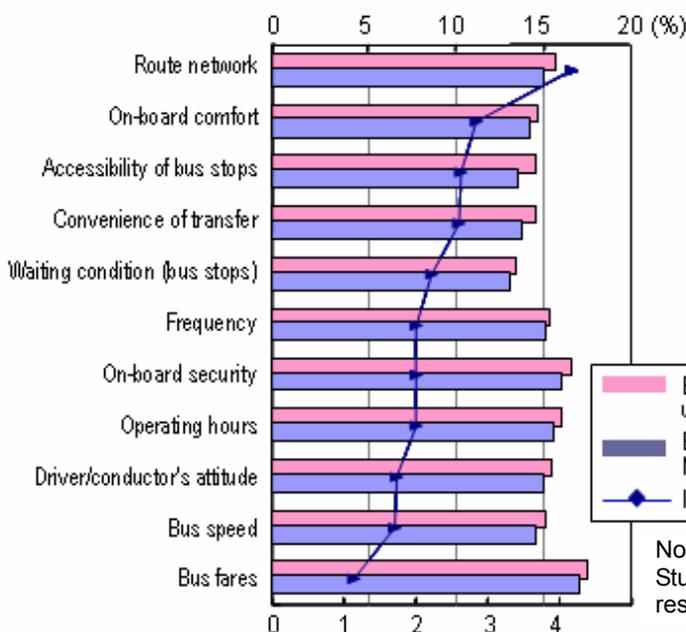
Source: HAIDEP HIS. 2005.

**Figure 2.5 Changes in Bus Passenger Ridership**



Source: TUPWS

**Figure 2.6 Important Factors for Improved Bus Services**



**Table 2.6 People's Assessment of Traffic Safety**

		% to Total
Assessment of Traffic Safety (% of Dangerous)	Driving MCs	63
	Driving Bicycles	34
	Pedestrians Crossing Roads	70
Compared to 5 Years Ago (% of "worse")		43
Traffic Accident Experience in the Past 5 Years (%)	Fatal	0.6
	Serious Injuries	3.0
	Light Injuries	12

Source: HAIDEP HIS, 2005.

Note: Worked out by the HAIDEP Study Team based on HIS results, 2005.

## 2.8 Housing

2.57 Since the Doi Moi policy, Vietnam's housing policies, an important foundation of its socialist system, were drastically changed. Government has changed "all provided through market" from "all provided with subsidy." While urban population is rapidly increasing, the demand for adequate housing has become so huge that the current policy is unable to respond to market needs, especially the low-income group. In addition, many of the current housing stocks are substandard and require rebuilding.

2.58 At present, 90% of the households own housing, most of which were provided by the government before Doi Moi and transferred to them afterward.

2.59 **Housing Stock:** In 2003, Hanoi's total housing floor area rose to 20 million m<sup>2</sup>, showing a 35% increase from 15 million m<sup>2</sup> in 1999. Housing floor area in Hanoi's urban areas was estimated at 11.7 million m<sup>2</sup>, or a remarkable increase of nearly 60% from 7.5 million m<sup>2</sup>. The most typical houses in Hanoi is detached houses, including traditional house in Ancient Quarter, shop-house along major corridors and rural houses. High-rise apartment has been constructed in new urban area in urban fringe and sub-urban areas.

2.60 While housing stocks have increased continuously in the last 5 years, housing standards have not improved significantly. While physical conditions of houses have improved with the use of more permanent materials, floor spaces remain insufficient. Housing has the highest dissatisfaction rating by the people. About 25% of Hanoi residents and a third of urban core residents are not satisfied with their housing conditions.

2.61 **People's Satisfaction:** Although it seems the overall housing conditions have improved in terms of ownership<sup>4</sup>, physical conditions<sup>5</sup>, and space<sup>6</sup>, the people are not satisfied with many aspects. Based on HIS results, about 27% of all households are dissatisfied with their existing housing. By group, these households comprised 43% in the Ancient Quarter, 54% in collective apartment areas, and 39% in the French Quarter. Fifty-seven percent (57%) of households residing in houses with less than 25m<sup>2</sup> are dissatisfied with existing housing while 32% of those living in a 26-50m<sup>2</sup> living area were dissatisfied. The people's priority concerns on housing are space and air flow followed by sunlight, location, and structure. With regard to housing type, most people like detached houses.

2.62 Supply of housing has been increasing; a total of about 2.8 million m<sup>2</sup> was added between 2003 and 2005, with increases from 2.2 million m<sup>2</sup> in 2001-2003 and 1.4 million m<sup>2</sup> in 1999-2001. More than 60% of new constructed housing are provided by project-type development. The most significant type of housing development is the project type of development undertaken by SOE developers under the ministries, such as HUD and VINACONEX under MOC<sup>7</sup>. The second type includes a large number of small- to medium-scale projects with less than a hectare of land. The third type is housing development by city governments for privileged people who are given special considerations<sup>8</sup>. On the other hand, the share of self-built housing construction has decreased from 69% in 1999 to 33% in 2004. There is little development mechanism to provide land lots for individuals to develop housing.

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<sup>4</sup> 47.3% of households in Hanoi's urban districts own houses in 1989 which increased to 91.3% in 2005.

<sup>5</sup> Percentage of houses with permanent structure increased from 50% in 1989 to 75% in 2005.

<sup>6</sup> Floor area per capita increased from 5.1m<sup>2</sup> to 8.1m<sup>2</sup> in urban areas, although in rural areas it decreased from 19.1m<sup>2</sup> to 15.7m<sup>2</sup> between 1999 and 2005, respectively. The average floor area is only 10.9m<sup>2</sup> per capita in 2005 as compared to the target of 18m<sup>2</sup> per capita.

<sup>7</sup> This type of project include Ding Cong project (35ha, 1,183 units), Linh Dam Peninsula Project (35ha, 1,400 units), My Dinh II Project (26ha, 1,248 units), Trung Yen South Project (202ha, 4,114 units), etc.

<sup>8</sup> Including invalids, revolutionary martyrs' families, senior revolutionary people, poor households affected by land clearance.

## Affordability

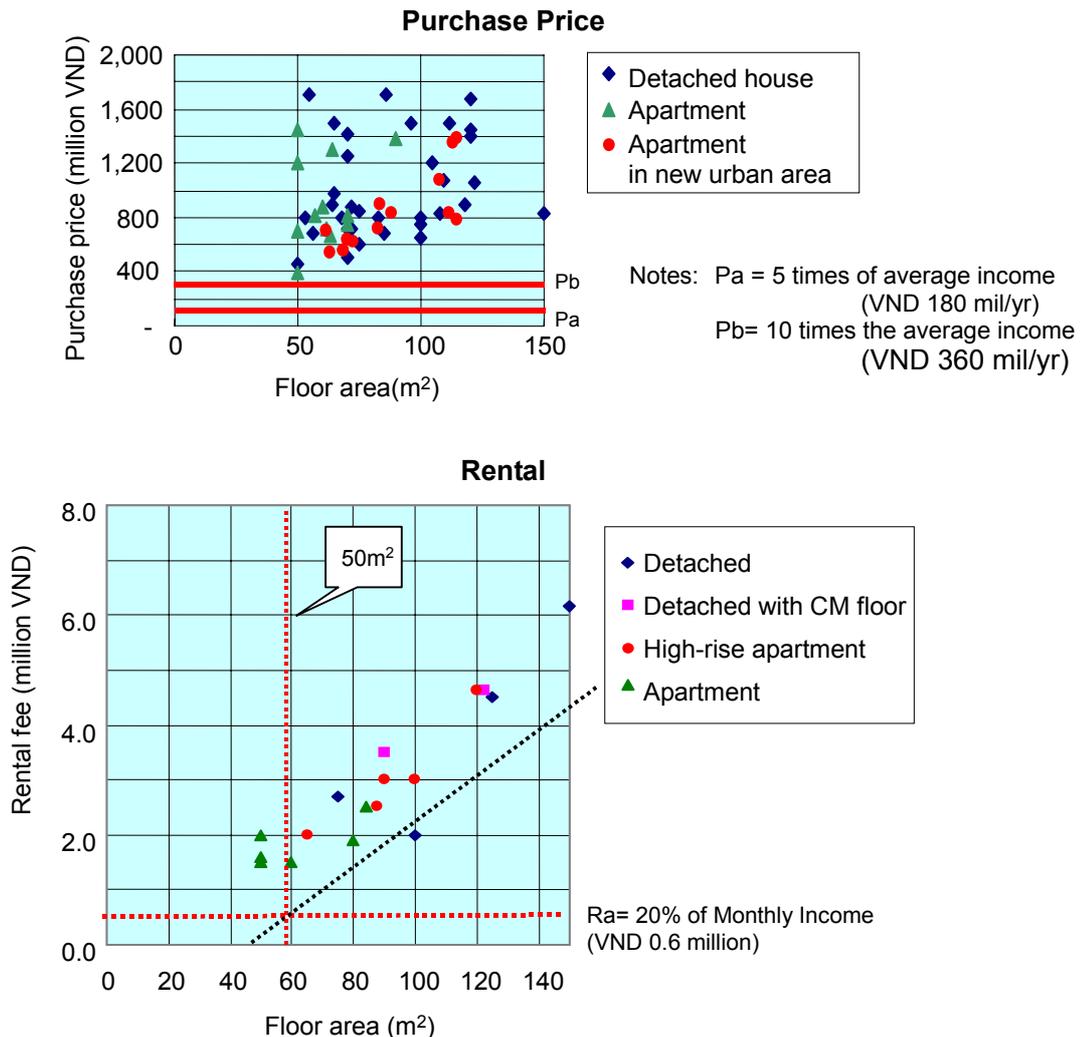
2.63 The people's affordability for adequate housing is becoming an emerging issue. Survey results conducted in HAIDEP indicate that housing stocks supplied in the market are mostly beyond the reach of average households. All types of housing for purchase cost more than 5 to 10 times of annual incomes of average households, while those for rental exceed more than 20% of their monthly incomes (see Figure 2.7). Even for higher-income households, such housing units are still costly. While most households own houses in Hanoi, such a demand-supply gap is a more serious concern for households who migrate from other provinces, the number of which is expected to increase in the future.

