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# PROJECT DOCUMENT

ON A

PROPOSED GLOBAL ENVIRONMENT FACILITY TRUST FUND GRANT

IN THE AMOUNT OF USD 9.8 MILLION

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR A

HANOI URBAN TRANSPORT DEVELOPMENT PROJECT

August 10, 2007

Transport, Energy and Mining Unit
Sustainable Development Department
East Asia and Pacific Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2007)

| | | |
|---|---|---|
| Currency Unit | = | Vietnamese Dong |
| VnD16,000 | = | US$1 |
| SDR 1 | = | US$1.52493 |

## FISCAL YEAR

January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AfD | Agence Française de Développement |
| AQM | Air Quality Management |
| BRT | Bus Rapid Transit |
| CBD | Central Business District |
| CEETIA | Hanoi Urban and Industrial Environment Research Center |
| CIDA | Canadian International Development Agency |
| CITEC | Center of Information Technology and Engineering Consulting Services (of TEDI) |
| COD/BOD | chemical oxygen demand/bio-chemical oxygen demand |
| CPS | Country Partnership Strategy |
| CSO | Civil Society Organization |
| DAPM | Department of Architecture & Planning Management |
| DARD | Department of Agriculture and Rural Development |
| DCI | Department of Culture & Information |
| DOC | Department of Construction |
| DOF | Department of Finance |
| DOI | Department of Industry |
| DONRE | Department of Natural Resource, Environment, Land & Housing |
| DP | Displaced Person |
| EIA | Environmental Impact Assessment |
| EIRR | Economic Internal Rate of Return |
| EMP | Environmental Management Plan |
| EPZ | Export Processing Zone |
| EU | European Union |
| FA | Financing Agreement |
| FM | Financial Management |
| GEF | Global Environmental Facility |
| GHG | Greenhouse Gas |
| GIS | Geographical Information System |
| GOV | Government of the Socialist Republic of Vietnam |
| GTAP | Governance and Transparency in project management Action Plan |
| HAIDEP | Comprehensive Urban Development Program in Hanoi Capital City |
| HAPI | Hanoi Planning & Investment (Department) |
| HCGC | Hanoi Cartographic and Geotechnical Company |
| HCCRDP | Hanoi Capital City Regional Development Project |
| HPC | Hanoi People's Committee |
| HPMU | Hanoi Urban Transport Development Project Management Unit |

| | |
|---|---|
| HUPI | Hanoi Urban Planning Institute |
| HUTDP | Hanoi Urban Transport Development Project |
| ICB | International Competitive Bidding |
| IFR | Interim Financial Reports |
| JBIC | Japan Bank of International Cooperation |
| JICA | Japan International Cooperation Agency |
| LIS | Land Management Information System |
| LRT | Light Rapid Transit |
| LURC | Land Use Right Certificates |
| MOC | Ministry of Construction |
| MONRE | Ministry of Natural Resource, Environment, Land & Housing |
| MOT | Ministry of Transport |
| MPI | Ministry of Planning and Investment |
| NCB | National Competitive Bidding |
| NMT | Non-Motorized Transport |
| NMTMS | Non-Motorized Transport Management Study |
| NPV | Net Present Value |
| PAX | Passengers |
| PSC | Project Steering Committee |
| PT | Public transit |
| PTA | Public Transport Agency |
| PMU | Project Management Unit |
| PPIAF | Public Private Infrastructure Advisory Facility |
| QFMR | Quarterly Financial Management Reports |
| RAP | Resettlement Action Plan |
| RC | Resettlement Committee |
| SBD | Standard Bidding Documents |
| SDC | Swiss Development Cooperation Agency |
| SDR | Special Drawing Rights |
| SEDP | Socio-economic Development Plan |
| SEMLA | Strengthening Environmental Management & Land Administration |
| SIDA | Swedish International Development Agency |
| SOE | State Owned Enterprise |
| SOEx | Statement of Expenditure |
| TA | Technical Assistance |
| TEDI | Transport Engineering Design Incorporation |
| TOR | Terms of Reference |
| TPD | Traffic Police Department |
| TRAMOC | Transport and Management Operation Centre |
| TUPWS | Transport and Urban Public Works Service |
| UTIP | Urban Transport Improvement Project |
| VBC | Vietnam Building Code |
| VCS | Vietnam Construction Standards |
| VOC | Vehicle Operating Cost |
| WB | World Bank |

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|---|---|
| Vice President: | James W. Adams |
| Country Director: | Ajay Chibber |
| Sector Manager: | Junhui Wu |
| Task Team Leader: | Shomik Raj Mehndiratta/Cuong Duc Dang |

**VIETNAM**
**Hanoi Urban Transport Development Project**

**CONTENTS**

VIETNAM

HANOI URBAN TRANSPORT DEVELOPMENT PROJECT

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

EASTE

| | |
|---|---|
| Date: August 10, 2007<br>Country Director: Ajay Chhibber<br>Sector Manager: Junhui Wu<br>Project ID: P083581<br>Lending Instrument: Specific Investment Loan | Team Leader:<br>Shomik Raj Mehndiratta / Cuong Duc Dang<br>Sectors: General transportation sector (70%); Roads and highways (30%)<br>Themes: Access to urban services and housing (P);State enterprise/bank restructuring and privatization (P);Regulation and competition policy (S);Pollution management and environmental health (S)<br>Environmental screening category: Full Assessment |
| Global Supplemental ID: P085393<br>Lending Instrument: Specific Investment Loan<br>Focal Area: C-Climate change<br>Supplement Fully Blended?: Yes | Team Leader: Shomik Raj Mehndiratta<br>Sectors: General transportation sector (100%)<br>Themes: Climate change (P) |

**Project Financing Data**

[ ] Loan [ ] Credit [X] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:
Total Bank financing (US$m.): 155.21

**Financing Plan (US$m)**

| Source | Local | Foreign | Total |
|---|---|---|---|
| BORROWER/RECIPIENT | 117.55 | 22.13 | 139.68 |
| INTERNATIONAL DEVELOPMENT ASSOCIATION | 74.66 | 80.55 | 155.21 |
| GLOBAL ENVIRONMENT FACILITY | 3.00 | 6.80 | 9.80 |
| Total: | 195.21 | 109.48 | 304.69 |

**Borrower:**
Socialist Republic of Vietnam

**Responsible Agency:**
Hanoi Urban Transport Project Management Unit (under TUPWS)
75 To Hien Thanh
Hanoi, Vietnam
Tel: 84 4 974 0914 Fax: 84 4 976 3549 email: hanoipmu@fpt.vn

| Estimated disbursements (Bank FY/US$m) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FY | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | |
| Annual | 0.00 | 6.00 | 27.40 | 27.40 | 27.40 | 33.50 | 33.51 | | |
| Cumulative | 0.00 | 6.00 | 33.40 | 60.80 | 88.20 | 121.70 | 155.21 | | |

| GEF Estimated disbursements (Bank FY/US$m) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FY | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | |
| Annual | 0.00 | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.80 | | |
| Cumulative | 0.00 | 1.00 | 3.00 | 5.00 | 7.00 | 9.00 | 9.80 | | |

Project implementation period: Start: July 1, 2007 End: June 30, 2013
Expected effectiveness date: August 31, 2007
Expected closing date: December 31, 2013

| | |
|---|---|
| Does the project depart from the CAS in content or other significant respects? ***Ref. PAD A.3*** | [ ]Yes [X] No |
| Does the project require any exceptions from Bank policies? ***Ref. PAD D.7*** | [ ]Yes [X] No |
| Have these been approved by Bank management? | [ ]Yes [ ] No |
| Is approval for any policy exception sought from the Board? | [ ]Yes [X] No |
| Does the project include any critical risks rated "substantial" or "high"? ***Ref. PAD C.5*** | [X]Yes [ ] No |
| Does the project meet the Regional criteria for readiness for implementation? ***Ref. PAD D.7*** | [X]Yes [ ] No |

Project development objective ***Ref. PAD B.2, Technical Annex 3***

Global Environment objective ***Ref. PAD B.2, Technical Annex 3***
Its GEF strategic objectives are to promote a shift to more environmentally-sustainable transport modes and urban development plans, and to promote the replication of these approaches in the country and region. Its global environment objective is to lower Hanoi's transport-related greenhouse gas emissions, relative to a business-as-usual scenario.

Project description *[one-sentence summary of each component]* ***Ref. PAD B.3.a, Technical Annex 4***

The project has three components:

- The Bus Rapid Transit Component (BRT) will support the development of segregated bus lanes and bus priority.
- The Road Infrastructure and Sustainable Urban Planning component includes the construction of a section of the Second Ring Road, construction of a resettlement site, and support for sustainable urban land development.
- The Institutional Development Component includes equipment procurement and technical assistance for various Hanoi agencies.

Which safeguard policies are triggered, if any? ***Ref. PAD D.6, Technical Annex 10***
The project is classified as a Category A project and triggers OP4.01 Environmental Assessment, and OP4.12 Involuntary Resettlement.

Significant, non-standard conditions, **if any**, for:
***Ref. PAD C.7***
Board presentation:
None

Grant effectiveness:

The financing agreement dated the same date as this Agreement between the Recipient and International Development Association, providing a credit in support of the Project ("the Financing Agreement"), has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under (other than the effectiveness of this Agreement) have been fulfilled.

Covenants applicable to project implementation:

(a) Establish and maintain a Project Steering Committee, under the chairmanship of a vice chair of Hanoi People's Committee, with representation from the relevant municipal line agencies, including from DOF, DAPM, DONRE, TUPWS, HAPI, the Hanoi Traffic Police, and any other relevant agencies as may be necessary.

(b) Hanoi shall adopt and put into effect a Project Implementation Plan acceptable to the Association setting forth procedures and guidelines for the implementation of its respective Parts of the Project; in particular said Project Implementation Plan shall include: (i) a governance and transparency action plan; and (ii) clear delineation of the functions, responsibilities and standards of service of the municipal line agencies in regard to Project implementation. The plan will not be amended, revised or waived without the prior concurrence of the Association.

(c) Hanoi shall prepare and adopt a Project Financial Management Manual acceptable to the Association defining financial management responsibilities with segregation of duties, and reporting structures, and setting forth procedures and processes for financial management, control and reconciliation, record keeping, reporting and auditing; and not revise, waive or abrogate the provisions of said Manual, or any part thereof, without the prior concurrence of the Association.

(d) Hanoi shall implement, and monitor and evaluate the implementation the Resettlement Policy Framework, the Resettlement Action Plan, and the Environment Management Plan in a manner satisfactory to the Association; and only revise the framework and plans after agreement with the Association.

(e) The Recipient shall cause Hanoi, by no later than six (6) months following the date of this Agreement, to engage an independent external auditor under terms of reference acceptable to the Association.

(f) Hanoi shall, in regard to its respective Parts of the Project by no later than December 15 of each year, commencing in 2007, prepare and provide to the Association for its review and comment an annual work plan for the next succeeding calendar year, together with the financing plan, including sources of funds, therefor; and thereafter implement in a manner satisfactory to the Association such annual work plan as shall have been agreed with the Association.

(g) Hanoi shall take all necessary actions to enable private operators to participate in the operation of the BRT system; and to this end, (i) upon completion of the BRT system and prior to putting such completed system into service, to put to tender and award concessions for the operation of the BRT system, to at least two operators, in a manner and under terms satisfactory to the Association; and (ii) prior to putting into service any of the segments within the BRT system, (A) to provide a proposal to the Association for review and comments which sets out a plan to put to tender and award concessions for the operation of said segments to at least two operators; and (B) to award concessions for the operation of such segments in a manner and under terms satisfactory to the Association.

## A. STRATEGIC CONTEXT AND RATIONALE

### 1. Country and sector issues

1. Hanoi, Vietnam's capital and the key economic node of the country's north, is a booming city of around three million people. Hanoi's transport is characterized by an apparently continuous stream of motorcycles, a symbol of high personal mobility amid rapidly rising incomes. Per capita GDP has increased at over ten percent per annum for the last decade to US$1380 in 2005 (Hanoi Statistical Yearbook 2005). As a result the city has seen **rapid motorization over the last fifteen years**; from about 100,000 registered motorcycles in 1990 to 1.5 million motorcycles registered in 2005 that accounted for close to 70 percent of vehicular trips.

