

## 11 HOUSING AND LIVING CONDITIONS

### 11.1 Housing

#### Main Issues

11.1 Affordable housing is a primary concern and interest of the people. The supply of housing without due consideration of the affordability levels of target users will amplify social discrepancies and may waste investments. Informal and often illegal supply of substandard housing can put lives at risk and can degrade the living conditions in neighborhoods. Thus in housing provision, the following must be attended to:

- (i) Ensure safety, healthiness, amenity, and convenience of the people.
- (ii) Ensure individual housing to form an integral part of the desired urban areas.
- (iii) Establish effective role-sharing between private and public sectors.

11.2 The most important and urgent issue is to develop housing stocks, either private or public, in response to increasing housing demand. The future required housing stocks far exceed the housing stocks that have been developed in the last few years. Therefore Alternative development mechanism is required, where many other factors must be incorporated such as supply of lands, design standards, access to housing loans, incentives and conditions for developers, government subsidy, etc.

11.3 The primary focus of the government must be placed on affordable housing for low-income and other handicapped groups. At present, there is no sufficient mechanism to supply affordable housing, particularly rental housing. Constant direct subsidy is neither sustainable nor equitable. Comprehensive mechanism is required for social housing development, including administrative arrangement with clear functional demarcation among related agencies, formulation of formal real estate market particularly for rental housing, and financial support both for suppliers and buyers.

11.4 In addition to the supply of new housing in new areas, rebuilding and improvement of housing in existing urban areas and villages are other issues that must be addressed clearly. In many parts of existing urban areas, roads are narrow, drainage is inadequate, public space is lacking, structure and facilities are poorly maintained, all of which contributed to worsening of the living conditions. Simple scrap and build approach is neither feasible nor advisable. Improvement of housing in these areas must be addressed as an integral part of urban area development/redevelopment.

#### Future Need for Housing

11.5 Future demand of housing is large. 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. On average about 33,000 units with 3.1 to 3.6 million m<sup>2</sup> of floor area need to be supplied annually. Demand is composed of new building and rebuilding of old and small housing. Demand due to resettlement as well as demand due to in-migrating students and workers is increasing.

11.6 While future demand is large in quantity, there is scarce information on what types of housing with what level of quality and prices, the people with different socio-economic features such as household composition, income, etc. Moreover, the results of HIS conducted in HAIDEP indicates that although the space is a main concern people also consider other function such as air flow, price, structure, location etc. are important, which vary by type of households and their location of housing.

11.7 Demand forecast for affordability level has shown that people's affordability will remain quite low under the current level of housing market. 77% of households could not afford to rent houses with a floor area of 30m<sup>2</sup> at market prices, which is expected to decrease to 38% by 2020. As for house purchase, almost 95% of household as of 2005 cannot afford houses with a floor area of 30m<sup>2</sup>, but this will decrease to 69% by 2020.

### Proposed Development Direction

11.8 Government's role in the supply of housing include the following: (i) to formulate comprehensive and phased housing development program with attainable development target, (ii) to establish a sustainable mechanism particularly on the supply of affordable housing, (iii) to improve current institutional mechanisms for the private sector to supply affordable housing, (iv) to expand financial access for affordable housing provision, and (v) to prepare realistic design standards for affordable housing.

11.9 Various alternatives for development mechanism are required with necessary government support, in order to narrow the current demand-supply gap and provide affordable housing. Housing development shall be promoted through (i) redevelopment of existing urban areas, (ii) development of land for housing, and (iii) project-type new urban development.

11.10 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, and (iv) criteria for distribution of social housing.

11.11 Institutional arrangements are necessary to further promote housing development in Hanoi. They include: (i) effective housing management system including housing registration system, housing information, and housing performance indicators, (ii) expansion of formal housing market including enforcement of legal housing transaction and second-hand housing market, (iii) strengthening of housing financing for individuals to increase people's purchasing power and thus to activate housing market and facilitate re-housing process, and (iv) improvement of housing management system for high-rise condominiums.



The various faces of living conditions in Hanoi.

Note: Pictures were taken by the HAIDEP Study Team.

## 11.2 Living Conditions

### Main Issues

11.12 Based on a method adopted in the Urban Karte (see Chapter 2.9), the people in urban areas have a relatively satisfactory assessment of their living conditions, albeit in varying degrees per locality. This, however, does not mean the existing conditions are as fine as they should be. In reality the assessment results of the objective indicators of living conditions in Hanoi are relatively low compared to benchmarks set in counterpart cities in Asia.

11.13 There are certain areas in Hanoi where the living environment has deteriorated and for which rebuilding is the most appropriate measure to improve the situation. These areas include old public housing areas, many parts of the areas outside the dyke, existing urban villages, and even parts of the Ancient Quarter. These areas are transforming quickly due to the implementation of formal projects, various informal developments, and individual investments. These developments, however, do not always guarantee the improvement of the overall living environment in affected areas. In fact, there are cases when such developments have caused environmental degradation.

11.14 The current institutional framework for urban development also lacks the proper mechanism to improve the living environment due to the lack of an effective zoning, planning, and development control and technical guidelines as well as support measures especially for developments initiated by the private sector.

### Proposed Development Direction

11.15 The improvement of living conditions must be attended to comprehensively, because the quality of living conditions can only be guaranteed when key elements, such as safety, convenience, healthiness, and amenity, are improved in a balanced manner. It is also of note that the required measures to improve the living conditions of an area require both city- and local-level action. For example, transportation and drainage improvement must be done in wider areas, while community parks and rebuilding of old housing can be reconsidered in narrow areas.

11.16 Rebuilding or renewal of existing built-up areas is becoming more and more important in the future to improve living conditions and promote more effective land use. For this, effective development methods, such as land readjustment and urban renewal, need to be worked in a way that they fit Hanoi's conditions.

11.17 At the city level, various projects of the different sectors, e.g. roads, drainage, roadside urban developments, etc., must be implemented in a coordinated manner. The development of housing estates/complexes, for example, must also improve the environment of adjoining areas. Moreover, an urban area development must not focus on buildings and physical infrastructure alone, but should cover services and management matters to realize the desired living environment. Proper planning and institutional framework are therefore of paramount importance.

11.18 A big part of the improvement of the living environment can be done at the community level, as is already practiced in many parts of Hanoi such as street sweeping, drainage cleaning, and garbage collection. Whatever their respective situations, communities should take the initiative in identifying problems and issues which they can resolve by themselves or by the city authorities.

### 11.3 Housing and Living Conditions Development Strategies and Actions

11.19 The demand-supply gap in housing has been quickly widening, especially in the medium- to low-income groups. The city is requested to establish urgently comprehensive housing policy. While the interest of individuals and the private sector in housing investments is large and the purchasing power is ever-growing, the existing housing supply system involves various weaknesses in terms of institutional, technical, and financial aspects. Housing provision must also be looked into as part of improving the overall living environment. The main strategies and actions were identified, as shown in Table 11.1.

**Table 11.1 Proposed Housing and Living Conditions Development Strategies and Actions**

| Strategy  | Action   | Monitoring Indicator   |
|---|--|--|
| F1 Establish coordinated housing policy   | F11 Identify existing and future housing market together with housing supply mechanism to define issues and agenda<br>F12 Establish clear policy on role-sharing between public and private sectors in housing supply<br>F13 Establish adequate institutions to promote private sector participation in the housing market | <ul style="list-style-type: none"> <li>• Effective housing policy</li> <li>• Effective institutional framework</li> <li>• Share of private sector in formal housing provision</li> </ul> |
| F2 Establish concrete mechanism to ensure affordable housing for low-income groups  | F21 Identify types of affordable housing for different categories of customers<br>F22 Develop adequate design standards of affordable housing to improve living conditions<br>F23 Establish adequate mechanism to supply affordable housing by both public and private sectors   | <ul style="list-style-type: none"> <li>• Matching demand</li> <li>• Adequacy of design standards</li> <li>• Workable supply mechanism</li> </ul>   |
| F3 Provide adequate supportive measures to rebuild old public housing   | F31 Formulate basic sustainable redevelopment methods for old public housing areas on equitable sharing of costs and benefits between residents and government<br>F32 Redevelop old public housing areas to benefit residents and serve public interest<br>F33 Introduce PFI (private financing initiatives) schemes       | <ul style="list-style-type: none"> <li>• Workable redevelopment mechanism</li> <li>• Number of redeveloped houses</li> </ul>   |
| F4 Establish improved mechanism for smooth supply of lands for housing  | F41 Improve existing registration system<br>F42 Introduce land readjustment mechanism to define land issues and develop housing areas  | <ul style="list-style-type: none"> <li>• Progress of actions</li> </ul>  |
| F5 Establish practical living environmental improvement mechanism based on comprehensive assessment of living conditions at community level | F51 Develop comprehensive living conditions assessment methods (ie urban karte)<br>F52 Establish practical mechanism to improve the living environment based on F51<br>F53 Establish participatory mechanism to improve living conditions at community level   | <ul style="list-style-type: none"> <li>• Progress of actions</li> </ul>  |

Source: HAIDEP Study Team.

11.20 Actions with strategic importance are as follows:

- (i) Establishment of policy and institutional framework for sustainable provision of affordable housing
- (ii) Establishment of participatory monitoring system of living conditions at community level
- (iii) Improvement of technical standards for buildings and their maintenance

## 12 ENVIRONMENT

### Importance of Environment

12.1 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.

12.2 However, under rapid and strong urbanization and economic development pressure, environmental degradation has become an unfortunate consequence. The coverage of greeneries and open space is decreasing. Prime agriculture lands are being encroached upon, air quality is worsening, contamination of groundwater is spreading, biodiversity is being lost, and lakes and ponds are being reclaimed. Social conflicts increase due to forced settlement and in-migration, and traditional cultural values are being lost in the process. The impacts of urbanization and industrialization are so huge that proper measures need to be taken by the government and all related stakeholders at the regional, city, and local levels.

12.3 Environmental aspects must be more effectively incorporated in urban planning and development and must encompass all subsectors, because environment is not an isolated issue and is always a part of development activities in the city.

### Establishment of Environmental Zones and Green Belts

12.4 Environmental and green zones form the foundation for urban development in Hanoi and its adjoining areas. These zones are composed of important resources, namely: (i) greeneries including forests, nature parks, parks, agricultural lands, etc.; (ii) water formations including rivers, lakes, and ponds; (iii) cultural heritage assets including Thang Long and Co Loa citadels and other assets spread all over the city and region; and (iv) critical hazard areas. The identification of environmental and green zone does not necessarily mean that developments within these areas will be restricted. It is merely desired that such areas will be adequately planned and developed in a way that the environment is preserved and sustained and the negative impacts of potential hazards are reduced (see Figure 12.1).

### Mapping of Hazard Areas and Land Development Suitability

12.5 Environmental conditions of Hanoi were categorically analyzed. A hazard map was prepared and land conditions for development suitability were evaluated.<sup>1</sup> Other environmental features such as rivers, lakes and ponds, greenery resources including forest and park, and agricultural lands were also analyzed (see figures 12.2 and 12.3). By overlaying these environmental components, a comprehensive environmental zoning can be formulated which provides a useful input to land-use planning.

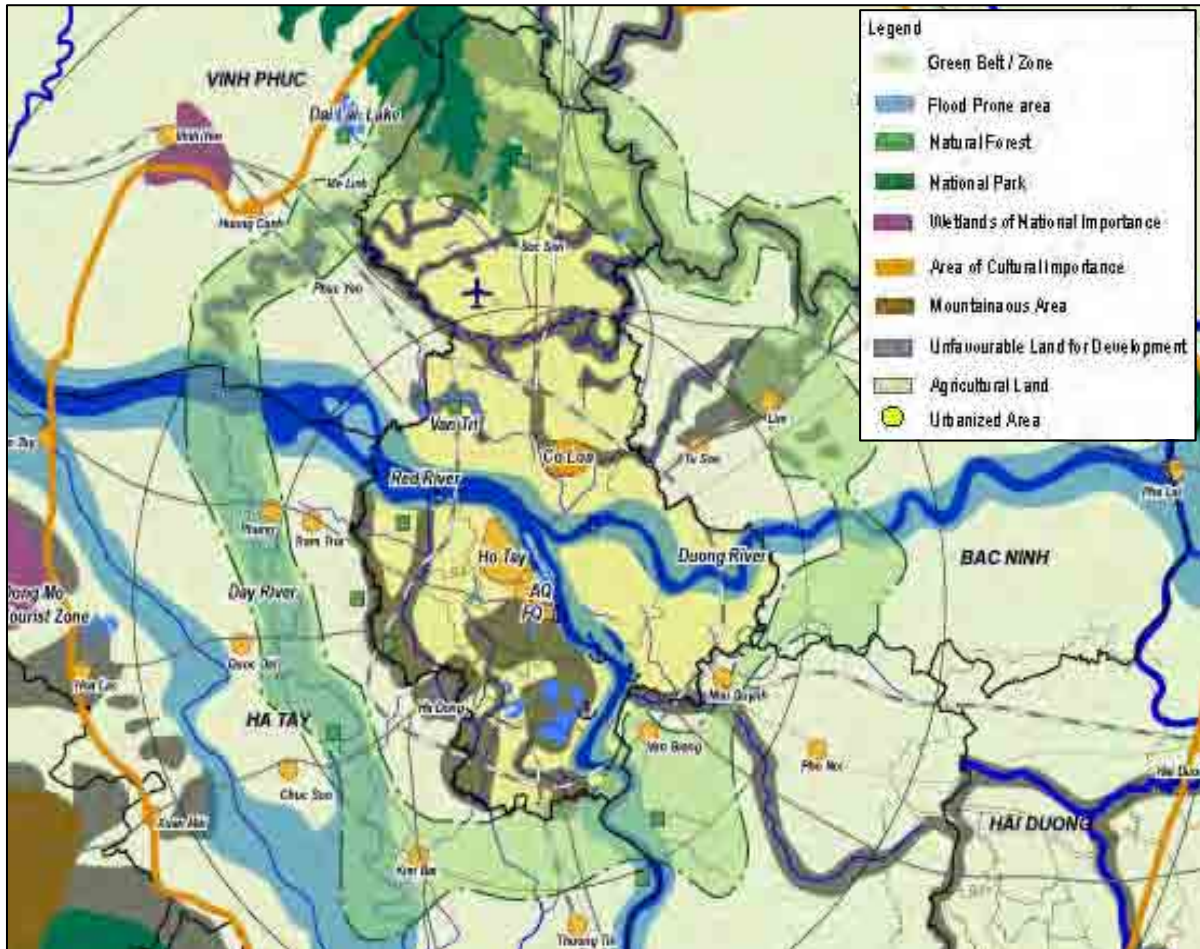
### Environmental and Social Considerations

12.6 Vietnam as well as JICA practices strategic environmental assessment not only for projects but also for the process of planning. In HAIDEP, environmental and social considerations were undertaken in accordance with the JICA environmental guidelines.

---

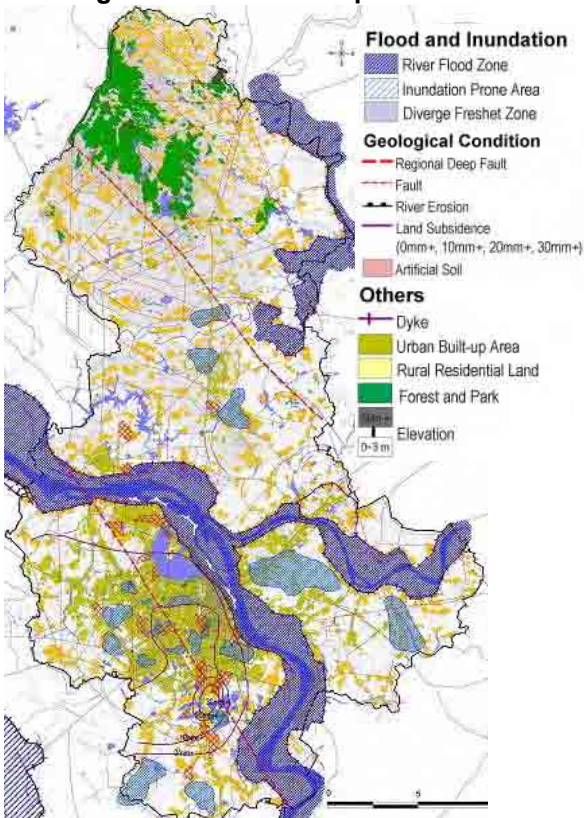
<sup>1</sup> Thirteen factors were selected for the analysis namely: topography (slope, elevation), geodynamics (heave/subsidence, density of fault or distance to fault), engineering geology (surficial geology), groundwater (depth to groundwater level, corrosiveness of groundwater, distance to intensive groundwater extraction area), geological hazard (earthquake, distance to riverbank erosion, distance to weak river dyke segment), and man-induced hazard (land subsidence, inundation).

Figure 12.1 Environmental Zones and Green Belts in Hanoi Region



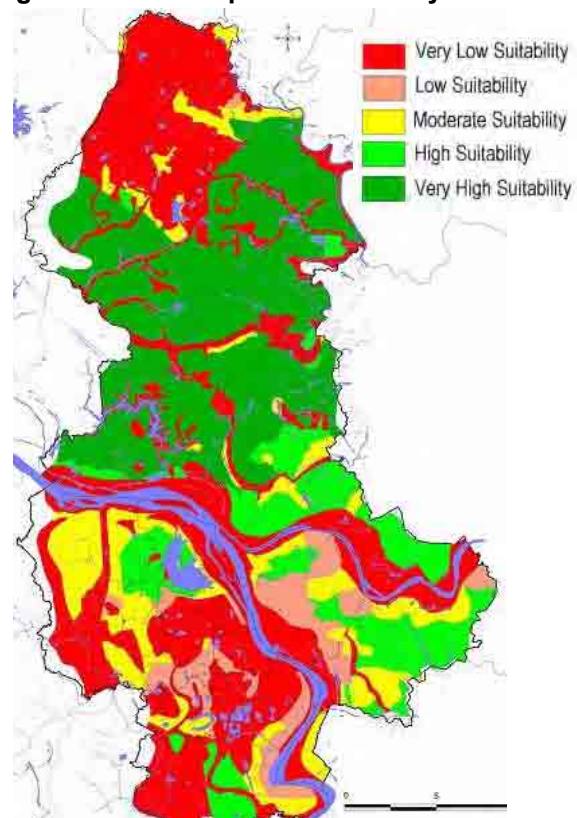
Source: HAIDEP Study Team.

Figure 12.2 Hazard Map of Hanoi



Source: HAIDEP Study Team.

Figure 12.3 Development Suitability of Land in Hanoi



Source: HAIDEP Study Team.

## **Green Network**

12.7 Various water and green spaces, such as rivers, lakes and ponds, parks and greeneries, of different sizes as well as functions and distributed all over the city must be connected as a network to cover the entire urban area and further to connect agriculture land and greeneries in rural areas. The network must be developed in hierarchy. The Red River - Duong River system and the Thang Long - Co Loa zone comprising the city's backbone should be connected with the green belt surrounding Hanoi. The Nhue River, including its regulating reservoir and large parks, and the Van Tri water space will form part of this primary water-greenery-culture network. Meanwhile, other lakes and ponds must be provided with trees and other greeneries and connected to each other through streets with strips planted to trees and plants as well. In and along the green network, historical and cultural heritage sites, valuable architectural buildings, tourism destinations, and other recreational facilities must likewise be connected to the overall network.

## **Air Quality and Noise**

12.8 Emissions from transportation are becoming a major source of air pollution in Hanoi's urban areas. HAIDEP conducted an air quality survey<sup>2</sup> at the five intersections of Chuong Duong, Nga Tu So, Nga Tu Vong, Cau Giay, and Cau Chai on air pollutants including nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), total suspended particulates (TSPs), ozone (O<sub>3</sub>), lead (Pb), particular matter (PM), volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). Compared to the results of previous studies, those of the HAIDEP survey indicated that Hanoi's air quality has significantly improved as a whole. However, levels of TSPs and CO still exceed Vietnamese standards. For PAHs and VOCs which are considered mutagens and carcinogens, much lower levels than WHO standards were observed.

12.9 At the intersections mentioned above, noise levels were also surveyed. Results showed that noise levels were greater than those of the Vietnamese standard throughout the day. In addition to the usual vehicular noise from engines, exhaust pipes, and tires, the frequent use of horns by all types of vehicles aggravate the situation.

## **Land Acquisition and Resettlement**

12.10 Development of infrastructures, especially roads, in built-up urban areas requires involuntary resettlement. Hanoi has experienced many such cases involving large numbers of families<sup>3</sup>. Resettlement often requires lengthy durations and large compensation costs that often sets back project completion, create more difficulties for affected families, and delays the benefits that are expected from the projects.

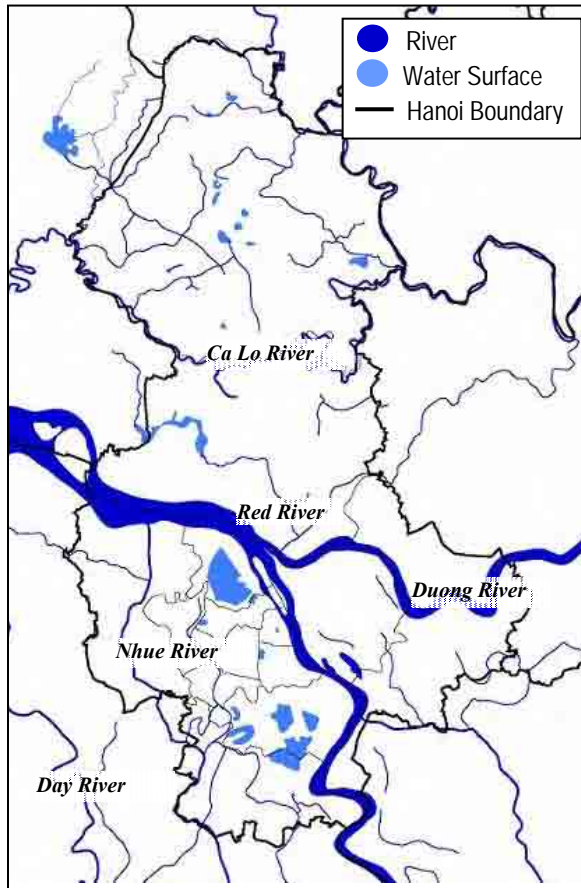
12.11 While there are resettlement options, including: (i) resettlement in government housing, (ii) land exchange, and (iii) cash compensation, these do not meet the demands of the affected families. And while the efforts of the government to improve the compensation policy have been commendable, there are still limitations pertaining to eligibility, entitlement, and restoration of livelihoods. For one, they cannot freely choose the sites to which they want to resettle. Then, too, the types of resettlement house are limited to multistory apartments, and there is no mechanism to restore livelihoods.

---

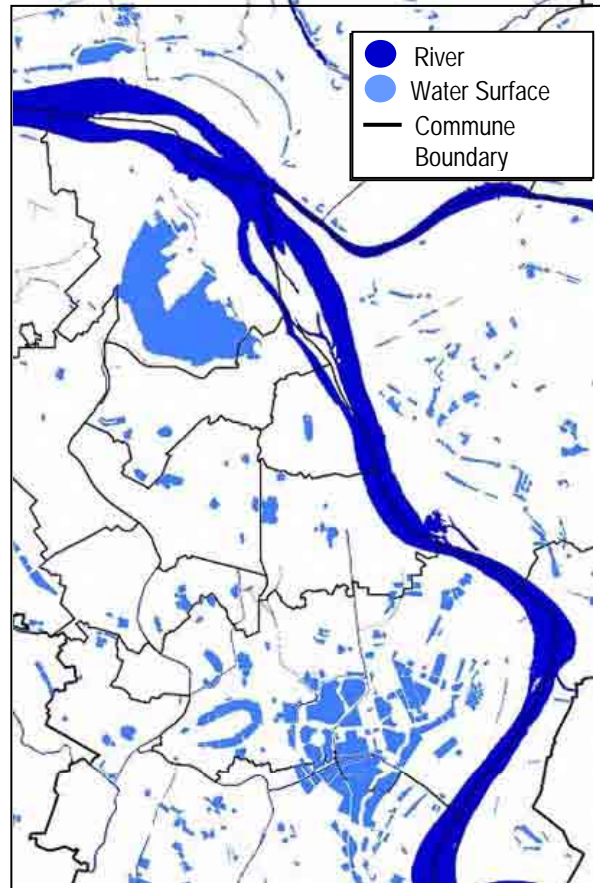
<sup>2</sup> Conducted in March 2005.

<sup>3</sup> For example, Ring Road (Mai Dich-Phan Van section) involved 1600 PAF (Project affected families who are resettled), Vin Thuy Bridge 1.100, Overpass at So Intersection 1.100, etc

**Figure 12.4 Water Systems in Hanoi**

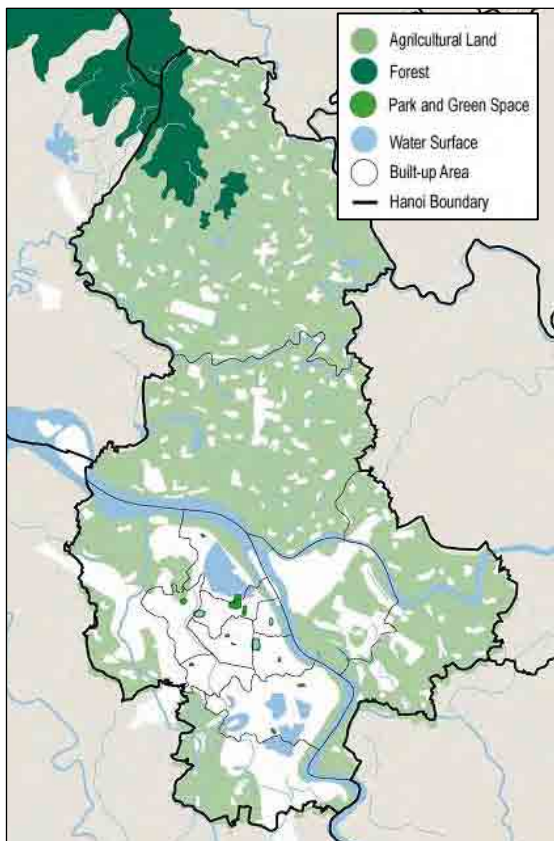


**Figure 12.5 Major Lakes in Hanoi's Urban Areas**

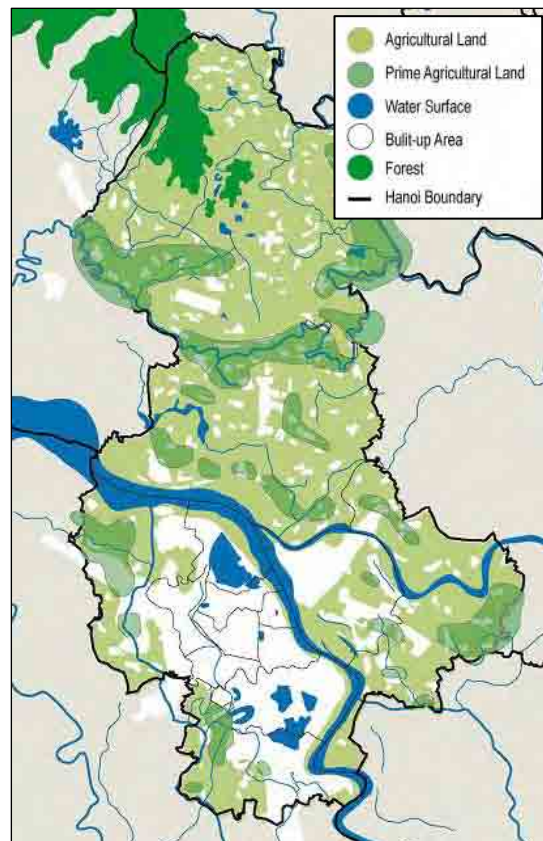


Note: Compiled by the HAIDEP Study Team based on available data.

**Figure 12.6 Green Resources in Hanoi**



**Figure 12.7 Agricultural Lands in Hanoi**



Note: Compiled by the HAIDEP Study Team based on available data.



## Environmental Management Strategies and Actions

12.12 Environmental development, involving various cross-cutting factors, provides the important foundation in urban planning and development. Nevertheless, it is often dealt with fragmentarily or given a minor role in project evaluation. Environmental development in Hanoi must be attended to on a long-term basis (see Table 12.1).

**Table 12.1 Proposed Environmental Management Strategies and Actions**

| Strategy  | Action  | Monitoring Indicator   |
|---|---|--|
| G1 Establish comprehensive environmental planning and management system | G11 Develop through effective interagency coordination comprehensive environmental mapping and information systems using GIS for easy access by all stakeholders<br>G12 Establish a practical environmental impact assessment system by selecting a set of indicators agreed upon by all stakeholders<br>G13 Strengthen interagency coordination among environmental organizations on indicators and environmental issues<br>G14 Establish an effective environmental monitoring system | <ul style="list-style-type: none"> <li>• Development of GIS-based comprehensive environmental information system and access mechanism</li> <li>• Establish of inter-agency coordination mechanism</li> </ul> |
| G2 Establish green belts in coordination with adjoining provinces       | G21 Identify and designate green belts based on a comprehensive study<br>G22 Establish a green belt management council involving Hanoi and adjoining provinces<br>G23 Formulate an effective green belt development and management system   | <ul style="list-style-type: none"> <li>• Formulation of greenbelt plan</li> <li>• Establishment of management organization</li> </ul>  |
| G3 Develop a park and green space network                               | G31 Establish a network of parks, water bodies, streets lined with trees, etc. to cover the entire city including districts and communes<br>G32 Provide parks at community level<br>G33 Integrate parks and green space with overall land use, infrastructure, cultural sites, and socio-economic activities  | <ul style="list-style-type: none"> <li>• Formulation of green network plan</li> <li>• No.r of community parks developed</li> </ul>   |

Source: HAIDEP Study Team.

12.13 Proposed projects with strategic importance are as follows:

- (i) Development of comprehensive environmental mapping and information system using GIS
- (ii) Development of regional green belts
- (iii) Strengthening of urban environmental monitoring system
- (iv) Development of parks at community level

**Figure 12.8 Important Environmental Resources in Hanoi City**



Lenin Park



Children playing in a community park.



Street trees in the Ancient Quarter.



Large trees line the streets in the French Quarter.



Hoan Kiem Lake



Red River

Note: Pictures were taken by the HAIDEP Study Team.

## 13 URBAN DESIGN AND LANDSCAPE

### Main Issues

13.1 The landscape of Hanoi has an extraordinary charm, appealing to the people and visitors alike. The landscape is also an important element to enhance Hanoi's identity. The attractiveness of the landscape extends widely from the unique physical setting and lifestyles in the Ancient Quarter and the French Quarter, the avenues provided 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.

13.2 However, during the process of recent rapid urbanization, many of these assets have been spoiled by various developments and people's activities insensitive to the landscape's value. Although there are a number of regulations<sup>1</sup> restricting activities that generate negative impacts, these lack comprehensiveness and depth as well as effective enforcement mechanisms and capacities. A common understanding of the desired landscape for Hanoi is also lacking.

13.3 In order to strengthen Hanoi's image and identity, the concept of "water-greenery-culture" must be expressed in concrete terms in the form of the desired landscapes. The urban design that will promote this concept comprehensively must be firmly established.

### HAIDEP Approach and Outputs

13.4 In order to formulate a policy framework on the management of the city's landscape, HAIDEP implemented the following approaches:

- (i) Analysis of the results of the landscape portion in the comprehensive HIS.
- (ii) Analysis of the results of a questionnaire survey on the public image of Hanoi City among selected experts and citizens.
- (iii) Conduct of a series of stakeholder meetings with selected experts on aspects related to landscape.

13.5 Results of the analyses and meetings showed that existing institutions and the capacities of authorities are not of the level needed to attend to urban landscape issues effectively. However, it was also found that both the people's and the experts' levels of awareness of the importance of landscape are high. Based on these findings, preliminary landscape guidelines were worked out in the study for eventual review and elaboration (see Box 13.1).

### Proposed Urban Design and Landscape Development Strategies and Actions

13.6 The landscape in Hanoi has ample opportunities for improvement, something which is very much critical to establishing an identifiable image. An attractive landscape does not only soothe the senses and feeds the minds of the people, but is also a magnet for visitors and investments from outside, thereby contributing to the city's economic development. For this, the landscape must be dealt with not only from the aesthetic viewpoint but more specifically in

---

<sup>1</sup> Current regulations include the following: (i) Article 27 Urban Designing, Section 3 Chapter II of the Construction Law (16/2003/QH11), (ii) Articles 30 and 31, Section 4, Chapter II of the Government Decree in Construction Planning (08/2005/ND-CP), (iii) Article 36, Section 1, Chapter IV of Cultural Heritage Law (28/2001/QH10), (iv) Temporary Regulation in Hanoi's Ancient Quarter Construction, Conservation and Improvement Management (45/1999/QD-UB), (v) regulations for Hoan Kiem Lake area including 448/1996/QD-KTBH and 45/1997/QD-UB), (vi) advertisement ordinances including 39/2001/DL-UBTVQH10, 24/2003/ND-CP, and 10/2001/QD-UB.

the context of urban design which integrates the physical, socio-economic, and aesthetic aspects and translates them into feasible actions (see Table 13.1).

**Table 13.1 Proposed Urban Design and Landscape Development Strategies and Actions**

| Strategy   | Action  | Monitoring Indicator   |
|--|---|--|
| H1 Establish comprehensive landscape policy and workable mechanism to ensure conservation and enhancement of desired landscape | H11 Develop comprehensive landscape policy and guidelines<br>H12 Organize "Urban Design and Landscape Forum"<br>H13 Establish a mechanism for effective management including adequate rules and regulations and enforcement organizations   | <ul style="list-style-type: none"> <li>Guidelines formulated</li> <li>Number of forums organized</li> </ul>            |
| H2 Promote improvement of landscape for urban space of strategic importance  | H21 Promote desired landscapes for different areas such as Ancient Quarter, French Quarter, Thang Long, Co Loa, new urban areas, rural areas, etc.<br>H22 Promote desired landscape for transportation corridors and gateways<br>H23 Promote desired landscape for waterfront and green network   | <ul style="list-style-type: none"> <li>Progress of actions</li> <li>Satisfaction of the people and visitors</li> </ul> |
| H3 Establish concrete mechanism to ensure cultural preservation  | H31 Complete inventory of tangible assets including sites and facilities with cultural value<br>H32 Establish adequate mechanism to preserve and restore tangible assets in harmony with landscape in surrounding buffer areas<br>H33 Establish adequate mechanism to preserve prime rural landscape  | <ul style="list-style-type: none"> <li>Progress of actions</li> </ul>  |
| H4 Develop new opportunities to improve urban design and landscape   | H41 Develop underground space in harmony with the urban design at ground level to create additional space for public services and businesses<br>H42 Develop new landmarks with distinctive designs including high-rise buildings, towers, bridges, other facilities<br>H43 Establish adequate mechanism to preserve and further expand network of street trees and greeneries | <ul style="list-style-type: none"> <li>Progress of actions</li> <li>Number of positive elements</li> </ul>             |

Source: HAIDEP Study Team

13.7 Priority actions were developed, as follows:

- (i) Model project on selected landscape corridor (e.g. airport road)
- (ii) Model project on underground space development
- (iii) Improved tree planting in Hanoi
- (iv) Development of research/high-tech parks with the support of the higher education sector
- (v) Establishment of monitoring mechanism on community environment and activities
- (vi) Drafting of comprehensive landscape law and guidelines
- (vii) Formulation of comprehensive landscape master plan

### **Box 13.1 Preliminary Landscape Guidelines<sup>1</sup>**

#### **(1) Guidelines for the Management of Urban Landscape in Hanoi at the City Level**

- (i) Preservation of the natural landscape including lakes, parks, flower gardens, street trees, rivers and bridges, suburban landscape.
- (ii) Preservation of urban heritage in the urban development covering city core area, silhouette of the city, height and volume of building, construction and renovation of buildings, rehabilitation of traditional profession and festivities, environment – friendly means of transport
- (iii) Urban reconstruction and upgrading covering urban routes and axes, streets and sidewalks (the remaining), transport nodes, squares and flower gardens, public transport system of the city, car parking, technical infrastructure facilities, collection of rubbish
- (iv) New urban development include axes and urban landmarks, quality of residential areas, development of industrial zones
- (v) Urban advertisement include advertisement in public spaces, advertisement at the frontage of buildings, urban decoration, technical and legal aspects of advertisement
- (vi) Urban lifestyle covering preservation of traditional culture in lifestyle, preservation of good urban sanitation, promotion of cuisine, promotion of open air activities, promotion of community spirit, beggars and street vendors.