**Table 2.7 Housing Stocks in Hanoi**

Year	Total Housing Area	Total No. of Housing Units (000)	Average Housing Area (m <sup>2</sup> /unit)	Living Area/Person (m <sup>2</sup> )
1995	28,203	616	45.8	10.5
2001	29,644	654	45.4	10.4
2003	31,864	691	46.1	10.6
2005	34,642	729	47.5	10.9

Source: 1999 Housing Census, Statistical Year Book of Hanoi, HAIDEP HIS, estimate of DONRE.

**Figure 2.7 Affordability Levels of Average Households for Housing**



Source: HAIDEP Housing Market Price Survey

## 2.9 Comprehensive Assessment of Living Conditions

### Analytical Framework: Urban Karte

2.64 While the improvement of living conditions is an important policy agenda for the government, the people, and the entire society, it is not easy to evaluate the living conditions in a way that the government can specifically identify why the living conditions are bad and implement appropriate measures for improvement. It is also important to know whether the people can feel that the measures have been effective and living conditions have improved. For the government to implement measures correctly to the satisfaction of the people, an analytical method must be established. In HAIDEP, on the basis of existing and collected data and opinions of the people gathered through the comprehensive HIS, a practical method was developed and adopted for a deeper analysis of the living conditions.

2.65 Living conditions are defined as a composite of four factors as defined by WHO, which refer to the ability of households /communities to improve their situation (see Figure 2.8).

- (i) **Convenience:** Access to electricity, road area ratio, travel time for work trips, work trips by public transportation.
- (ii) **Safety & Security:** Protection against crimes and traffic accidents or from flooding.
- (iii) **Health & Wellbeing:** Access to piped water, sanitary facilities, and health care.
- (iv) **Amenity:** Access to socio-cultural activities, parks, and green spaces; size of living space.
- (v) **Capacity:** Assets, income, enhanced capabilities, access to Internet.

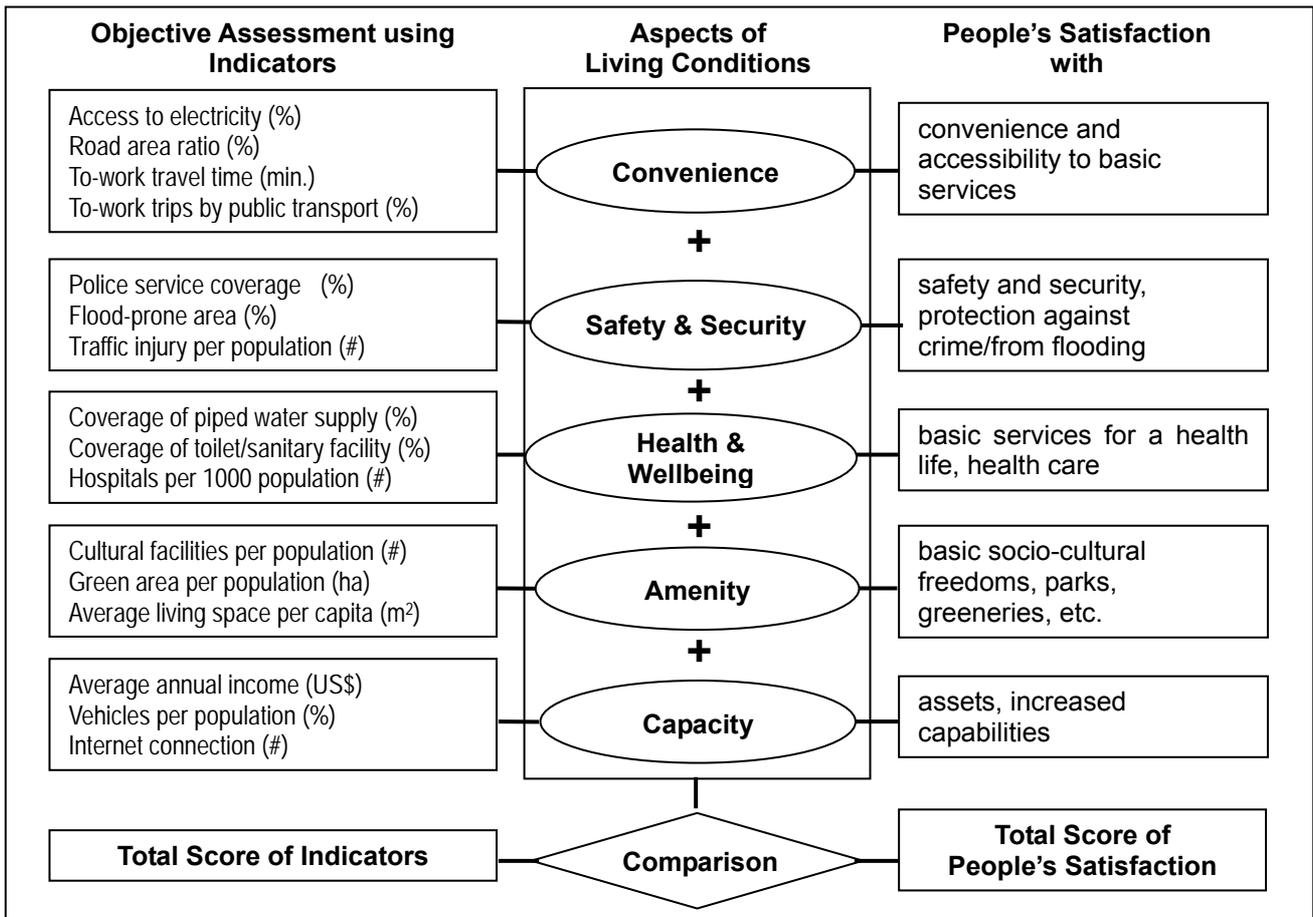
2.66 Each factor is represented by a number of indicators for which the data is available and easy to understand. Based on the indicators, each factor was assessed and the score was calculated. The total score for the above 5 factors is the integrated score which explains the level of overall living conditions based on objective indicators (see Figure 2.9). At the same time, the satisfaction of the people with each factor was gathered from the Household Interview Survey (HIS) respondents who numbered 20,000 household heads, showing that the people are generally satisfied with their living conditions. Satisfaction was also translated into scores depending on the level of satisfaction (see Figure 2.10). By comparing the scores obtained from the objective analysis and the subjective (satisfaction) judgment of the people, both the government and the people can share an understanding on the gap between the two levels and develop the right actions and measures to improve the living conditions.

2.67 The analysis was made for all communes in Hanoi City (see Figure 2.11) and compiled into an Urban Karte which gives a summary of existing conditions and a diagnosis of living conditions. This is the first attempt to analyze the living conditions of the entire urban and rural areas in Hanoi City. Although there are still areas that must be improved, this will provide a useful input to the effective improvement of the living conditions. It is also a more scientific and effective way of preparing urban and land-use plan as well as other infrastructure development plans.

### Future Use in Urban Planning and Development

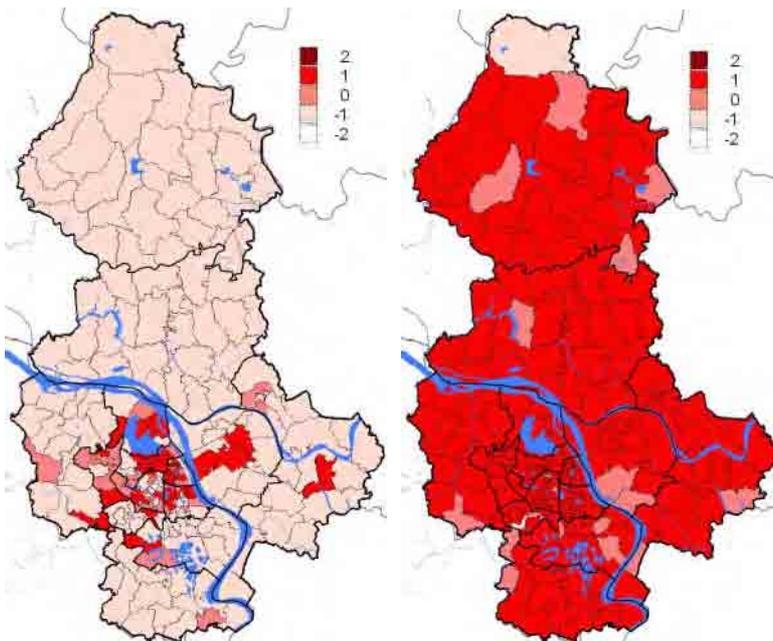
2.68 The “Urban Karte” system can provide very useful information and tools to access living conditions by both for the government and the people on the same basis. The government can know more precisely what must be improved to meet the demands of communities and the people can know more objectively what must be done. The Urban Karte system can be shared by community, districts, and cities in future urban planning.