2. **Urban densities are among the world's highest** (272 per hectare in the urban districts and up to 404 per hectare in the central Hoan Kiem district compared to 86 in Paris, 62 in London and 370 in Hong Kong) and accommodating this level of mobility is stretching the city's infrastructure. With incomes expected to continue to rise and a population that is forecast to double by 2020, motorization levels are only expected to accelerate. There is already more than one motorcycle registered on average per household, and the automobile population is increasing from its current base of 150,000 at a rate of over ten percent a year. By 2010 GDP per capita is forecast to reach US$2000, an income threshold commonly associated with widespread automobility.

3. Congestion is already becoming a critical problem. At less than seven percent of the land area, the **road network is exceptionally sparse** (relative to almost 25 percent in many US cities, about 15 percent in most European cities and 11 percent in China's large cities) and road expansion is restricted by severely high costs of resettlement (which constitute over 80 percent of the project cost for many city projects). In part due to availability of better infrastructure, growth is currently focused in the south and southwestern directions. Efficiency and capacity of these corridors need to be increased to accommodate the continuing growth using a combination of public transport, demand and traffic management. At the same time, access to the north and northwest sectors of the city needs to be improved to encourage more balanced spatial development in the future.

4. Despite a spectacular twenty-fold increase in bus ridership from 1.2 million monthly trips in 2001 to over 24 million monthly trips in 2006, **public transport currently accounts for only 10 percent** of total trips. Congestion constrains the long-term attractiveness and potential impact of the regular bus service. Although rail systems are being planned (a French financed east-west line is most advanced), costs are high and international experience suggests that implementation may take time. A recently completed masterplan financed by the Japanese International Cooperation Agency (JICA) recommends the adoption of bus-based mass rapid transit systems in the short-term.

5. To date, the Hanoi People's Committee's (HPC) mobility management strategy has relied almost exclusively on controlling vehicle *ownership* but with limited success. Restrictions on automobile and motorcycle ownership in the urban districts in place over the last five years were widely circumvented and have now been abandoned. **There is little focus on managing vehicle *use***: automobile and motorcycle parking is cheap and plentiful (much of it on the city's

sidewalks), there is no system of regular vehicle registration charges for motorcycles, and petrol costs are among the world's lowest.

6. Moreover, though a culture of traffic management is slowly emerging, much more attention is needed to increase the efficiency and safety of the current stream of traffic. Traffic management is still nascent and though some progress has been made (in part through the support of the recently completed Bank-financed Urban Transport Improvement Project, UTIP), **Hanoi residents have been slow to accept many basic traffic management techniques** such as median barriers and traffic channelization. Though fatality rates in the city (about 2.72/10,000 vehicles) are difficult to compare internationally because of the unusual dominance of motorcycles, surveys suggest that traffic is a major source of stress, particularly for women and for people making motorcycle trips of over seven km. Continued engagement is needed to build capacity and increase acceptance of the needs of safety and order over unfettered mobility.

7. At the same time as the existing corridors are improved, HPC is looking to **construct roads to provide access to the city's north and northwest** and thereby encourage new growth in these relatively undeveloped areas. The most recent Master Plan envisions road development to facilitate urban development in what are currently agricultural areas in the northwest section of the City, south of the Red River and subsequently, north of the river (by 2020) to accommodate projected growth. As part of this effort, the Japan Bank of International Cooperation (JBIC) is financing construction of the Nhat Tan Bridge across the Red River. Development plans exist, as do plans for new roads to provide access to these areas. However, enhanced institutional capacity is needed to ensure that the plans will be efficiently implemented.

8. As the City transforms itself into a major metropolis **all the institutions engaged in managing the urban environment need to build capacity**. In the sphere of public transport, the city is in the midst of major reform in public transport operations and management. In part as a result of a study financed by the Public Private Infrastructure Advisory Facility (PPIAF), in 2005 Hanoi concessioned six new bus routes to two new private operators chosen by competitive tender, ending the monopoly of TRANSERCO, a State Owned Enterprise. This process is now being extended to other routes and it is recognized that an independent, strong, planning, coordinating and regulatory agency in charge of all public transport is needed.

9. The City also recognizes the need to enhance its capacity to manage air quality. Available data suggests that transport is a serious contributor to Hanoi's poor air quality, in particular with respect to carbon monoxide, nitrogen oxides and particulates. However, data is scarce; most of the existing air quality stations are in a state of disrepair and their data is not processed in any systematic manner. The City needs assistance to create institutions and mechanisms to effectively manage its air quality monitoring infrastructure and provide the basis for an information-based control strategy.

## 2. Rationale for Bank involvement

10. The Bank has been Hanoi's partner on urban transport issues since the early 1990s providing advisory and investment support in the sector. UTIP, which was the Bank's first urban transport operation in Vietnam, supported traffic management investments and institutions in Hanoi and Ho Chi Minh City (about US$20 million each). In 2004 the Bank facilitated a PPIAF

financed study executed by the Bank that examined institutional issues in the bus sector and supported the successful allocation of operating franchises on new routes to private operators.

11. The proposed project supports construction of critical sections of road infrastructure to facilitate future city development, a Bus Rapid Transit (BRT) system and capacity building in transport and planning/implementing institutions. This design is consistent with the Bank's global urban transport strategy and Vietnam infrastructure strategy.

12. The project facilitates environmentally sustainable urbanization of Hanoi. The project targets improvements in sustainable transport modes (buses, bicycles and walking) to upgrade the urban environment and the mobility needs of the urban poor. Given the Bank's good working relationship with Hanoi and extensive international experience with emerging BRT technology across Latin America (in Santiago, Mexico City, Lima, Bogotá and five other Colombian cities), the Bank is ideally placed to support this project. The Bank can also help coordinate the efforts of other donors addressing transport related issues in Hanoi.

13. ***Rationale for GEF Funding.*** GEF co-financing is proposed for a set of strategic initiatives that either reduce barriers to implementation of the project or maximize the global environmental benefits from the project investments. The project is consistent with the objectives of the GEF Operational Program 11 on "Promoting Environmentally Sustainable Transport". The project is also consistent with the GEF climate change strategic priority related to Sustainable Transport as defined in the GEF Business Plan for FY04-06 (GEF/C.21/9). The project is the first BRT system to be financed by the Bank in Asia and has the potential to be a high profile demonstration for bus-based mass rapid transit.

**3. Higher level objectives to which the project contributes**

14. The proposed project supports all four objectives of the current Vietnam 2007-2011 Country Partnership Strategy (CPS) approved by the Bank Board in February 2007 (Report 38236-VN). The Project supports the first objective of an *improved business environment* by supporting provision of efficient and reliable urban transport services. It supports the second objective to *strengthen social inclusion* by including people with disabilities into the development process, mitigating the negative impacts of traffic accidents on the poor, and improving policies and infrastructure to address the needs of the urban poor and migrants. The objective of *strengthening natural resources and environmental management* is supported by reducing green house gas emissions, air pollution and related environmental degradation by improving public transport services. Finally, the objective of *improving governance* is supported by the development of a governance plan based on strengthened public financial management, civil society oversight, participatory approaches, and the development of a plan and modern regulatory system to manage public transport assets and bus transport operations in Hanoi. The project directly contributes to planned outcomes of improved management effectiveness of household and industrial pollution (outcome 3.2), and modernized planning towards development objectives with more participatory approaches (outcome 4.2).

15. The Project design reflects the recommendations of the Bank's November 2006 Transport Strategy for Vietnam. The Project also contributes to HPC's stated objectives of increasing the role of public transport (Decision No. 34/2003 NQ/HD, and No. 72/2004/QD-UB

following No. 71/2004/QD-TTg of the Prime Minister which establish priorities to promote public transport with mode share goals for 2010 and 2020 (30 percent in 2010 and 50 percent share for 2020)), and to encourage the participation of the private sector in the provision of bus services. Hanoi has no approved transport master plan, but all of the planned investments are consistent with a recently completed infrastructure master plan financed by the Japanese International Cooperation Agency (JICA).

## B. PROJECT DESCRIPTION

### 1. Lending instrument

16. The financing includes an IDA Credit for a SDR 101.80 million Specific Investment Loan combined with a proposed Global Environment Facility (GEF) grant in the amount of US$9.80 million. The IDA Credit was approved by the Bank's Board of Directors on June 21, 2007.

### 2. Project development objective and key indicators

17. The development objective of the IDA Credit is to increase urban mobility in targeted areas in Hanoi by: (i) increasing the use of public transport in two existing and one new corridors [thereby increasing corridor capacity]; and (ii) reducing travel times by all modes between the city center and the west and northwest sections of the city (west of West Lake). Its GEF strategic objectives are to promote a shift to more environmentally-sustainable transport modes and urban development plans, and to promote the replication of these approaches in the country and region. Its global environment objective is to lower Hanoi's transport-related greenhouse gas emissions, relative to a business-as-usual scenario.

18. The increase in the use of public transport will be measured by the number of BRT/bus trips in the project corridors, and a calculation of the number of private motorized trips avoided (based on user surveys). An additional indicator will be the establishment of a functioning authority that manages all public transport matters on behalf of the City with adequate budget, staff and authority. Refer to Annex 3 for a detailed Results Framework and Monitoring Plan.

### 3. Project components

The project has three components as summarized in Table 1. A brief description of the project components follows (details in Annex 4):

**Table 1. Project Cost by Component**

| Component | Financed by GOV* US $m | IDA US $m | GEF US $m | Total US $m |
|---|---|---|---|---|
| **1. Development of the BRT System** | | | | |
| **A.** BRT System. civil works and equipment | 11.76 | 84.12 | 1.40 | 97.28 |
| **B.** Pedestrian and NMT access at BRT stations | 0.00 | 0.00 | 1.30 | 1.30 |
| **C.** BRT Consultation, Communications and Media Strategy | 0.00 | 0.00 | 1.30 | 1.30 |
| **2. Road Infrastructure and Sustainable Urban Planning** | | | | |
| **A.** Second Ring Road between Cau Giay and Nhat Tan | 124.28 | 46.47 | 0.00 | 170.75 |
| **B.** Resettlement site CT1 | 3.64 | 18.18 | 0.00 | 21.83 |
| **C.** Integrated Sustainable Urban Land Development & Transport Planning | 0.00 | 0.00 | 1.75 | 1.75 |
| **3. Institutional Development** | | | | |
| **A.** Air Quality Management | 0.00 | 1.65 | 0.00 | 1.65 |
| **B.** Traffic Safety | 0.00 | 1.92 | 0.00 | 1.92 |
| **C.** Public Transport Authority Strengthening & policy development | 0.00 | 2.20 | 2.70 | 4.90 |
| **D.** National and Regional Replication | 0.00 | 0.00 | 0.90 | 0.90 |
| **E.** Project Management and results management support | 0.0 | 0.67 | 0.45 | 1.12 |
| **Total Cost (including taxes)** | **139.68** | **155.21** | **9.8** | **304.7** |

*Grant funds provided as a grant to Hanoi by GOV.

19. The **Bus Rapid Transit Component (BRT)** *[total US$99.88 million, IDA US$84.12 million, Government of Vietnam US$11.76 million, GEF$4.0 million*] will support the development of 37 km of segregated bus lanes and 9 km of bus priority along the Giang Vo-Lang Ha and Giai Phong - Dai Co Viet corridors (including a city center connection, with bus priority in mixed traffic), the construction of BRT stops, interchange stations, terminals and maintenance facilities, and the acquisition of 130 BRT vehicles. It will also support the establishment of a modern BRT management system, including bus ticketing and financial controls. Lastly, the component will finance the implementation of a public consultation, communications and media strategy for disseminating information on the BRT system.

20. The **Road Infrastructure and Sustainable Urban Planning** component *[total US$194.33, IDA US$64.65 million, Government of Vietnam US$127.92 million, GEF US$1.75 million]* includes the construction of a section of the Second Ring Road (RR2) between Nhat Tan Bridge and Cau Giay on the main western radial arterial and construction of a resettlement site to house persons displaced by the proposed road, together with support for sustainable urban land development and transportation planning in Hanoi.