#### **(2) Urban Landscape Management Guidelines for Functional Areas of Hanoi**

- (i) Ancient Quarter including street houses, public buildings, street spaces, traffic organization in the Ancient Quarter
- (ii) French Quarter covering street houses, public buildings, street spaces, traffic organization in the French Quarter
- (iii) Expanded inner city including street houses, public buildings, streets, alleys
- (iv) Outside Red River dyke area including street houses, public buildings, streets, alleys
- (v) Collective housing areas covering collective housing blocks, public buildings, street spaces, common yards
- (vi) New residential areas including street houses, condominiums, public buildings, street spaces, yards and gardens
- (vii) Rural villages including houses and compounds, public buildings, village roads

#### **(3) Institutionalization of Urban Landscape Management Guidelines**

- (i) Role, responsibilities covering at the city level, at the district level, at the ward, commune level, role of mass organizations
- (ii) Method of implementation including formulation of urban planning projects, urban plan project approval, implementation of urban plan and monitoring, maintenance, treatment sanction
- (iii) Participation of residents including process participation, detection by the people, initiatives by the people
- (iv) Sources of finance including state budget, private sources of finance, contribution by residents

#### **(4) Increase in Comprehensive Awareness of Urban Landscape**

- (i) Public education and Campaign including “green, clean, beautiful” movement, public media, mass organizations
- (ii) Public education including training of state civil servants, school education, undergraduate education
- (iii) Development research including formulation of project proposals, promotion of urban landscape initiatives, awards for good practices

Source: HAIDEP Study Team.

1) This indicates the guidelines' coverage. Contents are explained in a separately prepared technical paper.

**Figure 13.1 Positive Landscape Elements Favored by Hanoians**



Opera House



Ba Dinh Square



House in Ancient Quarter



French Village



Long Bien Bridge



Hoan Kiem Lake



West Lake



Sunset in West Lake

Note: Pictures were taken by the HAIDEP Study Team.

## 14 SPECIAL AREAS

### 14.1 Need for Designating Special Areas

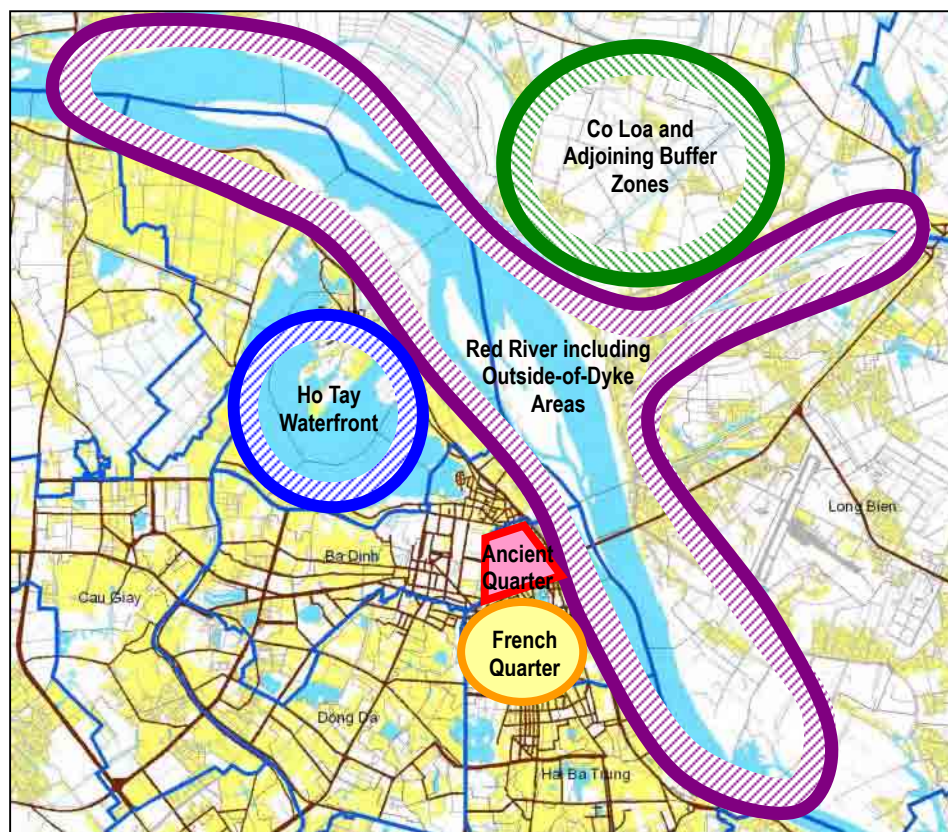
14.1 While the general plan provides the vision and the basic urban development orientations for the future, translating them to tangible forms which the people and visitors can easily understand and appreciate is another matter. Otherwise, these concepts would remain only as plans or if ever they are realized, they would have insignificant appeal to the people. This chapter thus explains the preliminary concepts on the development of selected key areas in Hanoi including their physical plans, development strategies, and necessary institutional arrangements. The following areas were selected because of their importance:

- (i) the Red River including the areas outside the dyke.
- (ii) Co Loa and its adjoining buffer zones.
- (iii) the Ancient Quarter.
- (iv) the French Quarter.
- (v) Ho Tay waterfront area.

14.2 The primary development goals for these special areas are as follows:

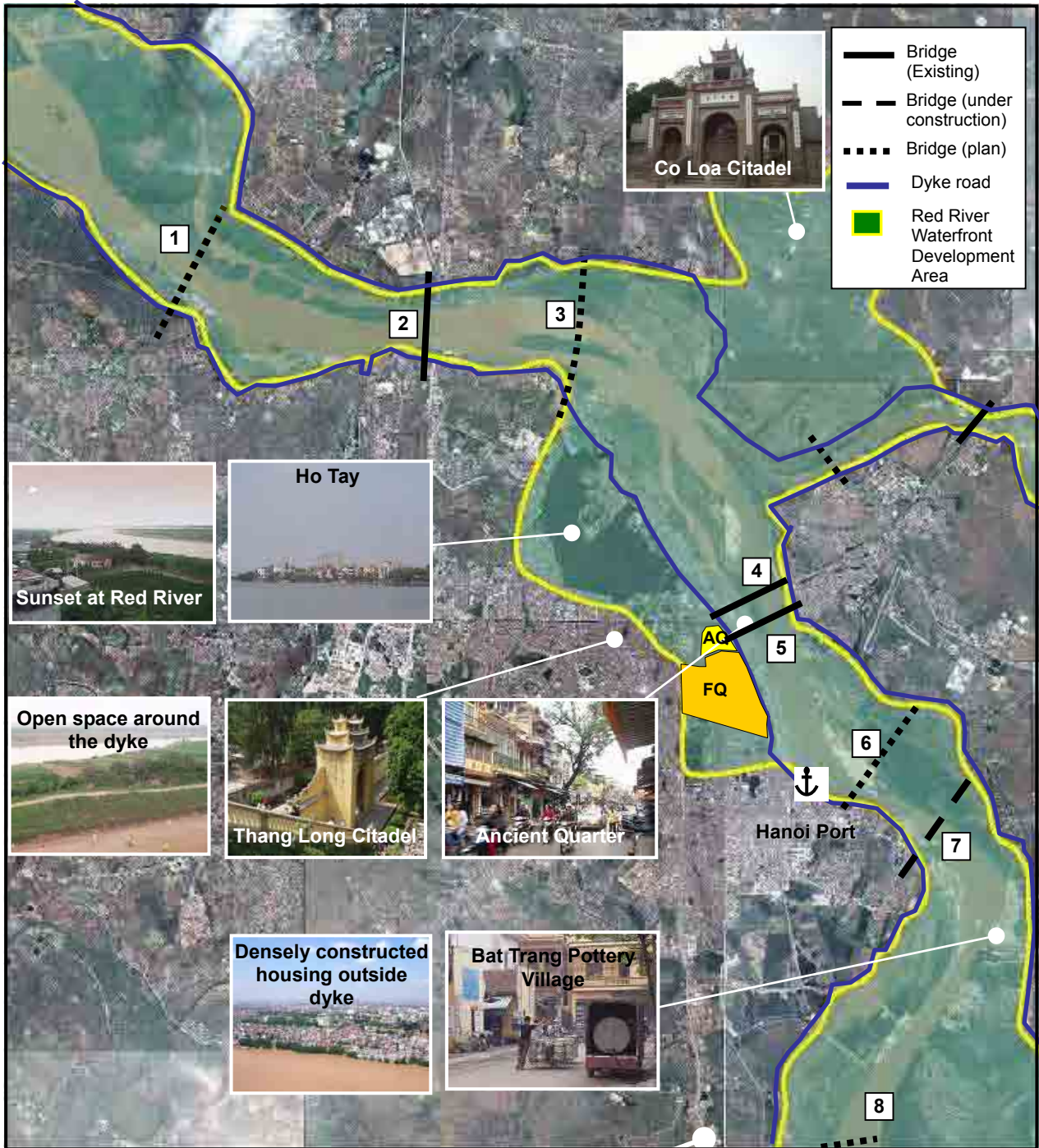
- (i) Realize the concept of “water-greenery-culture” and regenerate traditional areas to enhance the charm and identity of Hanoi.
- (ii) Promote opportunities for new urban economic and social development.
- (iii) Establish effective mechanism for sustainable development with the participation of city stakeholders.

Figure 14.1 Location of Special Areas in Hanoi City



Source: HAIDEP Study Team.

**Figure 14.2 Development Opportunities along the Red River Waterfront**



|   |  |  |   |
|---|--|--|---|
| <p>2. Thang Long Bridge</p>  | <p>4. Long Bien Bridge</p>  | <p>5. Chuong Duong Bridge</p>  | <p>7. Thanh Tri Bridge<br/>(under construction)</p>  |
| <p>1. RR4 Bridge<br/>(Planned)</p>  | <p>3. Nhat Than Bridge<br/>(Planned)</p>   | <p>6. Vinh Tuy Bridge<br/>(Planned)</p>  | <p>8. RR4 Bridge<br/>(Planned)</p>  |

Source: HAIDEP Study Team.



## 14.2 Red River Space

### Main Issues

14.3 The Red River used to be the backbone of Hanoi, integrating the city's important areas and resources. However, in the process of development and with the occurrence of disasters, the Red River has somehow become separated from the urban system in many ways. It can only be seen now from limited locations and is no longer fully connected with water bodies in urban areas. Also, it has a limited role in transportation and its waterfront is mostly occupied by informal developments. All these show that the Red River no longer plays a key role in the socio-economic life of the city and is slowly losing cultural and environmental importance.

14.4 This is not enough reason, however, to dismiss the Red River, since it is not as calm as those in many capital cities in the world such as the Seine River in Paris, the Sumida River in Tokyo, the Chao Phraya in Bangkok, or the Hong River in Seoul. The mighty Red River can bring untold destruction to the people and the city, as Hanoi's long history could attest.

### Development Goals

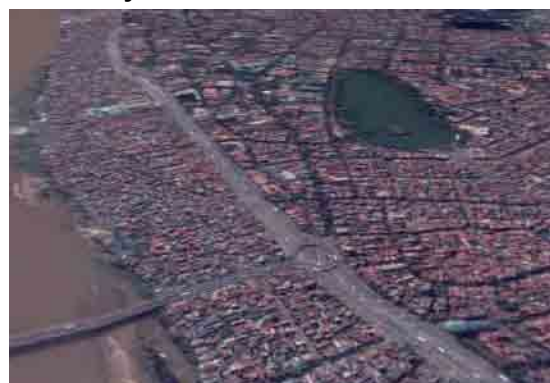
14.5 Notwithstanding the danger that the Red River poses, it can provide the city with opportunities to enhance the city's image and add to its social, cultural, environmental, and economic value when properly incorporated into the city's strategic urban planning and development. The main goals are thus set as follows:

- (i) To revive the Red River as the cultural and environmental backbone of the city and as a strategic tool to enhance the city's image and identity.
- (ii) To promote socio-economic development by reorganizing the use of the ample riverfront including the areas outside the dyke.
- (iii) To establish adequate institutional and technical frameworks to ensure the sustainable development of the areas outside the dyke.

**Figure 14.3 Past and Current Layout of Outside-of-dyke Area and the Ancient Quarter**



The port and the Ancient Quarter were directly connected to the Red River in the past (Source: "Hanoi Ancient Features," VNA Publishing House, 2005).

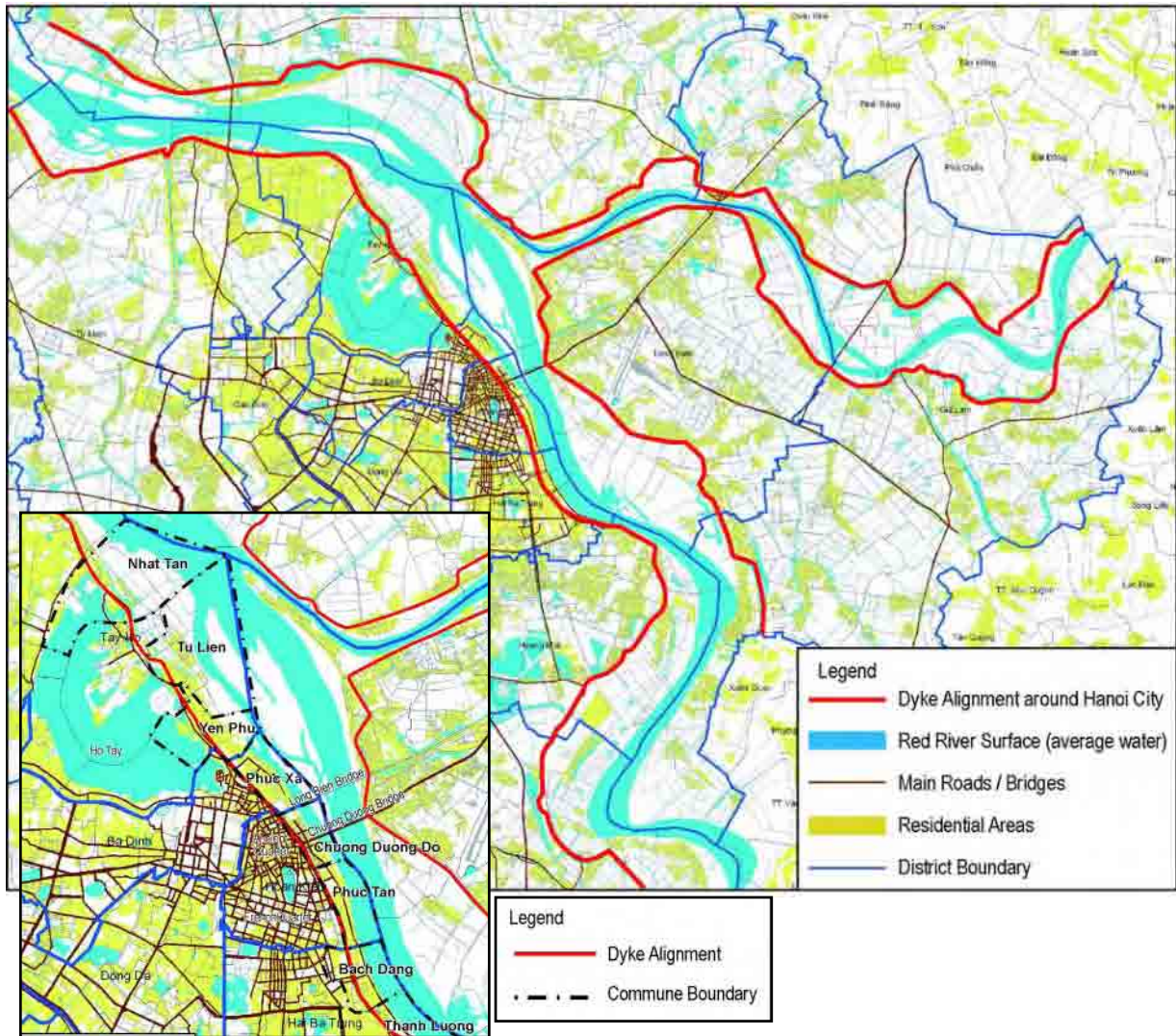


The alluvial plains outside the dyke are now occupied by buildings (Source: Google Earth).

### Proposed Development Concept and Strategies

14.6 The development of the Red River must be thought of in the long run, even beyond the term of the master plan. A policy or consented idea must be in place as to what will be the Red River in the coming 50 years or 100 years time which is not very long compared to 1000 years age of Hanoi. It is for sure that the environmental and cultural values will be much more appreciated by the society in Hanoi as well as in the international community. In order for the

**Figure 14.4 Location of Red River and Outside-of-Dyke Area**



Source: HAIDEP Study Team.

**Table 14.1 Development in Selected Areas Outside the Dyke**

| Item                       | District/<br>Commune | Tay Ho     |            | Ba Dinh    |            | Hoan Kiem       |           | Hai Ba Trung |             | Total        |
|----------------------------|----------------------|------------|------------|------------|------------|-----------------|-----------|--------------|-------------|--------------|
|                            |                      | Nhat Tan   | Tu Lien    | Yen Phu    | Phuc Xa    | Chuong Duong Do | Phuc Tan  | Bach Dang    | Thanh Luong |              |
| Area (ha)                  | Residential Area     | 47         | 41         | 58         | 41         | 35              | 23        | 49           | 56          | 349          |
|                            | Water Surface        | 151        | 118        | 53         | 27         | 54              | 24        | 39           | 58          | 524          |
|                            | Other Use            | 151        | 153        | 31         | 33         | 12              | 22        | 19           | 29          | 450          |
|                            | <b>Total</b>         | <b>350</b> | <b>312</b> | <b>141</b> | <b>100</b> | <b>101</b>      | <b>70</b> | <b>106</b>   | <b>142</b>  | <b>1,322</b> |
| Population                 | 1989                 | 5,237      | 4,856      | 13,054     | 11,647     | 12,092          | 8,851     | 12,881       | 12,098      | 80,716       |
|                            | 1999                 | 7,104      | 7,095      | 17,652     | 15,767     | 20,508          | 14,199    | 16,402       | 18,797      | 117,524      |
|                            | 2003                 | 8,106      | 8,290      | 19,660     | 18,641     | 21,969          | 14,830    | 17,618       | 21,143      | 130,258      |
| Population Growth (%/yr)   | 1989-1999            | 3.1        | 3.9        | 3.1        | 3.1        | 5.4             | 4.8       | 2.5          | 4.5         | -            |
|                            | 1999-2003            | 3.4        | 4.0        | 2.7        | 4.3        | 1.7             | 1.1       | 1.8          | 3.0         | -            |
| Population Density (no/ha) | Total Area           | 41         | 43         | 222        | 253        | 471             | 327       | 261          | 252         | 163          |
|                            | Residential Area     | 173        | 201        | 339        | 459        | 636             | 647       | 362          | 381         | 374          |

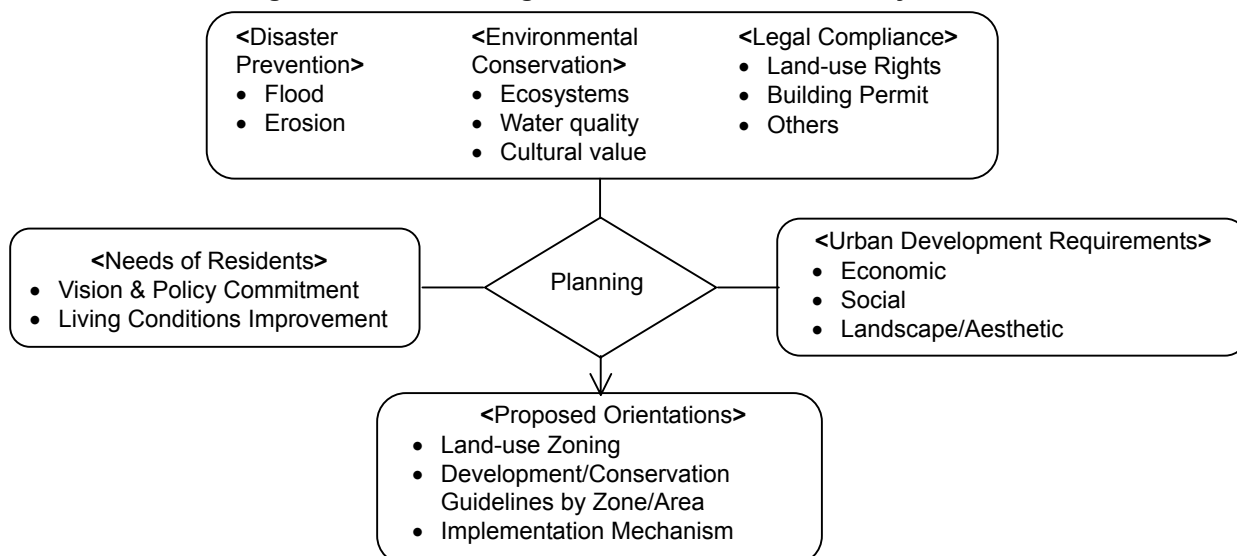
Source: HAIDEP HIS (2005) and Hanoi Statistical Yearbook.

1) Excluding water surface.

Red River to play an expected role, the overall development direction and management of the entire river space must be as follows:

- (1) **Environmental and Cultural Backbone:** The Red River forms an environmental and cultural backbone for the city by: (i) establishing effective flood and bank erosion control protecting life and property of the people, (ii) enhancing waterborne environmental value and ecosystems in integration with lakes and ponds dotting the city, (iii) enhancing the landscape in a way that it represents the city's image, (iv) integrating the Red River with other key areas such as Co Loa, Ho Tay, the Ancient quarter, the French Quarter, and other cultural villages and heritage sites located in and around the river.
- (2) **Mobility and Transportation Axis:** The water space of the Red River must function more efficiently as an environment-friendly mobility and transportation axis to integrate both sides of the river and especially the cultural villages and heritage sites scattered in and around the water space. The Red River water transportation must be integrated with the city's overall public transportation network. The river is also expected to strengthen its role in interprovincial transportation linking various parts of the river basin for goods transport and tourism purposes.
- (3) **Reintegration of Outside-of-Dyke Areas:** The areas outside the dyke must play a more constructive and affirmative role not only in the development and management of the Red River space but also in the overall urban development of the city. At present, the development forms a sort of barrier, blocking the effective physical and aesthetic integration of the river space with the existing urban area. With this Hanoi is no longer facing the Red River which in turn has become the back door. In order to regain the integration, development and management of the areas outside the dyke is critical.
- (4) **Planning Framework for Outside-of-Dyke Areas:** The areas outside the dyke involve complex legal and institutional development issues which have been accumulated for long since the dyke was constructed. Although a strong and consented political intervention is necessary, the basic approach to the future development for the area is preliminarily worked out (see Figure 14.5).
- (5) **Landscape Management and Urban Design:** These are elements critical to the achievement of the envisioned image of the Red River space. For this, the design of bridges and public facilities, as well as the city's skyline, among others, must also be properly managed.

**Figure 14.5 Planning Framework for Outside-of-Dyke Area**



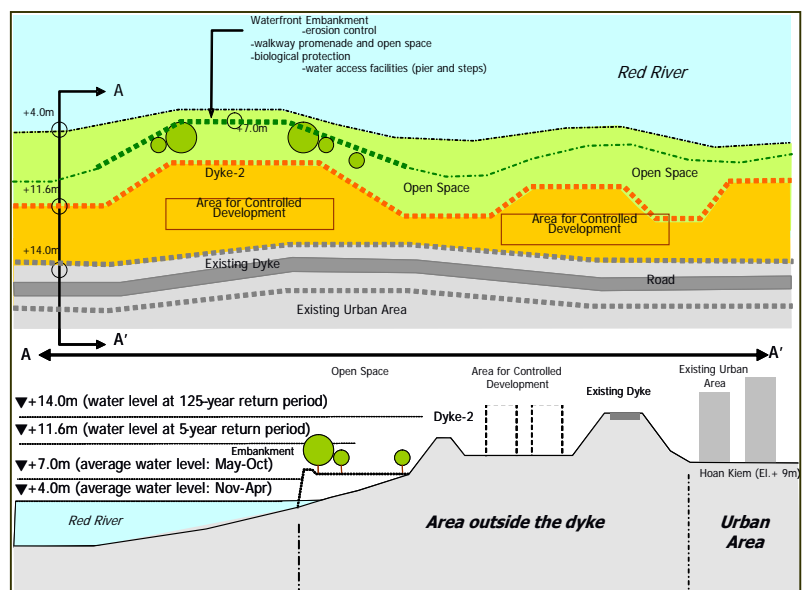
## Development Concept for Outside-of-dyke Area

14.7 Basic spatial planning orientation is to establish zoning for the area and provide clear guidelines for suggested activities and development depending upon the potential threat to disaster and socio-economic development opportunities. With construction of new dyke (same height with the existing main dyke) or secondary dyke (lower height which can protect flood of 5- to 10-year return period), the types of development and activities can be further elaborated.

14.8 Recommendations are as follows:

- (1) **Amendment of the Dyke Ordinance:** The dyke ordinance should be amended soon so as to ensure the safety of both dykes and flood release, while balancing the need to acknowledge house ownership and land-use rights of those who have settled on stable land. There should also be a definition of illegal constructions based on clear criteria and a complementary relocation plan to improve the quality of life of households who will fall under such a definition.
- (2) **Consensus Building on the 2<sup>nd</sup> Dyke Construction:** To utilize the outside-of-dyke area effectively, a second dyke (H=12m) between the existing dyke and the river terrace will be constructed in some prioritized areas. In this project, it is proposed to construct the new dyke around urban communes and rural craft villages. The location of the 2<sup>nd</sup> dyke shall be further discussed among stakeholders vis-à-vis socio-economic impacts of resettlement and construction of the dyke.
- (3) **Detailed Land-use Planning:** The area outside the second dyke shall be an open space, and the area between the two dykes shall be used for nonresidential purposes. The land use will be designated by area in consideration of the relationship with the hinterlands, neighboring communes, as well as historical and natural conditions.
- (4) **Relocation Planning:** For implementation of resettlement, the areas where violate the current Dyke Ordinance shall be forced from a standpoints of safety and legality. It is necessary to conduct the detailed survey of legal condition of residential areas. The political priority for implementation are: (i) implementation of forced resettlement with compensation (about 58,500 people (32% of total for short-term resettlement), (ii) construction of the 2<sup>nd</sup> dyke (about 21,000 people (11%) will be protected), (iii) promotion of voluntary resettlement with subsidy in the medium term (about 84,000 people (46%) for mid-term resettlement), and (iv) promotion of voluntary resettlement in the long term (about 18,700 people (10%) for long-term resettlement without compensation). In other words, the government needs to the issue of compensation for about 58,500 people and the necessity for a second dyke.

**Figure 14.6 Development Concept for Outside-of-dyke Area**



Source: HAIDEP Study Team.

### 14.3 Thang Long – Co Loa Zone

#### Thang Long - Co Loa Zone: Heart of Hanoi

14.9 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 (see Figure 14.8).

14.10 The planning considerations to take account of include the following:

- (i) To ensure an open vista along the Thang Long - Co Loa axis by clearing existing facilities and restricting future developments.
- (ii) To construct transportation facilities connecting Thang Long and Co Loa such as:
  - A bridge across the Red River for pedestrians and light vehicles
  - Tram line using expanded Long Bien Bridge
  - A ferry across the Red River for pedestrians
- (iii) To restore heritage sites and improvement of Co Loa Citadel and its adjacent areas.
- (iv) To redevelop the areas outside the dyke of the Red River to ensure the development vision and objectives.
- (v) To develop the Dong Hoi and Xuan Canh areas in a way that they match the development vision of the project. Development must be low density, high value with rich cultural and environmental flavor.

#### Development of Cultural Core

14.11 The roles and functions of the Red River development area are as follows:

- (i) Disaster prevention (safety of life, infrastructure improvement).
- (ii) Environmental (environmental axis, landscape, water network, green space, open vista).
- (iii) Social (recreation, integration of communities along the river).
- (iv) Cultural (Thang Long-Co Loa special area, cultural villages, Red River waterway).
- (v) Economic (urban development for nonresidential purpose, waterfront development, recreation and tourism, and water transportation).

14.12 Based on the roles and functions mentioned above, it is also proposed that a spiritual core be developed in the heart of Thang Long - Co Loa zone by constructing the proposed multipurpose 300-meter-high Hong Ha Tower at the end of Thanh Nien Street in the area outside the dyke (see Figure 14.9). This complex intends to provide opportunities for the people: (i) to have a bird's eye view of Co Loa, Thang Long, Red River, and the entire urban setting from a 200-meter high observatory, (ii) to have an opportunity to appreciate the waterfront of the Red River, (iii) to have a large venue (10 hectares of plaza) to hold events, (iv) to have an opportunity for meditation in the spacious plaza, (v) to access various services to be developed in the complex including museums, cultural centers, shopping facilities, conference and meeting halls, and so on. This tower can also provide good investment opportunities for the private sector, such as TV tower, MICE facilities, commercial/business and tourism facilities, etc. If the scheme is properly designed, there is a good chance that this project can be implemented through a BOT or PPP arrangement.

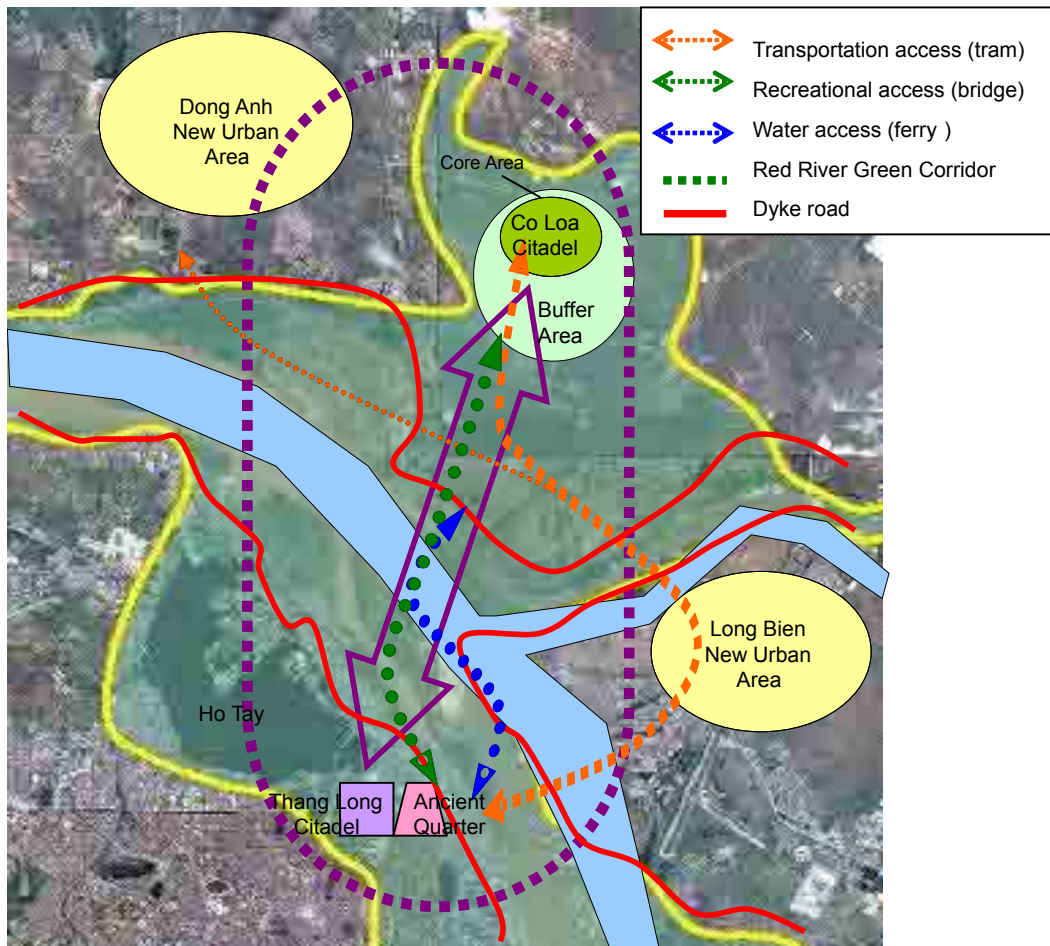
#### Development Strategy and Actions

14.13 In order to develop the area, a separate detailed plan must be prepared in compliance with the orientation of the General Plan, wherein a conservation and development policy and

the corresponding mechanisms are clearly defined. Priority actions include the following:

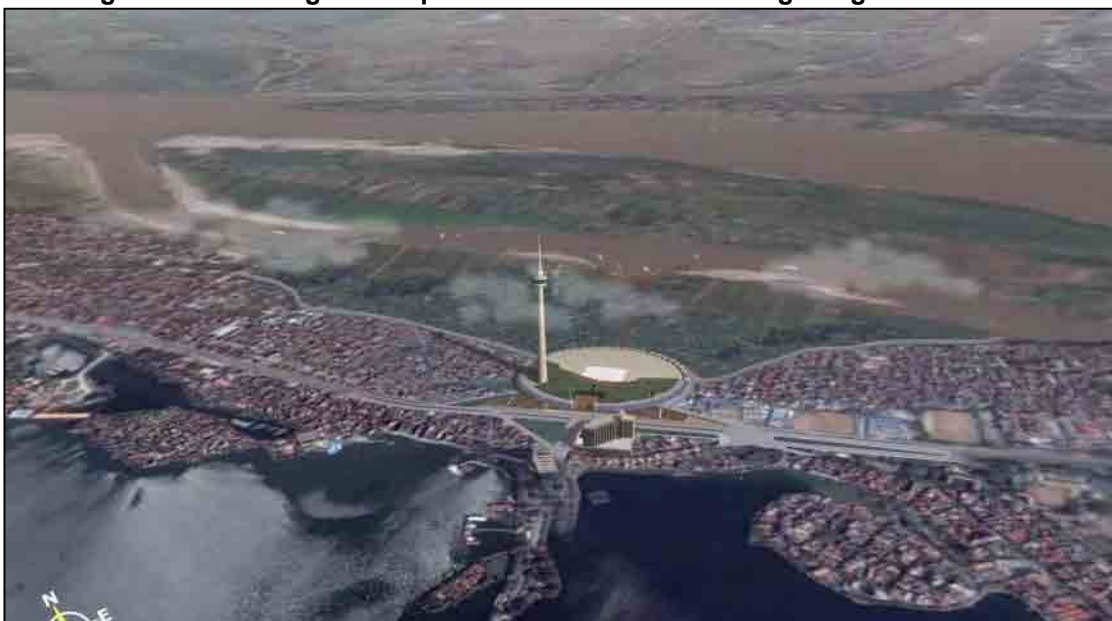
- (i) Formulation of master plan development and strategies and guidelines.
- (ii) Establishment of Thang Long – Co Loa development council.
- (iii) Conduct of investment study on the development of the proposed Cultural Core Tower under a PPP scheme.