**Figure 2.8 Method for Analysis of Living Conditions**



Source: HAIDEP Study Team

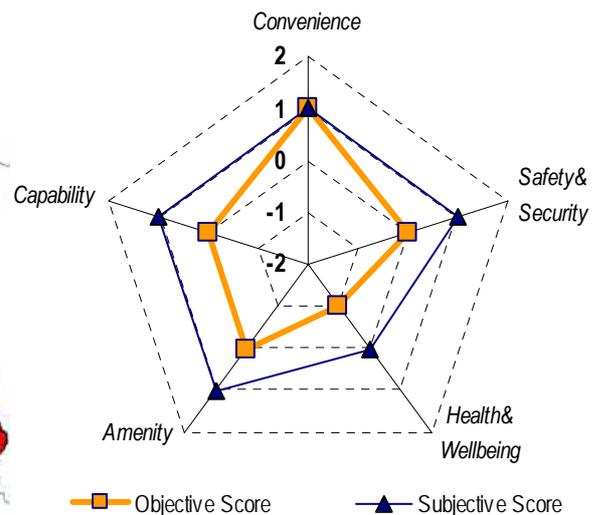
**Figure 2.9 Overall Objective Evaluation**      **Figure 2.10 Overall Subjective Evaluation**



Source: HAIDEP Study Team

Source: HAIDEP Study Team

**Figure 2.11 Score Chart of Hanoi City**



Source: HAIDEP Study Team

## 2.10 Expected Problems and Issues

### Main Issues in Hanoi City

2.69 **Defining Hanoi's Role in the Region:** Growth management policies are designed to guide the "smart" development of urban areas. Hanoi where the population is expected to grow by around 1.5 - 2 million over the next 15 years, is an engine for national, regional, as well as local economies. Therefore, population increases of this scale require sound growth management to help the city sustain growth, while maintaining livability.

2.70 **Livability:** Living conditions are generally better in urban than in suburban and rural areas. Urban areas have higher levels of safety, security and urban services. Welfare facilities (religious, medical, and educational facilities) are relatively allocated homogeneously throughout Hanoi. Urban amenities, such as green areas and water space, decrease as the location gets closer to the urban center, while parks and recreational areas have higher per capita densities in the urban core and urban fringe. Industrial areas, excluding industrial parks and estates, occupy a high proportion of land in the urban core and urban fringe. Thus it is necessary to balance population growth and living conditions.

2.71 **Competitiveness:** Hanoi is not only the nation's capital but also its political and cultural hub, as well as the science, education, and economic center. Being the gateway to national and international markets, it has inherent competitive advantages. The area has the biggest industrial center and attracts most FDIs in northern Vietnam. Over 80% of its GRDP comes from the industry and construction sectors. In addition, it is an attractive city both to tourists and residents due to the preservation of its beautiful and cultural landscape, the stable political situation, and low crime figures. However, Hanoi still faces some disadvantages in the international marketplace because of: (i) the slow liberalization of SOEs and the financial-banking system; (ii) the strong and high development levels of its international competitors; (iii) its status as a transition economy it has to learn the rules of the game in a highly competitive marketplace; and (iv) the high business costs and rampant corruption which make it harder for Vietnamese businesses to compete.

2.72 **Environmental Sustainability:** Urban development must be implemented in a way that natural, cultural, and social environments are preserved and sustained adequately. Hanoi is situated in a fragile natural environment. Existing urban areas are spread in areas which are lower than the high water levels of the Red River which are thus threatened by river flooding and frequent inundations from heavy rainfalls. Land subsidence is also observed in many locations. At the same time, Hanoi's water resources as well as abundant trees and greeneries provide a unique and attractive landscape. Moreover, Hanoi is gifted with cultural resources and its traditional values are still very apparent in the everyday life of both urban and rural residents. A unique characteristic of Hanoi's environment is the wonderful blend of natural, cultural, and social elements which enhances the image of the city. However, rapid urbanization resulting in unplanned and uncontrolled development which is taking place in many locations in the city is affecting the city's environment negatively.

### Future Problems

2.73 Whereas Hanoi has maintained a relatively good urban environment, it stands at very a critical stage in urban development, because the situation could easily deteriorate under the combined pressure of an accelerating economic growth, population increase, and motorization. Proper measures should be implemented in a timely and coordinated manner in order for Hanoi to avoid the unsustainable paths many Asian cities had taken and from which it is difficult to get out.

**Figure 2.12 Expected Problems If No Proper Measures are Implemented**



Traffic congestion will further worsen with car increase



Living conditions will further deteriorate.



Risks from disasters will increase.



Traffic accidents will increase.



The natural environment will become even more degraded.



Illegal settlements will further expand.



Traditional values will either disappear or be overshadowed by modern aesthetics.



Economic growth will slow down and inequalities will widen.

Source: HAIDEP Study Team

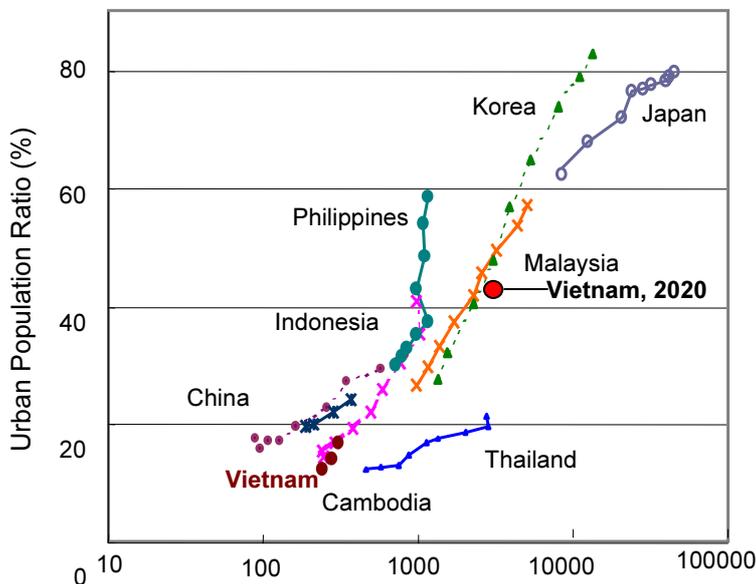
### 3 NEED FOR STRATEGIC PLANNING FOR HANOI'S SUSTAINABLE DEVELOPMENT

#### Impact of Urbanization and Economic Growth

3.1 Since the 1990s Vietnam has been undergoing rapid urbanization brought about by the Doi Moi policy. The current relatively low rate of urbanization (24% in 2000), when compared to that in other countries, is expected to pick up and continue in the decades to come. It is estimated that the current (2005) urban population of about 23 million will increase to 47 million in 2030 and furthermore thereafter. Urbanization impacts are enormous and are particularly significant in large urban areas such as Hanoi and HCMC.

3.2 Vietnam's urbanization is associated with a strong economic growth as a result of vigorous industrialization and foreign trade. With further industrialization as a key national policy, the impending accession of Vietnam to the World Trade Organization (WTO), and the overall growth of the Asian region, urbanization in the country is expected to further accelerate along the path many industrialized Asian countries have taken (see Figure 3.1). In Vietnam the impacts of urbanization are extensive and include both positive and negative effects. For example, as people's incomes increase so does the ownership of cars and motorcycles, resulting in diverse service industries and changes in the people's lifestyles. Access to information improves, employment opportunities increase, and the overall quality of life of the people improves. On the other hand, rapid urbanization puts huge pressure on existing infrastructure and people's lifestyles as traffic congestion worsens, prime agricultural lands are encroached upon, the environment degrades, living conditions and deteriorates, among others. The key then is to find an effective way of maximizing the benefits of urbanization while minimizing its negative consequences.

**Figure 3.1 Urbanization Trends in Asian Countries**



Country	Urbanization Rate (%)	
	2000	2030
Vietnam	24.3	43.2
China	35.8	60.5
Indonesia	42.0	67.7
Philippines	58.5	76.1
Thailand	31.1	47.0
Cambodia	16.9	36.9
Malaysia	61.8	77.6
Korea	79.6	86.2
Japan	65.2	73.1

Note: Worked out by the HAIDEP Study Team.

Source: UN 2005.

## Need for an Improved Approach to Urban Planning and Development

3.3 The changes in the urban environment in Hanoi have occurred rapidly and drastically. Inflow of population from rural areas and other cities has been more than expected, probably due to the wider employment opportunities and higher education, among other things, offered in the capital city. Society's increased demand for services and products has been remarkable not only in quantity and quality, but also in its pace. Oftentimes supply does not match the demand. This disparity can be found in many aspects of urban life such as economic development and quality of life, transportation, urban water and sanitation, housing and living conditions, environment, urban landscape, and others.