21. The **Institutional Development Component (ID)** *[total US$10.49 million, IDA US$6.44 million, Government of Vietnam US$0.32 million, GEF US$4.05 million]* includes equipment procurement and technical assistance (TA) to: (a) strengthen Air Quality Management; (b) support traffic safety; (c) support establishment and strengthening of a new Public Transport Authority and support transport planning and policy development; (d) finance replication activities that have been designed to address GEF's priority on replication; and (e) support project management for the GEF project and enhancement of project monitoring skills.

## 4. Lessons learned and reflected in the project design

22. **Critical to ensure that project concept and design have full support of the HPC.** Unlike UTIP, which was prepared with the national level Ministry of Transport (MOT) and handed over to the HPC for implementation, this project was prepared by HPC. Besides the feasibility studies, HPC explicitly endorsed the BRT concept, corridor selection, and institutional arrangements for the public transport and air quality components.

23. **Political commitment, institutional acceptance and public support are critical to the success of a BRT**. To reflect this lesson, the technical work on the BRT feasibility study was complemented by a study tour of successful BRT systems in Latin America, seminars highlighting the experiences of Bogotá (delivered by former Mayor Peñalosa) and Jakarta, and other studies validating the appropriateness of the BRT concept in Hanoi.

24. **Economic viability is distinct from financial viability**. Public transport is a vital public good with economic benefits related to improved air quality, reduced congestion, sustaining mobility for people without access to private vehicles, lower GHG emissions, and improved safety. Thus, public transport policy does not need to be dictated solely by financial viability criteria; s**ubsidies are not in themselves unsustainable** as long as they are supported by a stable political commitment and are affordable. In light of HPC's demonstrated strong commitment to public transport, the focus of the Bank appraisal has been on ensuring that institutional arrangements promote efficient operations (competitively tendered operating concessions, independent regulatory and planning body) rather than eliminating subsidies altogether. Much of the subsidy in Hanoi can be attributed to lower fares available to students, a targeted user group, and it is appropriate for the City to bear this cost.

25. **Land-use needs planning to be friendly to public transport**. Very few cities internationally (Singapore, Curitiba, Stockholm, Hong Kong) have been able consistently to grow in a manner that is compatible with the future growth of the city's public transport system. The project supports GEF financed TA to assist Hanoi in learning from these experiences in development of the western and north western parts of the City.

26. **Air Quality responsibilities need to be integrated**. It is critical that the agency responsible for monitoring air quality also has a role in devising and implementing emission control strategies. In this project, helping the Department of Natural Resource, Environment, Land and Housing (DONRE) to broaden their mandate from monitoring to control has been an integral element of the work.

## 5. Alternatives considered and reasons for rejection

27. Two alternatives to a stand-alone SIL were considered: (i) additional financing for the Hanoi component of UTIP, and (ii) an APL. The first was rejected as the scope of the development objectives and scale of HUTDP would be significantly larger than UTIP. Further, HUDTP would trigger OP/BP4.12 and entail significant involuntary resettlement, while UTIP did not trigger OP4.12 and the legal agreements did not include agreements related to resettlement. Accordingly the potential simplification benefits related to the use of additional

finance would not accrue. The option of an APL was also considered, but as the policy dialog, which had developed in the course of implementation of UTIP, was well advanced and key actions agreed, a SIL was deemed to be appropriate.

## C. IMPLEMENTATION

### 1. Partnership arrangements

28. The GEF grant of US$9.80 million will co-finance the IDA Credit under the GEF's Operational Program 11 (Promoting Environmentally Sustainable Transport). Several donors are working in the urban transport and air quality sectors in Hanoi including the European Union, JICA, JBIC, the French Ministry of the Economy, Agence Française de Développement (AFD), and Swisscontact. As appropriate, work with other donors will be coordinated via regular partnership meetings of all active donors in Hanoi.

### 2. Institutional and implementation arrangements

29. The Hanoi People's Committee (HPC) will be fully responsible for executing the project (except for a small component of the GEF grant which will be implemented by the Ministry of Construction (MOC)) and will be responsible for overall project management and oversight at the city level. The City has a standing Steering Committee (Committee 197) headed by the Vice Chairman of the HPC, which is responsible for infrastructure to facilitate project implementation. In addition the City will establish a Project Steering Committee that will meet regularly to guide the project. This Committee will be chaired by the Hanoi PC Vice Chairman responsible for infrastructure and will include the heads of all responsible agencies including TUPWS, Traffic Police, Department of Architecture and Planning Management (DAPM), DONRE and DPI. To manage, coordinate and supervise the project, the HPC has established a HUTDP Project Management Unit (HPMU), under the Hanoi Transport and Urban Public Works Service (TUPWS), to prepare and implement the proposed project.

30. The HPMU staff are permanent Hanoi government (TUPWS) employees. The core staff have worked as Project Management Unit (PMU) staff to implement UTIP. The HPMU will be maintained at all times during the implementation period with adequate budget and qualified fulltime staff.

31. **Implementation and ownership**. TUPWS will be the project/investment owner. HPMU will sign all contracts on behalf of TUPWS. HPMU will be the executing agency managing the implementation of all project components. Further:

- The Transport Management Center (TRAMOC) under TUPWS, designated as the core of a future Public Transport Authority (PTA), will be involved in the procurement of the buses and all equipment related to the BRT system. HPMU and this agency together will manage the BRT concession processes. The BRT concessions will be signed with TRAMOC (or the PTA) on behalf of HPC. The BRT vehicles will be sold by this agency to the chosen operators on an installment basis. The roads and BRT road infrastructure will be turned over to TUPWS after construction and will be maintained by TUPWS. BRT buses, terminals,

depots and other equipment will be owned by the City with TRAMOC (or the PTA in its enhanced role) potentially representing the City and leased out to operators as appropriate. The operators will be selected based on competitive tendering.

- The traffic police and traffic inspection board under TUPWS will be involved in the procurement of all equipment related to traffic management.
- The Department of Natural Resources and the Environment (DONRE) will manage the implementation of the air quality component.
- The Department of Architecture and Planning Management (DAPM) will directly manage the consultants hired for implementation of the urban planning technical assistance (HPMU will manage procurement and sign contracts).

32. HPMU will coordinate with all relevant agencies including the HPC, TUPWS, the traffic inspection board of TUPWS, the traffic police, Hanoi Authority for Planning and Investment (HAPI), TRAMOC/ PTA and bus operators on the comprehensive planning TA. HPMU will organize and manage all Hanoi based replication activities including workshops and hosted study tours.

33. Individual cities wishing to explore BRT demonstrations will undertake study tours and feasibility studies for such activities, facilitated by MOC.

34. **Approvals**. TUPWS and the HPC will be responsible for most approvals related to implementation of the BRT and road component. DAPM will be responsible for any revisions in plans or planning regulations which will most likely need to be approved by HPC. DONRE will be responsible for processing air quality monitoring data. An emission control policy will be finalized with DONRE coordinating with other related agencies including traffic police, Vietnam Register and TUPWS.

35. **Accounting, financial reporting and auditing arrangements.** To ensure financial accountability, various steps will be taken: (a) the HPMU will maintain a separate project account, including the Designated Account; (b) the Designated Account and project account, including documentation for Statements of Expenses, will be audited annually by independent external auditors acceptable to IDA and the Government, with the audit including a separate opinion on the Statements of Expenses used as a basis for disbursements; and (c) detailed audit reports will be submitted by the HPMU to IDA annually, within six months after the end of the city government's fiscal year.

### 3. Monitoring and evaluation of outcomes/results

36. Annex 3 lists the main outcome indicators for the project, as well as the principal results indicators for each component. Additional indicators are listed in the various documents in the project files (e.g., the Environmental Management Plan - EMP). The HPMU will regularly collect the data required for monitoring and evaluation of outcomes and results. HPC and TUPWS will review the results on the basis of various progress reports, and take appropriate corrective action where needed. TRAMOC/PTA will take on responsibility for the BRT system once it is functioning and will use the indicators on modal shift and ridership to refine their planning efforts.

## 4. Sustainability and Replicability

37. ***Sustainability.*** The institutional and physical interventions in the bus system have been conceived to ensure physical and financial sustainability of recent increases in bus usage by addressing the key limitations of current operations: a fast increasing fiscal burden and capacity limitations related to shared-use road space. Fares were revised in 2005 leading to increased revenues. The BRT is forecast to yield an operating surplus (though the bus system as a whole will likely continue to require some subsidy, see Annex 9) and the investment costs financed by the Project are being passed on to the city as a grant by the National Government. New routes are being franchised competitively and there is an increasing consensus towards extending this treatment to the existing routes under the control of Transerco. This is expected to lower the fiscal burden on the City. The project is supporting the establishment and strengthening of a high level multi-modal Passenger Transport Authority with a mandate to ensure a level-playing field for potential operators.

38. ***Replicability.*** The BRT project in Hanoi has a strong potential for replication both in Vietnam and in the region. The proposed project seeks to actively promote replication, in other Vietnamese and Asian cities, by leveraging the demonstration nature of the project and disseminating information gathered during implementation.

## 5. Critical risks and possible controversial aspects

| Potential Risks | Proposed Mitigation Measures | Risk Rating with Mitigation |
|---|---|---|
| **To Project Objectives** | | |
| Benefits (including global benefits) of the BRT being undermined by ineffective traffic management and coordination with other transport modes including planned rail, non-motorized transport (NMT), feeder services and other bus services. | (i) Financing NMT improvements around BRT stations and provision of secure bicycle and motorcycle parking at major BRT terminals;<br>(ii) Supporting the PTA, which will have the mandate to ensure coordination across modes and public transport services; and<br>(iii) Supporting the agencies responsible for traffic management with capacity building and equipment. | S |
| Planned urbanization west of West lake and North of Red River is delayed, undermining the economic benefits of the road investment | Significant development west of West Lake is already committed and some of it underway. With the completion of the Nhat Tan bridge soon to be constructed (financed by JBIC) accessibility of Dong Anh will increase dramatically. | M |
| **To Project Component Results** | | |
| *All components*<br>Implementation delays due to slow domestic decision and approval processes | (i) Requirement for regular meetings of high-level Steering Committee to guide implementation and trouble-shoot;<br>(ii) Agreement on 'standards of service' to track implementation performance complemented by annual reviews of actual progress and development of an action plan to address any issues and<br>(iii) Use of Project Preparation Facility to finance design of BRT component and to meet strict readiness criteria. | H |

| Potential Risks | Proposed Mitigation Measures | Risk Rating with Mitigation |
|---|---|---|
| *Fiduciary risk* that project funds will be mis-used due to corruption, weak internal controls and weak capacity | Development and discussion of a Governance and Transparency in project management Action Plan (GTAP), including enhanced attention to financial management (FM) and procurement issues. | M |
| *BRT*<br>BRT falters with dilution in political will with leadership change and uninformed public reaction | (i) The BRT FS was explicitly approved by Hanoi prior to project negotiations; and<br>(ii) GEF-financed media strategy will support study tours for new leadership and an extensive public outreach program. | S |
| Traffic police do not enforce BRT restrictions | The Police will be included in the steering committee and oversees study tours of functioning BRT to increase their awareness and acceptance of BRT, and consulted extensively in the design process. | H |
| *Road component*<br>Resettlement delays, counterpart funding difficulties | (i) Road design has been optimized to minimize resettlement; (ii) IDA is financing construction at resettlement sites to minimize direct Hanoi fiscal burden;<br>(iii) RAP has been based on extensive consultation to align compensation with priorities of displaced people as far as possible;<br>(iv) Counterpart funding analysis and explicit People's Council commitment for resettlement financing; and<br>(v) High level of attention to information, training and supervision of the RAP to ensure compliance. | S |
| Overall Risk Rating | | S |

Note: High Risk – H, Substantial Risk – S, Modest Risk – M, Low or Negligible Risk – N.