**Figure 14.7 Preliminary Development Concept for Thang Long - Co Loa Zone**



Source: HAIDEP Study Team.

**Figure 14.8 Image of Proposed Cultural Core in Thang Long - Co Loa Zone**



Source: HAIDEP Study Team.

## 14.4 Ancient Quarter

### Context

14.14 The Ancient Quarter is a compact urban area set on about 100ha of land area with a total of 14,374 households or about 60,000 people. In its long history of prosperity the Ancient Quarter developed as a marketplace for goods and services including handicrafts and agricultural products. It is also called “36 streets” because guilds or associations were formed by street which were named for the products or services sold on them.<sup>1</sup> This area remains the most vibrant combination of living and commercial activities today. Together with its many historic buildings imbued with cultural value, the various traditional festivals and events, and the peculiar way of life of its residents, the Ancient Quarter has become a unique living space, certain to charm visitors and shoppers alike.

14.15 However, Hanoi’s urbanization and the area’s locational advantage have brought about tremendous impact on the Ancient Quarter that all aspects of its existence—be it cultural, social, or economic—have succumbed to change. While there are a number of restrictions being imposed in the area, including height limits, to preserve the landscape in the 36 streets, the traditional socio-economic makeup of the area is being shaken to its foundation. Historic buildings are deteriorating without sufficient maintenance by both the government and the people. Both tangible and intangible values in the Ancient Quarter steadily disappear. Illegal construction of buildings continues, houses are narrow<sup>2</sup>, improvement in infrastructure services is delayed, and the living environment continues to worsen. On the other hand, commercial and economic activities are very much dynamic due to its prime location and its well-known reputation as a traditional commercial space. Hence, the average income of households here is VND 360,000/month compared to Hanoi’s average of VND 260,000/month (see Table 14.2). Investments in the area remain high, with traditional businesses like handicraft production giving way to modern clothes shops and restaurants, among others.

14.16 Looking back, it can be said that such changes have regularly taken place in the course of history. Which implies that the core value of the Ancient Quarter must first be identified before implementing development and conservation measures and before applying for a World Heritage Site designation as well.

### Vision and Direction for Conservation and Development

14.17 The core value of the Ancient Quarter has been identified in the planning process of a pilot project in which residents were fully involved.<sup>3</sup> Its revealed that the core value of the Ancient Quarter lies more in the traditional intangible assets rather than the tangible ones. Thus the vision for the Ancient Quarter is: “To enhance its identity as the most significant traditional commercial and living quarter enriched with an exquisite blend of culture, social, economic, and living functions.” To enhance the uniqueness of the Ancient Quarter, the following objectives were set:

- (i) To ensure the identity and function of the “36 streets” in the Ancient Quarter.
- (ii) To improve the living conditions of residents who are the keepers of the area’s core value and to strengthen communities which foster close neighborhood relations.

---

<sup>1</sup> For example, Hang Gai Street is known for silk and Hang Bac for silversmiths.

<sup>2</sup> The average living space in the Ancient Quarter is about half of Hanoi’s average, while the average age of houses is about 75 years or more than double that of Hanoi’s average.

<sup>3</sup> Details are explained in Chapter 15.1.

- (iii) To provide physical layout composed of structures and landscape imbued with traditional value.
- (iv) To ensure human-scale transportation space comprising walking and nonmotorized vehicles.
- (v) To promote commercial/economic activities rooted in tradition and to let them take the lead in economic development of the Ancient Quarter.
- (vi) To encourage the residents and supporting institutions to pursue the vision as well as the operation and management of the Ancient Quarter, while providing them technology and finance.

14.19 The development and conservation of the Ancient Quarter must be carried out both at the quarter and street or block levels, as follows:

- (i) At the Ancient Quarter level, the integrity of the entire area must be ensured for which the necessary institutions and the corresponding operational capacity and funding must be provided.
- (ii) At the street or block level, concrete actions must be taken based on the management body comprising mainly of residents.

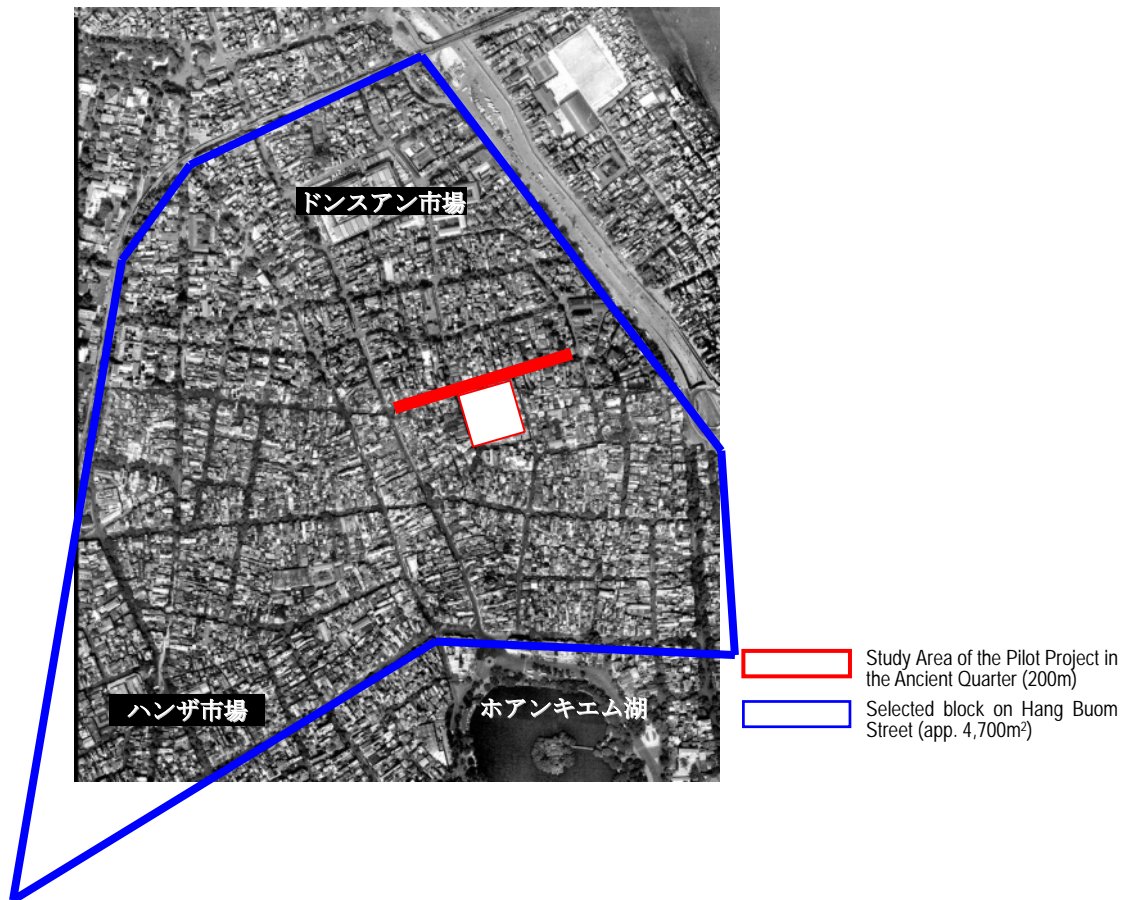
**Table 14.2 Profile of Households and Living Conditions in the Ancient Quarter and Hanoi**

| Indicator                             |  | Ancient Quarter | Hanoi   |      |    |
|---------------------------------------|--|-----------------|---------|------|----|
| Area (ha)                             |  | 100             | 92,097  |      |    |
| Net Population Density (pax/ha)       |  | 603             | 36      |      |    |
| Household                             | No. of HHs                                   | 14,374          | 760,000 |      |    |
|                                       | Ave. No. of HH Members                       | 4.2             | 4.3     |      |    |
|                                       | Ave. HH Income (VND000/month)                | 3,577           | 2,567   |      |    |
| Income Level (VND mil./ month/HH)     | Low  | Under 1.5m      | 15.4    | 9    |    |
|                                       | Middle                                       | 1.5-2.0m        | 12.3    | 18   |    |
|                                       |  | 2.0-3.0m        | 23.7    | 18   |    |
|                                       | High   | 3.0-4.0m        | 18.3    | 23   |    |
| More than 4.0m                        |  | 30.3            | 15      |      |    |
| Housing Conditions                    | Average Space (m <sup>2</sup> )              |                 | 44.0    | 88   |    |
|                                       | Living Area per Person (m <sup>2</sup> /pax) |                 | 10.5    | 20.5 |    |
|                                       | Ave. No. of Rooms                            |                 | 2.6     | 3.7  |    |
|                                       | Ave. House Age (years)                       |                 | 74.9    | 32   |    |
|                                       | Duration of Residence (years)                |                 | 54.7    | -    |    |
|                                       | Housing Ownership                            | Privately Owned |         | 77.4 | 92 |
|                                       |  | State-owned     |         | 19.8 |    |
| Land-use Right (% of privately owned) |  | 75.2            | 89      |      |    |

Sources: Block Survey, 2005 (block); HAIDEP HIS, 2005 (Ancient Quarter and Hanoi).



**Figure 14.9 Map of the Ancient Quarter**



**Figure 14.10 Tangible and Intangible Values for Preservation**



Clustering wholesale and retail businesses (Luong Van Can St.).



Selling craft products (Hang Ma St.).



Continuing tin making as a traditional craft industry (Hang Thiec St.).



Teaching the young respect for tradition.  
 Source: HAIDEP Study Team.



Keeping tradition alive.



Promoting traditional culture and the arts.

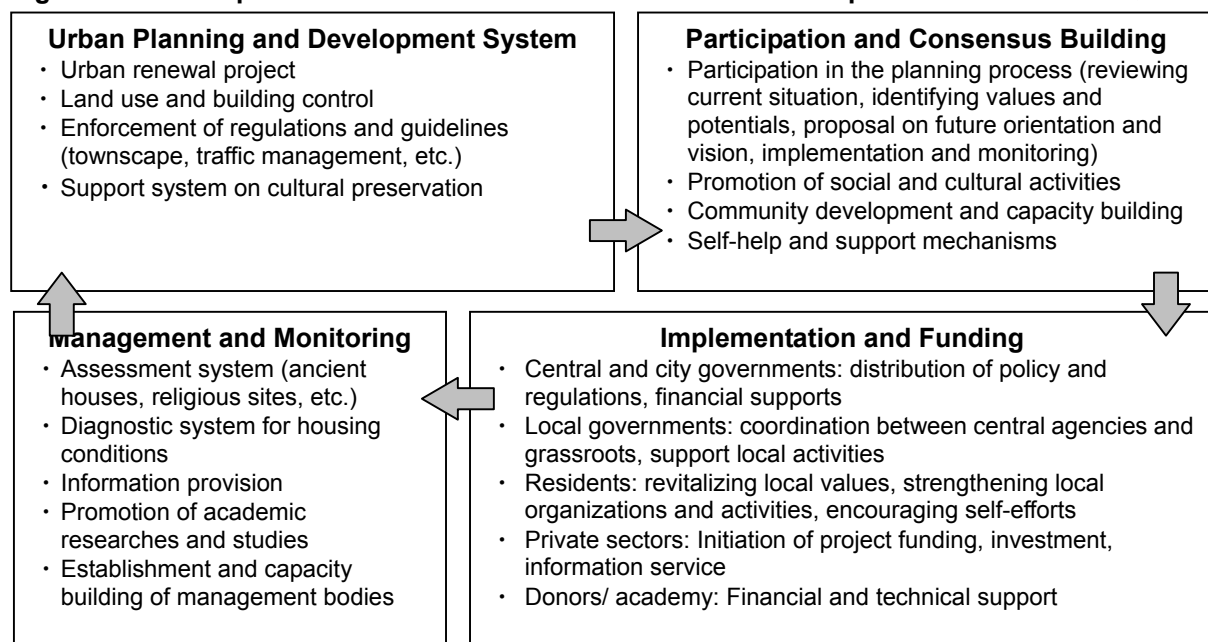
### Proposed Implementation Mechanism

14.20 In the whole Ancient Quarter, there are about 70 streets and 70 blocks. While economic activities are promoted in streetfronts, livelihoods and community relations are rooted and strengthened inside residential blocks. To strengthen the street identity while remaining economic competitiveness and to improve living condition with traditional value, an integration of (i) a block redevelopment planning, (ii) a street development planning, and (iii) establishment of a business model, will be effective with community participation. The proposed planning approach is one of the elements of implementation mechanism in integration with other measures such as consensus building, funding, management and monitoring (see Figure 14.10).

### Proposed Development Model for the Ancient Quarter

14.21 Preservation and development of the Ancient Quarter cannot be achieved by individual physical efforts, but need a dynamic mechanism to mobilize all related stakeholders and potential business opportunities and financial resources. In addition, a current constraint of the Ancient Quarter is the lack of organizational network, coordination and financial resource. To establish a sustainable preservation and development mechanism of the Ancient Quarter, it is significant to establish a proper development model wherein local resources and citizens are the main actors to implement the actions and projects.

**Figure 14.11 Implementation Mechanism for Sustainable Development in the Ancient Quarter**

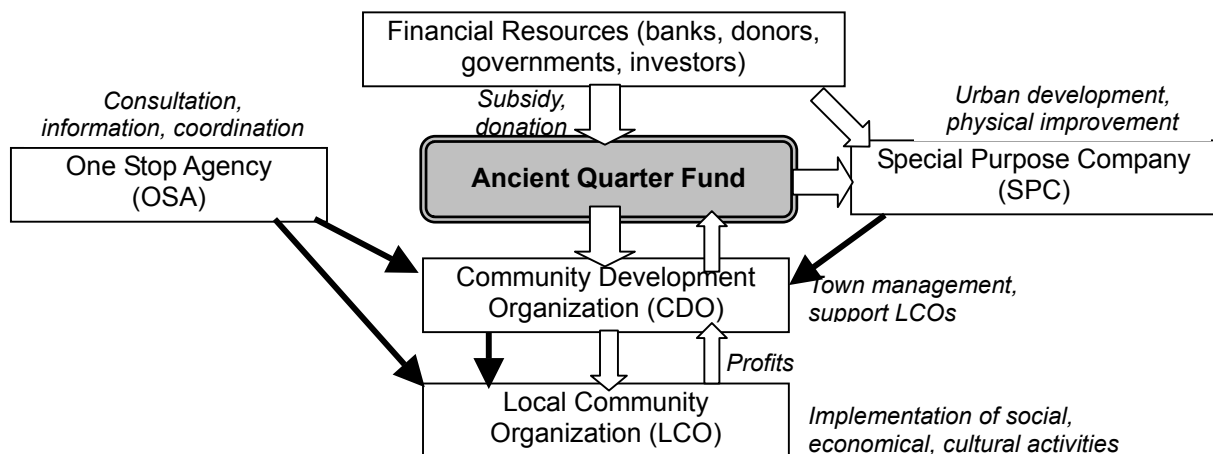


Source: HAIDEP Study Team.

14.22 The proposed development model mainly consists of: (i) Ancient Quarter Fund, (ii) newly established organizations, (iii) financial support organizations, (iv) technical support organizations, and (v) beneficiaries. As the main engine of this business model, the “Ancient Quarter Fund” shall be established. This fund will be used for any projects and activities which aim to improve social, physical, cultural environments of the Ancient Quarter. As the main implementation bodies of the development model, four (4) organizations shall be newly established: (i) Community Development Organization (CDO) as the town management organization to promote and manage activities of local community organizations (LCOs), (ii) One Stop Agency (OSA) as a window organization for consultation, information, coordination

for anybody like citizens, private sectors, tourists, who need any services related to the Ancient Quarter, (iii) Special Purpose Company (SPC) as a special organization to implement urban development project (housing development, renovation of public facilities, etc.), and (iv) LCOs as voluntary organizations by local residents to promote social and cultural activities, community businesses, public services, etc. Social contributions and economic profits from these organizations can revolve and mobilize of preservation and development of the Ancient Quarter in sustainable manner.

**Figure 14.12 Proposed Funding and Organization for the Development Model for the Ancient Quarter**



Source: HAIDEP Study Team.

14.23 It was found that the residents and organizations, including businesses, in the Ancient Quarter are eager to preserve and develop the area. What is lacking is an effective institutional arrangement and capacities of these implementation bodies. The specific proposals for institutional arrangement and capacity development are as follows:

- (1) **Establish a One-stop Center:** For better information access and smoother project implementation, one center will be set up to: (i) introduce seekers to suitable institutions, (ii) collect and provide timely information, and (iii) coordinate with related agencies. It will serve both public and private sectors and manned by coordinators, consultants, or experienced residents.
- (2) **Set up Community Organizations:** Since the retired and the elderly are willing to support the preservation and development of the Ancient Quarter and are more familiar with the area, they can be mobilized into community organizations that will be recognized by the local government and other stakeholders. With financial and technical support, these organizations can act as project implementation bodies working together with experts.
- (3) **Set up Business Associations:** In ancient days business associations in the Ancient Quarter existed in the form of trading guilds. Since this is still evident up to now, organizations can be established by street or trade to enhance their respective business activities and improve street conditions.
- (4) **Promote Community Businesses:** Community businesses in the Ancient Quarter can be set up among the residents, who not only can earn from these businesses but will also contribute to cultural preservation and community empowerment. For example, a guided tour done by local residents may not be professional in terms of service level, but the participants can get more local information and enjoy the company of the local people.

- (5) **Hold Cultural Events and Festivals:** There are many cultural and historical sites which have become degraded and largely ignored by residents now. It is necessary to rebuild these sites to their former glory and revitalize the traditional activities related to them. These can enhance the charm of the Ancient Quarter and strengthen the local community.
- (6) **Conduct Seminars and Meetings for Donors and Researchers:** Though there are many existing studies and projects on the Ancient Quarter, there is no buildup in terms of information, database, and proposals. Support activities by donors and researchers are hampered due to limited access to information. One solution is to conduct regular seminars and meetings about the Ancient Quarter on such issues as history, culture, architecture, economy, etc. Joint studies on preserving and developing ancient towns in other countries will also be useful.
- (7) **Establish Microfinancing for Residents and Business Households:** Providing microfinancing to households and small businesses may be effective in improving the living conditions in the area and in developing commerce and trade. This system can be managed by the local government (commune PC) or the banks.
- (8) **Establish the Ancient Quarter Preservation Fund:** To preserve traditional tangible and intangible values embodied in the more than 100 religious sites, 70 streets and blocks, and 200 ancient houses in the Ancient Quarter, funding is necessary. Funding may come from donors, the private sector, income tax, or revenue from economic activities especially from the tourism sector, etc.

### Priority Actions

14.24 Results of the pilot project on the preservation and sustainable development of the Ancient Quarter showed that the residents and other stakeholders in the area understand the significance of conserving and developing the Ancient Quarter, that they desire the implementation of projects and actions, and are willing to participate in the process. While various past projects failed or were not implemented, this was mainly because the institutional framework on conservation and development was not well provided and the capacities of management organizations insufficient. Priority actions are thus suggested, namely:

- (i) Preparation of a master plan for the sustainable development of the Ancient Quarter based on HAIDEP exercise
- (ii) Strengthening of management capacity of the Ancient Quarter Management Board
- (iii) Establishment of a feasible mechanism for Ancient Quarter development based on public-private participation (PPP) and community involvement

## 14.5 Ho Tay Waterfront Area

### Main Issues

14.25 Ho Tay (West Lake) is expected to form one of the most important cultural and environment backbones of the city which is envisioned “water”, “greeneries,” and “culture” for the city. In the past, there were 16 ancient villages around the lake, but now, they are in fact almost disappear, and this area lost its charm and character.

14.26 Ho Tay area in future should strengthen the access to water and green for citizens, and revitalize traditional villages as well as strengthen commercial values in some development areas connected to public transportation.

### Development Concept

14.27 The proposed development concept is composed of the following:

- (i) Waterfront around the lake will be connected with footpath all along which also integrate various cultural spots and villages
- (ii) Selected locations of the waterfront will be recovered by relocating the establishments or improving the existing space and connected with proposed footpath.
- (iii) In the cultural villages open space will be secured which will also be connected with the footpath. The space can be used for commercial and other purposes at discretion of the villages.
- (iv) New landscape and skylines will be developed through guidelines and planned development.
- (v) Water surface of Ho Tay will also be used as part of the footpath network.

### Priority Actions

14.28 The West Lake waterfront offers ample opportunities to promote dynamic development projects that integrate economic development, environmental improvement, and restoration of traditional culture. For this, the following priority actions are suggested:

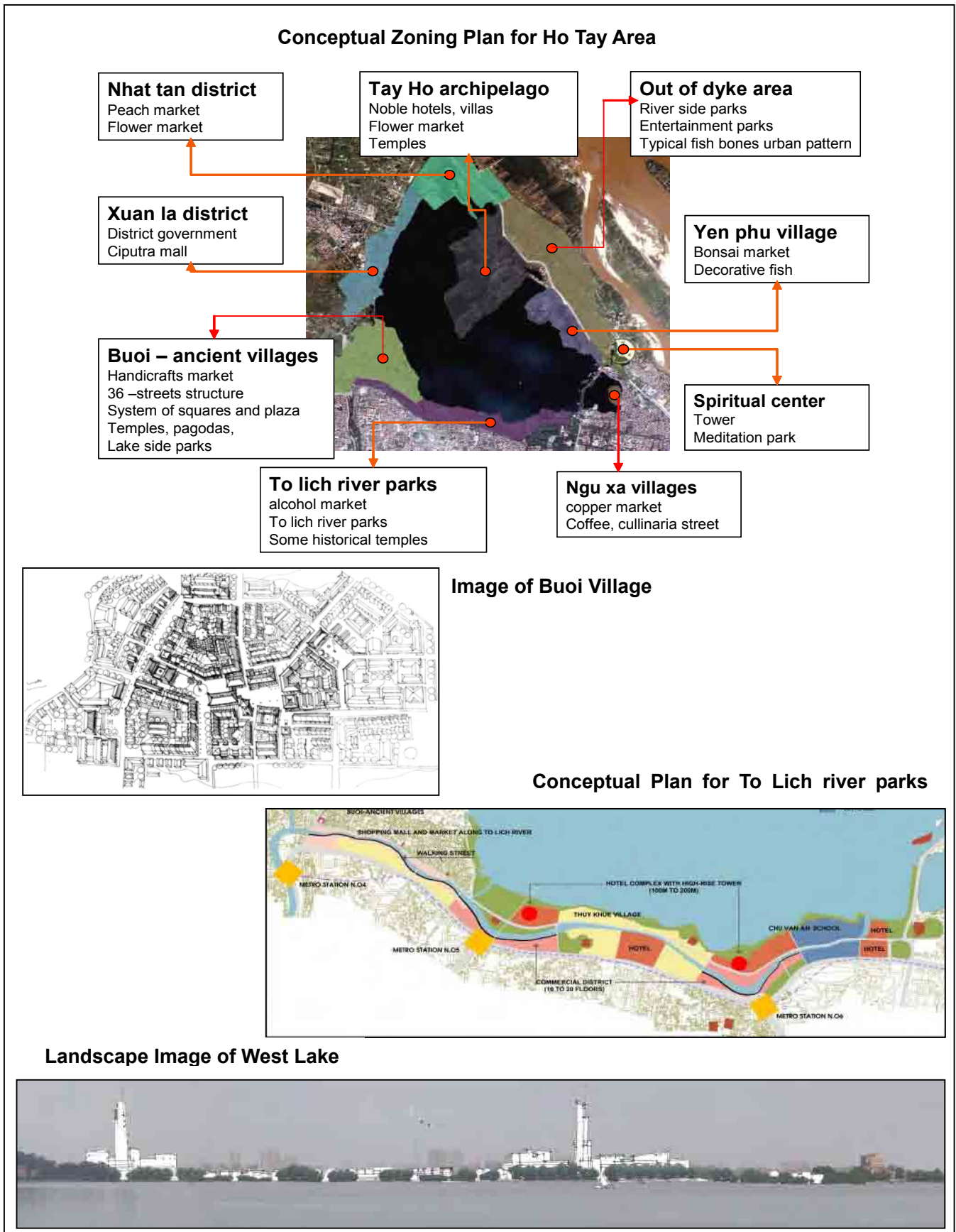
- (i) Preparation of a master plan and development strategy and guidelines.
- (ii) Establishment of the Ho Tay Environmental Zone Council to manage development.
- (iii) Implementation of model projects under a PPP scheme.

**Table 14.3 Proposed Actions for Ho Tay Area**

|          |  |
|----------|--|
| Water    | <ol style="list-style-type: none"> <li>1. Connecting West lake with Red river and To Lich river to create a flowing water system</li> <li>2. Improve the To Lich river along Thuy Khue street to make it to a dominant urban and landscape factor</li> <li>3. Redevelop a system of lakes in the eastern part of West lake, belonging to Nghi tam, Yen Phu, Tay ho and Quang Ba villages</li> <li>4. Redevelop the water system in the out of dyke area to make an attractive entertainment park, joining with red river to a big network of water</li> <li>5. Make access for the public to the water front in several parts</li> </ol> |
| Greenery | <ol style="list-style-type: none"> <li>1. The big green parks will be in the out of dyke area</li> <li>2. There will be trees everywhere at the water front around the lake</li> <li>3. In each traditional village, a park with a typical tree specimen will be developed</li> </ol>  |
| Culture  | <ol style="list-style-type: none"> <li>1. Emphasis the historical places like temples, pagodas and communal houses. Making the surrounding areas to public spaces</li> <li>2. Redefine and improve the areas in the traditional villages, making them to vital urban districts, with markets in the traditional product branches of those villages</li> <li>3. Making the Tay Ho Peninsula to a modern cultural center with opera house, library, museum, artist village etc</li> </ol>  |

Source: HAIDEP Study Team.

**Figure 14.13 Development Concept for Ho Tay Waterfront Area**



Source: HAIDEP Study Team

## 14.6 French Quarter

### Overview

14.29 The French Quarter is spread in the southern part of the city center, bounded by Trang Thi - Trang Tien Street in the north, Dai Co Viet – Tran Khat Chan Street in the south, the Vietnam Railway Line in the west, and Tran Quan Khai – Tran Khanh Du Street (the dyke road) in the east. When the nation was then known as Tonkin during the French colonial period from the end of 19<sup>th</sup> to the early 20<sup>th</sup> century, the quarter's wide boulevards and tree-canopied streets were developed. Colonial-style mansions and villas, set back behind walls and street trees, were the symbols of Hanoi City which was called the "Petit Paris in Asia." Most of the beautiful structures, such as the Indochina longitudinal railway (Hanoi - Saigon), the Long Bien Bridge across the Red River, and the Opera House, were constructed by French architects and engineers during this era. These French-style facilities have since been used as public facilities (ministries, hospitals, libraries, museums, embassies, etc.). In addition to the buildings' unique architectural styles, parks and lakes of various scales have created beautiful landscapes and environment. Since the end of the 1990s, high-rise buildings have been constructed and many foreign capital companies and hotels have been established. The calm and peaceful condition in this area has attracted various functions such as politics, diplomacy, and economic activities.

### Main Issues

14.30 Since the French Quarter is in a superior location and its charming urban space has contributed greatly to the city's economic development by attracting various investments, traffic increase has amplified the area's numerous problems such as traffic congestion, poor safety levels, worsening air quality, noise, etc. Spacious sidewalks are now often turned into garages for motorcycles and car parks along congested roads, impeding pedestrian traffic. Extensions of living spaces of roadside residents, vehicles, and advertisement boards battle for sidewalk space. Traditional buildings are dwarfed by high-rises, spoiling the landscape. At the same time, many houses in the French Quarter remain untouched and are fast decaying. The people's living conditions and stability are being threatened by the enormous development pressure which has led to a sharp increase in land prices. In the French Quarter, as in the Ancient Quarter, many problems are bursting at the seams. A critical policy agenda is therefore needed to reorganize the area, protect the people while meeting development needs and enhancing the cultural, social, as well as the economic values of the French Quarter.

### Future Orientations

14.31 Although most of the areas in the city have been exposed to rapid urban development and have shed their original urban structure, atmosphere, and values, the French Quarter has been relatively preserved due to sufficient infrastructure and original beauty. The future development of the French Quarter should not be physically oriented, but must rely on strengthening its competitiveness by taking advantage of existing physical and economic conditions. In addition, natural and cultural assets should be preserved to enhance its urban beauty and attractiveness.

14.32 **Urban Competitiveness:** The French Quarter has the potential for competitive urban development in terms of convenient location, sufficient urban infrastructure, rich culture and tradition, beautiful landscape and economic activities. Since the Ancient Quarter and the French Quarter are the twin urban centers in the future, with the former serving as the traditional commercial quarter with a high regard for the preservation of cultural values, the

French Quarter should lean toward becoming a more competitive location for economic and political functions. By taking advantage of foreign investments, commercial and business activities should diversify in support of the city's internationalization.

**14.33 Infrastructure:** Infrastructure, especially the transportation network in this area, is sufficiently developed. The streets in the French Quarter, its grid pattern, wide sidewalks, abundant street trees, and interesting street life have a special beauty and character that should be preserved as one of Hanoi's most precious and cultural assets. By utilizing its space, parking systems should be developed and traffic safety should be enhanced.

**14.34 Natural and Cultural Values:** Unlike the narrow and occupied sidewalks in the Ancient Quarter, the wide sidewalks in the French Quarter enable residents and visitors to enjoy a safer walking environment. The pedestrian environment shall be further improved to create a green route network in combination with various cultural and natural assets. To preserve the original landscape of boulevards and historic architecture, urban development shall be regulated by imposing controls on building heights, FARs, etc.

### **Priority Actions**

14.35 For the French Quarter's sustainable development, concrete conservation and development mechanisms must be worked out wherein public-private partnerships are fully utilized, as follows:

- (i) Preparation of a development strategy and corresponding guidelines for the French Quarter.
- (ii) Establishment of a French Quarter Development Council involving main stakeholders to manage development in the area.
- (iii) Implementation of model projects on rebuilding deteriorated areas.



## 15 PILOT PROJECTS

### 15.1 Preservation and Sustainable Development of the Ancient Quarter

#### Context

15.1 In the long development process of the Thang Long Citadel<sup>1</sup>, the Ancient Quarter when it was founded was a system of markets on the riverside lying among agriculture villages which were mostly engaged in trading, handicraft activities, and agriculture. For this the Ancient Quarter was composed of 36 guilds and streets or 36 pho phuong. Since then the primary function of the Ancient Quarter as the most vibrant marketplace has not changed, attracting many domestic and foreign visitors.

15.2 Even as the Ancient Quarter is on channel for application as a UNESCO World Heritage Site, it is under enormous external and internal pressures 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 aspects, it is this same feature that poses a challenge in setting an effective policy framework for its sustainable development.

#### Objectives of the Pilot Project

15.3 This pilot project 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 Ancient Quarter.

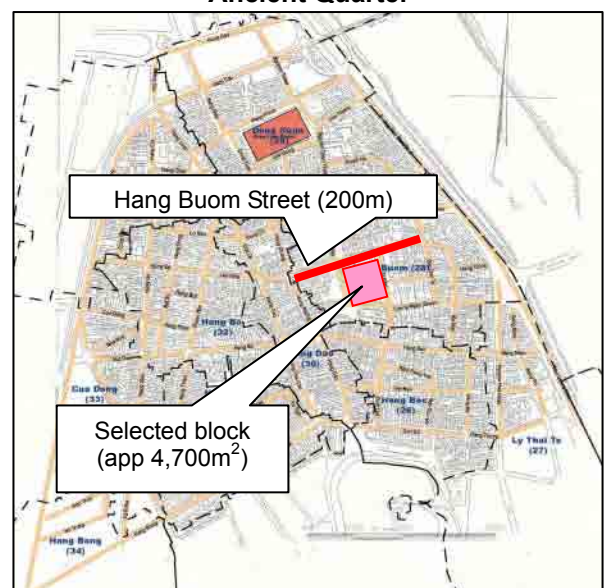
#### Pilot Project Implementation

15.4 One of the most fundamental planning elements to consider is “how to reorganize or increase the space in the Ancient Quarter for living and economic activities while properly maintaining its cultural values.” The specific objectives of this pilot project are: (i) to formulate workable preservation and development methods; (ii) to propose a vision for the future of the Ancient Quarter and complementary actions; and (iii) to propose an implementation mechanism including institutional arrangement, role sharing, finance, etc. The pilot project was implemented on a selected block and a street in Hang Buom to formulate plans and implement priority actions with the participation of residents (see Figure 15.1).

#### Plan Formulation

15.5 The proposed block development plan was expected to satisfy the following conditions, i.e.: (i) to utilize the limited land area efficiently and increase land value; (ii) to preserve, revitalize, and rediscover traditional values; (iii) enhance economic activities with traditional and new added values; (iv) to strengthen social and community networks; and (v) to enhance the appeal and originality of its streets with safe and comfortable conditions (see Figure 15.2).