3.4 Since cities operate under a complex system wherein the socio-economic and physical components are closely interrelated, gaps in one sector has repercussions on another, making it nearly impossible to isolate one problem from another. For example, reducing traffic congestion cannot be achieved merely by constructing more roads and urban mass rapid transit (UMRT) systems, or by controlling the use of cars and motorcycles, or by enforcing traffic control. These individual solutions work by integrating them in a strategic manner. Again, to cite an example, the construction of roads does not only serve the demands of the transportation sector; it also fulfills the important task of providing more effective guide to urban development as well as to housing and land acquisition. Without good access, housing and new town developments will not be appreciated by the target market. It is important to note here though that road-based land use and urban development are less ideal than those based on UMRTs or public transportation. The reason being the former forms linear developments, while the latter creates a more compact urban area where services can be better provided.

### HAIDEP Approach

3.5 Rapidly growing cities like Hanoi suffer from many problems, ie traffic congestion, traffic accidents, flooding, lack of affordable land and housing, air and water pollution, inadequate recreation space, diminishing traditional culture, etc. As they are always interrelated, it is difficult to identify the fundamental causes of such problems. Hence to analyze the existing situation, project the future accurately, and formulate the most effective solutions, HAIDEP adopted an approach that is:

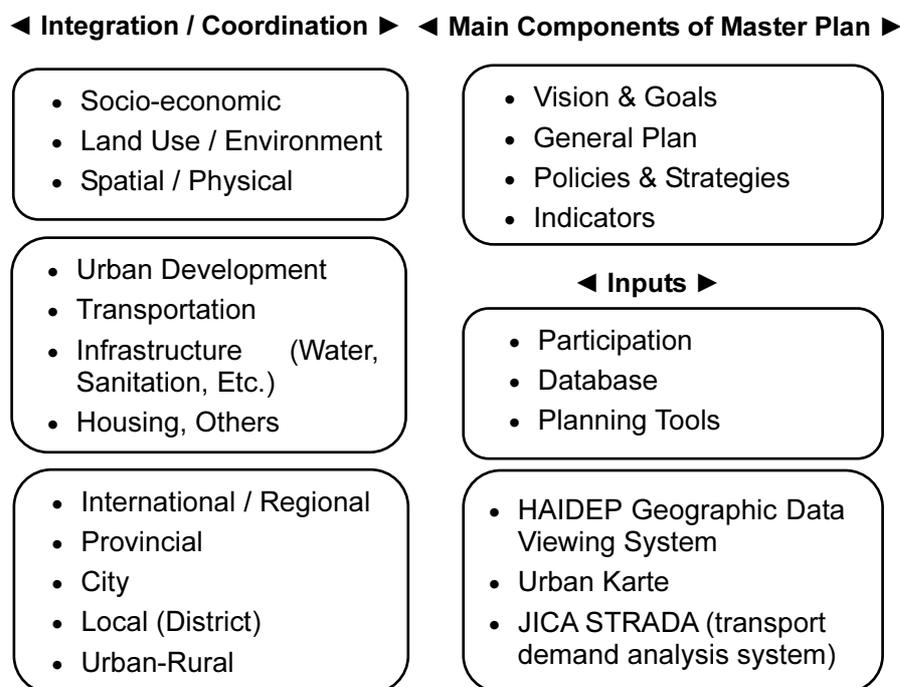
- (1) **Factual:** Information on the existing conditions were collected through comprehensive socio-economic surveys, GIS mapping using the latest satellite images, existing documents, and extensive interviews with various organizations and individuals.
- (2) **Participatory:** HAIDEP listened to the people's voice through surveys and consultations and organized exhibition for feedback to the people.
- (3) **Scientific:** Collected information was analyzed using various computer models, software, and planning tools.
- (4) **Comprehensive:** Since urban issues and problems are always interrelated, plans and strategies were formulated by considering all four HAIDEP subsectors.

3.6 The data collection methods and participatory measures adopted by HAIDEP are as follows:

- (1) **Household Interview Survey (HIS):** In the beginning of the HAIDEP Study, around January to March 2005, a total of 20,000 households and their members were interviewed using a comprehensive questionnaire on their socio-economic characteristics and opinions on existing urban services as well as future development orientations.

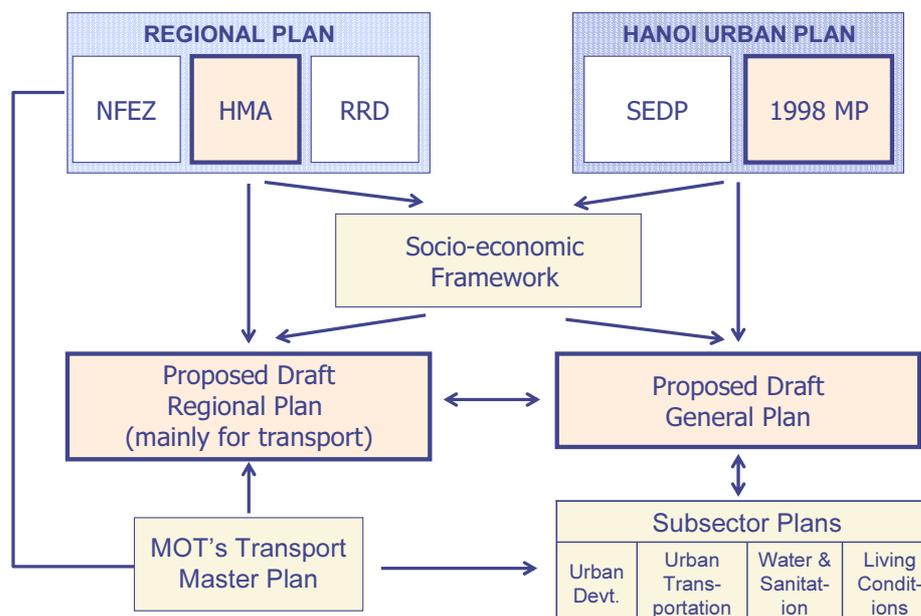
- (2) **Other Surveys:** More than 20 different types of surveys were conducted to collect updated information on traffic conditions, public transportation services, housing conditions, environmental situation, water quality of lakes, resettlement, and others.
- (3) **Workshops/Meetings/Interviews:** Through workshops, meetings, and interviews, information on various urban problems and possible solutions to them were gathered.

**Figure 3.2 HAIDEP Approach to Comprehensive Planning and Integrated / Coordinated Development**



3.7 The Master Plan was formulated in coordination with existing regional plans including the Northern Focal Economic Zone plan, Red River delta plan, and the Hanoi metropolitan plan, as well as urban plans for Hanoi such as the socio-economic development plans and the 1998 Master Plan (see Figure 3.3).

**Figure 3.3 Process of Formulating the Master Plan**



Source: HAIDEP Study Team.

Note: NFEZ: Northern Focal Economic Zone, HMA: Hanoi Metropolitan Area, RRD: Red River Delta.

### Box 3.1 Brief Description of HAIDEP Planning Information System

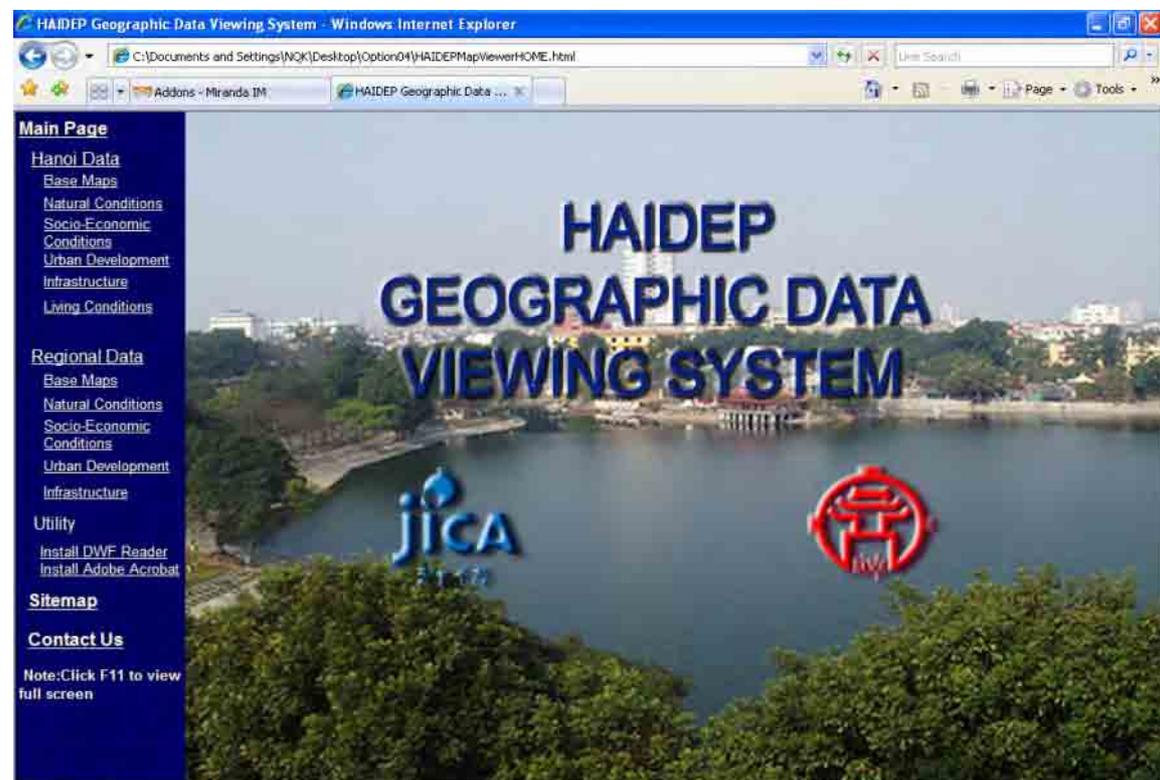
HAIDEP has collected and developed a wide range of data and information through conduct of various kinds of surveys, particularly Household Interview Survey. It includes basic socio-economic information (past, present and future), land-use, environmental conditions, land conditions, traffic demand, availability of urban services, housing conditions and people's opinion on living conditions etc.