## 6. Loan/credit conditions and covenants

### Effectiveness conditions

(a) The Co-financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of the Financing Agreement) have been fulfilled;

(b) Hanoi has established a Project Steering Committee;

(c) Hanoi has (i) adopted a Project Implementation Plan, including therein a governance and transparency action plan; (ii) established an integrated computerized financial management system consistent with the provisions of the Project Financial Management Manual; and (iii) provided training to the staff of the PMU and of TRAMOC regarding the application of the Project Financial Management Manual and the financial management system, and procurement, all in a manner satisfactory to the Association;

(d) Hanoi has engaged consultants to prepare the detailed design of the Bus Rapid Transit system and of the Nhat Tan-Cau Giay segment of the Hanoi Second Ring Road, under terms of reference satisfactory to the Association; and

(e) Hanoi has transferred the CT1 resettlement site to TUPWS.

**Disbursement Conditions**

(b) Replication component implemented by the Ministry of Construction. Implementation of an acceptable FM and procurement action plan.

**Covenants**

(a) Establish and maintain a Project Steering Committee, under the chairmanship of a vice chair of Hanoi People's Committee, with representation from the relevant municipal line agencies, including from DOF, DAPM, DONRE, TUPWS, HAPI, the Hanoi Traffic Police, and any other relevant agencies as may be necessary.

(b) Hanoi shall adopt and put into effect a Project Implementation Plan acceptable to the Association setting forth procedures and guidelines for the implementation of its respective Parts of the Project; in particular said Project Implementation Plan shall include: (i) a governance and transparency action plan; and (ii) clear delineation of the functions, responsibilities and standards of service of the municipal line agencies in regard to Project implementation. The plan will not be amended, revised or waived without the prior concurrence of the Association.

(c) Hanoi shall prepare and adopt a Project Financial Management Manual acceptable to the Association defining financial management responsibilities with segregation of duties, and reporting structures, and setting forth procedures and processes for financial management, control and reconciliation, record keeping, reporting and auditing; and not revise, waive or abrogate the provisions of said Manual, or any part thereof, without the prior concurrence of the Association.

(d) Hanoi shall implement, and monitor and evaluate the implementation the Resettlement Policy Framework, the Resettlement Action Plan, and the Environment Management Plan in a manner satisfactory to the Association; and only revise the framework and plans after agreement with the Association.

(e) The Recipient shall cause Hanoi, by no later than six (6) months following the date of this Agreement, to engage an independent external auditor under terms of reference acceptable to the Association.

(f) Hanoi shall, in regard to its respective Parts of the Project by no later than December 15 of each year, commencing in 2007, prepare and provide to the Association for its review and comment an annual work plan for the next succeeding calendar year, together with the financing plan, including sources of funds, therefor; and thereafter implement in a manner satisfactory to the Association such annual work plan as shall have been agreed with the Association.

(g) Hanoi shall take all necessary actions to enable private operators to participate in the operation of the BRT system; and to this end, (i) upon completion of the BRT system and prior to putting such completed system into service, to put to tender and award concessions for the operation of the BRT system, to at least two operators, in a manner and under terms satisfactory to the Association; and (ii) prior to putting into service any of the segments within the BRT system, (A) to provide a proposal to the Association for review and comments which sets out a plan to put to tender and award concessions for the operation of said segments to at least two operators; and (B) to award concessions for the operation of such segments in a manner and under terms satisfactory to the Association.

**Reporting and Monitoring**

(a) HPMU will monitor the implementation of the EMP and RAP and submit twice-yearly monitoring reports to IDA, by February 15 and August 15 of each year, starting on February 15, 2008, covering the periods January-June and July-December respectively;

(b) HPMU will maintain separate project accounts, as well as monitor and report project progress, using project performance indicators.

(c) Progress reporting and mid-project review: HPMU will submit, by February 15 and August 15 of each year, starting with February 2008 and until the project is completed, a semi-annual progress report on project implementation covering the period January-June and July-December respectively.

(d) The Designated Account and project accounts for HPMU, including documentation for statements of expenses, will be reviewed annually by independent external auditors acceptable to IDA and the Government, with the audit including a separate opinion on the statements of expenses, which would then be used as a basis for disbursements.

(e) Quarterly Interim Financial Reports (IFRs): HPMU will submit the quarterly IFRs for monitoring of financial performance of the project in a format agreed between the GOV and the IDA within 45 days of the end of quarter to IDA.

(f) The detailed audit reports together with the audited financial statements will be submitted to IDA within six months after the end of each fiscal year.

(g) The detailed audit reports will be submitted to IDA within six months after the end of each fiscal year.

(h) The Government will hold annual implementation reviews (by October 30 of each year, beginning in 2008) and a mid-term review (by December 31, 2010).

## D. APPRAISAL SUMMARY

### 1. Economic and financial analyses

**Economic Analysis**

39. A formal economic evaluation was conducted for the BRT component and road infrastructure component, which accounts for about 97 percent of the loan and 96 percent of total project cost. The principal measured benefits are: savings in vehicle operating costs (VOCs) and increases in bus productivity, reduced congestion, and time savings for BRT riders, pedestrians, bicycle riders, and bus and auto passengers. The estimated overall economic internal rate of return (EIRR) is 21 percent for the BRT component and 14.5 percent for the road component. Table 2 summarizes the results of economic evaluation by component. See Annex 9 for more details.

**Table 2: Summary of Economic Evaluation**

| *Component* | *EIRR (%)* | *Net Present Value (NPV) (US$ million, 12% discount rate)* |
|---|---|---|
| BRT component | 21.0 | 41.3 |
| Road component | 14.5 | 34.0 |

The air quality and traffic safety components are small investments that past experience indicates provide very significant benefits in increased levels of safety (better air quality leading to increased health levels, lower levels of accidents, fatalities and associated economic loss).

**Financial Analysis**

40. A formal financial analysis conducted for the BRT system found that the BRT system will generate an operating surplus of an average of 1800 Vietnamese dong per trip at current real average revenue fare levels. The National Government has decided to pass the Credit onto Hanoi as a grant. However, Hanoi will need to provide a considerable amount of counterpart financing, primarily towards resettlement associated with RR2. A municipal finance analysis shows that HUTDP is affordable for Hanoi, and the proposed counterpart funding strategies are sound (see Annex 9).

## 2. Technical

41. Physically, the Giang Vo corridor between Ha Dong and Kim Ma, and the Gaiphong corridor between Quang Lai and Dai Co Viet are both important, relatively wide corridors connecting the city center to fast growing areas of the South and Southwest. However, road space is scarce and there are no easy solutions for bus priority in the city's historic center. In the chosen design for the Giai Phong corridor, BRT vehicles are designed to approach the city center along Pho Hue and Ba Trieu, two narrow one-way streets from the South. Traversing this very dense city core is technically challenging and the city would like to obtain some experience of operations on the other Giang Vo-Langha corridor before embarking on this sensitive section. The connection between the two corridors through the city center will be made after both corridors are functioning. This section is extremely challenging technically and will require both creativity and flexibility for successful implementation. Ultimately, a successful solution for the city core will need to be integrated into a wider vision that combines public transport priority with private vehicle restrictions and a focus on pedestrianization and non-motorized travel.

42. The use of articulated vehicles was considered but the city decided to start operations with single body 12 m vehicles in view of perceived difficulties with the longer articulated vehicles in the city core. After considering different station and bus designs, a 'medium height' of 70 cm was chosen, a solution that provides level boarding, lower cost vehicles than low-floor buses, and less visual disruption than 1 m higher 'traditional' BRT stations.

43. The BRT infrastructure and buses will be owned and managed by the PTA (with the current TRAMOC being its core) -- the creation of which is a key element of the public transport reforms under discussions with the HPC. Discussions with Hanoi on the PTA have been coordinated with the relevant French and European Union donor agencies. Bus operations will be provided by two different companies under concession contracts of about 10 years duration. As in most Latin American BRT systems, the bus companies would be remunerated by the Government for the services provided (probably on the basis of bus-km), while fare collection and service parameters would be established, monitored and enforced by the PTA. It is anticipated that each of the concessioned companies will provide services on both BRT corridors, under the PTA's operational controls. Plans have been made to reorganize (and in some cases terminate) existing routes operating on the corridors. A system of feeder routes has been designed that would provide passengers the opportunity to transfer to the planned BRT at designated interchanges and at the terminals. The feeder services would largely be the result of the route restructuring of existing Transerco buses, although it is possible that some services,

such as new express bus routes from Kim Ma to north-east Hanoi across the Chuong Duong Bridge, could be concessioned to another operator. An open-protocol smart ticketing system is being piloted by an ongoing European Union aid project. HUTDP will finance scaling up such a system, which will be integrated with regular buses and any future rail system. Fare integration is being coordinated with AFD, one of the financiers of a proposed rail system.

44. In the design of the Second Ring Road a series of different alternatives were considered in view of significant technical, social, economic and financial constraints. The final solution chosen has many features of interest. First, the inclusion of bus-lanes on the main carriageways in the initial phases (to avoid congestion and conflict with local traffic and nonmotorized traffic) and the subsequent reservation of an alignment for mass rapid transit compatible with longer term growth proposals for the area north of Red River and west of West Lake. Second, there are significant reductions in the area within the previously defined planning line at Buoi Interchange resulting in a significant reduction in involuntary resettlement and associated costs. The final design chosen for the section between Cau Giay and Buoi reflects an extensive analysis to provide forecast capacity needs in a very tightly constrained space bounded by the dyke and the drainage canal. Despite the efforts made to minimize resettlement, costs related to resettlement account for about two-thirds of the total cost of the component. This is not unusual in the context of Hanoi, where resettlement is expensive and forms the major share of any road investment. That said, the proposed road is a strategic investment, critical to Hanoi's continued growth. Most of the resettlement is concentrated at one location (Buoi); much of the alignment has actually been reserved by the city for a considerable period of time.

### 3. Fiduciary

45. A GTAP has been formally agreed with HPC (details in Annex 19). This plan is based on: (i) a procurement plan designed to minimize collusion risks; (ii) enhanced transparency and disclosure; (iii) civil society oversight; (iv) a complaint handling mechanism (and defined sanctions); (v) independently conducted implementation audits; and (vi) enhanced supervision of procurement practices to ensure compliance with Bank guidelines.

46. **Financial Management**. On the basis of guidelines issued by the Financial Management Sector Board on November 3, 2005, the project meets minimum Bank financial management requirements, as stipulated in BP/OP 10.02. The inherent risk to the project from the financial environment is assessed as 'moderate.' The HPMU includes a functioning dedicated financial management unit with experienced personnel (transferred from UTIP). The audit reports of UTIP, which were managed by the same personnel, revealed no issues of accountability with only one audit qualification which was promptly and properly fixed.

47. Prior to project effectiveness, the project's implementing agencies have committed to take the necessary actions to ensure that the project will have in place an adequate financial management system that can provide, with reasonable assurance, accurate and timely information on the status of the project in the reporting format required by the Bank (see Annex 7).

48. **Procurement.** A procurement capacity assessment of the implementing agencies, carried out prior to appraisal, concluded that the overall risk of the procurement process is ***average***. An adequately staffed and operational PMU familiar with Bank procurement practices had already been established. A plan to mitigate procurement risks and strengthen PMU capacity has been agreed upon. Procurement for the proposed project would be carried out in accordance with the World Bank's *"Guidelines: Procurement Under IBRD Loans and IDA Credits"* dated May 2004; and *"Guidelines: Selection and Employment of Consultants by World Bank Borrowers"* dated May 2004, and the provisions stipulated in the Credit Agreement. General arrangements of the project procurement, Procurement Plan and IDA review are discussed in Annex 8.

## 4. Social

49. The project supports the development of public transport, pedestrian and bicycle facilities, all of which will have desirable distributional benefits. A key feature of the preparation of the BRT component is the attention given to inclusive design and the concerns of the disabled (see Annex 4 for technical details and Annex 19 for details of stakeholder participation). However, the project will also have adverse impacts related to the need for land acquisition and involuntary resettlement. At the project design stage, a great deal of effort was made to minimize adverse social impact through design modifications including realignment and reduction of the scale of proposed civil works (see Annex 9). The resettlement inventory indicates that the project would acquire about 31.2 ha of land, affecting about 7,329 people in 1,684 households, 730 households of whom would need to be relocated.