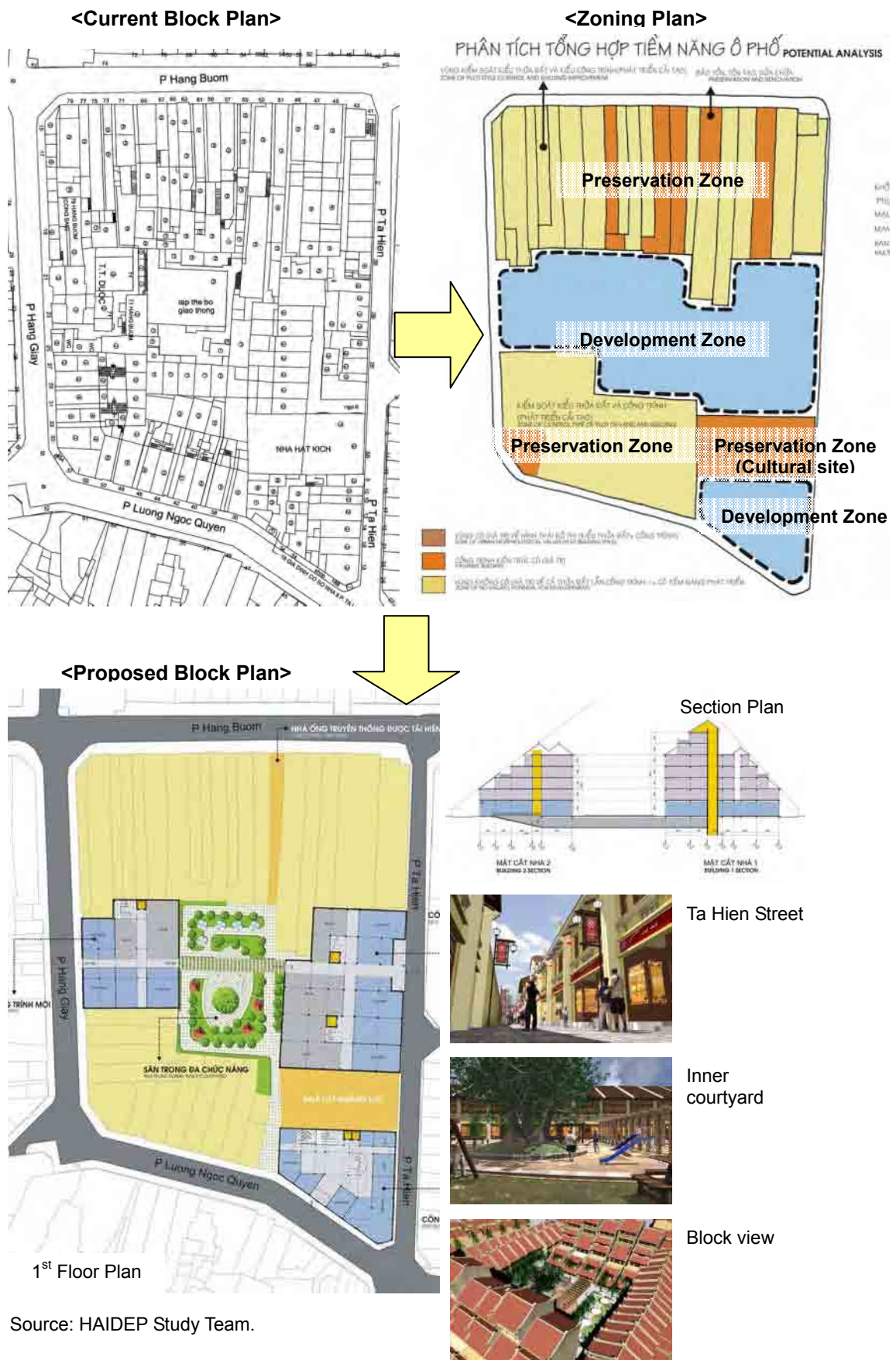
Figure 15.1 Pilot Project Area in the Ancient Quarter



Source: HAIDEP Study Team.

<sup>1</sup> The army ordinance supporting the Royal Citadel.

Figure 15.2 Process of Block Redevelopment Planning



Source: HAIDEP Study Team.

15.6 Furthermore, street development planning is significant in enhancing the townscape's charm, commercial activities, and community development. It is necessary to start from the identification of original tangible and intangible values to preserve tradition and revitalize the originality of the streets. A common understanding of the value and the originality of each street will contribute to the improvement of street conditions in terms of socio-economic, cultural, and physical aspects.

### Evaluation of the Pilot Project

15.7 Impacts need to be evaluated through multiple indicators, as shown in Table 15.1. The main contribution of this project is to achieve harmonization between the preservation and the development of both tangible and intangible assets. Improved physical conditions and the enhancement of social and cultural activities will contribute to economic competitiveness and create a new image for the Ancient Quarter. What is important is to set up a sustainable mechanism to strengthen the area's diverse values and their interaction. In this context, this planning approach can be a new model for the Ancient Quarter's sustainable development.

**Table 15.1 Assessment of Impacts of Pilot Project in the Ancient Quarter**

| Indicator                          |   | Positive Impact   | Negative Impact  |
|------------------------------------|---|---|--|
| Preservation of Traditional Values | <ul style="list-style-type: none"> <li>• Preservation of tangible values</li> <li>• Preservation of intangible values</li> </ul>  | <ul style="list-style-type: none"> <li>• Cultural sites will be preserved and improved physically.</li> <li>• People can understand cultural values through cultural sites and events.</li> </ul>   | <ul style="list-style-type: none"> <li>• Construction of new buildings may give a different visual impression from the traditional image.</li> </ul>   |
| Improvement of Housing Conditions  | <ul style="list-style-type: none"> <li>• Increase in living space</li> <li>• Improvement of sanitary conditions</li> </ul>  | <ul style="list-style-type: none"> <li>• Living spaces will increase and privacy will be kept.</li> <li>• Sanitary conditions will improve.</li> </ul>  | <ul style="list-style-type: none"> <li>• Objections to high-rises may be raised.</li> <li>• Some may prefer to stay in original familiar houses.</li> </ul>  |
| Improvement of Living Environment  | <ul style="list-style-type: none"> <li>• Improvement of public services</li> <li>• Safety</li> </ul>  | <ul style="list-style-type: none"> <li>• Public service and infrastructure will be upgraded.</li> <li>• Through traffic and parking will be controlled properly.</li> <li>• Street conditions will improve in terms of townscape, safety and commercial environment.</li> </ul> | <ul style="list-style-type: none"> <li>• Traffic management and parking control need to be conducted in a wider scale.</li> <li>• Residents may feel a decrease in accessibility.</li> </ul>   |
| Economic Development               | <ul style="list-style-type: none"> <li>• Enhancement of commercial activities</li> <li>• Job security</li> <li>• Tourism development</li> </ul>   | <ul style="list-style-type: none"> <li>• Commercial spaces and job opportunities will increase.</li> <li>• Commercial activities will diversify and be promoted with traditional values.</li> </ul>   | <ul style="list-style-type: none"> <li>• New businesses and renovated streets may give different image.</li> </ul>   |
| Social Development                 | <ul style="list-style-type: none"> <li>• Establishment of an equitable society</li> <li>• Change of settlements and lifestyles</li> <li>• Creation of opportunities for social participation</li> </ul>   | <ul style="list-style-type: none"> <li>• Original residents will stay in the same blocks.</li> <li>• New social networks will be developed including new residents, business entities and visitors.</li> <li>• Community activities will be enhanced.</li> </ul>                | <ul style="list-style-type: none"> <li>• Residents need to be accustomed with modern lifestyles in new houses.</li> <li>• Purchase costs of new houses may be high for some households.</li> </ul>   |
| Urban Development                  | <ul style="list-style-type: none"> <li>• Preservation of urban morphology (land plots, street network, etc.)</li> <li>• Establishment of implementation mechanism</li> <li>• Participation of stakeholders</li> <li>• Contribution to city</li> </ul> | <ul style="list-style-type: none"> <li>• Land values will increase due to better infrastructure and living conditions.</li> <li>• Residents can participate in planning.</li> <li>• Rampant urban development and activities will be prohibited.</li> </ul>                     | <ul style="list-style-type: none"> <li>• A great deal of money need to be generated from various stakeholders.</li> <li>• Consensus building and adjustment of ownership may take time.</li> <li>• Urban development needs to be monitored strictly by the government and the people.</li> </ul> |

Source: HAIDEP Study Team.

## Implementation Mechanism

15.8 The proposed planning approach is one of the elements of the implementation mechanism on the sustainable development of the Ancient Quarter. It is integrated with other elements such as consensus building, funding, management and monitoring (see Figure 15.3) as explained below.

- (1) **Consensus Building:** The current unfeasibility of projects is due to the difficulties in building consensus, especially among residents. The main possible reasons for this are: (i) unclear and complicated housing ownership, (ii) financial difficulties, and (iii) no agreement on proposals. To overcome these difficulties, one of the solutions is the involvement of residents, experts (architects lawyers, consultants, etc.), local governments as well as investors in the planning process. Since the main actors in future developments are the locals, any proposal and project should be developed with their participation and the involvement of other stakeholders.
- (2) **Funding:** The main financial resource for urban development projects<sup>2</sup> are: (i) equity from private investors, (ii) bank loans, and (iii) government subsidies. For the operations and maintenance period, incomes from floor lease, commercial revenues, and taxes are the main sources of revenue. Public-private partnerships are indispensable to project implementation. In the short term, financial support shall be provided to community groups especially to improve their living conditions or run businesses. Microfinance is effective in supporting small investments for the urgent improvement by residents or groups. In the long term, the “Ancient Quarter Fund” shall be established to utilize for any preservation and renovation activities. Contributions shall come from international aid agencies and the private sector, revenue from commercial and tourism activities, etc. This fund will support preservation involving physical measures and expand the understanding of the Ancient Quarter among domestic and international communities.
- (3) **Institutional Arrangements:** It is necessary to set up a system wherein all actors like residents, business households, researchers, and the private sector, can take an active part without institutional constraints. So far, there are no service providers especially for business and investment, and the private sectors pay more attention to economic values than traditional ones. To share values, current conditions as well as future orientation for the development of the Ancient Quarter, governments need to set an integrated guidance for preservation, living conditions, businesses and commerce, and urban development. So far, it is necessary to obtain approvals from many governmental agencies to conduct social and cultural activities by the local people, and this complicated procedure may discourage them. In addition, the Ancient Quarter Management Board (AQMB) is the only body in charge of the Ancient Quarter, and it handles preservation, development and management of the area’s physical aspects mainly architecture. For effective implementation and management of activities including those dealing with intangible aspects, AQMB and local governments shall enhance their roles and capacities, and be responsible for supporting local communities and for coordinating between other agencies.

## Conclusion and Recommendations

15.9 The pilot project on block redevelopment shows the integrated approach with the aims of: (i) increasing floor space, (ii) improving living environment, (iii) preserving and revitalizing traditional values, and (iv) strengthening economic competitiveness. Since this project will

---

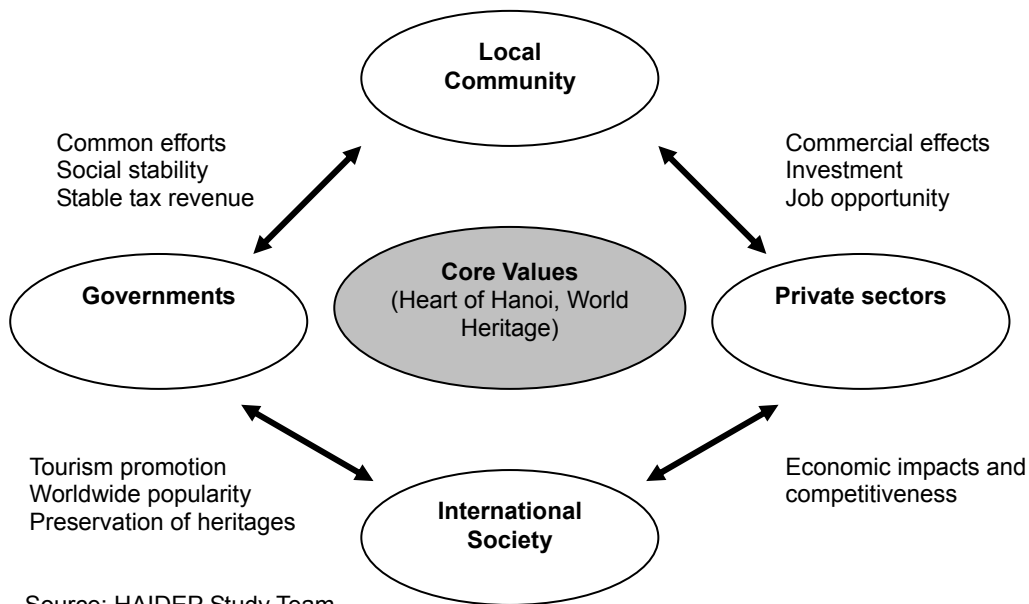
<sup>2</sup> In the proposed block model, total cost is about 9mil.US\$ including construction and planning fees.

contribute not only to physical improvement but also to social development, and foster respect for tradition and local culture, this project shall be mobilized with the participation of various stakeholders.

15.10 For the effective implementation and replication of the proposal in other areas, this planning approach shall be applied at each commune level, with the participation of residents and local governments and promoted to private investors. In parallel with block redevelopment planning and implementation, social and cultural activities shall be activated to contribute living condition improvement and cultural preservation, with establishment of the proposed institutional mechanism and community participation.

15.11 The values of the Ancient Quarter are not only physical cultural heritages, but also intangible values which are accumulated in a long history such as social network, cultural events, traditional commercial activities, etc. Though physical preservation can be achieved by external technical and financial supports, self-efforts by local society are indispensable to preserve intangible values. Though the government proceeds with the application to the UNESCO World Heritage, the physical and social environment of the Ancient Quarter is still fragile to be affected by both positive and negative impacts. For sustainable development of the Ancient Quarter, an effective implementation mechanism and network among stakeholders shall be established to share common understanding of values and common efforts (see Figure 15.3).

**Figure 15.3 Proposed Network for Preservation of Core Values of the Ancient Quarter**



## 15.2 District Planning

### Context

15.12 The current urban development in Hanoi City is guided by the 1998 Master Plan. The plan is essentially a land-use and infrastructure plan for urban construction purposes and does not encapsulate the notion of a land-use zoning system that could be utilized to guide land and building use in the city. The master plan also had technical controls on: (i) area of the planning zone, (ii) residential area (ha) within the planning zone, (iii) average building-to-land ratio, (iv) average number of floors in the zone, and (v) target population in the zone.

15.13 Statutory urban planning under the Construction Law follows a two-tier system of plans, i.e. the General Plan and the Detailed Plan. The General Plan is prepared citywide, while the Detailed Plan is done at the local level. The Construction Law stipulates the contents of urban construction general planning to include: (i) analysis and evaluation of current conditions, (ii) potentials for urban development, (iii) orientation for spatial development, (iv) orientation for urban technical infrastructure development, (v) prioritization of projects for development and resources for implementation, (vi) urban design, and (vii) environmental impact evaluation. The output of the general planning includes drawings with adequate scales and reports. Both the General Plan and the Detailed Plan under the Construction Law seem to be of similar content except for the scale of maps which is much larger for the latter.

15.14 Following other countries that have a two-tier city planning system, which had the structure and local plan system, the General Plan should be a strategic development plan which is vision-led and establishes broad targets for growth, e.g. population, employment, urban structure, infrastructure network, transportation system, and environmental improvement, etc, while development control pertaining to detailed land-use zoning, FAR, site coverage, height control, and other detailed planning controls are best applied at the Detailed Plan stage.<sup>3</sup> Notwithstanding this, some of the strategic planning controls that could be applied at the General Plan level are as follows:

- (i) Target population 2010 and 2020 by planning zones.
- (ii) Land-use zone guide and a guide on building use control.
- (iii) Urban growth boundary.
- (iv) Designation of key urban facilities.
- (v) Designation of action areas for which detailed plans could be prepared.

### Objective

15.15 This pilot project on district planning intended:

- (i) to define clearly the roles and functions of the District Plan to facilitate effective management of urban development issues
- (ii) to identify alternative mechanism to implement planned urban development
- (iii) to propose a district planning system in conjunction with general plan proposed in the study

---

<sup>3</sup> Of the five main aspects covered in the 1998 Master Plan, the aspects of average building-to-land ratio and average number of floors can be better formulated at the detailed planning stage (probably at the District Plan level). Meanwhile, the aspects of area of planning zone, residential area within the urban planning zone, and population size in the zone can be tackled in the general planning stage.

## Proposed Function of General Plan and District Plan

15.16 It is preliminary proposed that the urban planning system be provided with a clearer function among the city, district and project site levels. While the General Plan and the District Plan are prepared by the government, the Action Area Plan is prepared by the project implementation body including the private sector in accordance with the planning orientation given in the first two plans as well as in other planning guidelines (see Table 15.2).

15.17 The main contents of a district plan include the following:

- (1) **Land-use Zoning and Urban Development Control:** For each land-use class, objective of zone, permitted use, conditional use (permitted only with planning permission and prohibited uses are specified). Land-use zones are classified into rural (3 subzones), residential (5 subzones), commercial/ business (3 subzones), public use, industrial (3 subzones), and green/ open space.
- (2) **Spatial Control:** Spatial control aims at exercising control on the volume and form of buildings which are permitted in different zoning classes. This include floor area ratio (FAR), building coverage ratio (BCR), density control, height control, setback control from roads, locations of designated key urban facilities such as main roads, parks, utility plant sites in General Plan will be specifically determined in the District Plans.

**Table 15.2 Proposed Delineation of Functions between General Plan and Detailed Plan**

|                  | General Plan<br>(City Level)   | District Plan<br>(Detailed Plan 1)   | Action Area Detailed<br>Plan (Detailed Plan 2)  |
|------------------|--|--|---|
| Primary Function | <ul style="list-style-type: none"> <li>• Vision-led strategic plan to establish broad targets for growth and environmental management.</li> </ul>  | <ul style="list-style-type: none"> <li>• Development control</li> <li>• Elaborated special structure and development framework</li> </ul>  | <ul style="list-style-type: none"> <li>• Detailed plan for implementation</li> </ul>  |
| Main Contents    | <ul style="list-style-type: none"> <li>• Socio-econ. framework</li> <li>• Urban structure</li> <li>• Infrastructure network</li> <li>• Transportation system</li> <li>• Environmental improvement</li> </ul> | <ul style="list-style-type: none"> <li>• details of General Plan</li> </ul>  | <ul style="list-style-type: none"> <li>• Details of District Plan</li> </ul>  |
|                  | <ul style="list-style-type: none"> <li>• Land-use zone guide</li> <li>• Key urban facilities (designation)</li> <li>• Action areas (designation)</li> </ul>  | <ul style="list-style-type: none"> <li>• Land-use zoning plan</li> <li>• Building control plan (FAR, BCR, setback)</li> <li>• Urban facilities plan</li> <li>• Action area plan</li> </ul> | <ul style="list-style-type: none"> <li>• Detailed plan which meet the requirement of District Plan and other related regulations</li> </ul> |

Source: HAIDEP Study Team.

### Pilot District Plan for Dong Anh District

15.18 Under the pilot project on district planning for Dong Anh District, a set of maps of the District Plan was developed, while the: (i) the Development Structure Plan, (ii) the Land-use Plan, (iii) the Community Development Plan, and (iv) the Key Facilities Plan were developed in line with the General Plan. They are briefly described below.

- (1) **Development Structure Plan:** This is the overall District Plan and includes: (i) land-use zoning (residential, commercial, industrial, etc), (ii) environment protection zoning (natural hazard control area, landscape control area), (iii) urban facilities (institution, park, transportation and logistics, utilities), and (iv) key facilities (depot, port, water and sewerage plants, etc.).
- (2) **Land-use Plan:** As the statutory plan this is prepared to control land use through zoning. In this map, spatial development control zoning measures such as FAR, BCR, height control, setback, etc. are adopted.

- (3) **Community Development Plan:** This is the map describing the community unit. In the urban area, neighborhood units will be located with elementary & lower secondary schools and daily services; secondary schools & sub-district services will be located in the subdistrict. This aims to define the community unit to create a high-quality living environment and sustainable community development through providing community facilities and services effectively and control proper population density by community unit.
- (4) **Key Facility Plan:** This determines key infrastructure and public facilities. Transportation facilities include primary, secondary, and key tertiary roads; bus and truck terminals, and other key facilities include water supply stations, sewerage treatment plants, power substations, etc.

### **Case Study on Implementation Mechanism for A Selected Action Area**

15.19 The action area was selected where includes the national highway No. 5 and BRT transport strategic key points, and the new urban city construction will be realized easily around a new station. The land readjustment system is proposed as a new urban planning measure with participation of various stakeholders. The basic concept of land readjustment project is that the same owner, before and after the readjustment, receives profit-sharing by utilizing the housing land, with proper allocation of land plots for infrastructure, transport, housings, commercial and public facilities, open space, etc. This method distributes development profits equally and depending on circumstances, generating continuing profits may be possible, which assists in creating a new and prosperous city with inherited culture and climate and also it secures life style stability of people who left firming.

15.20 To implement urban development integrated with public transport (UMRT development), this land readjustment system shall be effective for proper land use, infrastructure development, alignment of streets and facilities, etc. to create convenient and comfort urban activities.

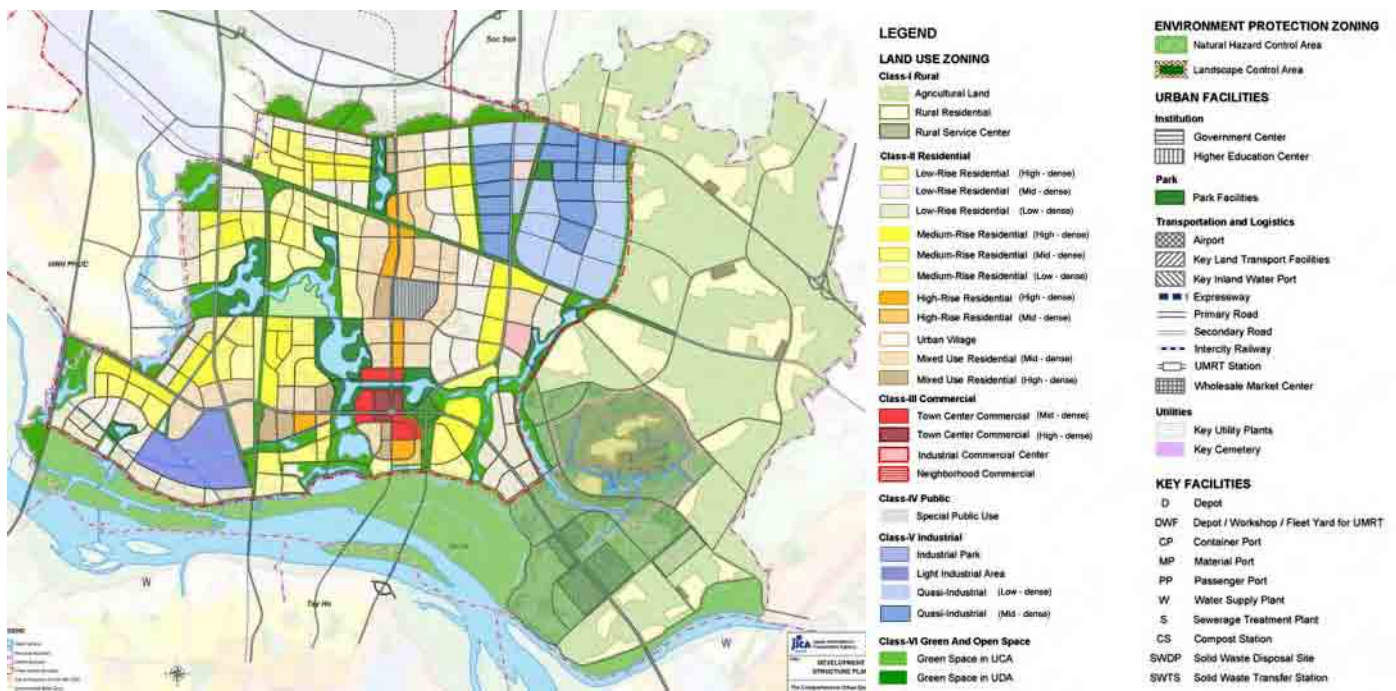
### **Conclusion, Lessons Learned and The Way Forward**

15.21 The proposed District Plan is a tool for effective urban control and implementation measures in compliance with Socio-Economic Master Plan and General Plan, which enable both HPC and the district governments control and monitor the urban development process appropriately. The functions of two-tier city planning system can be clearly identified, and land-use zoning system will be adopted for proper land-use control, especially where are expected to be urban districts from rural ones in near future to avoid rampant urban development.

15.22 It is now in transitional period of transferring the power of urban development to district governments which is stipulated in new Construction Law. But in reality, institutional mechanism, organization and skills for urban development of district level are seriously lacking rather than city level. In other words, empowerment of administration of district level is the urgent issue in the period of various urban developments in scales and contents in Hanoi City. For next steps after planning of the District Plan, capacity development of district offices shall be enhanced to utilize the plans for proper control and monitoring of urban development.

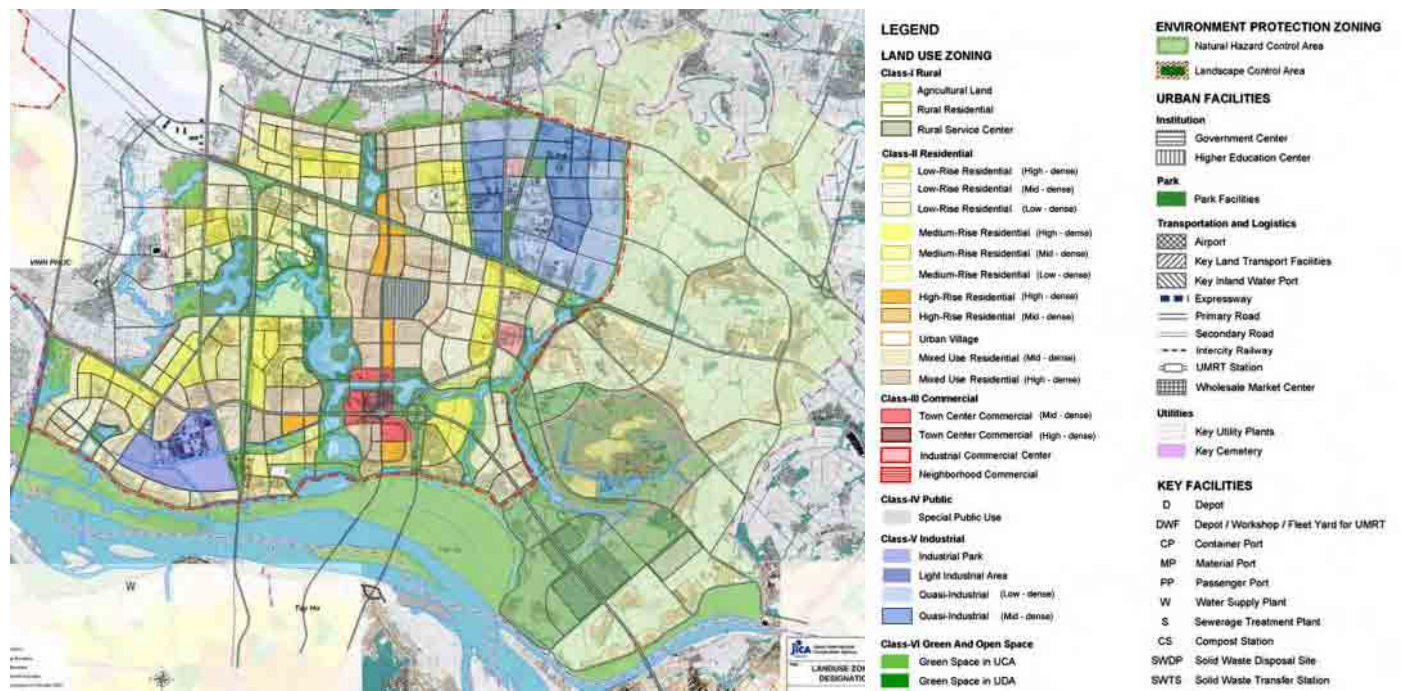


**Figure 15.4 Proposed Development Structure Plan**



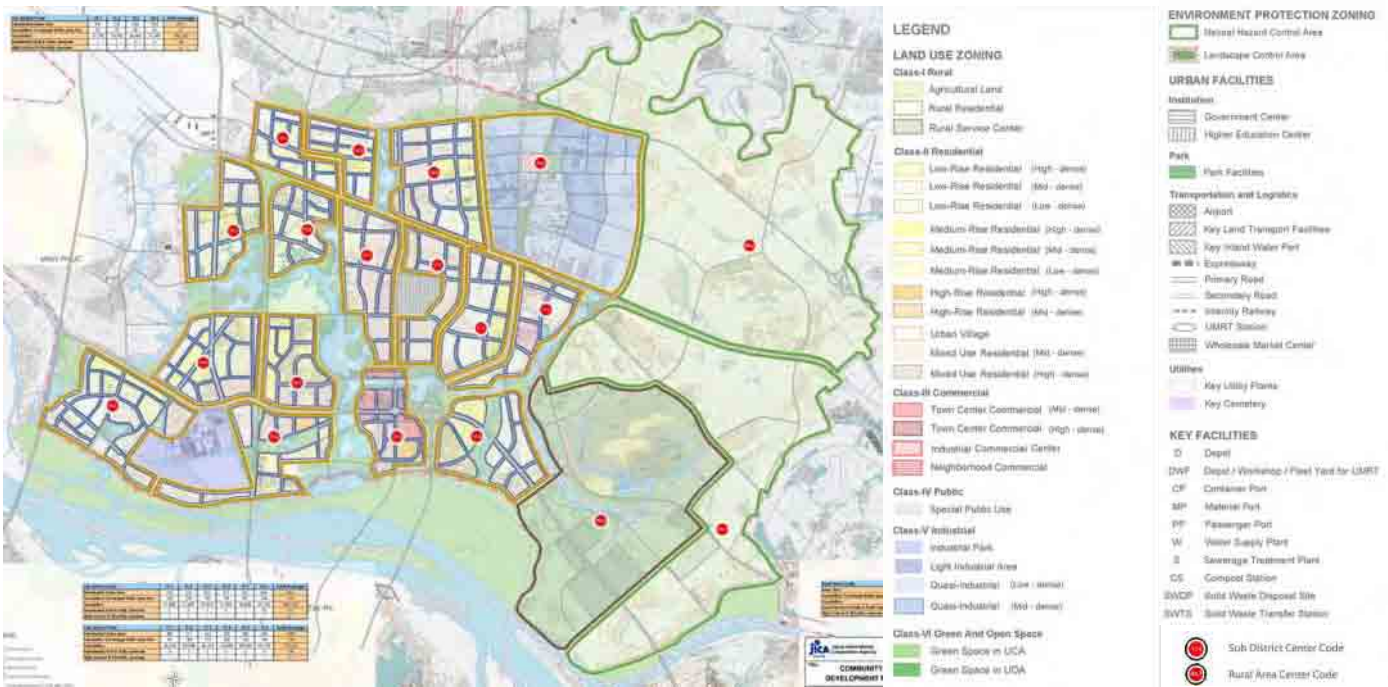
Source: HAIDEP Study Team.

**Figure 15.5 Proposed Land-use Plan**



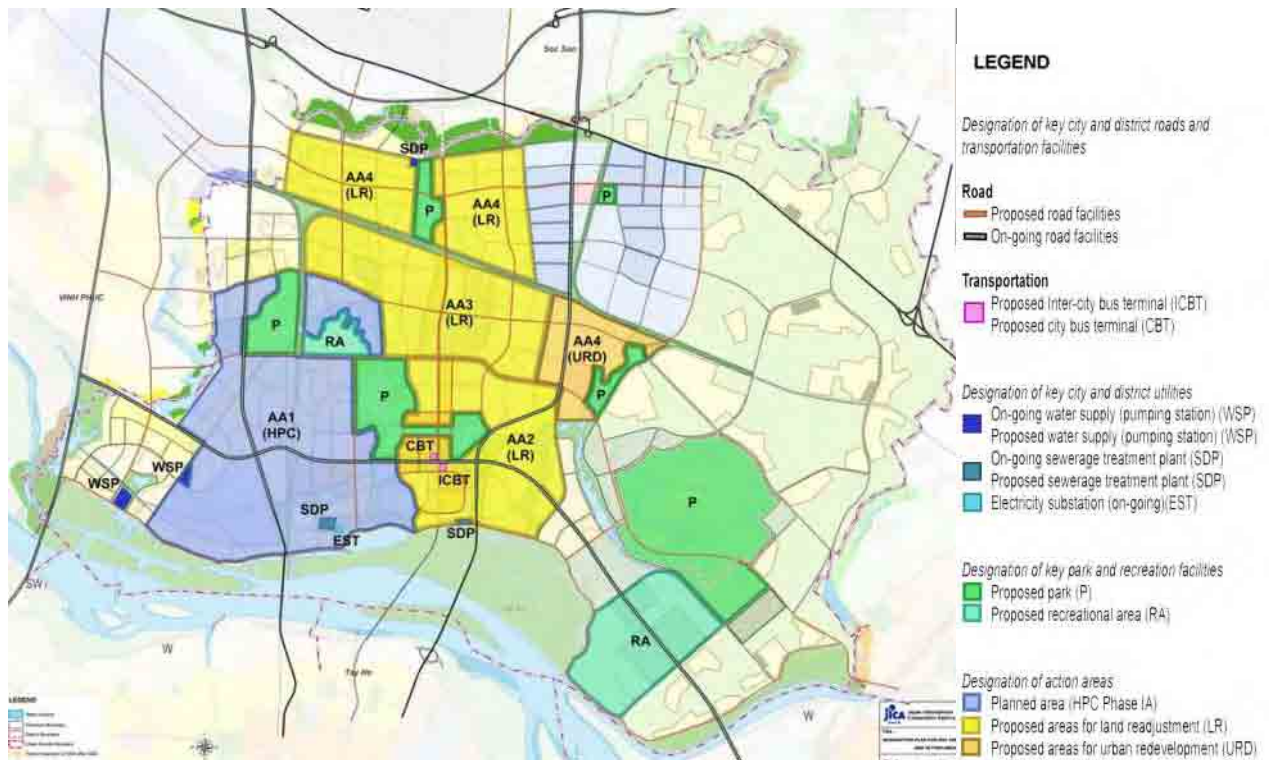
Source: HAIDEP Study Team

**Figure 15.6 Proposed Community Development Plan**



Source: HAIDEP Study Team.

**Figure 15.7 Key Facilities Plan**



Source: HAIDEP Study Team.

## 15.3 IMPROVEMENT PLAN AND STRATEGY FOR OUTSIDE-OF-DYKE AREA

### Context

15.23 In areas outside the dyke along the Red River, which stretches for 40km, it is said there are about 160,000 residents. Traditional craft villages and agricultural areas have existed historically and decreased by immigrants from rural to urban areas. Rapid construction of housing started from the 80s. After Doi Moi in 1986, the government called for investment for housing improvement by private sectors, but because of continuous immigration prevented from appropriate implementation of housing policies and urban management. As a result, illegal construction without land-use rights certificate (LURC) and construction permission, undeveloped infrastructure condition, social evil by low-income residential area have occurred. After the construction of the highway and the consolidation of the dyke in the 1990s, this area was completely isolated from the city center.

15.24 The fundamental issues of the area outside the dyke range from social, physical, economical, to cultural and ecological. These problems, however, cannot be solved merely by controlling illegal constructions. It is necessary to institute a comprehensive area redevelopment mechanism including an areawide development policy and practical implementation methods.

### Objectives of the Pilot Project

15.25 This pilot project intended to achieve the following specific objectives: (i) to assess the conditions of illegal constructions and their current status, (ii) to figure out the conditions in the area outside the dyke, its constraints and redevelopment potentials, and (iii) to propose future land use and development orientation.

### Pilot Project Implementation

15.26 In the urban area of Hanoi, the selected project area outside the Red River dyke extends about 12km in length from Thang Long Bridge in the north to Hanoi Port in the south. The residential area is mostly clustered on the left bank of the Red River which includes 8 communes (see Table 15.3 and Figure 15.8).