Those data and information were compiled in different database system, such as HIS dataset, traffic demand dataset for STRADA, GIS, Urban Karte, for effective use in planning as well as public information. Each database is briefly described below.

**Urban Karte:** An urban karte is a planning tool that can monitor and evaluate living conditions to aid government policy makers and planners. It compiles data on Hanoi summarizing district and commune profiles, as well as people's assessment of their living conditions, based on which a diagnosis is made. It contains, (i) Fact Sheet including district/commune profile, demographic conditions, current land use, current facilities map, (ii) Living Conditions Assessment: objective and subjective indicators, overall assessment, (iii) Summary Diagnosis.

**STRADA:** All of the results of traffic surveys, including person trip survey as a part of HIS were compiled in a STRADA form as a scientific base for the transport planning. It includes the analysis of present situations, model building for demand forecast, identification of development projects, demand forecast and project evaluation.

**GIS:** Geographic information system (GIS) technology is used extensively in HAIDEP. GIS is a decision support system that integrates maps and databases. It can handle large volumes of maps and database information, making it an effective and indispensable planning tool. HAIDEP also developed Geographic Data Viewing System, which include a series of map of Hanoi and the region. Users can easily open the maps and go in details just by clicking title.



Source: HAIDEP Study Team.

## 4 VISION, OBJECTIVES, AND BASIC STRATEGIES

### Vision and Goals

4.1 The vision and goals for Hanoi are interlinked with the fact that it is the nation's capital and, as such, it should be in the forefront of Vietnam's march toward future growth and the anchor for its identity as a proud and robust nation. This is rightly stated in the vision for Hanoi in Order No. 1/2001/L-CTN which reads:

**Hanoi must be built as a modern and thriving capital city, symbolizing the whole country and functioning as a national and regional center for policy, culture, science, technology, education, economy, and international trade.**

4.2 It was widely agreed upon among leaders, experts and citizens that Hanoi's identity can be described as a fusion of nature and culture which has been nurtured through Hanoi's long history, with water, greenery, and culture forming the foundation for spatial development. The goals for sustainable development include: (i) strengthening cultural identity of Hanoi, (ii) developing a competitive urban economy, (iii) realizing favorable living conditions, (iv) ensuring environmental sustainability, and (v) strengthening urban management capacity.

### Objectives and Target Indicators

4.3 The goals for Hanoi's urban development are further elaborated in Hanoi's *Socio-economic Development Plan for 2006-2010* with a set of indicators and more specific objectives in main subsectors, wherein 2020 indicators were worked out based on various plans and policy papers (see Table 4.2).

4.4 Ten subsectors and related areas considered as important components in urban development were selected, and their main objectives were defined (see Table 4.1).

**Table 4.1 Objectives of Selected Subsectors**

Subsector	Main Objective
A. Regional Development	<ul style="list-style-type: none"> <li>• Promote high and balanced growth</li> <li>• Alleviate poverty and promote environmental sustainability</li> <li>• Enhance regional governance</li> </ul>
B. Urban Growth Management	<ul style="list-style-type: none"> <li>• Promote integration / coordination among cities / urban areas in Hanoi metropolitan area</li> <li>• Promote organized expansion of urban areas</li> <li>• Promote competitive and livable urban areas</li> </ul>
C. Socio-economic Development	<ul style="list-style-type: none"> <li>• Achieve sustainable, high economic growth through knowledge-based industries</li> <li>• Reduce inequalities and enhance quality of life of the people including the poor</li> </ul>
D. Urban Transportation	<ul style="list-style-type: none"> <li>• Promote development of public transportation-based urban area and society</li> <li>• Ensure equitable and safe mobility and accessibility for all</li> <li>• Ensure efficient/effective transportation between Hanoi and the rest of region</li> </ul>
E. Urban Water and Sanitation	<ul style="list-style-type: none"> <li>• Ensure the people's safety and healthiness</li> <li>• Promote sustainable use of water resources</li> <li>• Enhance the city's image by improving water environment and sanitation conditions</li> </ul>
F. Housing and Living Conditions	<ul style="list-style-type: none"> <li>• Provide affordable housing especially the poor</li> <li>• Provide institutional and fiscal support to upgrade old housing stocks</li> <li>• Ensure smooth provision of land for housing</li> </ul>
G. Environmental Management	<ul style="list-style-type: none"> <li>• Ensure environmental sustainability and effective land-use for Hanoi as well as its metropolitan area</li> <li>• Ensure people's healthiness and safety by reducing pollution and improving disaster preparedness</li> </ul>
H. Urban Design and Landscape	<ul style="list-style-type: none"> <li>• Enhance the image and identity of Hanoi appealing to the citizens and international society</li> <li>• Ensure traditional tangible and intangible cultural values are preserved and enhanced</li> </ul>
I. Special Areas	<ul style="list-style-type: none"> <li>• Realize the concept of "water-greenery-culture" to enhance the charm and identity of Hanoi by regenerating historic areas</li> <li>• Promote opportunities for new urban economic and social development toward the next millennium</li> <li>• Establish effective mechanism for sustainable development with the participation of city stakeholders</li> </ul>
J. Implementation and Management	<ul style="list-style-type: none"> <li>• Ensure participation in urban development projects and opportunities</li> <li>• Improve efficiency of urban administrative functions</li> </ul>

Source: HAIDEP Study Team

**Table 4.2 Objectives and Target Indicators of Hanoi SEDP<sup>1)</sup>**

Area	Objective and Target Indicator		
Economy	<ul style="list-style-type: none"> <li>to ensure sustainable and high economic growth.</li> <li>to improve development efficiency and competitiveness to strengthen the capital's economic position in the region and the whole country.</li> <li>to strengthen, develop, and improve economic structure toward modernization and industrialization.</li> </ul>		
	<i>Indicator</i>	<i>2010</i>	<i>2020</i>
	• GRDP growth rate (%/year)	11.5	11.0
	• Per Capita GRDP (US\$)	2,400	6,000
	• Economic Sector (1/2/3) (%)	1.5/ 41.7/ 56.8	1.0 / 45.0 / 54.0
	• FDI growth rate (%/year)	15	-
	• Employment structure (1/2/3) (%)	15 /31/ 54	7 / 35 / 58
Social Environment	<ul style="list-style-type: none"> <li>to develop education, training, science, and technology to higher standards and create the foundation of a knowledge-based economy.</li> <li>to provide more job opportunities and reduce social ills and unemployment in urban and rural areas.</li> <li>to strengthen social services for the poor/other beneficiaries, and reduce poverty efficiently.</li> </ul>		
	<i>Indicator</i>	<i>2010</i>	<i>2020</i>
	• High-school enrolment rate (%)	> 90	100
	• Training employment rate (%)	60	70
	• Unemployment rate (%)	< 5.5	< 5.0
	• New jobs per year (000 jobs/year)	-100	90-95
	• Poverty rate (%)	< 4	< 1
Living Conditions	<ul style="list-style-type: none"> <li>to improve the quality of people's lives.</li> <li>to reduce social ills and unemployment in both urban and rural areas.</li> <li>to strengthen social services for the poor/other beneficiaries.</li> </ul>		
	<i>Indicator</i>	<i>2010</i>	<i>2020</i>
	• Average housing area (m <sup>2</sup> /capita)	10	15
	• Water consumption (liter/day)	140-160	170-180
	• Average greenery area (m <sup>2</sup> /capita)	7	15 (urban area) 31 (total)
Infrastructure Services	<ul style="list-style-type: none"> <li>to strengthen urban management capacity for efficient provision of infrastructure services.</li> <li>to promote improvement/rebuilding of existing urban areas for a comprehensive improvement of living conditions and enhancement of competitiveness of the areas.</li> <li>to strengthen disaster preparedness and improve sanitary conditions to promote a more effective socio-economic and environmental development.</li> </ul>		
	<i>Indicator</i>	<i>2010</i>	<i>2020</i>
	• Public transportation share in the city (%)	35	50
	• Coverage of water supply (%)	-	99
	• Drainage service area (system able to respond to rainfall volume of 310mm/2 days) (ha)	-	45,291
	• Coverage of sewage (%)	-	49
	• Service population for solid waste collection and disposal (%)	100 (UDA)	100 (UDA) 65 (UCA)
	• Lighting system coverage of urban alleys (%)	100	-

1) Hanoi Socio-economic Development Plan in 2006-2010.