50. A Resettlement Policy Framework and a Resettlement Action Plan (RAP) have been prepared following local laws and policies of the World Bank OP4.12. The RAP was prepared on the basis of a detailed impact inventory, a social assessment, a project resettlement policy framework and an extensive consultation process with the affected population as well as within relevant government agencies. The RAP describes in detail the project impacts, the resettlement policy framework, the compensation and rehabilitation approach, resettlement site development and relocation arrangements, institutional and implementation arrangements, consultation process, cost and budget and monitoring arrangements. Annex 10 summarizes key features of the RAP.

## 5. Environment

51. The project is classified as a Category A project under OP 4.01 Environmental Assessment, due to the disruption to be caused by the construction of a new road, bus rapid transit lanes and stations and a resettlement site in an urban setting. A reputed international consultant and reputed local agency prepared the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) using a consultative process, as per Bank Policy. These documents were disclosed locally and in the Bank's InfoShop in May and November 2006. Details are provided in Annex 10.

52. The project facilitates environmentally desirable planning and physical improvements in the urban transport networks of Hanoi by supporting public transport, enhanced facilities for pedestrians and cyclists, safety and spatial development patterns conducive to strong public transport. In addition, all project investments have been designed to minimize any adverse

impacts on the environment; none of the components encroach on any environmentally sensitive terrain. An Air Quality subcomponent has been designed to support Hanoi's Air Quality Management program.

53. The EIA identified potential negative environmental impacts associated with construction related disruption (temporary land occupation, generation of dust, soil erosion, spoil disposal, disruption of local traffic, sanitation of construction camps), noise (construction machinery and traffic), and the possibility of increased air pollution, and treatment of wastewater (primarily from the bus depot). However, these impacts are not significant and can be mitigated to acceptable levels through effective mitigation measures. The assessment concluded that the project will not have significant environmental impacts and all the adverse environmental impacts can be avoided, reduced and minimized provided the mitigation measures developed in the EMP are properly implemented.

## 6. Safeguard policies

| **Safeguard Policies Triggered by the Project** | Yes | No |
|---|---|---|
| Environmental Assessment (OP/BP/GP 4.01) | [X ] | [ ] |
| Natural Habitats (OP/BP 4.04) | [ ] | [ X] |
| Pest Management (OP 4.09) | [ ] | [ X] |
| Cultural Property (OPN 11.03, being revised as OP 4.11) | [ ] | [ X] |
| Involuntary Resettlement (OP/BP 4.12) | [ X] | [ ] |
| Indigenous Peoples (OD 4.20, being revised as OP 4.10) | [ ] | [ X] |
| Forests (OP/BP 4.36) | [ ] | [ X] |
| Safety of Dams (OP/BP 4.37) | [ ] | [ X] |
| Projects in Disputed Areas (OP/BP/GP 7.60)* | [ ] | [ X] |
| Projects on International Waterways (OP/BP/GP 7.50) | [ ] | [ X] |

54. *Linkage.* Contemporaneously with the project, Vietnam's Ministry of Transport is constructing the Nhat Tan Bridge across the Red River. The south end of the proposed bridge would connect with Hanoi's dyke road as well as the proposed RR2, which is part of the project. A review of these activities concluded that they are not 'linked' to HUTDP as per OP4.01 and OP4.12 (since the construction of this bridge is not essential to achieve HUTDP objectives). However, a due diligence review of the environmental review and resettlement associated with the Nhat Tan Bridge project was conducted which concluded that the resettlement has been implemented consistent with OP 4.12 objectives, and to the general satisfaction of displaced persons. Similarly, the environmental assessment and proposed mitigation plan were found to be satisfactory and consistent with OP4.01.

## 7. Project Readiness

55. The project generally meets the readiness filters established by Bank Country Management. Engineering design and bid documents for first year works (at the resettlement site) are under preparation and expected by February 2008.

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas.*

## Annex 1: Country and Sector or Program Background

## VIETNAM: Hanoi Urban Transport Development Project

Hanoi, North Vietnam's key economic node and the country's capital, is a rapidly growing city of 3.2[1] million people (2005), with an average yearly population growth rate of about 3 percent[2] in the last five years. Projections indicate that the population may double by 2020, largely through rural migration (Vietnam's urbanization level is presently only 26 percent).

In the last years, Hanoi's economy has been growing at double-digit yearly growth rates, reaching a gross regional domestic product growth rate of 15 percent[3] in year 2003. Such high levels of economic growth are putting tremendous pressure on the city's physical infrastructure. In ten years, the number of daily trips (excluding walking) has doubled, reaching 6.5[4] million in 2005 (compared to 3.1 million in 1995) – a yearly growth rate of almost 8 percent. HPC is trying to balance the conflicting pressures of preserving the city's character (particularly a very attractive central area), while meeting the demands posed by high levels of continuing economic growth.

Motorcycles are the primary mode of transport accounting for 62.3 percent[5] of vehicular trips (2005 figures). Bicycles carry about a quarter of trips. Automobiles and trucks account for 4.5 percent of trips and ownership is relatively low but growing rapidly (13 cars / 1000 people[6] in 2005, compared to 8 cars / 1000 people in 2001 – the majority of existing cars being owned by Government or joint venture companies). Public transport was neither a central government nor a municipal priority in the initial years after the Doi Moi and by the end of the 1990's, bus travel accounted for only about 2 percent of all trips. This has changed significantly in the last few years, with buses accounting for about 8 percent of trips by vehicles in 2006. Because of the high continuous economic growth, Hanoi has concerted its efforts to promote public transport as a key element of its urban transport strategies.

As transport demand rises, Hanoi is faced with numerous issues ranging from traffic management, to congestion, traffic safety, air quality, city planning and transport sector financing. In order to keep up with its economic growth and develop a sustainable transport system, the strategic foci for Hanoi should be to:

1. Promote sustainable public transport development
2. Develop an efficient management of the existing street system
3. Initiate demand management framework
4. Manage transport sector externalities (safety and air pollution)
5. Promote cohesive transport and land development
6. Examine financing options for sustaining transport sector development.

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[1] HAIDEP, Hanoi Urban Environment Fact Book [Ref. 1], JICA, May 2005, p. 19
[2] Ref. 1 p. 19, and HIDEP, Main Points of Progress Report [Ref. 2], JICA, May 2005, p. 14
[3] Ref. 2, p. 2
[4] Ref. 1, p. 19
[5] All transport modal shares in this paragraph come from Ref. 1, p. 20
[6] Basic Case for Bus Priority in Hanoi, PADECCO Report, p. 2-21

## 1. Promote sustainable public transport system

From an urban transport perspective, the predominant challenge for the City of Hanoi in the coming decade will be to deal with expectations of increasing levels of urbanization. The urban population of Hanoi is expected to grow with increases in overall urbanization levels in Vietnam. Furthermore, the presently high urban densities will likely decrease as incomes rise and more housing is consumed. The spatial footprint of the city will need to increase to accommodate these trends. Transport will have an important role in this process. Motorcycles, the dominant source of mobility at present, are best for short trips and have serious limitations as trip lengths grow. The role of the private automobile as a provider of mobility will continue to be minor; only a small minority will have access to automobiles in the coming two decades. Successful development of efficient, high capacity, public transport systems – bus based systems in the short term, with a role for urban rail in the longer term – that ensure high quality access to commercial areas and central business districts, will be critical to facilitate continued urban growth.

Over the course of a series of decisions (No. 34/2003 NQ/HD, and No. 72/2004/QD-UB following No. 71/2004/QD-TTg of the Prime Minister) HPC established priorities to promote public transport with mode share goals for 2010 and 2020 (30 percent in 2010 and 50 percent share for 2020), and to reform the public bus sector by encouraging the participation of the private sector in the provision of bus services into a sector erstwhile dominated by TRANSERCO, a public transport monopoly.

### 1.1 Characteristics and performances of the current public transport system in Hanoi[7]

Hanoi has witnessed a spectacular improvement in bus service in recent years. A bus fleet of 237 buses at the end of 2001 was increased to 708 at the end of 2003 and 787 in 2007 (see Table A1.1).

**Table A1.1: TRANSERCO's Bus Fleet Details**

| End of 2001 | | End of 2002 | | End of 2003 | |
|---|---|---|---|---|---|
| Fleet | Capacity | Fleet | Capacity | Fleet | Capacity |
| 238 | 9,147 | 413 | 23,115 | 708 | 41,035 |

As a result of the new buses, coupled with route rationalization, introduction of integrated fare structures (including monthly passes) and increased quality of service (bigger buses, more frequent service running longer), bus ridership has increased tremendously in recent years (see Figure A1.1). Monthly ridership has increased by a factor of 20 in the last five years, from about 1.2 million/month in 2001 to about 24 million a month in 2006.

[7] All figures in section 1.1 come from the following three reports: (i) Study of urban public transport conditions in Hanoi, draft final report, Gordon Nielson, March 2004, and (ii) Strategic options for private sector participation for urban transport in Hanoi, PPIAF - MVA final report, November 2004. (iii) Results of Hanoi bus passenger survey provided by TRAMOC in March 2007.

**Figure A1.1: The period 2002 through 2004 saw a dramatic increase in monthly bus ridership**

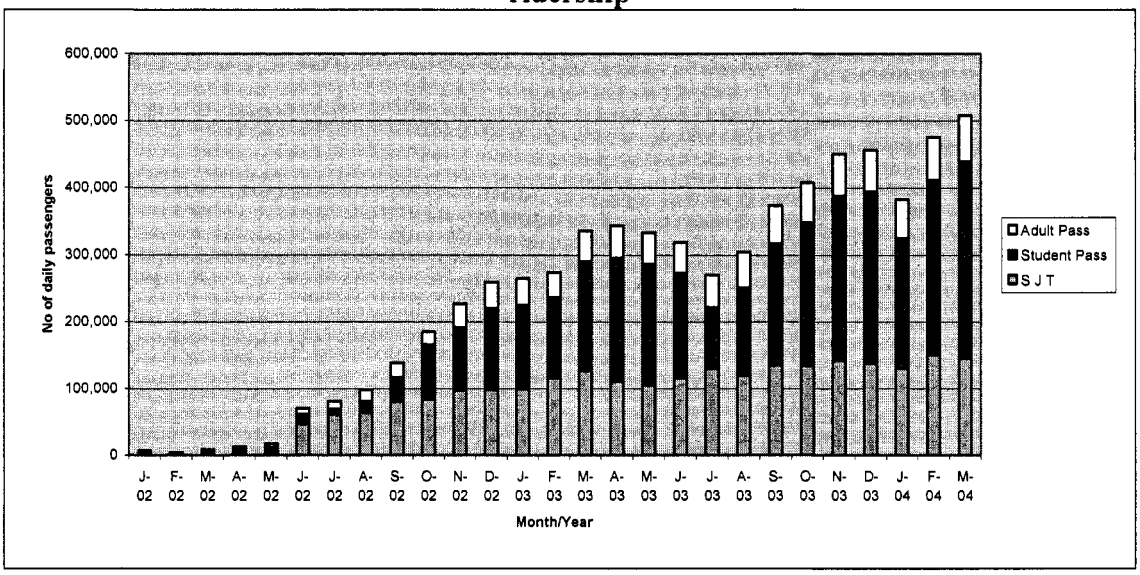


Table A1.2 presents basic operational data for the system as of March 2004 and in May 2006. Despite significant improvements in the last two years, in large part due to an increase in fares in 2005, average bus revenue per day is quite low at $101. The average number of passengers per bus per day remains high at 895, though it is lower than two years ago (964). This decrease is due in part to an increase in the number of new routes in that time. Recent analysis conducted by a European Union aided project suggests that there is potential to save costs by eliminating some relatively little-used routes and routes plying parallel to existing routes.