**Table 15.3 Conditions of the Pilot Project Area in Outside-of-dyke Area**

| Commune         | District     | Area (ha) | Population (no.) | Residential Area (ha) <sup>1)</sup> | Population Density (no./ha) <sup>2)</sup> |
|-----------------|--------------|-----------|------------------|-------------------------------------|---|
| Nhat Tan        | Tay Ho       | 350       | 8,106            | 47                                  | 173                                       |
| Tu Lien         | Tay Ho       | 312       | 8,290            | 41                                  | 201                                       |
| Yen Phu         | Tay Ho       | 141       | 19,660           | 58                                  | 338                                       |
| Phuc Xa         | Ba Dinh      | 100       | 18,641           | 41                                  | 459                                       |
| Chuong Duong Do | Hoan Kiem    | 101       | 21,969           | 35                                  | 636                                       |
| Phuc Tan        | Hoan Kiem    | 70        | 14,830           | 23                                  | 647                                       |
| Bach Dang       | Hai Ba Trung | 106       | 17,618           | 49                                  | 361                                       |
| Thanh Luong     | Hai Ba Trung | 142       | 21,143           | 56                                  | 381                                       |
| Total           |              | 1,322     | 130,257          | 349                                 | 374                                       |

Source: Hanoi Statistical Yearbook, MONRE.

1) Area occupied by residents.

2) Population density of residential area.

**Figure 15.8 Pilot Project Area in Outside-of-dyke Area**



Agricultural land in Yen Phu



Thanh Nien Street and West Lake



Intersection of Thanh Nien and the dyke road



Phuc Tan Street in the north



Bach Dang Street in the south



Phuc Tan Port

Source: HAIDEP Study Team.

## Definition of Illegal Constructions in Outside-of-dyke Area

15.27 The basis for defining illegal and illegal constructions in this area should be institutionalized based on three conditions: (i) ownership of housing ownership certificates (HOCs) and LURCs, and (ii) compliance with the dyke ordinance<sup>4</sup> that was adopted in January 2001, and (iii) vulnerability to flooding, which is considered the most important condition.

15.28 In Article 11 of the 2001 dyke ordinance, structures are prohibited on the dyke and several meters from it, on alluvial ground, or in the riverbed except for works on flood control, transportation, security, and other special works. So any house which was constructed in these parts after January 2001 can be considered illegally constructed. At the same time because of the administrative complications arising from the rapid urban development after Doi Moi, there have been no issuances of HOCs and LURCs in the surveyed area in Chuong Duong Do Commune. The widespread existence of person-to-person transfer papers (accounting for about 60%) reveals the relaxation in urban management over the past years.

15.29 Upon consideration of these three conditions, illegal constructions are thus defined as: (i) structures built on flood-prone areas, (ii) those constructed without official documents after the enforcement of the dyke ordinance came into effect, and (iii) those constructed without any legal documents at all.

15.30 Based on the above criteria, residents in the surveyed area outside the dyke can be roughly classified into three groups, namely:

- (1) **Group A:** Those with sufficient legal papers and whose houses were constructed before the enforcement of the dyke ordinance (0%).
- (2) **Group B:** Those with person-to-person transfer certificates and whose houses were constructed before the enforcement of the dyke ordinance, and those with person-to-person transfer certificates and commune certificates (41%).
- (3) **Group C:** Others (59%).
- (5) From the viewpoints of legitimacy and vulnerability to flood, it is roughly estimated that about 60% of the constructed buildings in the surveyed area need to be relocated or attended to through adequate physical or institutional measures. Particularly, about 36% of these structures need to be resettled as they are located in areas that are highly vulnerable to flooding (see Table 15.4).

**Table 15.4 Classification and Conditions of Illegal Construction (Preliminary Estimate)**

| Vulnerability to Flood | Status of HOC and LURC               | With HOC and LURC (%) | With Person-to-person Transfer Certificate (%) |                                    |        | Without Paper (%) | Total (%) |
|------------------------|--------------------------------------|-----------------------|--|------------------------------------|--------|-------------------|-----------|
|                        |                                      |                       | Plus Commune's Certificate (%)                 | Plus Other Papers <sup>1</sup> (%) |        |                   |           |
| Low Vulnerability      | Before enforcement (~ December 2000) | A (0)                 | B (3)  | B (15)                             | B (20) | C (3)             | 41        |
|                        | After Enforcement (January 2001 ~)   | B (0)                 | B (3)  | C (0)                              | C (20) | C (0)             | 23        |
| High Vulnerability     |                                      | C (0)                 | C (3)  | C (10)                             | C (20) | C (3)             | 36        |
| Total                  |                                      | 0                     | 9  | 25                                 | 60     | 6                 | 100       |

Source: HAIDEP Study Team

1) Other papers means house/ land papers issued by a state agency, such as agencies house/ land papers, certifications of dwelling houses and the adjacent gardens and ponds shared by several people after owners of the LURC sold the land to them.

<sup>4</sup> At the moment, everything related to the dyke is still based on the two following documents: (i) "Ordinance on Dyke and Dyke Maintenance", No. 26/2000/PL-UBTVQH10 issued on 07/9/2000, and (ii) "Stipulating in Detail the Implementation of Some Articles of the Dyke Ordinance", No.171/2003/ND-CP issued on 26/12/2003.

## Main Issues

15.31 Even as the area outside the dyke has high potentials for future development, it is necessary to first address existing issues (see Table 17.5). The immediate priority is to secure the safety of the residents and public order, especially from flooding and other natural disasters, as well as social ills. At the same time, the environmental problems should be tackled to ensure a sustainable future. Only then can the area's development potentials be tapped to contribute economically, culturally and ecologically to Hanoi City and its citizens.

**Table 15.5 Main Issues and Problems in Outside-of-dyke Area**

| Issue                                   | Problem  |
|---|--|
| 1. Disaster prevention and preparedness | <ul style="list-style-type: none"> <li>• Flood</li> <li>• Fire and rescue</li> <li>• River management (erosion, water flow, pollution, etc.)</li> </ul>  |
| 2. Environment                          | <ul style="list-style-type: none"> <li>• Spoiling prime landscape</li> <li>• Negative impacts on ecosystems</li> <li>• Overcrowding</li> </ul>   |
| 3. Social                               | <ul style="list-style-type: none"> <li>• Insufficient urban service</li> <li>• Social evils</li> <li>• Community isolation/ rupture</li> </ul>   |
| 4. Economic                             | <ul style="list-style-type: none"> <li>• Loss of waterfront activities</li> <li>• Low productivity of landuse</li> <li>• Low value of infrastructure stock</li> </ul>  |
| 5. Cultural                             | <ul style="list-style-type: none"> <li>• Disregarded historical/ cultural properties</li> <li>• Damage to traditional/ cultural values</li> </ul>  |
| 6. Management                           | <ul style="list-style-type: none"> <li>• Lack of cohesive policy, regulatory framework and management mechanism</li> <li>• Lack of information on the area for effective plan/ policy formulation</li> </ul> |

Source: HAIDEP Study Team.

## Recommendations

15.32 It is important to consider the revitalization and development of the area outside the dyke from the economic, cultural, social, and environmental aspects. As part of the Red River space, the area's functions shall be enhanced and integrated with other core areas to form a solid urban axis.

15.33 The area outside the dyke is deemed to have high potentials to contribute to Hanoi City's growth economically, culturally and ecologically. However, prevailing issues on safety of life, public order and environment, should be solved first.

15.34 The dyke ordinance should be amended soon so as to ensure the safety of both dykes and flood release, while balancing the need to acknowledge house ownership and land-use right of those who have settled on stable land. There should also be a definition of illegal constructions based on clear criteria, and a complementary relocation plan to improve the quality of life of households who will become affected by such definition.

15.35 To utilize the outside-of-dyke area effectively, the following are proposed: (i) a second dyke (H=12m) between the existing dyke and the river terrace will be constructed; (ii) the area outside the second dyke shall be an open space, and the area between the two dykes shall be used for nonresidential purposes; and (iii) the land use will be designated by area in consideration of the relationship with the hinterlands, neighboring communes, as well as historical and natural conditions.

## **16 PREFEASIBILITY STUDIES**

### **16.1 Prefeasibility Study of the Urban Mass Rapid Transit Line 2**

#### **Objective**

16.1 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.

#### **Route, Depot, and Phasing**

16.2 UMRT Line 2 will function as the north-south public transportation backbone of the city connecting the city center with: (i) the emerging new urban development areas of Dong Anh and further to Noi Bai in the north; (ii) the heavily developed NH6 corridor to Ha Dong in the southwest; and, (iii) the new government center in the west. The total length of the line is 41.5km with a total of 28 stations.

16.3 It was recognized through an analysis of the projected demand that UMRT 2 should be implemented in three phases. Phase 1 would be the middle section which traverses the city center and will operate from 2013. Phase 2, which is to start by 2016, is a northward and southward extension to cope with the expanding urban area. Finally, the third phase will complete the system with a further northward extension to Noi Bai by 2018 and its northernmost terminal integrated with the Noi Bai Airport Terminal.

16.4 An examination of alignment conditions determined that Phase 1 from Tu Liem to Thuong Dinh should be developed as a subway, because an at-grade or elevated construction poses too many problems in the narrow and built-up city center. Preliminary recommendations are that Phase 2 and most of Phase 3 should be developed as elevated sections to minimize disruptions to existing roads. The northernmost segment of Phase 3 should be underground to be able to integrate with the Noi Bai Airport Terminal. As part of Phase 3, UMRT 2 will cross the Red River utilizing a bridge crossing.

16.5 Tu Liem is selected among several candidates to be the site of the main depot (10-15ha) for UMRT 2. In succeeding phases, it is recommended that smaller satellite depots (5ha) be developed in Ha Dong (Phase 2) and Thai Phu (Phase 3).

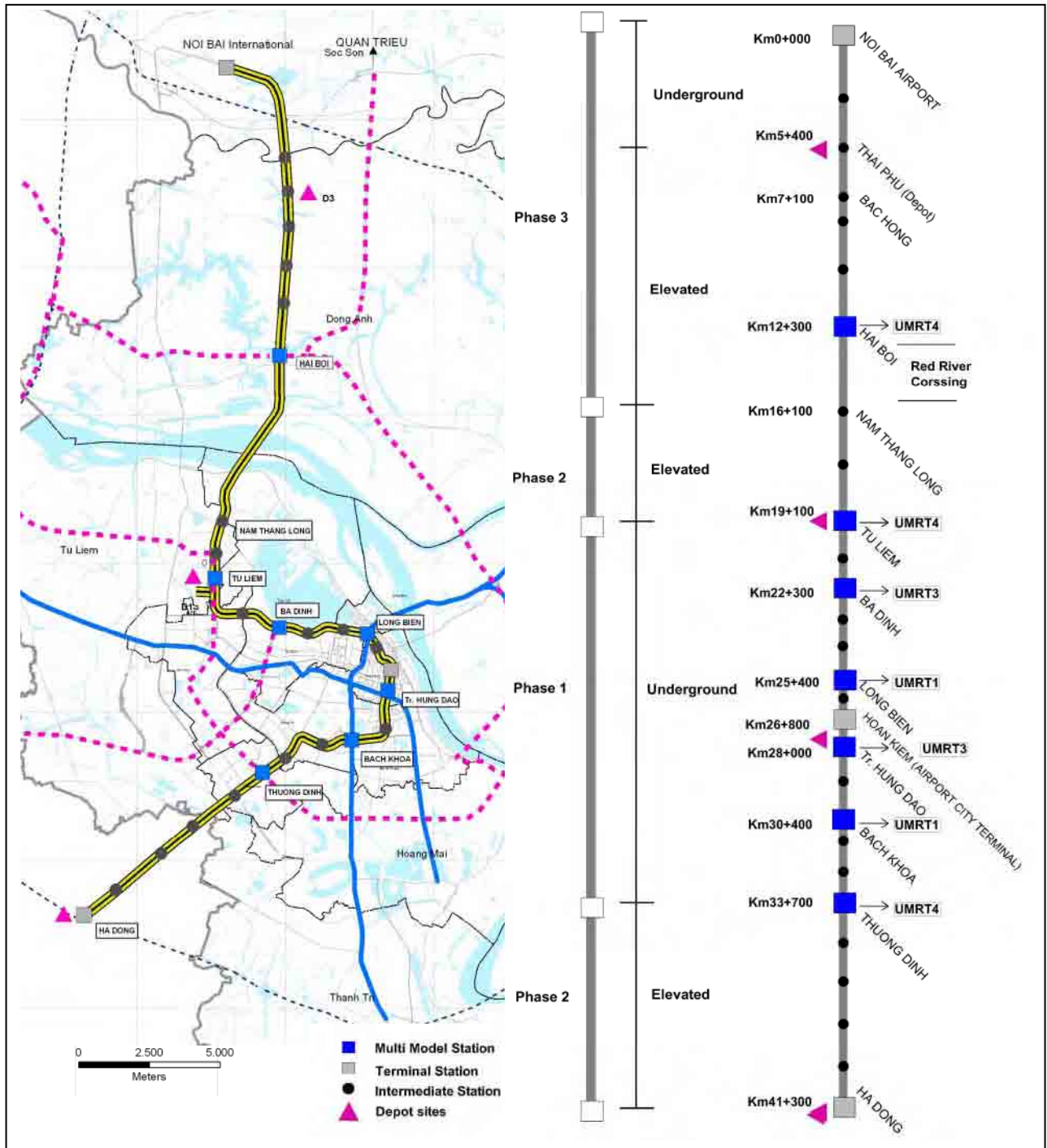
#### **Integrated Development at Stations/Terminals and Station Vicinity**

16.6 Integral to the development of UMRT 2 is the coordination of rail development with land development. Thus, it is proposed that the UMRT 2 station design be incorporated with urban projects along its route, including: (i) Van Tri Lake New Town urban center; (ii) Ciputra housing estate area; (iii) new government center development area; (iv) West Lakeside development area; (v) Hoan Kiem; (vi) Ancient Quarter; (vii) Hoan Kiem Lake gateway; (viii) French Quarter; (ix) Bach Khoa University and Thong Nhat Park; (x) Thuong Dinh; and, (xi) Xuan Bac and Xuan Nam area. Station designs should also incorporate intermodal junctions with other UMRT lines.

#### **Estimated Ridership**

16.7 The UMRT 2 ridership will be dependent on the fare level. The proposed fare level of US\$ 0.2 + US\$ 0.05 per km in excess of 4km (2020) is based on a revenue-maximizing strategy, as UMRT 2 should as much as possible be self-sufficient. Accordingly, it is projected that ridership will be about 575,000 passengers a day at the start of Phase 1 (ie 2013) and will gradually increase to 900,000 passengers a day by 2018 when Phase 3 comes on line.

**Figure 16.1 UMRT 2 Route**



Source: HAIDEP Study Team.

**Table 16.1 UMRT 2 Profile**

| Phase | Km   | Structure   | No. of Stations | Connection        | Rolling Stock <sup>1)</sup> | Headway | Schedule |
|-------|------|---|-----------------|-------------------|-----------------------------|---------|----------|
| 1     | 15.2 | Underground   | 14              | 6 (UMRT 1, 3 & 4) | 18 trains x 6 cars          | 3.25    | 2013     |
| 2     | 10.2 | Elevated  | 7               | -                 | 28 trains x 6 cars          | 3.00    | 2016     |
| 3     | 16.1 | Elevated (10.7km <sup>2)</sup><br>Underground (5.4km) | 7               | 1 (UMRT 4)        | 37 trains x 6 cars          | 2.75    | 2018     |
| All   | 41.5 |   | 28              |                   |                             |         |          |

Source: HAIDEP Study Team.

1) Based on 2020 demand.

2) Includes the Red River crossing (to cross a distance of 2,420m, dyke to dyke).



## Engineering and Operation Elements

16.8 The underground sections of UMRT 2 are proposed to be constructed using twin bored tunnels with internal diameters of 5.4m. A consideration of ground conditions preliminarily indicates that the mixed shield TBM technology is most suited to construct the tunnel sections. The elevated sections are proposed to typically utilize a double track viaduct arrangement with spans of 30-35m. The proposed station layouts are side platform layout for elevated stations and center platform layout for underground stations. The construction for Phase 1 is estimated to take 48 months from mobilization to full operation status.

16.9 After a consideration of various alternatives, it is proposed that UMRT 2 should employ metro-type rolling stock with 285 pax/car design capacity arranged in six cars per train. And to meet demand the rolling stock requirements would be 18 train sets for Phase 1, increasing to 37 train sets at the start of Phase 3 (see Table 16. 2). The UMRT 2 system can operate with a minimum safe headway of 2 minutes and will reach a maximum capacity of 58,000 pax/hr/dir (vis-à-vis 2020 capacity of 38,000 pax/hr/dir at 2.75 minutes headway).

16.10 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. Phase 1, due to its underground construction, is the most expensive segment with a US\$ 1.8 billion price tag. Additionally, operating and maintaining UMRT 2 will cost around US\$ 39.2 million/year for Phase 1 and will increase to US\$ 51.4 million/year when the system is completed with the start of operations of Phase 3 (see Table 16.2).

**Table 16.2 UMRT 2 Project and O&M Costs<sup>1)</sup>**

|                              | Phase 1            | Phase 2            | Phase 3            | Total |
|------------------------------|--------------------|--------------------|--------------------|-------|
| 1. Civil Works               | 794                | 132                | 318                | 1,245 |
| 2. Workshop/ Depot           | 33                 | 9                  | 9                  | 52    |
| 3. Railway System            | 124                | 21                 | 50                 | 195   |
| 4. Rolling Stock             | 172                | 95                 | 133                | 401   |
| 5. General Items             | 79                 | 18                 | 36                 | 132   |
| 6. Construction (1+2+3+4+5)  | 1,202              | 276                | 546                | 2,024 |
| 7. Engineering (7.5% of 6)   | 90                 | 21                 | 41                 | 152   |
| 8. Land Cost                 | 348                | 31                 | 67                 | 446   |
| 9. Contingency (10% [6+7+8]) | 164                | 33                 | 66                 | 262   |
| 10. Project (6+7+8+9)        | 1,805              | 360                | 719                | 2,884 |
| 11. Annual Operation         | 14.2 <sup>2)</sup> | 14.8 <sup>3)</sup> | 15.2 <sup>4)</sup> |       |
| 12. Annual Maintenance       | 25.0 <sup>2)</sup> | 31.3 <sup>3)</sup> | 36.2 <sup>4)</sup> |       |
| 13. Annual O&M (11+12)       | 39.2 <sup>2)</sup> | 46.1 <sup>3)</sup> | 51.4 <sup>4)</sup> |       |

Source: HAIDEP Study Team.

1) In million US\$, 2006 price.

2) By 2013.

3) By 2016.

4) By 2018.

## Evaluation

16.11 The impacts of UMRT Line 2 on the future development of Hanoi will be so large, with a shift from road- and private transportation-based urban development to public transportation-oriented urban development. It will affect land use, location of establishments, access to services; thus the life of the people. The impacts on traffic, urban economy, environment, and communities in the influence area will likewise be significant. The UMRT Line 2 was evaluated comprehensively from economic, environmental, social and financial viewpoints.

16.12 Economically, the UMRT Line 2 generates substantial benefits. Considering the benefits only from the reduction in traffic congestion and savings in travel costs of transportation users, its EIRR is 22.5% already. When additional benefits due to effective land use and integrated development are considered, higher economic returns can be expected.

16.13 From the social viewpoint, resettlement of households may become an issue unless addressed adequately. However, in this project the number of affected households will be minimal (less than 30 permanently affected structures) because Phase 1 will be underground, and integrated development at and around stations are planned. Affected households will be provided with alternatives whether they will be willing to stay or move out. Nonetheless, the provision of high-quality public transportation services will bring about positive social impact on the society as a whole and more specifically to the communities along the UMRT Line 2.

16.14 Environmental impact is also significant. Positive impact is expected from the reduction of air and noise pollution, as well as traffic accidents due to the shift from private transportation, including motorcycles, to the UMRT. However, vibration and noise from the UMRT is anticipated during its construction.

16.15 From the technological viewpoint, the UMRT Line 2 construction provides a new opportunity for Vietnam to experience and introduce modern technology on underground construction as well as railway operation. Underground space development integrated with underground UMRT stations can also benefit future urban development. Another important impact is energy saving due to the shift from the fossil fuel-consuming road vehicles to the energy-efficient UMRT.

16.16 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.

16.17 It is concluded that UMRT Line 2 is a highly feasible project, provided the government is responsible for finance and management of the process to ensure the realization of the expected benefits while minimizing the negative impacts.

### **Implementation Strategy**

16.18 The proposed funding strategy calls for the UMRT 2 to be developed using public funds. However, the operations and maintenance of the system should be conducted in a self-sufficient manner through fare revenues and ancillary revenue sources, as is demonstrated to be feasible by the financial analysis. 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 UMRT 2. Finally, funds for the acquisition of ROW would be sourced from public funds. Private sector involvement in funding the project is not likely or will not be significant considering the poor financial indicators of the project.

16.19 ODA funding is recommended to be tapped at least for Phase 1. The ODA fund will be channeled to UMRT 2 via a re-lending mechanism in which the state will receive the ODA loan and re-lend it to HPC to develop UMRT 2, since it is contemplated that HPC will be the implementing agency of UMRT 2.

16.20 To develop and operate UMRT 2 as well as other UMRT lines, it is recommended that HPC create the Mass Transit Authority (MTA) which will plan, design, build, finance, and initially run UMRT Line 2. In the future, as experience and expertise in operating UMRT grows, the task of operating and maintaining the system is to be divested to private entities under a competitive framework, and the MTA will focus on network planning and rail network expansion as well as on regulations (technical and economic).

16.21 MTA will also take the lead in rail-related property development. The transit-oriented development (TOD) concept is proposed, wherein high-density commercial use is developed

within the near vicinity of stations and medium density residential developments are established further out. To maximize the opportunities for commercial development within the context of the TOD concept, it is recommended that MTA should consider schemes such as joint commercial development ventures and land readjustment arrangements to coordinate land owners and to generate sufficient land for integrated urban development. It is expected that revenues from land development would not only generate large funds for MTA for rail investment, but will also enhance the function and effectiveness of UMRT 2.

## 16.2 Prefeasibility Study of Ring Road 4 West

### Objective

16.22 Ring Road 4 (RR4) West is the western segment of the proposed fourth circumferential road of Hanoi in the HAIDEP Urban Transportation Master Plan. According to this master plan, RR4 West is scheduled for operation by 2013. The objective of this prefeasibility study is to examine more closely the viability of RR4 West.

16.23 Important roles of the RR4 are both from the transportation and urban development perspectives. RR4 aims: (i) to promote urban growth; (ii) to distribute traffic along major corridors effectively; and, (iii) to provide effective interface between urban and regional transportation. Without RR4, the future urban development orientations in the HAIDEP General Plan would not be realized.

### Alignment and Technical Standards

16.24 The alignment and technical standards of RR4 are very important and its location should not be too far nor too near to the central urban area<sup>1</sup>. The optimal location is along the fringes of the future urban areas to promote the desired urban development and to serve both urban and inter-city traffic in the most efficient manner. Technical standards must be expressway standard because RR4 is the interface of urban and inter-city traffic, meaning it is also a part of the inter-city expressway network.

16.25 Ring Road 4 West starts from NH2 in Noi Bai in the north and ends on NH1A in Thanh Tri in the south for a total length of 45.35km, traversing the boundaries of Hanoi, Vinh Phuc, and Ha Tay provinces, some 15 to 20-kilometer radius from the city center. The alignment requires a 1.86km bridge over the Red River near Thuong Cat Commune in Tu Liem District (Hanoi).

16.26 Demand forecast suggests that a four-lane divided cross-section would be sufficient. The median will be enlarged to reserve space for additional two lanes for future expansion. In addition, frontage roads will be provided along the sides of RR4 West to offer access to developments along its corridor. The typical ROW requirement of RR4 West is 80m.

16.27 As the alignment goes through a largely undeveloped corridor, the alignment will predominantly be at-grade on embankment (at ground level + 6.5m) to accommodate road boxes to be installed, allowing local roads to cross RR4. Additionally, elevated structures would be utilized for approaches to interchanges, the bridge, and railroad crossings. RR4 West will feature six interchanges on NH2, NH23, NH32, Lang - Hoa Lac Expressway, NH6, and NH1 Expressway.

---

<sup>1</sup> The MOT Master Plan also has proposed a fourth circumferential road for Hanoi but it is aligned farther from the city center compared to HAIDEP's proposed alignment, as the MOT alignment positions RR4 West along a 25 to 40-kilometer radius from the city center. The analysis showed that it is positioned too far from the city center to function appropriately as a bypass, especially the northern section, which is some 40km from the city center. Moreover, due to its distance from the city center it could not function as a boundary to limit urban sprawl. Thus the alignment of RR4 is proposed to be moved closer to the city center.

16.28 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 project cost. A breakdown of the total project cost per section is shown below. Additionally, operating and maintaining RR4 West would require approximately US\$ 30 million/year on average.

|   |                  |
|---|------------------|
| (i) Package 1 (NH1 - NH6), 12.8km                               | US\$ 134 million |
| (ii) Package 2 (NH6 - Red River), 15km                          | US\$ 160 million |
| (iii) Package 3 (Red River Bridge, including approaches), 7.1km | US\$ 235 million |
| (iv) Package 4 (Red River – NH2), 10.5km                        | US\$ 109 million |

### **Estimated Demand**

16.29 RR4 West is contemplated to be self-sufficient as possible, thus tolls will be charged at revenue-maximizing levels. The proposed toll system is an open system, utilizing a flat charge. The revenue-maximizing toll level is determined to be VND 25,000 per car by 2020. Under this toll scheme, total users of RR4 West would be around 85,000 pcu/day. For the whole stretch of RR4 West the average section traffic would be about 30,000 pcu/day and a V/C ratio of 0.4. The busiest segment would be the Red River Bridge with traffic of nearly 40,000 pcu/day and a V/C ratio of 0.6.

### **Evaluation**

16.30 The following details the environmental, social, economic, and financial evaluation of RR4 West. On the whole, RR4 West is considered highly viable and recommendable for implementation, although some issues require strategic intervention, especially with regard to finance.

16.31 Major environmental impacts anticipated of RR4 West are (i) effects to surface water flow, which could cause flooding; (ii) increased air pollutants from motor vehicles; (iii) and splitting of communities. During construction, impacts of earthworks, noise and vibration have also been identified. The effect of the bridge on the natural flow of sediments and erosion is also critical. On the other hand, RR4 will positively impact land use in the area, particularly by containing urban sprawl, thereby preventing further intrusion of urban activities into natural and agriculture lands, which would otherwise occur without the project. At any rate, negative impacts should be prevented or mitigated with careful and proper physical design and implementation protocols.

16.32 RR4 West will further directly affect some 200, mostly low-income, households, who will be required to move out of their residence. Land subject to ROW acquisition covers about 375ha which is mostly agriculture land and some limited residential land. Just compensation and due consultation and coordination with the affected land owners/residents is necessary.

16.33 The quantified economic benefits derived from RR4 West stems from the decongestion of roads within urban Hanoi by distributing traffic. Considering only the transportation cost savings, the RR4 West is assessed to be very economically viable with an EIRR of 18.6%. Benefits accruing from efficient urban development are not quantified, although it is expected to be significant; thus, the positive economic impact of RR4 West is very robust.

16.34 On the other hand, 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%. One key factor attributing to the relatively low financial indicator is 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.

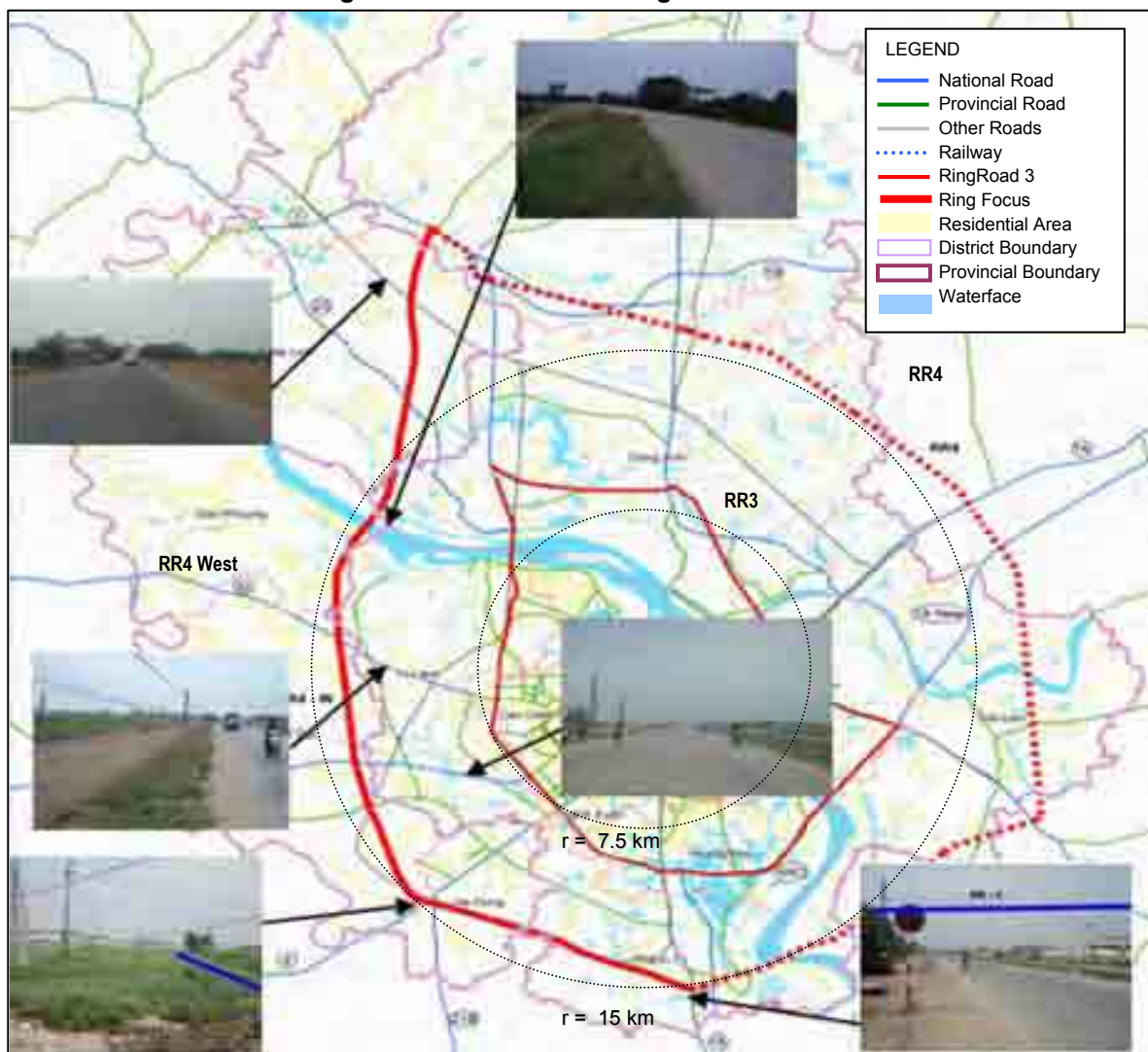
## Implementation Strategy

16.35 The results of the financial analysis imply that a public-private partnership scheme wherein the public sector shoulders a part of the construction cost would be feasible. At this point a build-operate-transfer scheme (ie without subsidies) is highly unlikely.

16.36 There are two options that can be considered: (i) O&M concession, and (ii) build-transfer-operate (BTO) concession. The O&M concession involves minimal risks to the private concessionaire, wherein its investment would only be the toll facilities, while the government shoulders most of the fund requirements. The preliminarily proposed BTO scheme is that the private concessionaire will build the Red River Bridge segment (Package 3) plus toll facilities, while the government will cover the rest of RR4 (packages 1, 2, and 4). Upon completion, the concessionaire will then operate the entire RR4 West. Under the BTO scheme, the concessionaire will handle 37% of the project cost and if the concessionaire retains all toll revenues, the equity IRR is extremely high at 27.8%, assuming a 30-year concession. Thus a mechanism for the public sector to receive a portion of the revenues or for shortening the concession period once a reasonable profit is attained is recommended.

16.37 Land acquisition is proposed to be covered by public funds. However, it is recommended that ODA funding be tapped to cover for, or at least augment, public sector funding for its share in the RR4 West project cost, considering the limited budget of the public sector at present.

**Figure 16.2 Location of Ring Road 4 West**



Source: HAIDEP Study Team.

**Table 16.3 RR4 West Project Cost<sup>1)</sup>**

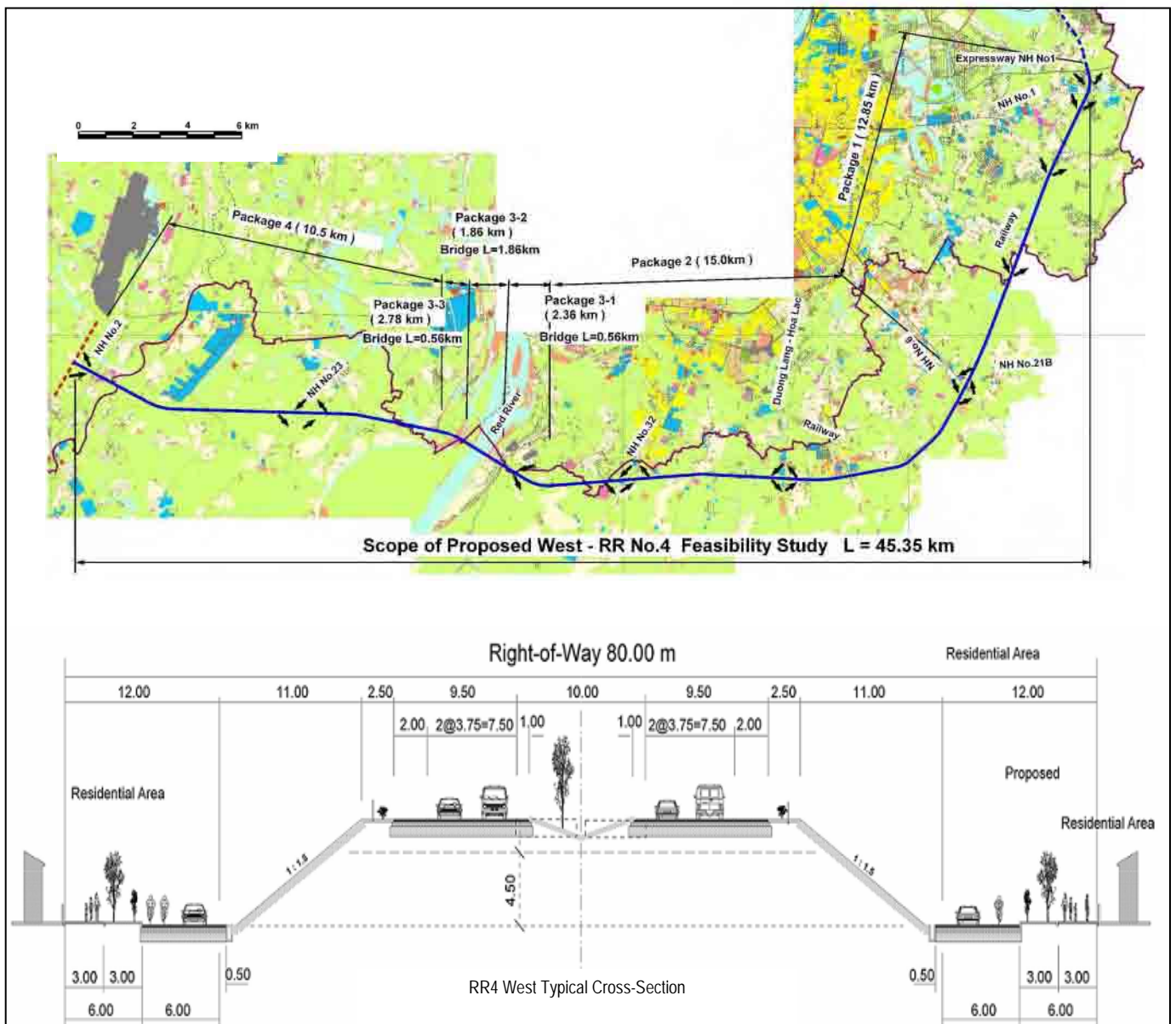
| Project Package / Section | 1          | 2                | 3                              | 4                | All        |
|---------------------------|------------|------------------|--------------------------------|------------------|------------|
|                           | NH1 to NH6 | NH6 to Red River | Red River Bridge <sup>2)</sup> | Red River to NH2 | NH1 to NH2 |
| Section                   |            |                  |                                |                  |            |
| Length (km)               | 12.85      | 15.00            | 7.1                            | 10.5             | 45.35      |
| Construction              | 80.9       | 83.7             | 197.4                          | 70.0             | 431.9      |
| Engineering               | 6.1        | 6.3              | 14.8                           | 5.3              | 32.4       |
| Contingency               | 8.7        | 9.0              | 21.2                           | 7.5              | 46.4       |
| Land                      | 38.1       | 61.3             | 2.4                            | 26.2             | 128.0      |
| Total                     | 133.8      | 160.2            | 235.7                          | 109.0            | 638.7      |

Source: HAIDEP Study Team.