## 5 GENERAL PLAN FORMULATION

### Considerations in Formulating the General Plan

5.1 The primary objective of spatial planning is to provide the orientation for the overall use of the land and the growth of urban areas. The plan translates the socio-economic development orientations of an area, including its vision and development strategies, into how urban areas are to be developed spatially. Spatial structures determine the direction or pattern of physical growth of an area, thereby providing the foundation for its sustainable development in terms of good living conditions, competitive economic development and employment, and well-preserved natural and cultural environment (see Figure 5.1).

5.2 Key planning principles considered in spatial development planning includes physical and functional integration, clear orientation for conservation and development, consideration of current market-driven development trends, and effective policy intervention.

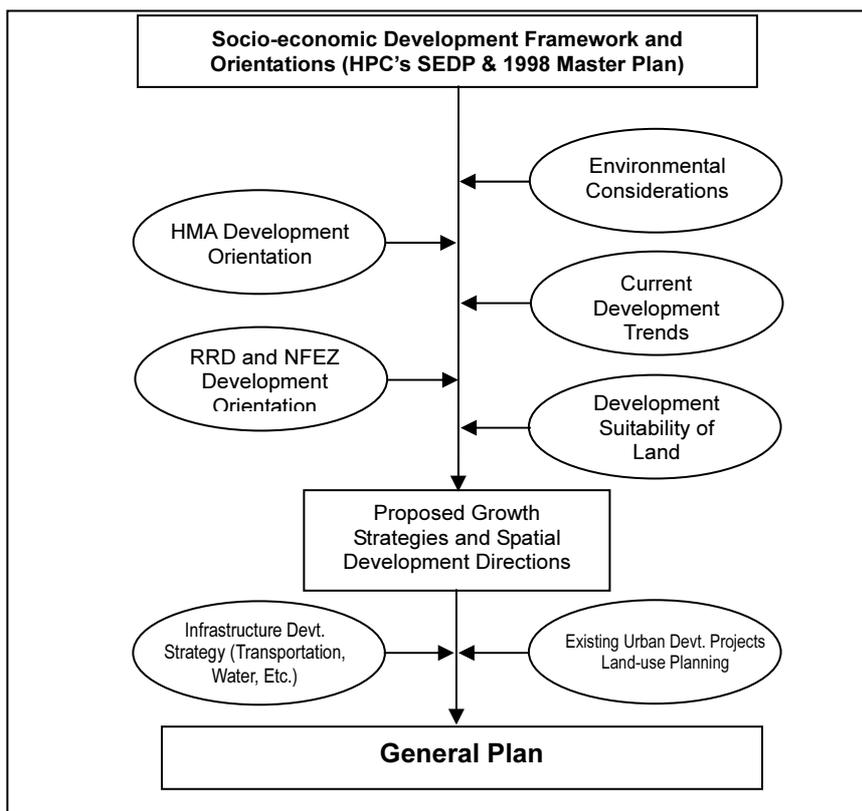
5.3 Integration is the key concept in the HAIDEP Study as a whole and in spatial planning in particular to generate the parallel effects of robust economic growth and reduced poverty levels. Main areas where integration is needed are as follows:

- (1) **Integration of Socio-economic Development Orientation for Hanoi with Spatial Development Plan:** In order to provide society with adequate infrastructure and conducive environment, future population and policies on industry/employment structure and living conditions must be properly incorporated into the spatial development plan.
- (2) **Compliance with Orientations of Regional Plans:** Spatial development strategy at the regional level must be properly incorporated. The respective development orientations of the HMA plan currently being formulated by MOC's NIURP and the RRD and NFEZ plans are given particular consideration in HAIDEP. The orientations of these regional plans that relate to Hanoi's spatial development are: (i) Hanoi's role as the region's center; (ii) transportation corridors; (iii) balanced regional development; and (iv) integrated development of urban areas in adjoining provinces.
- (3) **Orientation of 1998 Master Plan:** The 1998 Master Plan provides the basic urban development orientation for 2020, which are: (i) gradually reduce the density in the urban core; (ii) increase the future population in urban fringe particularly along RR3, the northern parts of the Red River, and satellite cities and urban chains in adjoining provinces; and (iii) develop four ring roads and strengthen the road network including bridges connecting both sides of the Red River. In addition, Hanoi has set benchmarks for selected areas such as overall population density (100 m<sup>2</sup>/person).
- (4) **International, Regional, and Metropolitan Integration:** In order to ensure the future growth of Hanoi is sustainable and balanced with that of the region and that the region's provinces can benefit from the growth of Hanoi, spatial integration at international and interprovincial levels must be pursued through strategic multimodal transportation network development and balanced development of regional urban centers. Regional integration at the metropolitan level, i.e. areas within 30-50 km radius of Hanoi where satellite cities and urban areas are being developed and planned, must also be duly considered. Interjurisdictional physical and functional integration will directly affect the growth pattern and socio-economic situation of the areas including Hanoi.
- (5) **Integration of Hanoi City's Urban Areas and Those in Adjacent Provinces:** The expansion of urban areas is expected to make further progress along major transportation

corridors toward all directions in adjoining provinces. Thus integration with urban areas immediately adjacent to Hanoi must also be achieved. Areas to be included are Ha Dong, Hoai Duc, and Tram Troi in Ha Tay Province; Me Linh and Phuc Yen in Vinh Phuc Province; Tu Son in Bac Ninh Province; and Van Giang in Hung Yen Province.

- (6) **Integration of Urban Areas in Hanoi City:** Urban areas of Hanoi are expected to expand rapidly toward the outer areas. In order for Hanoi City to function efficiently, urban areas with different characteristics must be adequately integrated. Main areas for integration are: (i) areas north of the Red River with large, favorable land development conditions and existing urban areas in the south of the Red River; (ii) growing urban fringe and existing city center; and (iii) growing urban areas along major transportation corridors and existing urban centers.
- (7) **Integration of Urban and Transportation Infrastructure Development:** Infrastructure is a determining factor in ensuring that the desired urban development is achieved. Therefore, its provision must be undertaken in a more integrated manner with urban development.
- (8) **Establishment of Effective Urban-Rural Linkages:** In order to support the development and growth of rural areas, the urban plan should include rural areas in planning, incorporating possible measures that will integrate urban and rural areas and strengthen linkages between the two, such as the promotion of urban agriculture, eco-tourism, and village tourism, as well as the development of support infrastructure.

**Figure 5.1 Spatial Development Planning Framework**



Source: HAIDEP Study Team.

### Key Strategies for Spatial Development

5.4 In order to realize a future urban development that hews closely to the vision and goals stated in the previous chapter, seven basic strategies were formulated in HAIDEP, and these were agreed upon by government leaders, experts, and the people. Briefly these are as follows:

**Strategy 1: Establish a spatial backbone comprising “water,” “greeneries,” and “culture” to ensure environmental sustainability and enhance the identity of Hanoi.**

5.5 Hanoi’s uniqueness and identity can be found in its rich natural and cultural environments at a magnificent scale. The Red River with its tributaries, lakes and ponds of different sizes dotting the urban land, well-maintained old trees lining the city’s streets, parks and green spaces breaking the monotony of buildings. All these form Hanoi’s basic physical setting. The Ancient Quarter and the French Quarter likewise provide an incomparable backdrop for living out the country’s traditions and culture. The identity of Hanoi is thus derived from this unique blend of water spaces, greeneries, and culture which few cities can match. Therefore, it is proposed that such qualities be more explicitly incorporated into the city plan to ensure their sustainability for the benefit of future generations.

**Strategy 2: Develop public transportation-oriented urban areas to ensure mobility of the people and to promote an environment-friendly society.**

5.6 For large urban areas, such as Hanoi, the only way to effectively meet transportation demand is to provide the city with a high-quality public transportation system that is integrated with urban development. The core network will be composed of urban rail, metro, and bus rapid transit (BRT). Secondary and feeder services will be provided by buses with different sizes and types of service. While these require huge investments as well as operation and management capacities over a long period of time, the experiences of successful cities clearly indicate that mass transit networks serve as the backbone of the urban structure and should be integrated with urban land use and development.

**Strategy 3: Upgrade and revitalize existing built-up areas both in city center and fringe areas, including the Ancient Quarter and the French Quarter, to improve living conditions, preserve and enhance cultural values, and promote economic development.**

5.7 The Ancient and the French quarters have functioned as the center of the urban system for so long. With their prime location, their aesthetic values, and the economic opportunities they offer, pressure from new developments as well as redevelopment, has become enormous. At present, it seems there are hardly effective measures to control or guide the developments in a way that the city envisions. Hence a pilot project on the redevelopment of a block in the Ancient Quarter was undertaken to work out an effective mechanism that will combine the aspects of cultural preservation, economic development, and social strengthening in the pursuit of sustainable development of the area.

5.8 In the urban fringe, adequate infrastructures must be provided well ahead of the progress of suburbanization and the subsequent unplanned developments. Many cities in Japan could show a way through this problem: they adopted the key effective intervention of reorganizing the urban structure by adjusting lands and amending the rights of stakeholders for the common good, thereby securing fund sources for infrastructure development.