**Table A1.2: Performance of Hanoi's bus system**

| | March 2004 | May 2006 |
|---|---|---|
| Average Daily Ridership | 508,000 | 557,000 |
| Average passengers per bus in service per day | 964 | 895 |
| Average speed of bus in revenue service | 18 kph | ~18 kph |
| Average revenue per bus per day | VND955,000 (US$ 60) | VND1,655,000 (US$ 101) |
| Average fare per passenger carried | VND1000 (US$ 0.06 cents) | VND1800 (US$0.11 cents) |

## 1.2 Organizational Structure and Regulation

Prior to the acquisition of new buses, Hanoi's bus operators (all of whom were state-owned) were merged in June 2001 into a state-owned company called TRANSERCO. In the period 2001 to 2003, HPC bought buses for TRANSERCO, and the company was compensated for operations based on a directly negotiated 'standard cost' formula based on an independently derived estimate of operating costs. TRANSERCO collected payments from fares and was paid the difference between the fares collected and payments due according to the standard cost formula.

The bus service has required operating subsidies from its inception (see discussion in Annex 9). A PPIAF financed diagnosis in 2004 concluded that system costs were generally in line with good practice operations (though some potential remained for achieving savings) and the operating losses were largely due to low fares, in particular disproportionately low monthly fares (at that time average fare per passenger carried: 6.3 US cents). Levels of both monthly and single-use fares have been increased since then and differentiated fares based on trip length have been introduced. As a result average fare per passenger carried has risen significantly to about 11 US cents.

Hanoi PC's interests are managed by the Transport Management and Control Center (TRAMOC) under TUPWS. TRAMOC is the public agency with designated responsibility for planning routes and services, and managing contractual relationships with the operators on behalf of the city. Though currently weak relative to TRANSERCO, TRAMOC is gaining capacity and is positioned to be the manager and regulator of public transport in the city. Sustained assistance from German, French and European Union aid agencies, operationalized through a sequence of programs (AsiaTrans, ECOTrans) starting in 2000, focusing on supporting TRAMOC have had an important role in supporting the renaissance of bus transport in Hanoi. These programs currently support four full time experts supporting TRAMOC. These efforts contributed to the successful reform of the ticketing system (paper tickets), the information of passengers, improvement of bus maintenance facilities and practices, and the design and implementation of interchange stations at Cau Giay and Long Bien (planned).

**How efficient is TRANSERCO?** An analysis of TRANSERCO's costs conducted in 2004 (see Table A1.3) found a relatively low staff to bus ratio, particularly notable in view of the current two person (driver and conductor) operational regime.

**Table A1.3: Details of TRANSERCO's staffing at the end of 2003**

| Staff type | Number | Percent of total | Staff per bus PVR | Staff per bus in Fleet |
|---|---|---|---|---|
| Drivers | 1,587 | 41% | 3.01 | 2.24 |
| Conductors | 1,651 | 42% | 3.13 | 2.33 |
| Maintenance | 159 | 4% | 0.30 | 0.22 |
| Other traffic staff | 274 | 7% | 0.52 | 0.39 |
| Management & admin | 235 | 6% | 0.44 | 0.38 |
| **Total** | **3,906** | **100%** | **7.41** | **5.52** |

However, the analysis also found that buses were not being used as intensively as they could be; the company was organized such that each depot owned a full complement of spare buses and only 74 percent of the fleet was in use at any given time. For TRANSERCO's relatively new fleet this figure should have been higher than 90 percent. Furthermore, expectations were that in a business-as-usual scenario operating costs would likely continue to rise due to:

- increasing labor costs (the wages are low at present, and it is certain that they will rise);
- decreases in bus productivity due to bus speeds getting reduced in growing congestion; and
- increasing maintenance costs of an older bus fleet.

**Introducing competition.** In 2004 HPC decided to introduce competition in the provision of bus services. The official position of the Hanoi government was spelled out in Interim

Regulation Decision 71/2004/QD-UB dated May 14th 2004. This regulation indicated substantive reform of the public bus sector, as for the first time provisions were specified to break the monopoly held by TRANSERCO. The regulation stated that HPC wished to encourage the participation of the private sector in the provision of bus services in Hanoi and specified that six new bus routes would be put out to tender in the near future. The Decision indicated that both state-owned companies and private sector companies could bid on the routes.

The six routes were put out for tender in December 2004 and the evaluation was completed in early 2005. Two companies shared the six routes (five to one operator, one to another). Gross cost contracts were awarded, i.e., operators will not bear revenue risks and will be compensated based on service provided. TRANSERCO did not submit bids. This avoided any debate about the achievement of the government policy to encourage the private sector through the tendering of the rights for the six routes. Subsequently eight other new routes have been bid. TRANSERCO has bid on, and won all of them.

Nonetheless, the willingness for further reform appears to be widely held and strongly supported by central government. Hanoi has started the process of bidding out some of the existing routes operated by TRANSERCO, and it is now accepted that all new routes will be bid competitively. HPC's plans call for TRANSERCO to eventually be 'equitized' (sold to management), and there is a general understanding that in that situation, Hanoi's interests would be best served by having multiple strong operators in the city.

**Developing an independent regulatory and planning authority.** Until 2004, TRANSERCO was a division of TUPWS; since April 2004, it has been placed under the direct control of HPC. As discussed above, until 2005, TRANSERCO operated as a monopoly operator compensated according to a negotiated formula. In theory TRANSERCO's operations were monitored by TRAMOC, a bus planning and management agency under TUPWS responsible for planning, scheduling and monitoring operations. In practice, much of the expertise and control for planning and scheduling still remains with TRANSERCO. However, with the ongoing reform the public transport sector in Hanoi it is recognized that a more systematic and sophisticated approach is needed to fulfill government's key roles of monitoring the public transport system, planning an integrated network and services, and imposing plans and strategies on the operators through their operating contracts.

The recommendations from previous studies proposed the creation of a high level Public Transport Authority (PTA) to take over the functions of TRAMOC. The introduction of multiple bus operators, TRANSERCO's proposed privatization, the proposed BRT system and plans for urban rail in the near future have increased the urgency to set up such an authority. Such a regulatory and planning authority would need to be properly budgeted, independent of operators as well as public sector road infrastructure agencies, and be able to perform the following functions:

(a) Long term public transport planning
(b) Co-ordination of all existing and new schemes in conformity with the plan
(c) Procurement of service providers on a contractual basis
(d) Oversight and control of common infrastructure (e.g. terminals)
(e) Oversight and control of finance, including ticketing and revenue collection

As part of this Project, Hanoi has decided to create such an authority using TRAMOC as a core. A phased approach is planned that focuses first on raising the profile and strengthening the skills and capacity of TRAMOC leading to institutionalizing their functions in an independent authority. The goal of this long-term institutional development is to:

- First, support the development of a strengthened planning agency (TRAMOC) to effectively manage relationships with BRT and bus operators on behalf of the city. Training, capacity building and additional authority (a decision from the Hanoi PC signaling the planned role for TRAMOC) would be provided to support this effort. The presence of multiple strong bus operators in Hanoi would indicate that the locus of control for managing bus operations rests not with any single operator, but with the planning agency.
- Second, ensure that this agency is able to coordinate and integrate planning and operations (including schedules and fare integration) across different modes of public transport including urban rail. Integrated fares and schedules between bus-based and future rail-based systems would be an indicator of success in this measure.
- Finally, create a strong, financially secure, independent agency staffed by capable skilled personnel to coordinate and manage all public transport planning and operations for Hanoi.

Progress on step 3 above would be as much a result of political as technical considerations. Thus within the framework of the project, the objectives would be substantially achieved through attainment of steps 1 and 2 above.

**1.3 Expansion and System integration:** Several plans for the development of different urban rail systems are underway, in most cases financed by bilateral donors. A twelve kilometer Nhon to downtown east-west line to be partially financed by the French government (current cost estimate about US$600 million) is the most advanced. There is an urgent need to ensure physical, operational and marketing coordination between the bus system, the proposed BRT system and any future rail systems. The establishment of a high-level PTA is a critical element of any such plans for integration.

**1.4 Key challenges relating to public transport addressed in the current project**

- Development of a BRT system on two major corridors in Hanoi to address the problems of increasing capacity in the public transport system in a cost effective manner. The BRT also preserves the speeds of the bus system amid growing congestion. Indeed, as incomes rise and motorization increases, congestion on the mixed-use lanes will also increase the attractiveness and competitiveness of the BRT.
- Support the strengthening of TRAMOC and supporting the establishment of a functioning Public Transport Authority with training, capacity building and support needed to coordinate between different operators and different modes of travel.
- Support further reform in the bus transport industry. The BRT lines will be operated by operators chosen by a competitive concession. Hanoi plans to continue to award new and eventually existing routes using competitive tenders. Hanoi is also looking to develop revenue sharing mechanisms that will allow the city to share revenue risks with operators in a multiple-operator environment.

- Technical assistance to develop subsequent phases of the BRT system.
- Public communication and outreach.

## 2. Develop an efficient management of the existing street system

### 2.1 Create a culture of traffic management

Poor traffic organization remains a critical issue contributing to accidents, congestion and consequently air pollution, despite concerted efforts in Hanoi focusing on safety and traffic management. There is a perception that international good practice is not completely transferable. This is partially justified; some of the standard tools of international traffic management (round-abouts, junction channelization etc.) need to be modified for a predominantly motorcycle traffic stream before they can be effective in the Vietnamese context. However, properly adapted, the adoption of these and other tools (traffic lights, medians, an enhanced focus on a properly maintained secondary road system) will significantly enhance efficiency and safety. There is a need to create a culture of traffic management, based on pilots, and a willingness to experiment. The issue is not only to reduce accidents but to improve traffic order.

### 2.2 Enforcement: the problem of fragmentation of responsibilities

Such a culture of traffic management is currently inhibited by excessive fragmentation of responsibilities between five agencies with different yet overlapping responsibilities as follows:

(1) Traffic Police: Responsible for operations and most enforcement, more precisely, everything occurring "curb to curb" on the carriageway; mainly concerned with moving vehicles, although they will also deal with illegal on-street parking.
(2) Local Regulation Police: Responsible for stationary vehicles and activities including off-street public parking, hawkers and stockpiling of goods.
(3) Public Works Department (TUPWS): Its function is "to protect transport infrastructure". Responsible for activities in off-street private areas; dealing with illegal activities including parking and stockpiling of goods. Also responsible for planning, designing, and implementation of road works.
(4) Military Police under the Ministry of Defense: Override all the others when necessary; related to the military force.
(5) Volunteer civilians: Supporting the other agencies.

Hanoi needs to find solutions to the problem of fragmentation of responsibilities and simultaneously find ways to build capacity in the institutions responsible for traffic management. The concept of natural enforcement by good physical design would minimize the enforcement required by the traffic police.

### 2.3 Key challenges relating to traffic management addressed in the current project

- The project will support extensive on-street traffic management measures to complement the proposed BRT system. The measures will be designed to minimize the disruption to

other traffic from the BRT and to facilitate safe and convenient access to and from the BRT for pedestrians and cyclists,

- The project will continue capacity building support to the traffic police and traffic command center initiated in the Hanoi component of the previous Bank financed Vietnam urban transport improvement project.

## 3. Initiate demand management framework

### 3.1 Ownership restrictions

Besides promoting public transport, thus far, efforts to control rapidly increasing congestion have focused on limiting motorcycle ownership in the urban districts of Hanoi by fiat. Such controls are neither equitable nor effective (the rules have proved to be easily circumvented by registering vehicles outside the restricted districts) already banned in Hanoi recently. There is a need for Hanoi to develop a comprehensive policy on managing congestion that includes consideration of restrictions on ownership and use of both motorcycles and cars, a parking policy, promotion of non-motorized modes for short trips and more effective traffic management.

### 3.2 Car ownership

Though car ownership is low (13 cars per 1000 people[8] in 2005) in part because of high auto taxes levied by the Central Government, and some municipal regulations such as a requirement in Hanoi to demonstrate availability of parking before an auto can be registered, there is a urgent need to focus on auto use restrictions: motorization levels are rising (the number of registered cars has been growing at roughly 16 percent[9] per annum in the last four years), and even a small increase in auto traffic will significantly increase congestion. In the longer term, the cities need to consider market-based methods to manage private vehicle ownership (auctioning titles) and use (congestion charges, parking charges). In this context, the development of a current vehicle registration system for all vehicles including motorcycles, which requires users to update their registration regularly (annually, every two years), will be key to enforcement efforts. Such a system is a basic tool that will also be a cornerstone of any attempts to manage traffic compliance, safety and air quality.