1) In US\$ million.

2) Red River Bridge includes the main bridge and approaches.

**Figure 16.3 Location of interchanges on Ring Road 4 West and Typical Cross-section**



Source: HAIDEP Study Team.

## 17 IMPLEMENTATION

### 17.1 Investment Cost

17.1 The total Investment cost of the HAIDEP subsectors reached US\$ 36,400 million including projects of the central government and those generating revenue or imposing user charges such as public transportation, expressways, ports, airports, water supply, housing, etc. There are also projects which can be implemented based on PPP schemes. Value capture from intergrated developments can also be expected. Thus the funding of the city can be reduced to about US\$ 21,400 million (see Table 17.1). Roads require the largest share or US\$ 7,600 million, followed by parks and green spaces (US\$ 5,200), public transportation (US\$ 3,800), and drainage/sewerage (US \$3,100).

**Table 17.1 Total Investment Cost by Subsector**

| Sector                        | Component                          | Project Cost<br>( US\$ mil.) | Cost to Hanoi |               |
|-------------------------------|------------------------------------|------------------------------|---------------|---------------|
|                               |                                    |                              | %             | US\$ mil.     |
| Urban<br>Transportation       | Urban Roads                        | 7,993                        | 95            | 7,593         |
|                               | Traffic Management and Safety      | 444                          | 100           | 444           |
|                               | Public Transportation (Bus + UMRT) | 5393                         | 70            | 3,828         |
|                               | <b>Subtotal</b>                    | <b>13,830</b>                | -             | <b>11,865</b> |
| Regional<br>Transportation    | Road                               | 4,610                        | -             | -             |
|                               | Rail                               | 2,582                        | -             | -             |
|                               | Airport                            | 3,350                        | -             | -             |
|                               | IWT Port                           | 178                          | -             | -             |
|                               | <b>Subtotal</b>                    | <b>10,720</b>                | -             | -             |
| Urban Water<br>and Sanitation | Water supply                       | 581                          | 50            | 291           |
|                               | Drainage                           | 2,085                        | 100           | 2,085         |
|                               | Sewerage                           | 1,046                        | 100           | 1,046         |
|                               | Flood Control                      | 223                          | 100           | 223           |
|                               | Lake Improvement                   | 114                          | 100           | 114           |
|                               | <b>Subtotal</b>                    | <b>4,047</b>                 | -             | <b>3,759</b>  |
| Living<br>Conditions          | Housing                            | 2,562                        | 20            | 512           |
|                               | Park and Green Space               | 5,223                        | 100           | 5,223         |
|                               | <b>Subtotal</b>                    | <b>7,785</b>                 | -             | <b>5,735</b>  |
| <b>Total</b>                  |                                    | <b>36,381</b>                | -             | <b>21,359</b> |

Source: HAIDEP Study Team.

17.2 Roads, public transportation, parks, and drainage/sewerage systems are basic infrastructures which support urban development for long and require large amount of funding as are experienced by other cities. However, it must be pointed out that the investment cost includes a fairly large amount for lands and resettlement. For example, of the US\$ 7,990 million for urban roads, the share of lands and resettlement is as much as 63% or US\$ 5,050 million. Parks require US\$ 3,480 million or 67% of the investment cost. This implies how critical it is to acquire space for infrastructure development efficiently and effectively. While large funds are required for infrastructure development, it is also true that the value of lands and property increases, various economic development opportunities are created, thereby generating benefits that far exceed investment costs. This also clearly indicates why infrastructure development must be undertaken hand in hand with urban development to lessen social friction due to land acquisition and resettlement as well as to maximize the benefits from infrastructure development.

17.3 Projects were identified for the subsectors of urban transportation, regional transportation, urban water and sanitation, living conditions, and urban development, as shown in subsequent paragraphs.

#### **Urban Transportation**

17.4 The urban transportation subsector includes urban roads (43 projects at a cost of US\$ 7,980 million), traffic management (6 projects, US\$ 440 million), and public transportation (5 projects, US\$ 5,470 million) (see Table 17.2).

**Table 17.2. Proposed Urban Transportation Projects**

| Component                     | Project Profile |  |                      |              | Project Cost (US\$ mill.) |                  |              |                | Implementing Agency | Status | Schedule |
|-------------------------------|-----------------|--|----------------------|--------------|---------------------------|------------------|--------------|----------------|---------------------|--------|----------|
|                               | Code            | Title (ID)                                     | Type                 | Km           | Const.                    | Land Acquisition | Compensation | Total          |                     |        |          |
| Urban Roads                   | TR01            | Ongoing  |                      | 65.6         | 391.9                     | 592.8            | 94.0         | 1078.6         |                     |        |          |
|                               | TR02            | CBD Center Area Upgrade                        |                      | 4.8          | 7.7                       | 160.9            | 37.3         | 205.8          |                     |        |          |
|                               | TR03            | RR3: Nhat Tan Bridge Section                   |                      | 9.0          | 437.3                     | 60.8             | 0.6          | 498.7          |                     |        |          |
|                               | TR04            | RR(2): Phu Xa - HQV road (8)                   | P                    | 4.1          | 14.6                      | 72.3             | 10.7         | 97.6           | HPC                 | N      | 08-10    |
|                               | TR05            | RR2: South Section                             |                      | 4.4          | 16.0                      | 110.5            | 24.4         | 151.0          |                     |        |          |
|                               | TR06            | RR(2): Ng Khai-(Vinh Thuy)-NH5 (13)            | P                    | 4.8          | 335.7                     | 19.9             | 0.0          | 355.6          | HPC                 | N      | 09-12    |
|                               | TR07            | RR3 Southwest Section                          |                      | 7.3          | 59.0                      | 267.3            | 30.0         | 356.3          |                     |        |          |
|                               | TR08            | RR3 Southeast Section                          |                      | 6.9          | 33.7                      | 58.9             | 9.6          | 102.2          |                     |        |          |
|                               | TR09            | RR(3): NH3-NH1 (107)                           | P                    | 8.5          | 93.7                      | 47.4             | 3.5          | 144.6          | HPC                 | P      | ~ 15     |
|                               | TR10            | RR3 North Section                              |                      | 18.6         | 85.0                      | 63.7             | 2.1          | 150.8          |                     |        |          |
|                               | TR11            | RR4 West Section                               |                      | 12.8         | 166.3                     | 61.0             | 1.8          | 229.1          |                     |        |          |
|                               | TR12            | RR4 Southwest Section                          |                      | 22.9         | 95.7                      | 84.3             | 5.7          | 185.7          |                     |        |          |
|                               | TR13            | RR4 Southeast Section                          |                      | 28.9         | 424.5                     | 104.0            | 1.6          | 530.0          |                     |        |          |
|                               | TR14            | RR4 North Section                              |                      | 23.8         | 76.1                      | 67.2             | 11.6         | 154.9          |                     |        |          |
|                               | TR15            | NH2: RR4-NH23 (32)                             | P                    | 4.7          | 15.6                      | 16.3             | 3.4          | 35.3           | CG                  | P      | ~ 20     |
|                               | TR16            | East West Highway North in North of Hanoi      |                      | 14.1         | 14.1                      | 14.1             | 0.0          | 28.2           |                     |        |          |
|                               | TR17            | East West Highway in the North of Hanoi        |                      | 16.7         | 24.0                      | 33.9             | 2.4          | 60.4           |                     |        |          |
|                               | TR18            | RR4-Bac Thang Long Road (37)                   | P                    | 4.1          | 13.5                      | 7.2              | 0.0          | 20.7           | HPC                 | N      | ~ 15     |
|                               | TR19            | East West Highway Southeast in North Hanoi     |                      | 21.2         | 25.7                      | 77.2             | 2.8          | 105.7          |                     |        |          |
|                               | TR20            | North South Highways in the North of Hanoi     |                      | 36.0         | 123.7                     | 152.2            | 16.0         | 291.9          |                     |        |          |
|                               | TR21            | NH3: Bypass (expressway) North (39)            | E                    | 21.5         | 86.4                      | 43.0             | 1.4          | 130.8          | HPC                 | N      | 07-10    |
|                               | TR22            | RR3-RR4 (41)                                   | S                    | 5.2          | 5.4                       | 15.8             | 0.0          | 21.2           | CG                  | P      | ~ 20     |
|                               | TR23            | R8: RR3 - RR4 (40)                             | S                    | 5.5          | 6.3                       | 35.0             | 0.0          | 41.3           | CG                  | N      | ~ 20     |
|                               | TR24            | Thuy Khue Road-RR2 (44)                        | P                    | 3.3          | 5.0                       | 33.2             | 12.6         | 50.8           | HPC                 | N      | ~ 20     |
|                               | TR25            | NH32 North Corridor Package (Inner RR3)        |                      | 10.6         | 14.8                      | 147.6            | 12.5         | 175.0          |                     |        |          |
|                               | TR26            | NH32 North Corridor Package (Outer RR3)        |                      | 29.3         | 41.8                      | 363.3            | 24.3         | 429.5          |                     |        |          |
|                               | TR27            | Lang Hoa Lac North Corridor (Inner RR3)        |                      | 4.4          | 6.5                       | 130.2            | 14.8         | 151.5          |                     |        |          |
|                               | TR28            | Lang Hoa Lac North Corridor (Outer RR3)        |                      | 17.2         | 17.0                      | 211.2            | 11.7         | 239.9          |                     |        |          |
|                               | TR29            | CBD South West Area Upgrade                    |                      | 5.8          | 11.6                      | 202.3            | 45.9         | 259.8          |                     |        |          |
|                               | TR30            | NH6 North Corridor Package                     |                      | 18.4         | 22.3                      | 221.4            | 13.0         | 256.7          |                     |        |          |
|                               | TR31            | NH6 South Corridor Package (Inner RR3)         |                      | 9.8          | 11.5                      | 228.7            | 29.4         | 269.5          |                     |        |          |
|                               | TR32            | NH6 South Corridor Package (Outer RR3)         |                      | 17.8         | 18.1                      | 106.9            | 14.1         | 139.0          |                     |        |          |
|                               | TR33            | NH1A East Corridor in the South of Hanoi       |                      | 16.0         | 22.8                      | 230.4            | 65.1         | 308.2          |                     |        |          |
|                               | TR34            | NH5 North West Corridor Package                |                      | 18.4         | 20.7                      | 33.5             | 2.4          | 56.7           |                     |        |          |
|                               | TR35            | NH5 North East Corridor Package                |                      | 12.1         | 15.8                      | 24.3             | 0.6          | 40.7           |                     |        |          |
|                               | TR36            | Dong Tru Bridge-RR3 (80)                       | S                    | 11.6         | 12.1                      | 35.2             | 6.9          | 54.2           | CG                  | N      | 10-13    |
|                               | TR37            | NH5 South Corridor Package (Outer RR3)         |                      | 17.0         | 22.6                      | 35.5             | 0.3          | 58.4           |                     |        |          |
|                               | TR38            | NH1 Corridor Package in the East of Hanoi      |                      | 13.2         | 10.7                      | 10.7             | 1.1          | 22.5           |                     |        |          |
|                               | TR39            | NH5: Nguyen Van Cu Road-RR4 (89)               | P                    | 10.8         | 24.4                      | 64.7             | 13.5         | 102.6          | HPC                 | P      | ~ 20     |
|                               | TR40            | CBD South East Area Upgrade                    |                      | 3.8          | 7.0                       | 62.6             | 19.2         | 88.7           |                     |        |          |
|                               | TR41            | RR2-North Ring Road (92)                       | S                    | 19.8         | 29.7                      | 89.1             | 1.4          | 120.1          | HPC                 | N      | ~ 20     |
|                               | TR42            | RR4-RR4  |                      | 18.5         | 25.4                      | 25.4             | 2.1          | 52.9           |                     |        |          |
|                               | TR43            | NH2-Noi Bai TL                                 |                      | 12.5         | 54.3                      | 85.5             | 0.0          | 139.8          |                     |        |          |
|                               |                 | <b>Subtotal (TR)</b>                           |                      | <b>621.7</b> | <b>2946.0</b>             | <b>4507.3</b>    | <b>539.8</b> | <b>7992.9</b>  |                     |        |          |
| Traffic Management and Safety | TM01            | TDM: Traffic Demand Management                 | TE                   |              |                           |                  |              | 54.8           | HPC                 | N      | 06-20    |
|                               | TM02            | Sidewalk Improvement                           |                      |              |                           |                  |              | 210.0          |                     |        |          |
|                               | TM03            | Signals and Associated Systems                 | TE                   |              |                           |                  |              | 82.2           | HPC                 | N      | 06-20    |
|                               | TM04            | Parking Management                             | RF                   |              |                           |                  |              | 44.4           | HPC                 | N      | 06-20    |
|                               | TM05            | Traffic Management Capacity Building           | TR                   |              |                           |                  |              | 2.3            | HPC                 | N      | 06-10    |
|                               | TM06            | Comprehensive Traffic Safety Improvement Prog. |                      |              |                           |                  |              | 50.0           |                     |        |          |
|                               |                 | <b>Subtotal (TM)</b>                           |                      |              |                           |                  |              | <b>443.7</b>   |                     |        |          |
| Public Transportation         | TP01            | Bus Acquisition and Replacement                | B                    |              |                           |                  |              | 171.5          | PRI                 | N      | 06-20    |
|                               | TP02            | Priority Bus Transit                           | B                    |              |                           |                  |              | 91.7           | HPC                 | N      | 06-20    |
|                               | TP03            | BRT (2 lines)                                  | B                    | 25.0         |                           |                  |              | 75.0           | HPC                 | C      | ~08      |
|                               |                 |  | <b>Subtotal (TP)</b> |              |                           |                  |              | <b>338.2</b>   |                     |        |          |
|                               | TL01            | UMRT Line 1                                    | R                    | 34.5         |                           |                  |              | 908.4          | HPC                 | N      | 12-14    |
|                               | TL02            | UMRT Line 2                                    | R                    | 63.0         |                           |                  |              | 2367.7         | HPC                 | N      | 14-16    |
|                               | TL03            | UMRT Line 3                                    | R                    | 33.0         |                           |                  |              | 1492.3         | HPC                 | N      | 16-18    |
|                               | TL04            | UMRT Line 4                                    | R                    | 52.5         |                           |                  |              | 361.3          | HPC                 | N      | 18-20    |
|                               | TL05            | Noi Bai Airport Express (UMRT2)                |                      |              |                           |                  |              |                |                     |        |          |
|                               |                 | <b>Subtotal (TL-urban)</b>                     |                      | <b>183.0</b> |                           |                  |              | <b>5129.7</b>  |                     |        |          |
|                               |                 | <b>Total</b>                                   |                      | <b>804.7</b> | <b>2946.0</b>             | <b>4507.3</b>    | <b>539.8</b> | <b>13904.5</b> |                     |        |          |

Source: HAIDEP Study Team.

Legend:

Type:  
E - Expressways  
P - Primary Road  
S - Secondary Road  
C - Collector  
TE - Traffic Engineering  
TR - Training, Education, and Capacity Building  
B - Bus  
RF - Roadside Facilities  
R - Railway (Urban or Inter-city)  
A - Airport  
I - Inland Waterway Transportation

Implementing Agency:  
DAA - Development Aid Agency  
CG - Central Government  
HPC - Hanoi People's Committee  
PRI - Private  
OTH - Others

Status:  
O - Ongoing  
C - Committed  
P - Planned  
N - Proposed



## Regional Transportation

17.5 This subsector comprises primary roads including expressways (19 projects at US\$ 4,610 million), railway (16 projects at US\$ 2,680 million), airport (1 project at US\$ 3,350 million), inland waterway/ports (5 projects at US\$ 180 million) (see Table 17.3).

**Table 17.3 Proposed Regional Transportation Projects**

| Component    | Project              |   |   |               | Project Cost (US\$ mill.) |                  |              |                | Implementing Agency | Status        | Schedule |       |
|--------------|----------------------|---|---|---------------|---------------------------|------------------|--------------|----------------|---------------------|---------------|----------|-------|
|              | Code                 | Title (ID)                                      | Type  | Km            | Const.                    | Land Acquisition | Compensation | Total          |                     |               |          |       |
| Road         | TH01                 | Eastern North-South expressway                  | E   | 190.0         | 532                       | 113              | 20           | 665            | CG                  | N             | ~ 20     |       |
|              | TH02                 | Hanoi – Viet Tri Doan Hung – Lao Cai            | E   | 124.0         | 347                       | 74               | 13           | 434            | CG                  | N             | ~ 15     |       |
|              | TH03                 | Hanoi – Thai Nguyen                             | E   | 65.0          | 182                       | 38.675           | 6.825        | 228            | CG                  | N             | 06-15    |       |
|              | TH04                 | Lang - Hoa Lac - Hoa Binh                       |   | 80.0          | 224                       | 47.6             | 8.4          | 280            |                     |               |          |       |
|              | TH05                 | Ninh Binh – Hai Phong – Quang Ninh              | E   | 160.0         | 448                       | 95.2             | 16.8         | 560            | CG                  | N             | 21 ~     |       |
|              | TH06                 | Wester North-South Expressway                   | E   | 120.0         | 336                       | 71.4             | 12.6         | 420            | CG                  | N             | 21 ~     |       |
|              | TH07                 | National Highway NH2                            | P   | 119.0         | 60.6                      | 12.9             | 2.3          | 76             | CG                  | N             | 06-10    |       |
|              | TH08                 | National Highway NH3                            | P   | 114.0         | 47.9                      | 10.2             | 1.8          | 60             | CG                  | N             | 11-15    |       |
|              | TH09                 | National Highway NH6                            | P   | 126.0         | 258.9                     | 55.0             | 9.7          | 324            | CG                  | N             | 16-20    |       |
|              | TH10                 | National Highway NH10                           | P   | 187.0         | 84.9                      | 18.0             | 3.2          | 106            | CG                  | N             | 16-20    |       |
|              | TH11                 | National Highway NH18                           | P   | 309.0         | 39.4                      | 8.4              | 1.5          | 49             | CG                  | N             | 11-15    |       |
|              | TH12                 | National Highway NH32                           | P   | 147.0         | 85.2                      | 18.1             | 3.2          | 106            | CG                  | N             | 21 ~     |       |
|              | TH13                 | National Road NH21                              | P   | 210.0         | 6.4                       | 1.4              | 0.2          | 8              | CG                  | N             | 11-15    |       |
|              | TH14                 | National Road NH21B                             | P   | 58.0          | 46.4                      | 9.9              | 1.7          | 58             | CG                  | N             | 21 ~     |       |
|              | TH15                 | National Road NH23                              | P   | 27.0          | 21.6                      | 4.6              | 0.8          | 27             | CG                  | N             | 06-10    |       |
|              | TH16                 | National Road NH38                              | P   | 85.0          | 116.0                     | 24.7             | 4.4          | 145            | CG                  | N             | 06-10    |       |
|              | TH17                 | National Road NH39                              | P   | 109.0         | 216.0                     | 45.9             | 8.1          | 270            | CG                  | N             | 11-15    |       |
|              | TH18                 | Hanoi Ring Road 5                               | P   | 320.0         | 192                       | 40.8             | 7.2          | 240            | CG                  | N             | 11-30    |       |
|              | TH19                 | Hanoi - Hai Phong, Quang Ninh                   | E   | 141.0         | 462                       | 79               | 13           | 554            | CG                  | N             | 05-20    |       |
|              | <b>Subtotal (TH)</b> |   |   | <b>2691.0</b> | <b>3706.4</b>             | <b>768.4</b>     | <b>134.7</b> | <b>4609.5</b>  |                     |               |          |       |
| Rail         | TL05                 | Hanoi Rail freight capacity expansion           | R   |               |                           |                  |              | 240.0          | CG                  | N             | 11-15    |       |
|              | TL06                 | Hanoi VR Circle Line (West) upgrading           | R   |               |                           |                  |              | 300.0          | CG                  | N             | 06-10    |       |
|              | TL07                 | Hanoi Circle Line (East)                        | R   |               |                           |                  |              | 500.0          | CG                  | N             | 11-15    |       |
|              | TL08                 | VR Lao Cai to Yen Vien expansion                | R   |               |                           |                  |              | 60.0           | CG                  | P             | 06-10    |       |
|              | TL09                 | VR Hanoi to Hai Phong upgrading                 | R   |               |                           |                  |              | 600.0          | CG                  | P             | 11-15    |       |
|              | TL10                 | VR Haiphong to Dinh Vu port freight line        | R   |               |                           |                  |              | 20.0           | CG                  | P             | 06-10    |       |
|              | TL11                 | VR Yen Vien to Ha Long (Cai Lan Port) expansion | R   |               |                           |                  |              | 254.0          | CG                  | O             | 06-10    |       |
|              | TL12                 | VR Hanoi telecommunications upgrade             | R   |               |                           |                  |              | 12.0           | CG                  | P             | 06-10    |       |
|              | TL13                 | VR Hanoi Signaling upgrading                    | R   |               |                           |                  |              | 71.0           | CG                  | P             | 06-10    |       |
|              | TL14                 | VR Dong Anh to Quan Trieu                       | R   |               |                           |                  |              | 75.0           | CG                  | P             | 16-20    |       |
|              | TL15                 | VR Hanoi to Dong Dang upgrading                 | R   |               |                           |                  |              | 180.0          | CG                  | P             | 16-20    |       |
|              | TL16                 | VR Hanoi to HCM                                 | R   |               |                           |                  |              | 270.0          | CG                  | P             | 11-15    |       |
|              |                      | <b>Subtotal (TL inter-city)</b>                 |   |               |                           |                  |              |                | <b>2582.0</b>       |               |          |       |
|              | Airport              | TA01  | Noi Bai Int'l Airport Expansion & Improvement Project | A             |                           |                  |              |                | 3350.0              |               |          | 06-10 |
|              |                      | TA02  | Noi Bai Airport Express (UMRT2) (see TL04)            | A             |                           |                  |              |                |                     |               |          | 15-20 |
|              |                      |   | <b>Subtotal (TA)</b>                                  |               |                           |                  |              |                |                     | <b>3350.0</b> |          |       |
| IWT Port     | TT01                 | New North Port                                  | I   |               |                           |                  |              | 21.4           | CG                  | P             | 11-15    |       |
|              | TT02                 | Hanoi Port                                      | I   |               |                           |                  |              | 39.1           | CG                  | P             | 11-15    |       |
|              | TT03                 | Khuyen Luong Port                               | I   |               |                           |                  |              | 35.5           | CG                  | P             | 11-15    |       |
|              | TT04                 | New East Port                                   | I   |               |                           |                  |              | 57.2           | CG                  | P             | 06-10    |       |
|              | TT05                 | Long Bien multimodal Tourist Ferry Terminal     | I   |               |                           |                  |              | 25.0           | HPC                 | N             | 16-20    |       |
|              |                      | <b>Subtotal (TA)</b>                            |   |               |                           |                  |              |                | <b>178.2</b>        |               |          |       |
| <b>Total</b> |                      |   |   |               |                           |                  |              | <b>10719.7</b> |                     |               |          |       |

Source: HAIDEP Study Team.

Legend:

Type:

E - Expressways  
P - Primary Road  
S - Secondary Road  
C - Collector  
TE - Traffic Engineering  
TR - Training, Education, and Capacity Building  
B - Bus  
RF - Roadside Facilities  
R - Railway (Urban or Inter-city)  
A - Airport  
I - Inland Waterway Transportation

Implementing Agency:

DAA - Development Aid Agency  
CG - Central Government  
HPC - Hanoi People's Committee  
PRI - Private  
OTH - Others

Status:

O - Ongoing  
C - Committed  
P - Planned  
N - Proposed

## Urban Water and Sanitation and Living Conditions

17.6 The urban water and sanitation subsector includes water supply (6 projects at US\$ 580 million), drainage (9 projects at US\$ 2,080 million), sewerage (12 projects at US\$ 1,050 million), flood control (5 projects at US\$ 220 million), and lake improvement (3 projects at US\$110 million) (see Table 17.4).

17.7 The living conditions subsector includes housing (2 projects at US\$ 2,560 million) and parks (7 projects at US\$ 5,220 million) (see Table 17.5.)

**Table 17.4 Proposed Urban Water and Sanitation Projects**

| Component            | Project              |  |      | Project Cost (US\$ mill) |                  |              |               | Implementing Agency | Status | Schedule |
|----------------------|----------------------|--|------|--------------------------|------------------|--------------|---------------|---------------------|--------|----------|
|                      | Code                 | Title  | Type | Const.                   | Land Acquisition | Compensation | Total         |                     |        |          |
| Water Supply         | WS01                 | Southwest Water Supply Devt. (Stage 1)       | W    | 91.6                     | 6.0              | 1.5          | 99.1          | HWBC                | N      | 10-11    |
|                      | WS02                 | Southwest Water Supply Devt. (Stage 2)       | W    | 30.5                     | 2.0              | 0.5          | 33.0          | HWBC                | N      | 19-20    |
|                      | WS03                 | Southeast Water Supply Devt. (Stage 1)       | W    | 106.7                    | 6.0              | 0.9          | 113.6         | HWBC                | N      | 10-11    |
|                      | WS04                 | Southeast Water Supply Devt. (Stage 2)       | W    | 71.1                     | 4.0              | 0.6          | 75.7          | HWBC                | N      | 19-20    |
|                      | WS05                 | North Water Supply Devt. (Stage 1)           | W    | 163.5                    | 8.0              | 1.2          | 172.7         | HWBC                | N      | 10-11    |
|                      | WS06                 | North Water Supply Devt. (Stage 2)           | W    | 81.8                     | 4.0              | 0.6          | 86.4          | HWBC                | N      | 19-20    |
|                      | <b>Subtotal (WS)</b> |  |      |                          | <b>545.2</b>     | <b>30.0</b>  | <b>5.3</b>    | <b>580.5</b>        |        |          |
| Drainage             | WD01                 | To Lich River Basin (Stage 2)                | D    | 198.9                    | 34               | 6.8          | 239.7         | HPC                 | C      | 07-10    |
|                      | WD02                 | Nhue River Left Basin                        | D    | 264.4                    | 160              | 32           | 456.4         | HPC                 | P      | 11-15    |
|                      | WD03                 | Nhue River Right Basin (Phase 1)             | D    | 142.7                    | 89               | 17.8         | 249.5         | HPC                 | N      | 13-15    |
|                      | WD04                 | Nhue River Right Basin (Phase 2)             | D    | 58.5                     | 37               | 17.8         | 113.3         | HPC                 | N      | 16-18    |
|                      | WD05                 | Long Bien & Gia Lam (Phase 1)                | D    | 172.1                    | 65               | 13           | 250.0         | HPC                 | N      | 11-13    |
|                      | WD06                 | Long Bien & ia Lam (Phase 2)                 | D    | 221.2                    | 74               | 14.8         | 309.9         | HPC                 | N      | 16-18    |
|                      | WD07                 | Dong Anh (Central Part)                      | D    | 210.6                    | 53               | 10.6         | 274.2         | HPC                 | N      | 16-20    |
|                      | WD08                 | Soc Son                                      | D    | 119.3                    | 19               | 3.8          | 142.1         | HPC                 | N      | 18-20    |
|                      | WD09                 | Thanh Tri                                    | D    | 41.1                     | 7                | 1.4          | 49.4          | HPC                 | N      | 18-20    |
|                      | <b>Subtotal (WD)</b> |  |      |                          | <b>1428.8</b>    | <b>538.0</b> | <b>118.0</b>  | <b>2084.5</b>       |        |          |
| Sewerage             | WW01                 | West Lake Environmental Improvement          | S    | 23                       | 1                | 0.2          | 24.2          | DAA&HPC             | O      | 07-09    |
|                      | WW02                 | Bay Mau Lake Environmental Improvement       | S    | 22.2                     | 3                | 0.6          | 25.8          | HPC                 | C      | 08-10    |
|                      | WW03                 | Kim Nguu River Environmental Improvement     | S    | 122.9                    | 4                | 0.8          | 127.7         | HPC                 | N      | 09-10    |
|                      | WW04                 | Lu River Basin Environmental Improvement     | S    | 81.9                     | 11               | 2.2          | 95.1          | HPC                 | N      | 11-13    |
|                      | WW05                 | Upper To Lich River Basin Env'tl Improvement | S    | 150.9                    | 23               | 4.6          | 178.5         | HPC                 | N      | 09-10    |
|                      | WW06                 | Lower Kim Nguu River basin                   | S    | 83.2                     | 5                | 1            | 89.1          | HPC                 | N      | 11-15    |
|                      | WW07                 | Lower To Lich River Basin                    | S    | 29.2                     | 7                | 1.4          | 37.6          | HPC                 | N      | 11-15    |
|                      | WW08                 | Nhue River Left Basin                        | S    | 152.1                    | 7                | 1.4          | 160.5         | HPC                 | N      | 11-15    |
|                      | WW09                 | Nhue River Right Basin                       | S    | 66.6                     | 3                | 0.6          | 70.1          | HPC                 | N      | 16-18    |
|                      | WW10                 | Long Bien & Giam Districts                   | S    | 130                      | 6                | 1.2          | 137.1         | HPC                 | N      | 11-13    |
|                      | WW11                 | North Thang Long Expansion                   | S    | 21                       | 1                | 0.2          | 22.6          | HPC                 | N      | 13-15    |
|                      | WW12                 | Central Dong Anh                             | S    | 73.8                     | 3                | 0.6          | 77.3          | HPC                 | N      | 16-18    |
| <b>Subtotal (WW)</b> |                      |  |      | <b>956.8</b>             | <b>74.0</b>      | <b>14.8</b>  | <b>1045.6</b> |                     |        |          |
| Flood Control        | WF01                 | Red River Dyke Strengthening (Stage 2)       | F    | 38.0                     | 0.0              | 0.0          | 38.0          | CG                  | N      | n/a      |
|                      | WF02                 | Duong River Dyke Strengthening (Stage 1)     | F    | 38.0                     | 0.0              | 0.0          | 38.0          | CG                  | N      | n/a      |
|                      | WF03                 | Duong River Dyke Strengthening (Stage 2)     | F    | 38.0                     | 0.0              | 0.0          | 38.0          | CG                  | N      | n/a      |
|                      | WF04                 | Regeneration of Day River Diversion Channel  | F    | 103.1                    | 0.0              | 0.0          | 103.1         | CG                  | N      | n/a      |
|                      | WF05                 | Flood Forecasting and Warning System         | F    | 5.4                      | 0.0              | 0.0          | 5.4           | CG                  | N      | n/a      |
| <b>Subtotal (WF)</b> |                      |  |      |                          |                  |              | <b>222.5</b>  |                     |        |          |
| Lake Improvement     | WL01                 | Lake Improvement (Phase I)                   | L    | 13.4                     | 1.2              | 0.2          | 14.8          | HPC                 | C      | ~ 10     |
|                      | WL02                 | Lake Improvement (Phase II)                  | L    | 50.4                     | 4.5              | n/a          | 54.9          | HPC                 | P & N  | ~ 20     |
|                      | WL03                 | Diversion System for Env'tl Maintenance Flow | L    | 37                       | 6                | 1.2          | 44.2          | HPC                 | N      | ~ 20     |
| <b>Subtotal (WL)</b> |                      |  |      |                          |                  |              | <b>113.9</b>  |                     |        |          |
| <b>Total</b>         |                      |  |      |                          |                  |              | <b>4047.0</b> |                     |        |          |

Source: HAIDEP Study Team.

|                             |                       |                                |               |
|-----------------------------|-----------------------|--------------------------------|---------------|
| Legend:                     | Type:                 | Implementing Agency:           | Status:       |
| D - Drainage                | F - Flood Protection  | DAA - Development Aid Agency   | O - Ongoing   |
| SW - Solid Waste Management | L - Lake Improvements | CG - Central Government        | C - Committed |
| W - Water Supply            | S - Sewerage          | HPC - Hanoi People's Committee | P - Planned   |
|                             |                       | PRI - Private                  | N - Proposed  |
|                             |                       | OTH - Others                   |               |

**Table 17.5 Proposed Living Conditions Projects**

| Component            | Project Profile |  |      |                   | Project Cost (US\$ mill.) |                  |              |               | Implementing Agency | Status | Schedule |
|----------------------|-----------------|--|------|-------------------|---------------------------|------------------|--------------|---------------|---------------------|--------|----------|
|                      | Code            | Title (ID)                                 | Type | Unit              | Const.                    | Land Acquisition | Compensation | Total         |                     |        |          |
| Housing              | LC-1            | Project on Low-cost Rental Housing         | H    | 50,000 units      | 368.4                     | 168.8            |              | 537.2         | HPC                 | N      | 06-20    |
|                      | LC-2            | KTT Improvement                            | H    | 271.1             | 1662.3                    | 214.0            | 148.8        | 2025.1        | HPC                 | P      | 06-20    |
| <b>Subtotal</b>      |                 |  |      |                   | <b>2030.7</b>             | <b>382.8</b>     | <b>148.8</b> | <b>2562.3</b> |                     |        |          |
| Park and Green Space | PG-1            | Parks and Green Spaces in Urban Devt. Area | P    | 5,745 ha          | 1151.0                    | 2301.0           |              | 3452.0        | HPC                 | P      | 06-20    |
|                      | PG-2            | Ho Tay - Yen So Green and Water Network    | P    |                   | 1.8                       | 3.6              |              | 5.4           |                     |        |          |
|                      | PG-3            | Lakeside Parks                             | P    | 37.5 ha           | 7.5                       | 15.0             |              | 22.5          |                     |        |          |
|                      | PG-4            | Parks with Retention Pond (9 parks)        | P    | 1,215.0 ha        | 243.0                     | 486.0            |              | 729.0         |                     |        |          |
|                      | PG-5            | Neighborhood Park Development Project      | P    | 1,580.0 ha        | 316.0                     | 632.0            |              | 948.0         |                     |        |          |
|                      | PG-6            | Co Loa Historical Park                     | P    | 100.0 ha          | 20.0                      | 40.0             |              | 60.0          | HPC                 | P      | 06-20    |
|                      | PG-7            | Bat Trang Cultural Park                    | P    | 10.0 ha           | 2.0                       | 4.0              |              | 6.0           | HPC                 | N      | 06-20    |
| <b>Subtotal</b>      |                 |  |      | <b>8,686.5 ha</b> | <b>1741.3</b>             | <b>3481.6</b>    | <b>0.0</b>   | <b>5222.9</b> |                     |        |          |
| <b>Total</b>         |                 |  |      |                   | <b>3772.0</b>             | <b>3864.4</b>    | <b>148.8</b> | <b>7785.2</b> |                     |        |          |

Source: HAIDEP Study Team.