**Strategy 4: Develop modern and competitive new urban centers to attract diversified quality investments that will generate employment opportunities, and improve the people’s accessibility to needed services.**

5.9 For a large city to be competitive and meet diverse socio-economic and cultural needs, modern and new urban centers for commercial and business purposes must be provided. Many large cities in Asia have developed or are developing these types of new CBDs. HCMC, for one, has started to develop the Thu Thiem New Town. Similar large-scale developments are taking

place along RR3 in Hanoi. With a modification of the planning concept from residential to more business and commercial, these areas have a good chance of becoming multi-functional urban centers. Since this type of development is attractive to the private sector, the role of the government must be limited to that of facilitator and regulator, ensuring that development benefits are equitably shared among stakeholders---the people, developers, and the government---and that public interest expressed in the city plan is always protected.

**Strategy 5: Develop efficient infrastructure and services to ensure convenient and competitive socio-economic activities and affordable services for all including the poor.**

5.10 Infrastructure is of paramount importance to the efficiency and quality of urban activities and shows how public funds are spent. An inferior and inadequate network of roads worsen traffic congestion, increase vehicle operating costs, and wastes the time of road users. Weak traffic management decreases the efficiency of facilities and traffic safety levels. Poor performance of infrastructure services, including transportation, power, water supply, drainage, sanitation, etc., lowers the quality of services and adds to the costs of services. All these inefficiencies become a burden on city authorities as well as on the people.

**Strategy 6: Prepare effective disaster prevention measures to protect against natural and man-induced disasters, and environmental degradation.**

5.11 Hanoi is vulnerable to various hazards such as flooding, inundation, land subsidence, river erosion, and earthquakes. The city has in fact already suffered from a number of such disasters. Densely inhabited urban areas with limited or narrow roads and no open spaces are at risk from fires that can raze large areas in an instant. Emergency response and relief activities would also be greatly hampered. Thus existing urban areas must be upgraded, while future development must avoid such pitfalls to guarantee the protection of life and property.

**Strategy 7: Strengthen institutions and public participation for effective urban management and capacity building, as well as efficient and effective delivery of services.**

5.12 Managing large urban areas is complex that no solution to a problem can be had from one discipline alone; solutions have to wide-ranging, integrated, and location-specific which can sorely test a city's technical and financial capacities. On the other hand, a city that is properly managed can bring immense benefits that can be enjoyed by all stakeholders. To ensure that the latter scenario happens in Hanoi, the following must be carefully looked into:

- (i) Development of alternative implementation methods to carry out urban development (eg land readjustment, urban renewal, etc.).
- (ii) Encouragement of public-private partnerships.
- (iii) Involvement of stakeholders in the development process.
- (iv) Provision of open and business-friendly environment.
- (v) Enhancement of planning and administrative capacities for urban management.

**Proposed General Plan**

5.13 The proposed General Plan was prepared based on the vision to be achieved for Hanoi and the corresponding spatial development strategies based on the 1998 Master Plan philosophy and orientation, as well as on the comprehensive studies on Hanoi's socio-economic, environmental, and physical conditions. In the process, various factors were considered and extensive discussions were held in the Working Group and Steering Committee meetings. The people and other experts were also consulted through the HAIDEP exhibition and workshops.

Some of the main features of the General Plan are as follows:

- (1) **Establish a “Water-Greenery-Culture” Zone and Network:** The Red River space and the Thang Long-Co Loa zone will form the backbone of the city, and they will be integrated with the greenery network linking lakes, rivers, parks, and cultural heritage sites scattered all over the city, as well as with the proposed regional green belts in surrounding areas of Hanoi that will fulfill the function for disaster prevention and environmental management. The “water-greenery-culture” zone and network will provide a foundation of urban development. The overall planning criteria are observed in the General Plan.<sup>1</sup>
- (2) **Designate Thang Long-Co Loa as Core of Hanoi’s Backbone:** This area will be the heart of the “water- greenery-culture” network described above. Therefore, the development in this special area must be effectively controlled and limited to low-density, high-value types which comply with the envisioned image for the area.
- (3) **Strengthen Urban Structure to Effectively Respond to Enormous Future Urban Development Needs:** Hanoi must be prepared to accommodate about 5 million people in its urban areas and those in adjoining provinces. In order to manage this enormous impact of urban development, the following measures are incorporated in the General Plan:
  - (a) *Strategic Transportation Network:* With the development of the UMRT network and a well-configured main road network in Hanoi, its integration with the urban areas in adjoining provinces will be strengthened. With Ring Road 4 and the ring rail, inter-provincial traffic will be segregated from urban traffic, thereby avoiding through traffic in the city center, while providing effective interface between the two.
  - (b) *Clustered Urban Areas:* Urban areas will be classified into five clusters, namely central, east, south, west, and north. Each cluster will have a corresponding characteristic that will distinguish them from one other.
  - (c) *Shift to Polycentric Urban Structure:* The basic urban structure will be transformed from a monocentric to a polycentric pattern through the strategic and integrated development of the main transportation system, particularly including the UMRT network, and competitive new urban centers. These centers will provide complex functions including commercial, business, residential, medical, and other public services, providing investors with attractive investment opportunities and the communities with employment and improved services.
- (4) **Develop Strategic Locations of Industries:** Hanoi’s main industrial function will and must shift to services and knowledge-based industries from conventional manufacturing types. Since FDI-based industries often require smooth connection with international gateways, it is proposed that the periphery of NH18 and NH5 be designated as industrial areas. Industries currently located in the urban centers should be encouraged to move to these areas.
- (5) **Attend to Rural Area Development:** Rural areas must not be segregated from urban planning and development. Since rural areas in Hanoi also receive the brunt of urbanization, they must be integrated with urban areas by improving their existing infrastructure and services and strengthening their physical and information linkages with the urban areas. For example, a shift to urban agriculture and the provision of improved access to markets are considered effective measures.

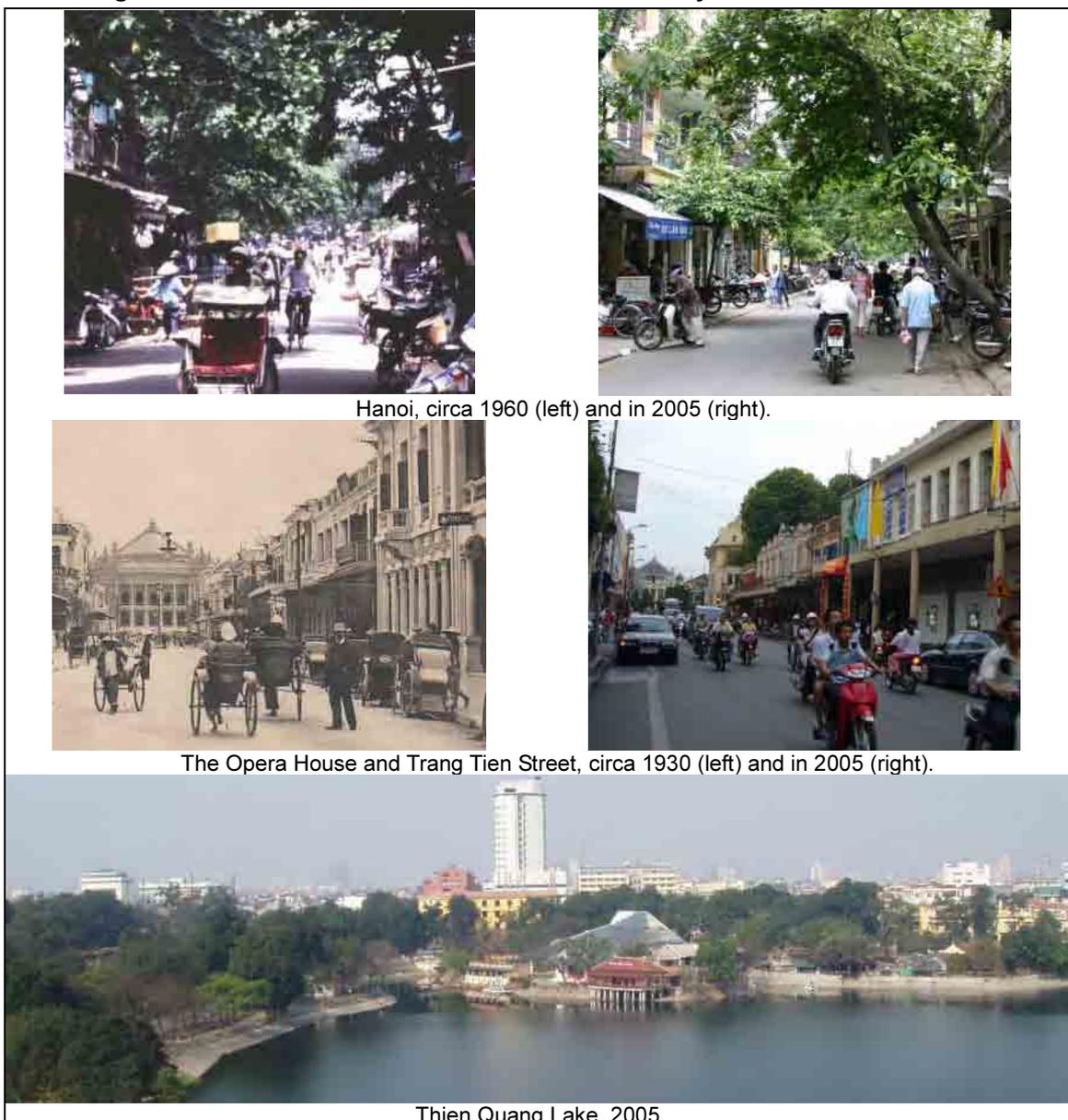
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<sup>1</sup> Average density for the city is 100 m<sup>2</sup> per person, 26 m<sup>2</sup> per person for residential area, and 18 m<sup>2</sup> per person for green space.