## Urban Development

17.8 This subsector is self-financing based on the development of the infrastructure mentioned in previous sections. Its main categories include: (i) greenery improvement and cultural promotion, (ii) redevelopment/improvement of existing urban areas, (iii) new development in new urban areas, (iv) rural area improvement, and (v) industrial and logistics improvement (see Table 17.6).

**Table 17.6 Proposed Urban Development Projects**

| Category   | Development Purpose  | Code   | Title  | Location <sup>1)</sup> (ha)        | Main Function         |                |                      |                   |
|--|--|--|--|------------------------------------|-----------------------|----------------|----------------------|-------------------|
|  |  |  |  |                                    | Urban Competitiveness | Sustainability | Cultural Environment | Poverty Reduction |
| 1. Greenery Improvement and Cultural Promotion           | 1-1 Historical and Cultural Heritage Site Improvement                            | UD01   | Ancient Quarter Revitalization                                     | HK (100)                           | V                     | V              | V                    | V                 |
|  |  | UD02   | French Quarter Preservation and Redevelopment                      | HBT (140)                          | V                     |                | V                    |                   |
|  |  | UD03   | Son Temple Historical and Natural Tourist Zone                     | SS (2,100)                         |                       |                | V                    |                   |
|  | 1-2 Red River Revitalization   | UD04   | Green River Corridor Development                                   | TH, HK, HBT, HM, GL, LB, DA (85km) |                       |                | V                    |                   |
|  |  | UD05   | Thang Long-Hoan Kiem River Waterfront Development                  | HK-HBT (115)                       |                       |                | V                    |                   |
|  | 1-3 Co Loa- Thang Long Green Axis Development                                    | UD06   | Co Loa Citadel Renovation  | DA (755)                           |                       |                | V                    |                   |
|  |  | UD07   | Co Loa South Green Zone Development                                | DA (1,290)                         |                       |                | V                    |                   |
|  |  | UD08   | Recreation Network Development (cycling & pedestrian) along Ho Tay | TH (40)                            |                       |                | V                    |                   |
|  | 1-4 Green Network Development  | UD09   | Park Network from Ho Tay to Yen So                                 | TH, BD, HBT, HK, HM (10.9km)       |                       |                | V                    |                   |
|  |  | UD10   | Park within retention ponds  | Citywide                           |                       |                | V                    |                   |
|  |  | UD11   | Lakeside Park Development  | Citywide                           |                       |                | V                    |                   |
|  |  | UD12   | Community-level Park Development                                   | Citywide                           | V                     |                | V                    |                   |
|  | 1-5 Education & Research Facilities Development                                  | UD13   | School Network Development   | Citywide                           |                       | V              |                      |                   |
|  |  | UD14   | Higher Education & Research Center Devt. in Tay Mo                 | TL (397)                           | V                     |                |                      |                   |
|  |  | UD15   | Higher Education & Research Center Devt. in Trau Quy               | GL (150)                           | V                     |                |                      |                   |
|  |  | UD16   | Higher Education and Research Center Devt. in Van Tri              | DA (149)                           | V                     |                |                      |                   |
| 2. Redevelopment and Improvement of Existing Urban Areas | 2-1 Poor Living Conditions Improvement   | UD17   | Tools No.1 Factory Area (KTT) Redevt. (along w/ UMRT2)             | TX (8)                             |                       | V              |                      | V                 |
|  |  | UD18   | Dong Tam Area (KTT) Redevt. (along w/ UMRT1)                       | HBT (11)                           |                       | V              |                      | V                 |
|  |  | UD19   | Phuong Mai Area (KTT) Redevt. (along w/ UMRT1)                     | HM (11)                            |                       | V              |                      | V                 |
|  |  | UD20   | Van Chuong Area (incl KTT) Redevt (along w/ UMRT1/3)               | BD (97)                            |                       | V              |                      | V                 |
|  |  | UD21   | Other KTT improvement  | 19 KTT                             |                       | V              |                      | V                 |
|  | 2-2 Urban Redevelopment with Public Transportation                               | UD22   | Hanoi Station Area Redevt in relation to UMRT No.1                 | DD (53)                            | V                     |                |                      |                   |
|  |  | UD23   | Thanh Xuan Area Urban Redevt in relation to C3-NH6                 | TX (90)                            | V                     | V              |                      |                   |
|  |  | UD24   | Long Bien Comm'l Center Area Redevelopment on NH5                  | LB (140)                           | V                     |                |                      |                   |
|  |  | UD25   | Soc Son Comm'l Center Area Redevelopment on NH3                    | SS (20)                            | V                     |                |                      |                   |
|  |  | UD26   | Station area redevelopment   | Citywide                           | V                     |                |                      |                   |
|  |  | UD27   | Minh Khai Area (Industry area) Redevelopment                       | HM (155)                           | V                     | V              |                      |                   |
|  | 2-3 Redevelopment of Factory Relocation Site                                     | UD28   | Phap Van Area Redevt. for Town Comm'l Ctr on NH1A                  | HM (24)                            | V                     | V              |                      |                   |
| UD29   |  | Redevelopment of SOE factory site                    | HM, TX   | V                                  | V                     |                |                      |                   |
| UD30   |  | Ciputra urban area development                       | TH, TL (353)   |                                    | V                     |                |                      |                   |
| 3. New Development in New Urban Areas                    | 3-1 Ongoing or Committed New Urban Development in Urban Fringe and Suburban Area | UD31   | Cau Giay new urban zone  | CG (680)                           |                       | V              |                      |                   |
|  |  | UD32   | My Dinh new urban zone   | CG, TL (880)                       |                       | V              |                      |                   |
|  |  | UD33   | East Nhue new urban zone   | TL (600)                           |                       | V              |                      |                   |
|  |  | UD34   | Dinh Cong- Linh Dam new urban zone                                 | HM (640)                           |                       | V              |                      |                   |
|  |  | UD35   | Den Lu District center development                                 | HM (110)                           |                       | V              |                      |                   |
|  |  | UD36   | Viet Hung New Town Development                                     | LB (302)                           |                       | V              |                      |                   |
|  |  | UD37   | Dong Anh New Town Development (Phase IA)                           | DA (2100)                          |                       | V              |                      |                   |
|  |  | UD38   | Van Tri new urban housing development with UMRT2                   | DA (1,435)                         |                       | V              |                      |                   |
|  | 3-2 Van Tri New Town (3,550 ha)  | UD39   | Van Tri urban center devt along NH5 extrn/UMRT2                    | DA (68)                            | V                     |                |                      |                   |
|  |  | UD40   | Van Tri water front park development                               | DA (180)                           |                       |                | V                    |                   |
|  |  | UD41   | Ho Tay West Area New Devt. in New UMRT Terminal                    | TH-TL (490)                        | V                     |                |                      |                   |
|  | 3-3 Development of Competitive Urban Centers                                     | UD42   | Gia Lam Airport Urban Center Development                           | LB (385)                           | V                     |                |                      |                   |
|  |  | UD43   | New Ha Dong Business Commercial Center                             | HT (75)                            | V                     |                |                      |                   |
|  |  | UD44   | Thuy Phuong New Urban Housing Devt. w/ UMRT4                       | TL (390)                           |                       | V              |                      |                   |
|  | 3-4 Transportation- oriented Development of Residential Areas                    | UD45   | Ha Dong New Urban Housing Devt. w/ UMRT2                           | HT (443)                           |                       | V              |                      |                   |
| UD46   |  | Soc Son New Urban Hsng. Devt. w/ Dong Anh Ind'l Park | SS (1,075)   |                                    | V                     |                |                      |                   |
| UD47   |  | Thach Ban-New Urban Housing Devt. w/ UMRT1           | LB (100)   |                                    | V                     |                |                      |                   |
| UD48   |  | Urban Village Improvement                            | Citywide   |                                    | V                     |                | V                    |                   |
| 3-5 Low-density Residential Area Development             | UD49   | Tay Huu urban village improvement                    | TL (195)   |                                    | V                     |                | V                    |                   |
|  | UD50   | Rural service center development                     | Citywide   | V                                  | V                     |                |                      |                   |
| 4. Rural Area Improvement                                | 4-1 Improvement of Community Service Centers in Rural Areas                      | UD51   | Soc Son Rural Area Improvement                                     | SS (3,015)                         |                       | V              |                      |                   |
|  |  | UD52   | Lien Ha Handicraft Village Area Improvement                        | DA (810)                           | V                     | V              | V                    |                   |
|  | 4-2 Craft Village Improvement  | UD53   | Bat Trang Handicraft Village Area Improvement                      | GL (87)                            | V                     | V              | V                    |                   |
| 5. Industrial & Logistics Improvement                    | 5-1 Industrial Park Development  | UD54   | Soc Son Airfront Industrial Park                                   | SS (550)                           | V                     |                |                      |                   |
|  |  | UD55   | Duong Xa Industrial Park at NH5                                    | GL (360)                           | V                     |                |                      |                   |
|  |  | UD56   | Light Industry Park Devt. in Ngoc Hoi at C4-NH1A                   | TT (64)                            | V                     |                |                      |                   |
|  |  | UD57   | Light Industry Park Devt. in Tram Troi at C4-NH32                  | HT (85)                            | V                     |                |                      |                   |
|  |  | UD58   | Light Industry Park Devt. in Van Canh at C4-Hoa Lac                | HT (67)                            | V                     |                |                      |                   |
|  |  | UD59   | Light Industry Park Devt. in Nhan Trach at C4                      | HT (87)                            | V                     |                |                      |                   |
|  | 5-2 Logistics Improvement  | UD60   | Reg'l Logistic Terminal Devt. in Phu Cuong at NH2-NH18             | SS (140)                           | V                     |                |                      |                   |
|  |  | UD61   | Wholesale Market <sup>2)</sup> East Center at NH5-NH1A             | LB (74)                            | V                     |                |                      |                   |
|  |  | UD62   | Wholesale Market <sup>2)</sup> West Center at C4-NH6               | HT (67)                            | V                     |                |                      |                   |

Source: HAIDEP Study Team

<sup>1)</sup> CG = Cau Giay, DA = Dong Anh, DD = Dong Da, GL = Gia Lam, HBT = Hai Ba Trung, HK = Hoan Kiem, HT = Ha Tay, HM = Hoang Mai, LB = Long Bien, SS = Soc Son, TH = Tay Ho, TL = Tu Liem, TT = Thanh Tri, TX = Thanh Xu

<sup>2)</sup> Fresh food and other commodities

## 17.2 Prioritization of Projects and Project Packages

### Possible Budget Envelope

17.9 It is difficult to estimate the funding capacity of the government for the entire urban sector, since sufficient data to analyze public expenditure on urban sector development in Hanoi are unavailable. In 2001, however, HPC spent 1.3% of its GRDP or roughly VND 500 billion, although it was assumed that much more was spent by the HPC and the central government due to the availability of ODA funds.

17.10 In order to provide a possible budget envelope for the city, three scenarios were assumed using various percentages of the future GRDP (see Table 17.7). 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 17.7 Possible Budget Envelope for the Urban Sector**

| Year              | GRPD <sup>1)</sup><br>(US\$ billion) | Assumed Share of Urban Sector in GRDP<br>(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 |

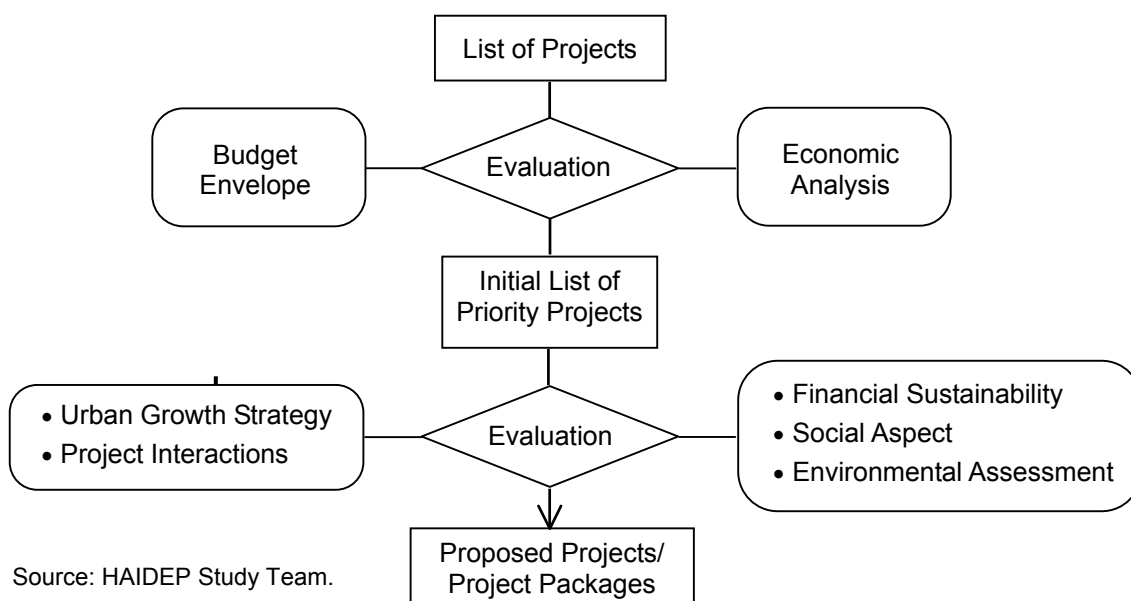
Source: Estimated by the HAIDEP Study Team.

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

### Project Evaluation and Prioritization

17.11 While the lists of projects identified in subsector planning have been prepared, the next step is to prioritize them in compliance with the overall urban development policy, as well as economic, financial, social, and environmental viabilities, and others. Even though individual projects are feasible, it is often the case that the budget envelope of the government is limited. In HAIDEP project prioritization was undertaken as explained briefly below (see Figure 17.1).

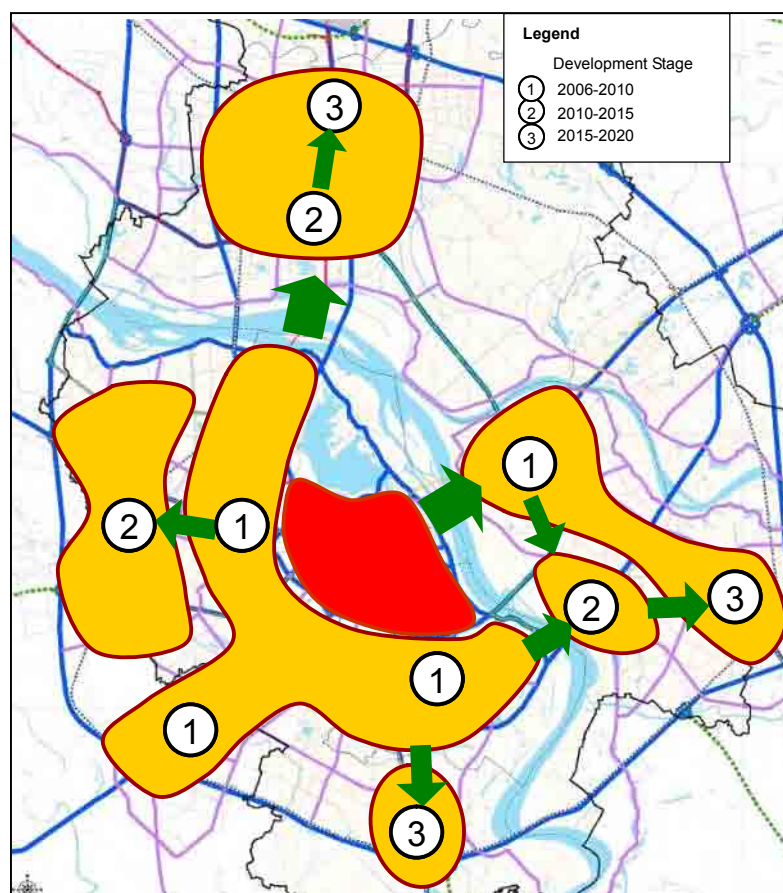
**Figure 17.1 Framework for Project Evaluation and Prioritization**



Source: HAIDEP Study Team.

17.12 The infrastructure development must be undertaken in a way that it will support and promote desired growth 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 play a key role in guiding the urban expansion, while environmental projects and utility service project must be implemented in coordination with the development of urban areas. In this process, adequate institutional and support measures are provided to encourage orderly private sector investment. Planned growth strategy is conceptually illustrated as shown in Figure 17.2.

**Figure 17.2 Planned Growth Strategy for Urban Areas**



Source: HAIDEP Study Team.

### Road Projects

17.13 Based on the criteria mentioned in the previous section, the projects were prioritized by categorizing all 43 transportation project packages into short-term, medium-term, and long-term projects. Figure 17.3 shows the future road network by development stage. There are 13 projects selected for each stage. While long-term projects entail relatively lower project costs, their lengths are the longest. This is because such projects tend to be located in the urban fringe or rural areas. In addition, while estimated project costs may be lower, these can escalate when urbanization has spread to these areas.

### UMRT Projects

17.14 Because of the high investment costs of UMRT, especially urban rail projects, EIRR is normally calculated relatively low when only quantifiable benefits such as reduction in transportation costs are considered. However, the impact of UMRT on overall urban

development is significant, especially as a core intervention to transform the urban area and society to public transport based. This high priority was given to all four UMRT lines.

**Table 17.8 Prioritization of UMRT Projects**

| Line        | Length (km) | Financial Cost (US\$ mil.) | Economic Evaluation |                 |      | Priority |
|-------------|-------------|----------------------------|---------------------|-----------------|------|----------|
|             |             |                            | EIRR (%)            | NPV (US\$ mil.) | B/C  |          |
| UMRT Line 1 | 39          | 999                        | 19.1                | 450.3           | 1.75 | H        |
| UMRT Line 2 | 75          | 2,522                      | 14.6                | 772.5           | 1.54 | H        |
| UMRT Line 3 | 33          | 1,145                      | 14.3                | 414.6           | 1.50 | H        |
| UMRT Line 4 | 53          | 365                        | 21.5                | 880.8           | 3.31 | H        |
| All Lines   | 200         | 5,031                      | 15.2                | 2,057.9         | 1.84 | -        |

Source: HAIDEP Study Team.

**Figure 17.3 Prioritization of Road Projects**



Source: HAIDEP Study Team.

## Urban Water and Sanitation Projects

17.15 Projects identified for the urban water and sanitation subsector were prioritized using several criteria (see Table 17.9).

**Table 17.9 Prioritization of Urban Water and Sanitation Projects**

| Component    | Criterion   |
|--------------|---|
| Water Supply | 1. Urgency (stable supply of water)<br>2. Necessity (supply of potable water)               |
| Drainage     | 1. Population density<br>2. Economic activities   |
| Sewerage     | 1. Population density<br>2. Economic and public activities<br>3. Environmental conservation |

Source: HAIDEP Study Team.

17.16 Based on each criterion or a combination thereof, projects were prioritized as follows:

- (1) **Water Supply System:** WS-1, WS-3, and WS-5 were prioritized to cope with water demand in the southwest, southeast, and north of Hanoi, respectively up to 2010.
- (2) **Drainage System:** WD-1 was prioritized as an urgent project that has to be completed by 2010. The financial arrangement is under negotiation with JBIC, and it is expected that the project will start in 2006.
- (3) **Sewerage System:** WW-1, WW-2, WW-3, WW-4, and WW-5 were considered urgent. All the projects except WW-4 should be completed by 2010, taking environmental conservation into account.

17.17 The next steps toward implementation are as follows:

- (1) **Water Supply System:** The feasibility studies (FS) for WS-1, WS-3, and WS-5 should be started as soon as possible to facilitate their early implementation. It should be noted that even if the feasibility study starts in 2006 the projects will be completed only by 2011 due to the implementation time required.
- (2) **Drainage System:** WD-1 is expected to start in 2006 and complete by 2010. The feasibility studies for WD-2, WD-3, and WD-4 should be conducted before 2010 and project implementation will not occur in the first 5 years (~2010) but in the next 5-year period (~2015).
- (3) **Sewerage System:** The feasibility studies for WW-3, WW-4, and WW-5 should be started to facilitate their early implementation and completion until 2010.
- (4) **Solid Waste Management:** No project was identified, but recommendations were prepared (see Table 17.10).

**Table 17.10 Recommended Projects on Solid Waste Management**

| No. | Project  |
|-----|--|
| R-1 | Consideration of alternative landfill sites for interregional waste disposal |
| R-2 | Study on the construction of septage treatment plant                         |
| R-3 | Study on mitigation measures to minimize environmental impact around Nam Son |
| R-4 | Study on use of incinerators   |
| R-5 | Study on capacity development on solid waste management                      |
| R-6 | Revision of master plan based on the results of the 3R Program               |
| R-7 | Promotion of community participation in 3R activities                        |

Source: HAIDEP Study Team.

### 17.3 Proposed Strategic Actions

17.18 In order to implement urban development comprehensively, each subsector should undertake projects and actions toward the shared vision and goals in a synchronized manner. What is needed is not only the infrastructure as hardware, but also various soft measures to manage and operate them effectively. A conducive environment that nurtures a level playing field is likewise necessary. On the basis of the discussions and identified projects in previous chapters, projects and actions with strategic importance are summarized, as shown in Table 17.11.

**Table 17.11 HAIDEP-proposed Strategic Actions**

| Sector   | Projects/Action |  |          |    |    | Project component |       |             | Support Scheme |    |     | Related Projects /Actions |
|--|-----------------|--|----------|----|----|-------------------|-------|-------------|----------------|----|-----|---------------------------|
|  | Code            | Title  | Schedule |    |    | Infrast. service  | D & M | Institution | Funding        | TA | PPP |                           |
|  |                 |  | S        | MD | LT |                   |       |             |                |    |     |                           |
| A. Regional Development (Regional Role of Hanoi) | PA1.            | Develop globally competitive strategic growth corridors  |          | ■  |    | ⊙                 | ⊙     | ⊙           | ⊙              | ⊙  | ⊙   | PC1, PC3, PD15            |
|  | PA2.            | Cross-border transport 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, P11-2      |
|  | PB4.            | Establish strategies and mechanism for other identified action areas   | ■        | ■  |    | ○                 | ○     | ⊙           | ○              | ⊙  | ○   | PI 1-6                    |
| C. Economic and Social Development               | PC1.            | Establish updated urban economic development strategies and conducive investment environment                 | ■        | ■  |    | —                 | —     | ○           | —              | ○  | ○   | 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 education 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 the urban transport 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                       |



| Sector                           | Projects/Action |   |          |    | Project component |                  |       | Support Scheme |         |    | Related Projects /Actions |                     |
|----------------------------------|-----------------|---|----------|----|-------------------|------------------|-------|----------------|---------|----|---------------------------|---------------------|
|                                  | Code            | Title   | Schedule |    |                   | Infras-structure | D & M | Institution    | Funding | TA |                           | PPP                 |
|                                  |                 |   | S        | MD | LT                |                  |       |                |         |    |                           |                     |
|                                  | 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 including taxi, xe om and other services |          |    |                   | ○                | ○     | ○              | △       | ○  | ○                         | 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 transportation services between Hanoi and satellite cities/urban areas      |          |    |                   | ○                | ○     | △              | ○       | ○  | ○                         | PD9                 |
|                                  | PD15.           | Improve public transportation services between rural and urban areas                                  |          |    |                   | ○                | ○     | △              | ○       | ○  | ○                         | PA1                 |
| 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 and lakes                 |          |    |                   | ⊙                | ⊙     | ○              | ⊙       | ⊙  | △                         | PD13, PG2, PG3, PI4 |
| F. Housing and Living Conditions | PF1.            | Establish policy and institutional 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                 |

| Sector                         | Projects/Action |   |          |    |    | Project component |       |             | Support Scheme |    |     | Related Projects /Actions |
|--------------------------------|-----------------|---|----------|----|----|-------------------|-------|-------------|----------------|----|-----|---------------------------|
|                                | Code            | Title   | Schedule |    |    | Infras-structure  | D & M | Institution | Funding        | TA | PPP |                           |
|                                |                 |   | S        | MD | LT |                   |       |             |                |    |     |                           |
| 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 (e.g. airport, road) | ■        |    |    | ○                 | ○     | ○           | ○              | ○  | △   |                           |
|                                | 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 development 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

## 18 IMPLEMENTATION AND MANAGEMENT

### Basic Direction

18.1 The proposed overall institutional framework 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. As Vietnam progresses toward a market economy, the government should pave the way for the private sector to be more actively involved. The government sets policies, establishes sector priorities, monitors private sector operations, promotes economic growth, and takes proactive measures to improve the quality of urban life. Key to this is to encourage public-private partnership in urban development and service provision.

### Institutional Improvement

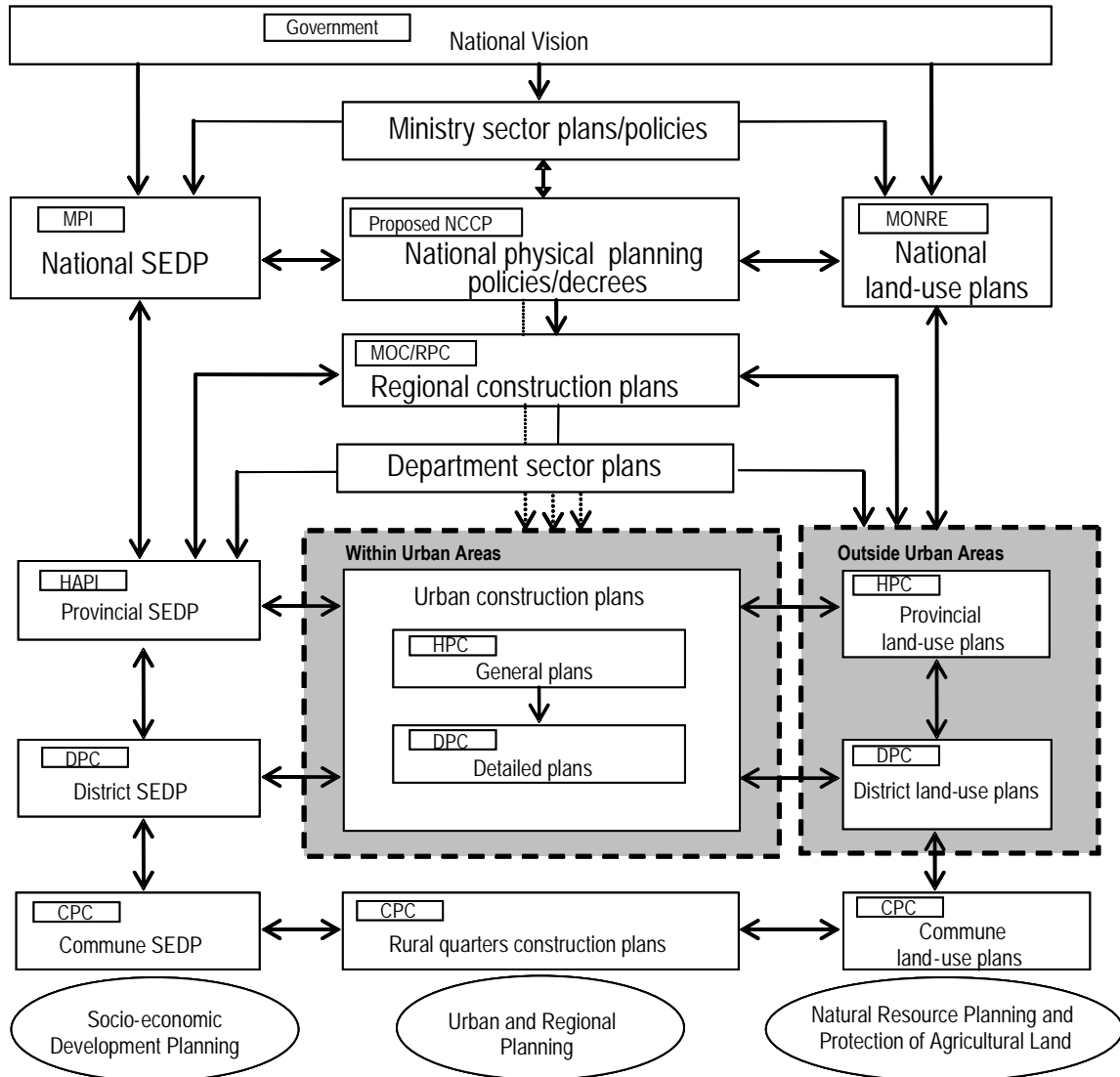
18.2 The proposed development planning framework for Vietnam (see Figure 18.1) consists of the following: (i) enhancing planning capacities of district People's Committees; (ii) unified statutory plans in urban areas; (iii) establishment of a National Council for Construction Planning; (iv) establishment of a Regional Planning Committee for interprovincial regional plans; (v) enhancement of the planning coordination function of HPC and HAPI; (vi) establishment of the Hanoi Public Transportation Authority; (vii) privatization of urban service providers in water supply, garbage disposal, and sewage; (viii) improvement of planning and research capabilities; and (ix) provision of training and professional recognition of town planners.

18.3 The framework establishes a hierarchy of plans wherein the focus of construction planning should include urban and regional development planning, while land-use planning under the Land Law should relate to natural resources planning and the protection of agricultural lands. As such, the operative physical plans within urban areas should be the urban construction plans, while the operative physical plans outside the urban areas will be the land-use plans.

18.4 Improvements to the urban planning system involve the following specific points:

- (1) **Urban Planning Objective:** While traditional urban master plans were drawn up primarily for construction purposes, there is now a need for Vietnam to develop a suitable urban planning system to more effectively manage urban growth and development, as the private sector is expected to play a more dominant role as initiator of urban development in the future.
- (2) **Two-tier Urban Planning (General Plan and District Plan):** The proposed statutory urban plans for the city are: (i) General Plans, (ii) District Plans (Type 1 Detail Plan), and (iii) Action Area Plans (Type 2 Detail Plans). The action area plans should also be differentiated with the detail layout submission plans which are done by the investor/developer in order to obtain planning permission/construction permits. The general plan should be the strategic framework for the preparation of the lower tier plans.
- (3) **Land-use Zoning:** The introduction of a land-use zoning system and the application of use class tables to guide future land-use development are proposed. The types of building activities that are permitted in each of the land-use zones are usually guided by the use class tables. There are various formats of use class tables. Principally, however, they contain a demarcation of the land-use zone on the map, the main development objectives of the zones, permitted building uses, conditional building uses, and building uses not permitted in the zones.

**Figure 18.1 Proposed Framework for Development Planning**



1. Urban areas identified by the government.
  2. NCCP: National Council for Construction Planning (Proposed).
  3. HPC: Hanoi People's Committee.
- Source: HAIDEP Study Team.

4. DPC: District People's Committee.
5. CPC: Commune People's Committee.
6. RPC: Regional Planning Committee.

(4) **Urban Development Management System:** Urban development management control in many cities is achieved through the application of three stages of control, namely: (i) planning permission, (ii) building plan approval, and (iii) certificate of fitness for occupation with feedback/cross-checking system to ensure compliance, of which the latter two is lacking in Vietnam. The introduction of a planning permission system is proposed to complement the existing construction permit system, which is an effective system to manage not only construction activities but also land-use change and land subdivision.

(5) **Determination of Key Public Facilities:** One of the primary purposes of statutory urban planning is to secure key public facility lands for the community. This is important in cities that have high urbanization rates like Hanoi. It can be achieved by: (i) designating suitable public facility land in the city's urban development plan; (ii) new urban development methods and growth management techniques; (iii) contribution from developers on public facility land and low cost housing as part of the planning permission system; (iv) development incentives to land developers; and (v) development charges.

- (6) **Planning and Design Guidelines:** There is also a need for comprehensive planning and design guidelines to assist city planners in the planning permission process as well as in preparing development plans. It should cover environmental impact assessment, urban design and landscape, vehicle parking standards, tree preservation, etc.
- (7) **Public Participation:** Public participation is an important component of the preparation process of the city plan. The process of public participation is also confined in many planning legislations. Public participation is especially important in both the preparation of the urban construction general plans as well as detail plans, which is usually conducted in the following two stages: at the preliminary plan stage when the analysis of survey is reported, and after the draft final plan is prepared.
- (8) **Consolidation of Construction Law and Land Law:** Currently urban planning is carried out using the Law of Construction 2003, while land-use planning is provided for in the Land Law 2003. This requires close integration between the two planning systems to ensure a coordinated urban plan. It may also be necessary in the future to consolidate the two planning systems under an urban and regional planning law. Alternatively, the provisions on urban and regional planning could be expanded in the existing Construction Law, which should be comprehensive to provide for all aspects of planning.

### **Urban Land Management and Development**

18.5 Since an efficient supply of lands is critical in guaranteeing an effective urban development, the improvement of the following elements is necessary:

- (1) **Control of Land and Building Subdivision:** There appears to be very little control on the subdivision of land and buildings especially in the urban fringes. Subdivision of land involves the division of any plot of land into two or more allotments under separate land titles. The urban planning system has not been effective in controlling land subdivision and illegal conversion of land from agriculture to residential use. Generally the main legal provision related to subdivision of land use are: (i) conformity to the statutory urban development plan of the city; (ii) approval of the planning authority; (iii) minimum area of the allotments; (iv) satisfactory means of access road, and so on. Similar to regulations on land subdivision, there is also a need for regulations on building subdivisions.
- (2) **Urban Growth Boundary (Urbanization Promotion Area and Urbanization Control Area):** Urban growth boundaries (UGBs) are introduced to guide urban expansion, control urban sprawl and protect agriculture lands. Generally urbanization is encouraged within the urban growth boundary while urban development is strictly controlled outside this boundary. UGBs are important to prevent urban sprawl and protect natural conservation areas such as green belts and high productive agriculture land. UGBs should preferably be physically identifiable such as roads, rivers, wetlands, forest areas, etc. wherever feasible, to assist in the overall monitoring of plan implementation. The UGBs should also be reviewed together with the review of the Urban Construction General Plan.
- (3) **Improvement of Property Market:** There has to be greater efficiency and transparency of land markets. Property market information should be regularly compiled so as to better establish market values. The current official prices of the government are also criticized for being too low, while some of the unofficial transacted prices may be speculative in nature. Registration of land dealings especially land transfers are not only important to offer protection for the purchaser/ mortgagee but also an important source of tax revenue and an important basis for developing a market value for land and property.