5.14 The General Plan proposed in HAIDEP differs from the existing Master Plan in terms of institutional arrangement, as explained as follows:

- (i) In HAIDEP a two-tier planning system is proposed. The General Plan indicates the overall spatial development direction, determining locations of key infrastructure<sup>2</sup> and zoning to induce the proper use of lands. Details<sup>3</sup> are specified in District Plans to guide specific developments.
- (ii) In HAIDEP urban development activities to be undertaken by various entities, including individuals, are to be managed by urban planning institutions that will provide the rules and legal basis. In the process the government will act not only as a provider but also as a facilitator of urban development.
- (iii) In order to further support the smooth implementation of the General Plan, various urban development methods and mechanism are also proposed in HAIDEP.

**Figure 5.2 Hanoi Endowed with “Water-Greenery-Culture” Resources**

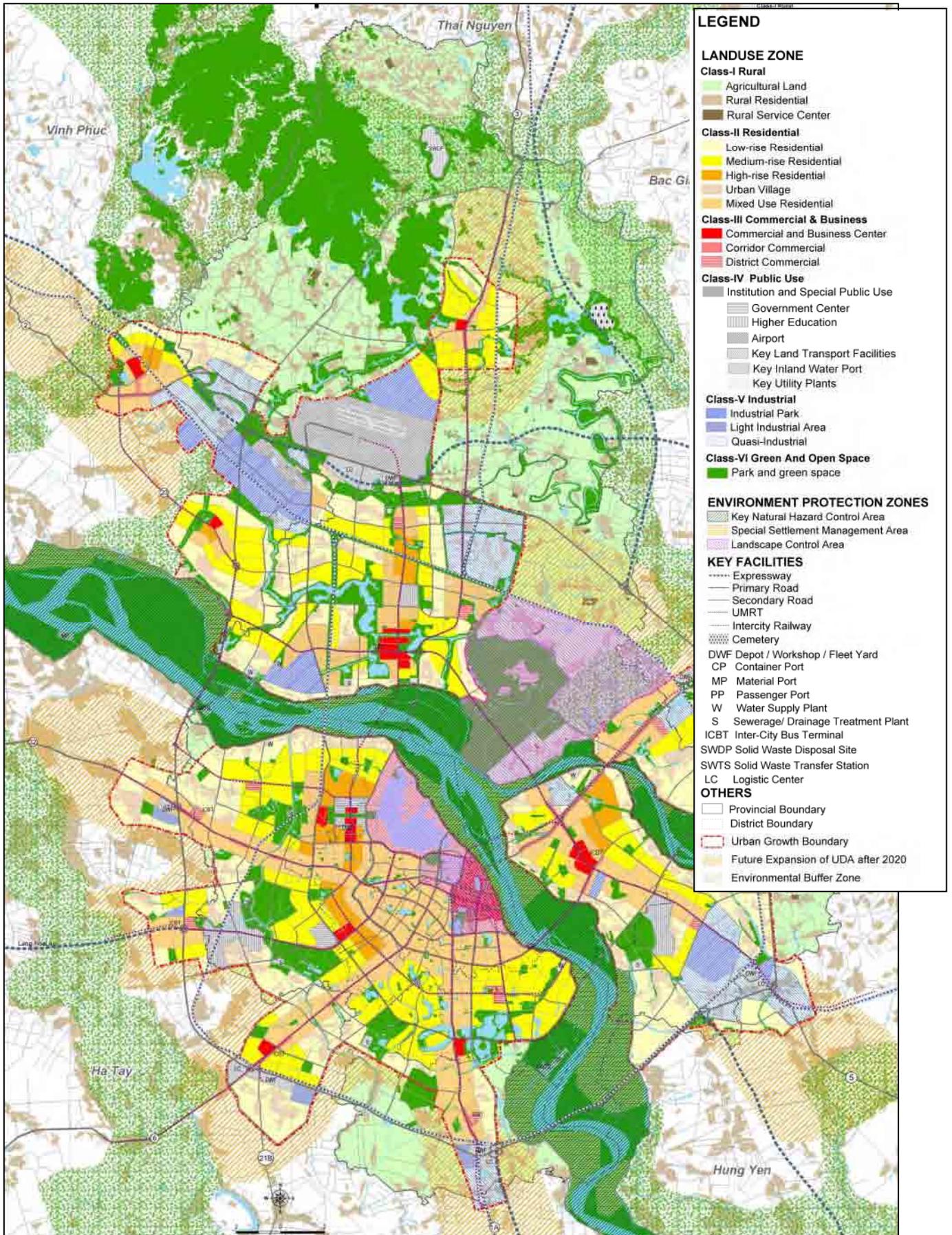


Note: Recent pictures of Hanoi were taken by the HAIDEP Study Team.

<sup>2</sup> Alignments of roads and areas for other public facilities are specifically delineated in the legally binding District Plans.

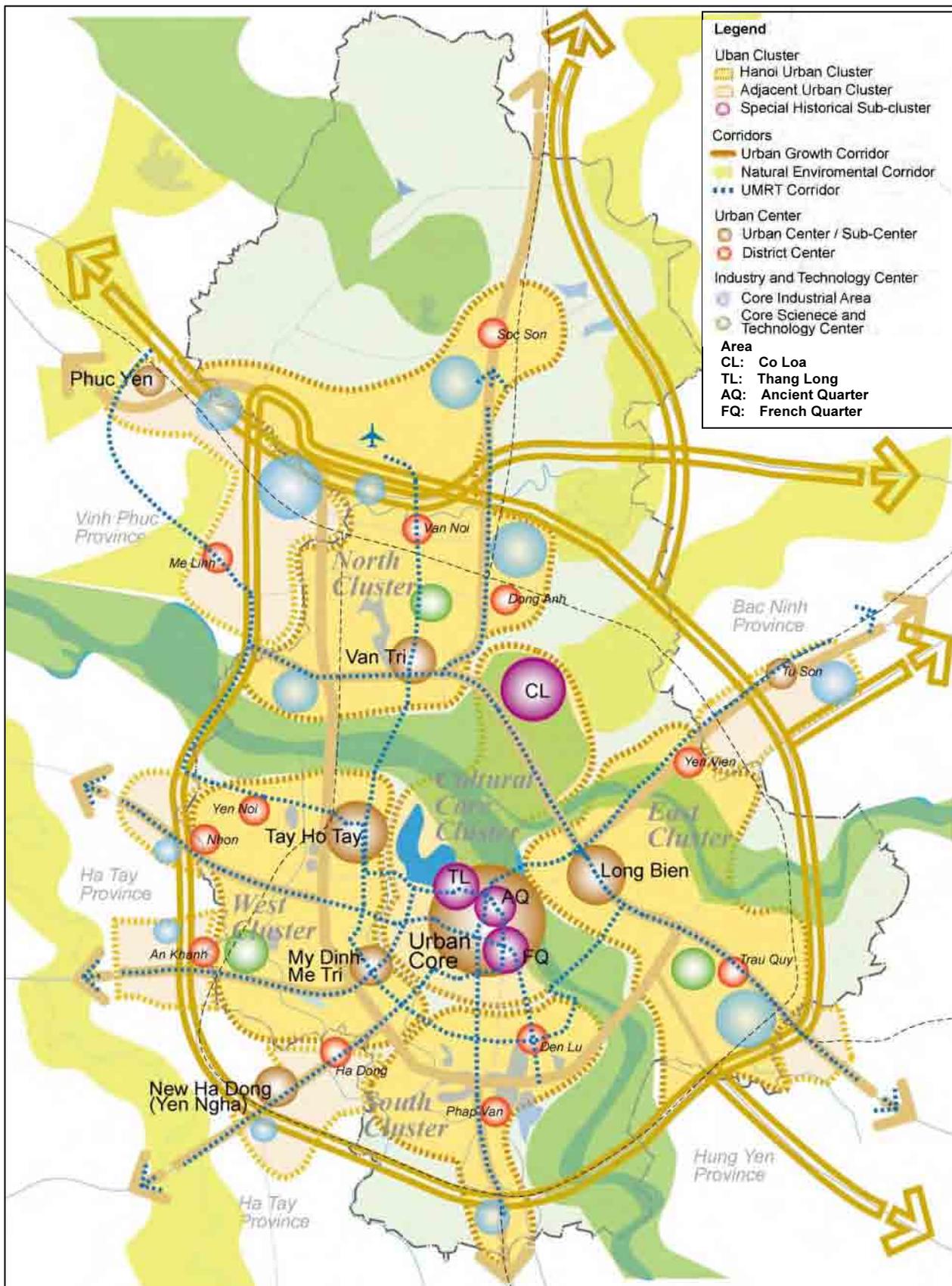
<sup>3</sup> Including height controls, floor area ratios, building coverage ratios, etc.

**Figure 5.3 Proposed General Plan**



Source: HAIDEP Study Team.

Figure 5.4 Basic Structure of the Proposed General Plan



Source: HAIDEP Study Team.