- (4) **Conversion of Agricultural Lands for Urban Use:** Expediting the release of agricultural land for urban development purposes is required. Releasing agricultural land for urban development purpose is slow and problematic. A combination of new urban development methods, such as joint ventures for commercial development, land readjustment, guided land development, land taxation, and the use of urban growth boundaries, may be useful in addressing these problems.
- (5) **Coordinated Development Program:** The statutory urban development plan should also establish a coordinated program for formulating and implementing infrastructure and urban development projects. Infrastructure projects have to be planned in a coordinated and integrated manner and have to operate within the overall framework of the city plan. This is particularly important for transportation and drainage projects.
- (6) **Alternative Land Development Process:** The current urban development methods employed in Hanoi for larger foreign direct investment (FDI)-supported projects include: (i) joint venture with SOEs which own land, and (ii) getting the city to acquire/ recover land from existing LUR holders for the joint venture company to undertake the project, while some other methods are applied for smaller projects. Most of existing land development processes require government intervention in recovering the land or the participation of SOEs with strategic land sites in the city. New urban development project methods may be necessary to complement existing ones to accelerate the process of urban development.

### Urban Sector Funding

18.6 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. Urban sector budgets for Hanoi are coordinated by HAPI and DOF and prepared as estimates under the five-year SEDP and as allocations under annual budgets (see Figure 18.2).

18.7 The existing revenue base of the city is not sufficient to fund future infrastructure projects. As part of the financial strategy, the city may have to do the following:

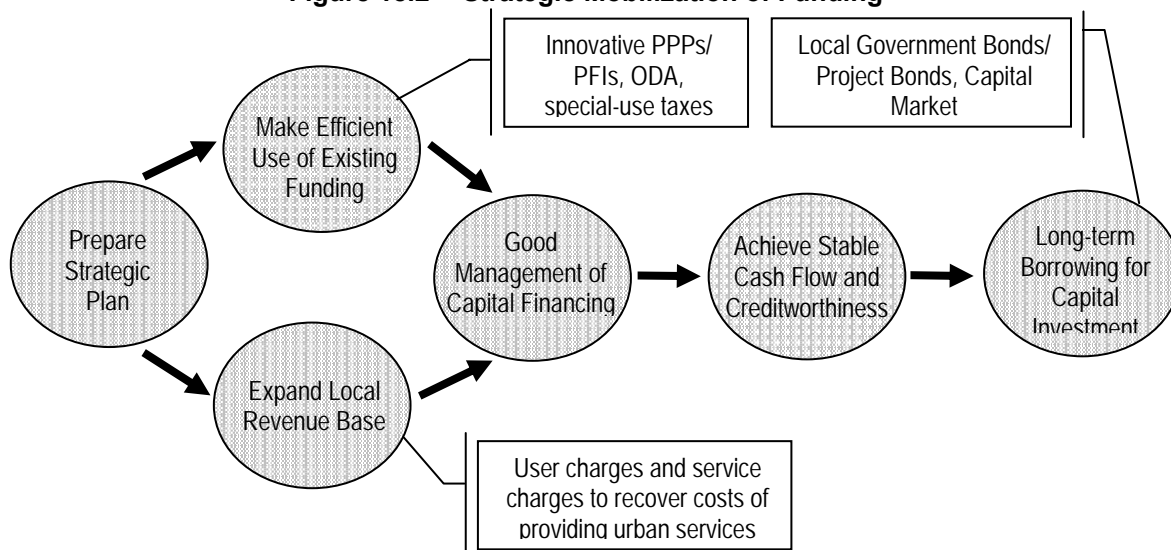
- (1) **Expand Its Local Revenue Bases:** Apply user charges and service fees to recover operational and maintenance costs of providing urban services.
- (2) **Optimize Existing Funding Sources:** Apply innovative project implementation methods such as public-private partnerships / private financing initiatives, leverage ODA funding, and earmark taxes for special purposes.
- (3) **Develop Long-term Borrowing Capacity:** Issue local government bonds, project bonds, etc. and access capital markets.

18.8 Good management of capital financing is important to reduce the prolonged financial burden of repaying long-term debts of the city. The development of: (i) access to capital markets and other credit finance; (ii) effective project implementation methods; and (iii) capacity enhancement of property developer are required.

### Application of Public and Private Partnership (PPP) Concept in City Development

18.9 As economy and private sector grow further, application of PPP concept is becoming critical for effective management of urban development and sector administration. Main aspects of the PPP are briefly described in succeeding paragraphs.

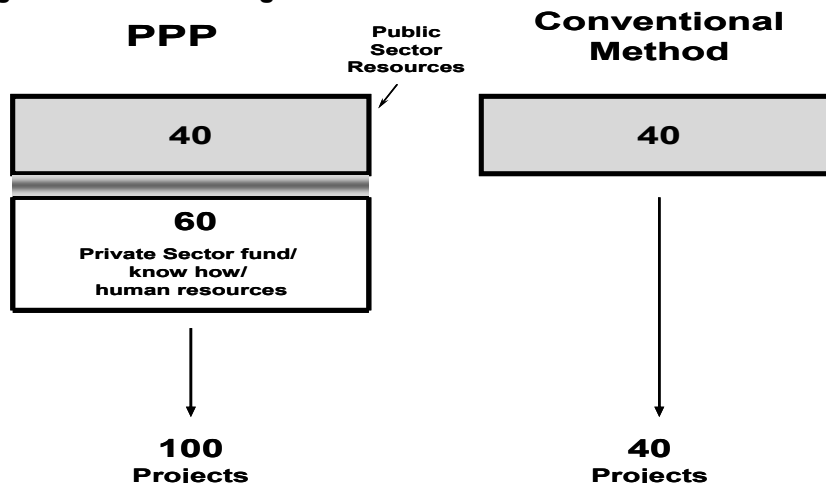
**Figure 18.2 Strategic Mobilization of Funding**



Source: HAIDEP Study Team.

- (1) **Maximizing the Effect of Public Sector Resource Allocation:** Resources in public sector such as fund and man power are very limited. A key concept of Public and Private Partnership is to maximize the effect of the public sector resource allocation when implementing public sector projects. Under the PPP arrangement, the effect may expand to a considerable extent with the power of private sector resources (fund, know how and human resources) allocated to the project. In other words the public sector may be able to “leverage” the effect of the input of 40 to become the output of 100 by introducing the PPP concept as illustrated in Figure 18.3.

**Figure 18.3 Maximizing the Effect of Public Sector Resource Allocation**

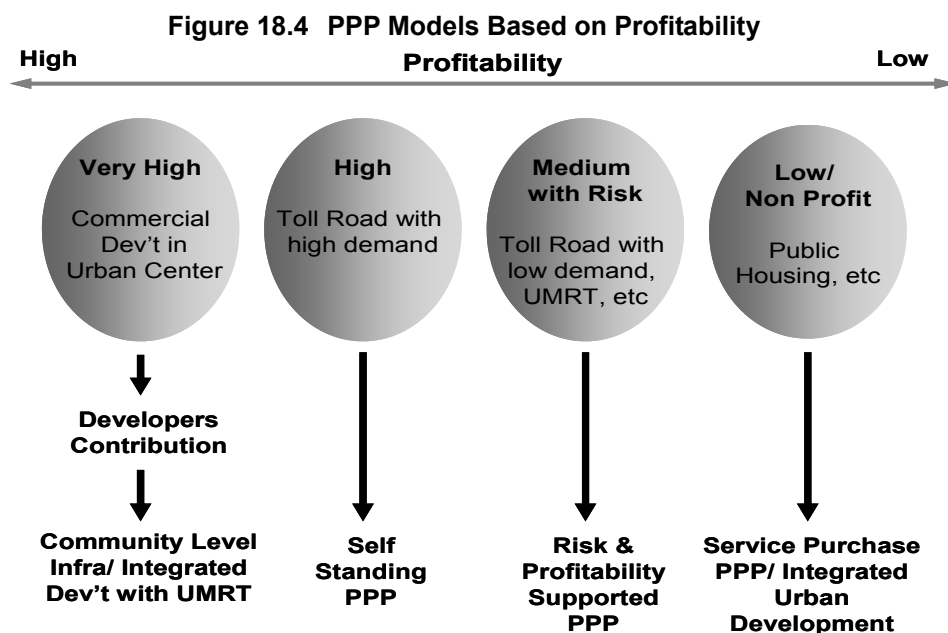


Source: HAIDEP Study Team.

- (2) **Adopting Different PPP Models Based on Profitability:** The profitability of the project will decide what type of PPP model to be applied (see Figure 18.4). The projects that HAIDEP proposes have a wide range of profitability from very profitable to non profit producing (no user charges).

- (a) **Very high profitability:** If a project is highly profitable, such as commercial development in urban centers, HPC could arrange a PPP based on HPC’s land provision to ask for the developer’s contribution of community infrastructure. This PPP concept may also be applied to the integrated urban and UMRT development.

- (b) **High profitability:** When profitability is high enough for the project to be financially self sustainable, self standing PPP model may be applied. Example of this may be a toll road project with high traffic demand. Project of this type could go on the conventional BOT bidding procedure.
- (c) **Medium profitability with risk:** The third type model, risk and profitability supported PPP will be applied to those projects that have a limited degree of profitability. Majority of revenue producing projects in HAIDEP will fall into this category and require a careful PPP structuring. Toll road with low traffic demand, UMRT systems, AQ urban redevelopment, water bulk supply and so on are the example of this type. HPC will have to involve in PPP structuring in terms of necessary risk and profitability support.
- (d) **Low profitability or nonprofit:** Service purchase PPP model may have to be applied to those projects with very low profitability where HPC will “purchase” the service that the private sector produces by allocating HPC’s own funding resources. Examples are the public housing, urban park development, etc. This model can be applied even to the non revenue producing projects such as community facilities.

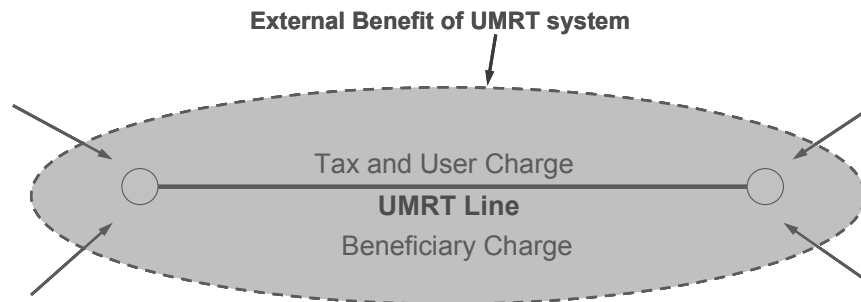


Source: HAIDEP Study Team.

- (3) **Value Capturing of External Benefit of UMRT Systems:** External benefit which a UMRT system brings about to the City is very large and its huge investment can only be recouped when the City is able to successfully capture the value that the UMRT system creates along its corridor (see Figure 18.5). Tax revenue and user charge are used to fund its construction and operation, but it is also essential to capture the value which people and business benefit from the operation of the UMRT system (“beneficiary charge”). In order to do the above, HPC should take an initiative in applying various PPP models in implementing integrated commercial, office and residential projects that are: (i) directly integrated with the stations/terminals, (ii) developed in the vicinity of the station/terminals, and (iii) developed along the corridors of the UMRT systems. Thus, HPC will be able to share a part of benefit that those PPP arrangements produce in the future to recoup its huge initial investment in the long run.



**Figure 18.5 Value Capturing of UMRT's External Benefit**



Source: HAIDEP Study Team.

- (4) **PPP Opportunities in the HAIDEP Projects:** There are a variety of PPP opportunities in implementing the HAIDEP proposed projects (see Table 18.1). They are briefly as follows:
- (a) **Urban Transportation Subsector:** There are many opportunities such as some of the primary roads to be tolled and the projects in Traffic Management and Safety. The BRT project may well be on the concession and some of the UMRT lines may be implemented under PPP scheme although HPC may have to shoulder the cost of infrastructure. Some of the secondary and tertiary roads may be developed through the urban development projects initiated by the private sector developers.
  - (b) **Regional Transportation Subsector:** Some of the inter-city highways may be implemented under a PPP scheme and even some of the regional railway links may be considered subject to close coordination with VR. The new air port terminal of the Noi Bai Airport could be developed under the PPP concession. Some of the IWT ports could also be structured under PPP schemes.
  - (c) **Living Conditions Subsector:** The opportunities are rather limited, and considerable funding allocation by HPC may be needed to make a PPP scheme possible. Some of the housing and parks and green spaces may be procured through commercial and residential development done by private developer under PPP arrangement possibly with the contribution of public land.
  - (d) **Urban Water and Sanitation Subsector:** PPP opportunities may rather limited to the water supply projects. However, some of the components even in the drainage, sewerage, flood control and lake management could be structured under PPP scheme if the service purchase PPP model is applied.
  - (e) **Urban Development Subsector:** This is a very promising sub sector where various PPP schemes may be applied to the projects. HPC may be able to make use of the high profitability of those projects and ask the developers for their contribution of developing community level facilities such as tertiary roads, drainage and sewerage and other community related facilities. A large PPP opportunities exist in the commercial, office and residential developments directly integrated with the terminals/stations of the UMRT systems and in the integrated urban developments to be proposed in the vicinity of those UMRT stations and terminals.

### **Proposed Development Strategies and Actions for Implementation and Management**

18.10 The proposed strategies and actions for the implementation and management of the HAIDEP Master Plan are listed in Table 18.2.

18.11 Priority projects and actions of strategic importance are identified as follows:

- (i) Establishment of city planning database system which can be shared by all stakeholders
- (ii) Development of PPP project for the Ancient Quarter, French Quarter, and other areas
- (iii) Drafting of the urban planning law

**Table 18.1 PPP Opportunities in HAIDEP Projects**

| Subsector                  |   | PPP Opportunities |                 |                 | Remark   |
|----------------------------|---|-------------------|-----------------|-----------------|--|
|                            |   | Construction      | Maintenance     | Operation       |  |
| Urban Transportation       | Primary Road  | yes but limited   | yes             | yes             | With high traffic demand                           |
|                            | Secondary Road  | yes but limited   | yes but limited | NA              | Through urban dev't                                |
|                            | Tertiary Road   | yes but limited   | yes but limited | NA              | Through urban dev't                                |
|                            | Traffic Mgmt. & Safety                                | yes               | yes             | yes             | Large support needed                               |
|                            | Bus Transportation                                    | yes               | yes             | yes             | Concession PPP                                     |
|                            | UMRT  | yes but limited   | yes             | yes             | Infrastructure developed by public sector          |
| Regional Transportation    | Roads   | yes but limited   | yes             | yes             | Inter-city expressway                              |
|                            | Rail  | yes but limited   | yes             | yes             | Coordination with VR                               |
|                            | Airport   | yes               | yes             | yes             | Terminal operation                                 |
|                            | IWT Ports   | Yes but limited   | yes             | yes             | Some port operation                                |
| Urban Water and Sanitation | Water Supply  | yes but limited   | yes             | yes             | Coordination with HWBC                             |
|                            | Drainage  | Yes but limited   | yes but limited | yes but limited | Service Purchase Model(SPM)                        |
|                            | Sewerage  | Yes but limited   | yes but limited | yes but limited | SPM  |
|                            | Flood Control   | Yes but limited   | yes but limited | yes but limited | SPM  |
|                            | Lake Improvement                                      | Yes but limited   | yes but limited | yes but limited | SPM  |
| Living Conditions          | Housing Rental  | yes but limited   | yes but limited | yes but limited | Through commercial & resident'l dev't              |
|                            | KTT Improvement                                       | yes but limited   | yes but limited | yes but limited | Through commercial & resident'l dev't              |
|                            | Park and Green Space                                  | yes but limited   | yes but limited | yes but limited | Through commercial & tourism dev't                 |
|                            | Landscape   | yes but limited   | yes but limited | yes but limited | Thru commercial & tourism dev't                    |
| Urban Development          | Greenery Improvement and Cultural Promotion           | yes but limited   | yes but limited | yes but limited | Through commercial & tourism dev't                 |
|                            | Redevelopment and Improvement of Existing Urban Areas | yes               | yes             | yes             | Through urban development/ UMRT integrated dev't   |
|                            | New Development in New Urban Areas                    | yes               | yes             | yes             | Contribution of public land/ UMRT integrated dev't |
|                            | Rural Area Improvement                                | yes but limited   | yes but limited | yes but limited | Through commercial & tourism dev't                 |
|                            | Industrial & Logistics Improvement                    | yes               | yes             | yes             |  |

Source: HAIDEP Study Team.

**Table 18.2 Proposed Development Strategies and Actions for Implementation and Management**

| Strategy                              | Action  | Monitoring Indicator   |
|---------------------------------------|---|--|
| J1 Reform of urban planning system    | J11 Establish overall urban sector management policy<br>J12 Draft a new urban planning and development law  | • Progress of actions  |
| J2 Expand development methods         | J21 Review critically existing methods<br>J22 Study alternative methods<br>J23 Institutionalize alternative methods                                       | • Progress of actions<br>• Available institutions                |
| J3 Improve road management system     | J31 Improve land registration system<br>J32 Accelerate confirmation of land-use rights registration   | • Available institutions<br>• No. of registrations               |
| J4 Strengthen sector funding capacity | J41 Establish beneficiaries-pay principle and value capture mechanism<br>J42 Expand borrowing capacity<br>J43 Use ODA effectively                         | • Available institutions<br>• Borrowings                         |
| J5 Strengthen public participation    | J51 Institutionalize public participation on the process of planning and project implementation<br>J52 Improve accessibility to information by the people | • Available institutions<br>• No. of participatory opportunities |
| J6 Strengthen planning capacity       | J61 Establish comprehensive urban planning database and information system<br>J62 Provide adequate planning tools<br>J63 Conduct training on planning     | • Available institutions and systems<br>• No. of persons trained |

Source: HAIDEP Study Team.

## 19 CONCLUSION AND RECOMMENDATIONS

### Conclusion

19.1 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 points were derived through the study process of updating the existing master plan:

- (i) 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.
- (ii) 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.
- (iii) 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.

19.2 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 (i) above and is different in its contents and operational purposes.

19.3 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.

### Recommendations

19.4 Being a large city Hanoi must carry out simultaneous tasks to realize the desired urban development. These tasks are listed in the form of strategic actions enumerated in previous chapters. Some, however, need to be emphasized more strongly than others due to their strategic importance. These are the:

- (1) **Establishment and Practice of Comprehensive Urban Planning System:** This aims to promote capacity building on urban planning administration for institutions and individuals.
- (2) **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.

- (3) **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 a disorderly development.

19.5 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.

## **APPENDIX**

---

## APPENDIX 1: Study Team Members

**Table A1 Steering Committee Members**

| Name                      | Designation  |
|---------------------------|--|
| 1. Mr. Do Hoang An        | Vice Chairman, Hanoi People's Committee (HPC)  |
| 2. Mr. Dang Hung Vo       | Vice Minister, Ministry of Natural Resources and Environment (MONRE)                     |
| 3. Mr. Nguyen Cong Nghiep | Vice Minister, Ministry of Finance (MOF)   |
| 4. Mr. Pham The Minh      | Vice Minister, Ministry of Transport (MOT)   |
| 5. Mr. Tran Ngoc Chinh    | Vice Minister, Ministry of Construction (MOC)  |
| 6. Mr. Pham Thanh Tam     | Deputy Director, Regional Local Economy Dept., Ministry of Planning and Investment (MPI) |
| 7. Mr. Trieu Dinh Phuc    | Director, Hanoi Authority for Planning and Investment (HAPI)                             |
| 8. Mr. Dao Ngoc Nghiem    | Director, Hanoi Authority for Urban Planning and Architecture (HAUPA) (up to 2005)       |
| 9. Mr. To Anh Tuan        | Director, Hanoi Authority for Urban Planning and Architecture (HAUPA) (2005 to date)     |

**TableA2 Working Group Members**

| Name                                      | Designation   |
|---|---|
| <b>Urban Development Working Group</b>    |   |
| 1. Mr. Dao Ngoc Nghiem (Head)             | Director, HAUPA (up to 2005)  |
| 2. Mr. To Anh Tuan (Head)                 | Director, HAUPA (2005 to date)  |
| 3. Mr. Do Viet Chien                      | Deputy Director, Construction Planning Institute, HAUPA                   |
| 4. Mr Nguyen Tuan Khai                    | Deputy Director, HAUPA  |
| 5. Mr. Le Manh Cuong                      | Chief, Architecture Planning Study Division, HAUPA                        |
| 6. Mr. Trieu Dinh Phuc                    | Deputy Director, HAPI   |
| 7. Mr. Tran Minh Quang                    | Manager, Project Management Unit (PMU), HAPI                              |
| 8. Mr. Nguyen Huy Anh                     | Chief, Urban Planning Division, HAPI                                      |
| 9. Mr. Le Ngoc Minh                       | Chief, Appraisal Division, HAPI   |
| 10. Mrs. Nguyen Minh Ha                   | Expert, PMU, HAPI   |
| 11. Mr. Do Xuan Anh                       | Director, Hanoi Construction Dept. (DOC)                                  |
| 12. Mr. Nguyen The Hung                   | Deputy Director, DOC  |
| 13. Mr. Ha Duc Trung                      | Deputy Director, Hanoi Agriculture and Rural Development Dept. (DARD)     |
| 14. Mr. Nguyen Bich Ngoc                  | Expert, Construction Group, HPC   |
| 15. Mr. Nguyen Phu Duc                    | Expert, Construction Group, HPC   |
| 16. Mr. Luu Trong Bat                     | Expert, Regional Local Economy Dept., MPI                                 |
| 17. Ms. Pham Thu Nga                      | Expert, Architecture Planning Dept., MOC                                  |
| 18. Mr. Do Duc Doi                        | Deputy Director, Land Registration & Statistic Dept., MONRE               |
| 19. Mr. Nguyen Van Thuy                   | Deputy Chief, Investment Dept, MOF  |
| 20. Mr. Vu Manh Dung                      | Expert, Investment Dept., MOF   |
| 21. Mrs. Pham Thi Tuoc                    | Deputy Director, Planning Dept., Min. of Agriculture & Rural Devt. (MARD) |
| 22. Mr Dao Quoc Luan                      | Expert, Planning Dept., Min. of Agriculture & Rural Devt. (MARD)          |
| <b>Urban Transportation Working Group</b> |   |
| 1. Mr. Tran Danh Loi (Head)               | Deputy Director, Dept. of Transport Urban Public Works (TUPWS)            |
| 2. Mr. Pham Hoang Tuan                    | Deputy Chief, Planning Investment Division, TUPWS                         |
| 3. Mr. Van Tan Ho                         | Director, Construction Planning Institute, HAUPA                          |
| 4. Mr. Hoàng Anh Tuan                     | Deputy Chief, Architecture Planning Division 2, HAUPA                     |
| 5. Mr. Tran Xuan Bach                     | Deputy Director, PMU, HAPI  |
| 6. Mr. Tran The Phuong                    | Deputy Chief, Urban Planning Division, HAPI                               |

| Name  | Designation   |
|---|---|
| 7. Mr. Le Vu Dung                               | Expert, Appraisal Division, HAPI                              |
| 8. Mr. Thieu Quang Hai                          | Expert, General Affairs and Planning Division, HAPI           |
| 9. Mr. Nguyen Chi Manh                          | Expert, PMU, HAPI   |
| 10. Mr. Nguyen Sy Luu                           | Chief, Planning Division DARD                                 |
| 11. Mr. Vu Dang Hung                            | Expert, Architecture Planning Dept., MOC                      |
| 12. Mr. Nguyen Ngoc Dong                        | Deputy Director, Planning Investment Dept., MOT               |
| <b>Urban Water and Sanitation Working Group</b> |   |
| 1. Mr. Tran Duc Vu                              | Vice Director, HAPI   |
| 2. Mr. Nguyen Minh Thuan                        | Manager, Dept. for International Loan and Assistance, HAPI    |
| 3. Mr. Luong Hoai Nam                           | Deputy Chief, Appraisal Division, HAPI                        |
| 4. Mr. Tran Thi Kim Dung                        | Expert, Urban Planning Division, HAPI                         |
| 5. Mr. Vu Thanh Cong                            | Expert, PMU, HAPI   |
| 6. Mr. Nguyen Truong Quyen                      | Expert, PMU, HAPI   |
| 7. Mr. Dang Duong Binh                          | Chief, Environmental Management Division, DONRE               |
| 8. Mr. Le Vinh                                  | Deputy Director, Construction Planning Institute, HAUPA       |
| 9. Mr. Nguyen Van Ha                            | Deputy Chief, Architecture Planning Division 1, HAUPA         |
| 10. Mr. Le Huy Hoang                            | Chief, Planning Investment Division, TUPWS                    |
| 11. Mr. Le Hong Quan                            | Expert, Planning Investment Division, TUPWS                   |
| 12. Mr. Nguyen Hong Tien                        | Deputy Director, Urban Infrastructure Dept., MOC              |
| 13. Mr. Hoang Ngoc Phuong                       | Expert, Land Registration & Statistics Dept., MONRE           |
| <b>Living Conditions Working Group</b>          |   |
| 1. Mr. Trinh Kien Dinh (Head)                   | Deputy Director, DONRE  |
| 2. Mr. Nguyen Trong Dong                        | Deputy Chief, General Affair and Planning Division, DONRE     |
| 3. Mr. Hoang Dinh Tuan                          | Chief, Architecture Planning Division 2, HAUPA                |
| 4. Mr. Bui Manh Tien                            | Deputy Chief, General Affair and Planning Division, HAUPA     |
| 5. Mr. Tran Khanh Hung,                         | Expert, Urban Planning Dept., HAPI                            |
| 6. Mr. Nguyen Bac Quan                          | Expert, Appraisal Division, HAPI                              |
| 7. Mr. Le Sinh Tien                             | Expert, International Loan and Assistance Division, HAPI      |
| 8. Mr. Ta Ngoc Khue                             | Expert, PMU, HAPI   |
| 9. Mr. Le Van Phuc                              | Deputy Chief, General Affair and Planning Division, DOC       |
| 10. Mr. Nguyen Dinh Giang                       | Expert, General Affair and Planning Division, DOC             |
| 11. Mr. Nguyen Quang Thanh                      | Deputy Director, Hanoi Financial Dept.                        |
| 12. Mr. Bui Xuan Dam                            | Deputy Director, Hanoi Financial Dept.                        |
| 13. Mr. Nguyen Duy Phong                        | Chief, Urban Transport Division, Hanoi Financial Dept.        |
| 14. Ms. Vu Thi Bich Ha                          | Deputy Chief, Urban Transport Division, Hanoi Financial Dept. |

**Table A3 JICA and Study Team Members**

| Name                                    | Designation  |
|---|--|
| <b>JICA and JICA Advisory Committee</b> |  |
| 1. Mr. ONISHI Takashi (Dr. Engr.)       | Professor, University of Tokyo<br>JICA, Advisory Committee for Urban and Regional Development Sector   |
| 2. Mr. NAKAMURA Akira                   | Group Leader, Group II (Urban and Regional Development /Reconstruction) Soc. Devt. Dept., JICA   |
| 3. Mr. SANJO Akihito                    | Urban and Regional Development /Reconstruction Team I, Group II, Soc. Devt. Dept., JICA (up to 2006)   |
| 4. Mr. KIKUCHI Fumio                    | Residential Representative, JICA Vietnam (up to 2006)  |
| 5. Mr. NAKAGAWA Hiroaki                 | Residential Representative, JICA Vietnam (2006 to date)  |
| 6. Mr. IZAKI Hiroshi                    | Deputy Residential Representative, JICA Vietnam  |
| 7. Mr. TOJO Yasuhiro                    | Deputy Residential Representative, JICA Vietnam  |
| 8. Mr. KOMORI Katsutoshi                | Deputy Resident Representative (2003-2006), JICA Vietnam<br>Urban and Regional Development /Reconstruction Team I, Group II, Soc. Devt. Dept., JICA (2006 to date) |
| 9. Mr. KOBAYASHI Kenichi                | Deputy Resident Representative (2006 to date), JICA Vietnam  |
| 10. Mr. Phan Le Binh                    | Program Officer, JICA Vietnam office   |
| <b>JICA Study Team</b>                  |  |
| 1. Mr. IWATA Shizuo (Dr. Engr.)         | Program Manager /Comprehensive Urban Development   |
| 2. Mr. SEKI Yosui                       | Project Coordinator  |
| 3. Ms. IDEI Rika                        | Project Coordinator (2) / Water Supply Operation (2)   |
| 4. Mr. KOKUFU Yutaka                    | Geographic Information Development   |
| 5. Mr. HOSOMI Akira (Dr. Engr.)         | Transport Survey   |
| 6. Mr. ARAKAWA Koichi                   | Transport Survey (2)   |
| 7. Mr. IIO Akitoshi                     | Natural Environmental Survey   |
| 8. Ms. KANEKO Motoko                    | Urban/Social Survey and Analysis/ Project Coordinator (3)  |
| 9. Mr. OKAMURA Naoshi                   | Data Processing / Demand Analysis  |
| 10. Mr. Mazhar IQBAL                    | Data Processing / Demand Analysis (2)  |
| 11. Mr. WAKUI Tetsuo                    | Economic / Financial Analysis  |
| 12. Mr. AOKI Tomoo                      | Environmental and Social Consideration   |
| 13. Ms. Beulah PALLANA                  | Resettlement   |
| 14. Mr. Dang Nguyen Anh                 | Resettlement 2   |
| 15. Mr. Hoang Huu Phe (Dr. Engr.,)      | Urbanized Area Preservation  |
| 16. Mr. Mai Trong Nhuan (Dr. Engr.)     | Land-related Problem/Urban Disaster /Flood Control   |
| 17. Ms. ABE Tomoko                      | Pilot Project  |
| 18. Mr. IWASAKI Masayoshi               | Project Implementation Models  |
| 19. Mr. HAYASHI Kiyotaka                | Subprogram Manager (Urban Development)   |
| 20. Mr. Philipose PHILIPS               | Urban Planning / Institutions / Land Management  |
| 21. Mr. TANAKA Kenji                    | Land Use Planning  |
| 22. Mr. Joel CRUZ                       | Land Use Planning (2)  |
| 23. Ms. Anna M.S. TERNELL               | Socio-economy / Financing  |
| 24. Mr. TOKURA Masaru                   | Infrastructure Development Planning  |
| 25. Mr. NAGAI Yasutaka                  | Regional Planning  |
| 26. Mr. KUSANO Makine                   | District Planning / Detail Land Use Planning   |
| 27. Mr. KOJIMA Masaaki                  | Land Readjustment  |
| 28. Mr. UESUGI Hidetaka                 | Architecture Planning  |
| 29. Mr. AOKI Seiichi                    | Industrial Development Planning  |
| 30. Mr. SHOYAMA Takashi                 | Subprogram Manager (Urban Transport)   |
| 31. Mr. Hans ORN                        | Transport Planning   |
| 32. Mr. Alistair W. KNOX                | Public Transport Planning  |
| 33. Mr. TAKAGI Michimasa                | Road Planning / Traffic Safety   |
| 34. Mr. NAGAI Takayasu                  | Transport Facility Planning  |
| 35. Mr. MATSUOKA Seiya                  | Traffic Management Planning  |



| Name                                | Designation  |
|-------------------------------------|--|
| 36. Mr. IZAWA Hiroshi               | Traffic System Planning / Design                               |
| 37. Mr. HONMA Kazufumi              | Cost Estimate / Construction Plan                              |
| 38. Mr. MISHIMA Teruki              | Basic Design (Railway 1)                                       |
| 39. Mr. TAKAYAMA Tsuyoshi           | Basic Design (Railway 2)                                       |
| 40. Mr. NISHIKATSU Yoshiaki         | Basic Design (Road)  |
| 41. Mr. Alan CLOVER                 | Operation Planning   |
| 42. Mr. SUZUKI Tadao                | Electricity/ Signal/ Communication Planning                    |
| 43. Mr. Alan MORRIS                 | Station Facility Planning                                      |
| 44. Mr. John R. GRETTON             | Rolling Stocks Planning  |
| 45. Mr. MATSUMURA Shigehisa         | Subprogram Manager (Living Conditions) / Housing Planning      |
| 46. Mr. ASAKURA Isamu               | Living Environment Planning                                    |
| 47. Mr. NOGUCHI Tetsuo              | Living Environment Planning (2)                                |
| 48. Mr. KODAMA Ken                  | Building-Code Management                                       |
| 49. Mr. NISHIMURA Yoichi            | Greenery Planning  |
| 50. Mr. AIZAWA Masayuki (Dr. Engr.) | Landscape Planning   |
| 51. Mr. SHIMIZU Fumio               | Landscape Planning (2) / Urban Design                          |
| 52. Mr. HASHIMOTO Kazuharu          | Subprogram Manager (Water Environment) / Water Supply Planning |
| 53. Mr. TSUBOI Yukimasa             | Water Supply Facility Planning                                 |
| 54. Mr. OGINO Masayuki              | Water Resource Development/Assessment                          |
| 55. Mr. DOYA Mitsuhiro              | Water Supply Operation   |
| 56. Mr. FUJII Masayuki              | Sewerage and Drainage Planning                                 |
| 57. Mr. MIYAKE Akihiro              | Sewerage and Drainage Facility Planning                        |
| 58. Mr. TSUTA Hideo                 | Lake Management  |

**Table A4 National Consultants**

| Name                      | Designation  |
|---------------------------|--|
| 1. Mr. Nguyen Toai        | Transport Planner  |
| 2. Mr. Nguyen Dinh Nghien | Road Expert  |
| 3. Mr. Nguyen Van Du      | Senior Advisor   |
| 4. Dr. Nguyen To Lang     | Architect- Urban Planner                                     |
| 5. Mr. Tran Dinh Tuan     | Institutional Expert   |
| 6. Ms. Tran Thi Thanh Tam | Economist  |
| 7. Dr. Pham Thuy Loan     | Urban Planner  |
| 8. Ms. Dao Thi Minh Ngoc  | Architect  |
| 9. Dr. Pham Hung Viet     | Expert on Environmental Chemistry & Environmental Monitoring |
| 10. Dr. Vu Quyet Thang    | Expert on Environmental Impact Assessment                    |
| 11. Mr. Trinh Duy Luan    | Sociologist  |
| 12. Mr. Nguyen Xuan Mai   | Sociologist  |
| 12. Dr. Pham Khanh Toan   | Architect- Urban Design Expert                               |
| 13. Dr. Do Minh Duc       | Expert on Geoenvironment                                     |
| 14. Dr. Nguyen Minh Son   | Architect  |
| 15. Ms. Tran Thi Thu Thuy | Sociologist  |