### 3.2 Key challenges relating to demand management addressed in the current project

- Technical assistance to examine the use of economic instruments as alternatives to command-and-control policies to manage use and ownership of motorized vehicles. The assistance will also examine the potential of parking policy in combination with a parking enforcement policy to support congestion management.
- The project will support the Traffic Inspection Board under TUPWS, partially responsible for parking enforcement, with equipment and training.

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[8] Basic Case for Bus Priority in Hanoi, PADECO Report, p. 2-21.

[9] Calculation based on the following: car ownership (in car / 1000 people) has been growing at the average rate 13% per annum in the last four years [from 8 cars / 1000 people in 2001 to 13 cars / 1000 people in 2005], at the same time Hanoi's population has been growing at the average rate of 3%. Therefore the number of registered cars has been growing at roughly 16% per annum over the last four years.

## 4. Manage transport sector externalities - Safety and air pollution

### 4.1 Safety

High levels of motorcycle-related accidents remain a significant problem (though Hanoi has achieved significant reductions in accident rates in recent years with an enhanced focus on traffic compliance and stricter licensing/insurance procedures). The most egregious problem in this context is a waiver from the obligation to wear helmets inside city limits in the national law. In the coming years there will be a need to develop multi-institutional strategies that focus on driver training and other education/outreach, vehicle testing and enforcement, coordination with health and emergency response, promoting seat belt use etc. In the longer term, a well-functioning competitive insurance sector that ties premiums to safety/compliance records may have a significant role to play. At present cities' ability to effective enforce/monitor compliance with traffic rules is limited by the absence of a regular vehicle registration requirement/system.

### 4.2 Air quality

Though Vietnam has successfully phased out lead from gasoline, Hanoi still has significant air quality problems. Limited results of ambient air quality monitoring in Hanoi shows that air pollution levels in the city exceed the national ambient air quality standards with respect to particulate matter (PM). Carbon monoxide (CO) and nitrogen dioxides ($NO_2$) at some urban street locations sometimes exceed the air quality standards. A trust-fund financed study conducted in 2006 estimates that vehicular emissions represent as much as 40% (including re-suspension) of known local emission sources in terms of PM and most part in terms of NOx. When compared among different vehicle types, motorcycles could be the largest contributor of PM (about half) and the second largest contributor of NOx (about one fifth) after diesel trucks. The key challenges in addressing air quality issues in Hanoi include:

**Lack of reliable data**. An air quality monitoring network and an updated emission inventory are essential to make reliable data available for policy decision. However, due to fragmented management of air quality monitoring stations, and a lack of upkeep of the current stations, no consolidated data or reports are available so far. Until late 2005, four different agencies including DONRE, a university and other agencies managed Hanoi's five existing air quality monitoring stations. No procedures were in place to share or integrate data. HPC's Decision No. 158/2005/QD-UB in late 2005 consolidated the management of all these stations under CENMA, an agency under DONRE. This decision should significantly improve this situation, though timely transition of data management is still a challenge. In addition, most of the monitoring instruments are not working properly and need repair, and the current geographical coverage of monitoring network is insufficient. A preliminary analysis on air emission sources suggests that the sources of significant part of PM in the atmosphere have not been identified and very limited local emission data are available. This project will thus help improve air quality monitoring network and develop a mobile sources emission inventory.

**Lack of adequate institutional arrangements**. Until recently, DONRE has not taken any substantial role in air pollution control measures. In addition to the decision on monitoring data consolidation to DONRE/CENMA, DONRE has recently been assigned to develop a Hanoi Air Quality Management Plan, and in so doing to establish and lead a Air Quality Management

(AQM) plan Working Group consisting TUPWS, Traffic Police, DOI, Department of Health, DAPM, District PCs and research institutes. These institutional settings are compatible with international good practice, but without prior experience their effective operation is a challenge. This project will thus help effectively operate these new institutional arrangements and develop DONRE's leading role in air quality management.

**Lack of effective control measures**. International experience suggests that one of the most basic and effective measures for controlling vehicle emissions is an inspection and maintenance (I/M) program. In Hanoi, motor vehicles are subject to periodic inspections and permitted to drive only with valid inspection certificates. Whereas motorcycles are possibly one of the major sources of air pollutants in the traffic sector and emission standards for in-use motorcycles do exist, no measures are being implemented to check compliance with the standards for motorcycles. Given that high-quality source analysis is not yet available and the number of motorcycles is huge, development of control measures for motorcycles should take a step-wise approach. This project will thus help collect data and experience necessary to examine the feasibility of a mandatory inspection system for motorcycles. Since DONRE is assigned to develop an AQM Plan, the elements of AQ sub-component are also expected to be incorporated in the AQM Plan as main pillars.

### 4.3 Key challenges relating to safety and air quality addressed in the current project

- Safety. The project will support training and enforcement related equipment for the traffic police and support the development of traffic management measures that would create a safer traffic environment particularly for pedestrians and NMVs.
- Air quality. Institutional issues were a key focus of the preparation of the air quality subcomponent. HPC's late 2005 decision to consolidate the management of all existing air quality stations under DONRE helps to address concerns related to fragmentation. Dialogue during preparation has also focused on issues related to implementing effective control strategies, and at this stage the HPC is fully cognizant of the need to extend the mandate of DONRE from monitoring to control. The sub-component has been designed in coordination with other aid agencies active in Vietnam and has been designed to complement and leverage bilateral interventions of the Swiss aid agency (Swisscontact), Norwegian aid agency and JICA. DONRE, coordinating as appropriate with TUPWS, traffic police, the Vietnam Register and other related agencies, will lead the implementation of this component. This sub-component will include the improvement of monitoring network, the development of an emission inventory, and development of a motorcycle emission controls strategy to address air quality issues.

## 5. Facilitating growth with cohesive transport and land development

Given the extremely high population densities in urban Hanoi (about 272/hectare for the inner districts rising as high as 400 for Hoan Kiem district), growth in the urban area will require spatial growth. Hanoi has an ambitious spatial growth plan based on leading investments in road infrastructure.

The major directions of this planned growth are to the west of the existing urban area – basically to the west of West Lake – and to the north, beyond the Red River. A necessary pre-requisite of this growth is the development of the primary road network serving these areas. Hanoi currently has few high standard urban arterial roads but the recent expansion of the city (initially to the south and south-west of the centre) has occurred around an evolving network of ring and radial routes. The expansion and extension of the Second Ring Road, in the west and towards the north of the city, is perceived as a key 'facilitator' of the proposed urban growth areas.

However, to maximize their benefits, investments in public transport and road infrastructure will need to be coordinated with, and complemented with, an enhanced focus on urban planning to ensure that growth is coordinated along high density corridors. Much work is still needed to transform a planning tradition based on a centrally planned economy to a more flexible process, responsive to the demands of a market economy, with the implementation and monitoring capabilities to manage urban growth effectively. Also important is a need to develop metropolitan/regional institutions that can coordinate between local governments to minimize the incentives for jurisdictional boundaries to distort development. Additionally, currently, the process of land takes for public infrastructure is hindered by the absence of a well functioning market in land. Though the current land law comes closer than its predecessors in recognizing market values of land, land values in the major cities remain excessive relative to income levels due to a variety of market-distortions, and exercising eminent domain still requires a process of complicated (and often very lengthy) negotiations. Additional reforms are still needed to normalize urban land title and tie compensation levels to market valuations of land so that the land-take process can be streamlined (though care needs to be taken that the process protects the interests of those from whom the land is taken).

Similar efforts are needed to support the transport planning mechanisms in the major cities. First, responsibilities are excessively fragmented: Hanoi has different agencies planning and implementing rail and bus systems with minimal coordination. It is critical that all elements of the public transport system are coordinated, integrated and present the 'customer' a seamless experience. Unified responsibilities should also help the process of prioritizing; existing transport master plans for the major cities include very expensive investment 'wish-lists' formulated without budget constraints. Until resource constrained plans clarify that some investments (such as urban metro systems), however beneficial, need to be deferred to the future, it will be difficult for city authorities to focus on what are often perceived to be 'second-best' though financially affordable solutions (such as bus-based systems), in the short term.

### 5.1 Road infrastructure expansion to facilitate growth

The Master Plan calls for no more growth in the inner city. Regardless of the realism of that expectation, it is likely that once road infrastructure is available, significant new growth can be expected in newly urbanizing areas west of the Third Ring Road (south of Red River), Tay Ho district west of West Lake and in Dong Anh district north of the Red River.

The road network in Hanoi has evolved in conjunction with the growth of the city core and its subsequent expansion to the south and south-west. Separate development has occurred north of

the Red River, but this has been constrained by the capacity limitations of the available bridges. The lack of high capacity urban arterials is constraining city growth and resulting in congestion and long travel times. The physical expansion of the city requires the establishment of a network of high capacity roads to access and serve the development areas.

A fundamental requirement to provide for the desired (planned) growth in west and north Hanoi is the construction of an adequate network of arterial routes to access the proposed development areas and to connect them with the existing city. These roads will become key elements in the city's long-term road network and must have sufficient capacity to fulfill this role and handle potential growth in the surrounding areas.

### 5.2 Planning issues and problems affecting infrastructure

The term "urban planning" as used in western countries for the design and integration of urban functions is not readily applicable to Vietnam. Three types of plans, each the responsibility of different ministries, apply to urban areas: socio-economic development, sector development, and spatial design (also called construction or master plans): Socio-economic development plans – are development strategies, but also set precise development and investment targets and combine (often without prioritizing) proposals contained in sector plans (e.g. transport, industry, education, health). They are prepared at all levels of government including wards and communes and consolidated at higher levels. Spatial plans – present the proposed spatial arrangement of land uses, building footprints and infrastructure for a province, city, district, or development site in progressively greater detail. Physical plans in Vietnam are variously translated into English as "spatial plans", "master plans", or "construction plans". Sector development plans – are production targets and strategies for output of individual sectors e.g., water supply, urban transport industries, etc.

This makes for a **fragmented and usually uncoordinated planning regime with different agencies developing independent unconstrained investment plans**. Plans at all levels are made without apparent reference to financial reality or cost. The result is rigid single purpose technical master planning specifications, without the disciplining feedback provided by financial constraints, drive plan design, investment, and city classification. Such plans often result in solutions (for examples for urban road network connections that would cause significant resettlements) that are not financially feasible and with unclear benefits within their context. In the absence of meaningful public consultation at the planning stage (though new regulations on environmental assessments require public consultation at investment project feasibility study stage), it is not unusual for plans to provide solutions with very concentrated adverse benefits (such as involuntary resettlement).

**Inadequate focus on plan implementation**. The physical plans are purely spatial and are reminiscent of the "city beautiful" genre in Western urban planning. The visions lack the phasing and the incremental development mechanisms to translate them to the reality of development in a market economy where development is likely to occur on a piecemeal and "unplanned" basis governed by the availability of land on the market and capital to the developer. Moreover, the elaborate planning regime is not backed by an adequate implementation system to manage, or enforce adopted plans.

### 5.3 Key challenges relating to road infrastructure and urban growth addressed in the current project

- The project is financing the section of the second ring road between Nhat Tan and Cau Gaiy, a technically challenging but important link in Hanoi's road network, imperative to facilitate growth west of West lake and ultimately facilitate growth north of the Red River via the Nhat Tan Bridge over the red river being financed by JBIC (under construction).
- The project is financing technical assistance relating to urban planning that will review existing plans, institutional arrangements, planning regulations and procedures. The TA will support modifications in procedures, plans to ensure closer coordination between transport and urban planning and more effective plan implementation. The technical assistance will support the DAPM to implement these recommended strategies in selected locations in the newly urbanizing areas to facilitate growth conducive to competitive public transport.

## 6. Examine financing options for sustaining transport sector development

Efforts are also needed to strengthen the tools available to Hanoi to finance infrastructure. These include the development of instruments to tap the capital markets, other forms of borrowing, and the development of fee-based revenues from sources such as vehicle registration; parking etc. A particular challenge is to develop effective strategies to govern the role of the private sector. Presently, negotiations are underway with private/bilateral financiers in Hanoi to finance (and in some cases operate) urban rail links. The challenge in such situations is to allocate/distribute risk in a manner that facilitates investments while limiting the city's exposure and protecting public interests. International experience suggests that while the private sector has the potential to make a significant contribution to infrastructure finance, public benefits are maximized when transparent competitive processes are used.

## Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

## VIETNAM: Hanoi Urban Transport Development Project

**Bank-financed Projects**

| Ongoing | Sector Issue | Supervision Ratings IP* | DO† |
|---|---|---|---|
| Mekong Transport and Flood Protection (Cr.3448-VN) | Reform basic institutional aspects of road management and improve access in Mekong Delta | S | S |
| Urban Transport Improvement Project (Cr.3125-VN) | Strengthen decentralized authority, expand capacity, and improve operating conditions of urban transport | S | S |
| Road Network Improvement Project (Cr.3843-VN) | Improve road management and maintenance funding for national roads | S | S |
| Vietnam Road Safety Project (Cr.4073-VN) | Reduce the rates of accident, injury and death associated with road transport. | MS | S |
| Third Rural Transport (Cr. 4150-VN) | Improve rural access for communities to markets, off-farm economic opportunities, and social services. | | |
| Mekong Transport Infrastructure Development Project | Develop multi-modal transport in the Mekong Delta through improved regulation and infrastructure | | |

| Completed | Sector Issue | OED Evaluation Out-come | Sustain-ability | ID Impact |
|---|---|---|---|---|
| Rural Transport Project (Cr.2929-VN) | Improve access to remote rural areas, sustain adequate maintenance | S | S | S |
| Highway Rehabilitation Project (Cr.2549-VN) | Reduce rehabilitation backlog; build institutional capacity; review and improve regulation, standards, and traffic safety; strengthen road maintenance operations | S | S | S |
| Second Highway Rehabilitation Project (Cr.N013-VN) | Reduce rehabilitation backlog; increase the volume of periodic maintenance; build institutional capacity; improve regulation and improve traffic safety; improve rural access; strengthen environmental protection | S | S | S |
| Inland Waterways and Port Rehabilitation Project (Cr.3000-VN) | Improve main inland waterway route in Mekong Delta and strengthen operations and management | | | |
| Second Rural Transport Project (Cr.3306-VN) | Improve access to remote rural areas, sustain adequate maintenance | | | |

| Pipeline | Sector Issue |
|---|---|
| Northern Delta Transport Development Project | Develop multi-modal transport in the Red River Delta area |

S = Satisfactory; L=Likely; SB = Substantial; M = Modest; NR = Not Rated

*—Implementation progress; † — Development objective

| Other Development Agencies | | | |
|---|---|---|---|
| **Agency** | **Project** | **Status** | **Duration** |
| | GMS: Ho Chi Minh City–Phnom Penh Highway | Ongoing | 1998–2005 |
| | GMS: East–West Corridor | Ongoing | 2000–2005 |
| | Provincial Roads Improvement | Ongoing | 2001–2006 |
| | Central Region Transport Network | Preparation Stage | 2005–2010 |
| | GMS: Kunming-Haiphong Corridor | Preparation Stage | 2005–2010 |
| | GMS: Hanoi – Lao Cai Railway | Preparation Stage | 2006-2010 |
| | GMS: Southern Coastal Corridor | Approval 2008 | 2006–2011 |
| | Ho Chi Minh 2nd Ring Road | Preparation Stage | Approval 2008 |
| | Ho Chi Minh City Metro Rail | Preparation Stage | Approval 2008 |
| JBIC | Cai Lan Port Expansion Project | Ongoing | 1996-2008 |
| | Hai Van Tunnel Construction Project | Ongoing | 1997–2007 |
| | National Highway No. 10 Improvement Project | Ongoing | 1998–2007 |
| | National Highway No. 18 Improvement Project | Ongoing | 1998–2008 |
| | Da Nang Port Improvement Project | Ongoing | 1999–2006 |
| | Second National Highway No. 1 Bridge Rehabilitation Project | Ongoing | 1999–2006 |
| | Transport Infrastructure Development Project in Hanoi | Ongoing | 1999–2006 |
| | Coastal Communication System Project in Sounthern Vietnam | Ongoing | 2000-2007 |
| | Saigon East-West Highway Construction Project | Ongoing | 2000–2007 |
| | Binh Bridge Construction Project | Ongoing | 2000–2007 |
| | Red River (Thanh Tri) Bridge Construction Project | Ongoing | 2000–2008 |
| | Hai Phong Port Rehabilitation Project (Phase II) | Ongoing | 2000-2007 |
| | Bai Chay Bridge Construction Project | Ongoing | 2001–2008 |
| | National Highway No. 1 Bypass Road Construction Project | Ongoing | 2001–2009 |
| | Can Tho Bridge Construction Project | Ongoing | 2001–2009 |
| | Tan Son Nhat International Airport Terminal Construction Project | Ongoing | 2002-2007 |
| | Third National Highway No. 1 Bridge Rehabilitation Project | Ongoing | 2003–2009 |
| | Transport Sector loan for National Road Network Improvement | Ongoing | 2004-2008 |
| | Hanoi- HCM Railway line bridges Safety Improvement Project | Ongoing | 2004-2009 |
| | Ca Mep – Thi Vai International Port Construction Project | Ongoing | 2004-2012 |

| | | | |
|---|---|---|---|
| | National Highway No.3 Improvement Project and Regional Road Network Project | Ongoing | 2005–2011 |
| | Nhat Tan Bridge Construction project | Ongoing | 2006-2010 |
| | HCMC Urban Metro Railway Project | Under Preparation | 2006-2010 |
| | Traffic Safety Improvement Project | Under Preparation | 2006-2010 |
| JICA | Study on urban transportation Master Plan in Hanoi (as one component of the Comprehensive urban Planning in Hanoi | Ongoing | 2004–2006 |
| | The Project for Human Resource Development in the field of SAR and Safety Navigation. | Ongoing | 2005-2006 |
| | Traffic Safety Juman Resource Project in Hanoi | Ongoing | 2006-2009 |
| | Study on Traffic Safety Master Plan | Requested | 2006-2007 |
| | Comprehensive Study on the Sustainable Development of Transport System in Vietnam | Requested | 2006-2007 |
| NZ/DFID | Transport Safety Design Work | Design | TBC |
| | Hanoi Rail Public Transport | Ongoing | 2006-2010 |
| Swiss-contact | Swiss-Vietnamese Clean Air Program Phase I | Under Preparation | 2006-2007 |
| FRANCE | Modernization of signaling and telecommunatations system of Hanoi-Vinh railway | Ongoing | 2006-2009 |
| | Mechanization of track maintenance of Hanoi-Vinh railway | Ongoing | 2006-2009 |
| | Hanoi urban rail Nhon to center city | Under preparation | 2007-2010 |

## Annex 3: Results Framework and Monitoring

## VIETNAM: Hanoi Urban Transport Development Project

| Development and Global Environment Objectives | Project Outcome Indicators | Use of Project Outcome Information |
|---|---|---|
| *Development Objective:* Increase urban mobility in targeted areas in Hanoi by (i) increasing the use of public transport in two existing and one new corridors [thereby increasing corridor capacity]; and (ii) reducing travel times by all modes between the city center and the west and northwest sections of the city (west of west lake).<br><br>*Global Environmental Objectives:* Shift to more cost-effective and sustainable transport modes and compatible urban development plans in Hanoi and their replication in the region.<br><br>Lower Hanoi transport-related greenhouse gas emissions. | 1. Number of daily BRT/bus boardings.<br>2. Number of BRT riders whose alternative choice would have been private motorized mode/taxi.<br>3. Coordinated institutional system to manage and coordinate public transport planning and operations.<br>4. Travel time by bus and motorcycle along selected routes<br>5. Reduction of tons of CO2-equivalent over 15 years (to 2025) | Supporting decision-makers in the urban development of Hanoi on an ongoing basis. |
| **Intermediate Outcomes** | **Intermediate Outcome Indicators** | **Use of Intermediate Outcome Monitoring** |
| **Component 1: Development of a Bus Rapid Transit System (BRT)**<br>Functioning BRT System | Change in bus travel times on corridor relative to system wide travel times | Support public transport system expansion and refinement |
| **Component 2: Strategic Road Infrastructure and Sustainable Urban Planning**<br>Completed physical works and the beginning of operations leading to shorter travel times<br><br>Adoption of integrated sustainable urban land development and transportation planning in Hanoi | Changes in travel times in corridor<br><br>Staff of HPC Urban Sector Departments Trained | Supporting decision-makers in the urban development of Hanoi on an ongoing basis. |
| **Component 3: Institutional Development**<br>Local capacity to plan, manage, and implement public transport<br><br>Awareness and understanding of the transport-related actions needed to achieve sustainable outcomes | Coordinated institutional system to manage and coordinate public transport planning and operations.<br><br>Coordinated institutional system for AQM policy making in place based on monitoring system and emission data<br><br>Number of staff trained, skills assessment<br><br>National and international outreach and replication activities completed | Supporting decision-makers in the urban development of Hanoi on an ongoing basis. |

## Arrangements for results monitoring

| | | Data Collection and Reporting | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Outcome Indicators** | **Baseline** | **2010** | **2011** | **2013** | **Frequency and Reports** | **Data Collection Instruments** | **Responsibility for Data Collection** |
| 1. **Number of daily BRT/bus boardings** | | | 5% annual growth | | Annual | Surveys, PTA reports | PMU and PTA |
| 1a. Le Duan - Giai Pong | | 100,000 | | | | | |
| 1b. Giang Vo – Lang Ha | | 80,000 | | | | | |
| 1b. Dong Anh and West of West lake districts | | 30,000 | | | | | |
| 2. **Number of BRT riders whose alternate mode would have been a private motorized vehicle/taxi** | | | Shares will remain stable | | 3 months after corridor operations, mid-term review and project completion | Surveys | PMU |
| 2a. Le Duan - Giai Pong | | 15% | | | | | |
| 2b. Giang Vo – Lang Ha | | 15% | | | | | |
| 2c. Dong Anh and West of West lake districts | | 10% | | | | | |
| **3. Hanoi GHG emissions** saved through 2025 – based on estimate on (i) emission factor of alternative vehicle used, and (ii) length of trip. | 1.5 million tonnes | | | 1.5 million tonnes | Year 1, mid-term review and project completion | Estimates based on surveys | PMU consultants |
| 4. Financial performance of Hanoi's bus system | | | | | Annually collected, reported in semi-annual PPR | Standard reports | TRAMOC/PTA |
| 4.1 Income | $19.18m | | | | | | |
| 4.2 Subsidy for discounted tickets | $1.67m | | | | | | |
| 4.3 Expenditure | $32.18m | | | | | | |
| **Intermediate Outcome Indicators** | | | | | | | |
| **Component 1: Development of a Bus Rapid Transit System (BRT)** | | | | | | | |
| **5. Travel time by bus** End-to-end travel times on corridor | | 20% reduction in travel times | | | Annually collected, reported in semi-annual PPR | PMU, Supervision | TRAMOC/PTA and HPMU |
| 5a. Le Duan - Giai Pong Corridor (from Quang Lai to Trang Thi) | 46 min | | | | | PMU, Supervision | TRAMOC/PTA and HPMU |
| 5b. Giang Vo – Lang Ha Corridor (from Kim Ma to Ha Dong) | 44min | | | | | | TRAMOC/PTA and HPMU |
| 5c. Kim Ma – Cau Dien (control | 23 min | | | | | PMU, | TRAMOC/PTA and |

| Project Outcome Indicators | Baseline | Data Collection and Reporting | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2010 | 2011 | 2013 | Frequency and Reports | Data Collection Instruments | Responsibility for Data Collection |
| corridor) | | | | | | Supervision | HPMU |
| 6. Estimated financial performance of BRT lines | | Trunk lines break even | | | | | |
| 6a. Expenditures | | | | | Annually collected, reported in semi-annual PPR | Based on signed contracts and estimates | TRAMOC/PTA and HPMU |
| 6b. Income | | | | | Annually collected, reported in semi-annual PPR | Ridership multiplied by yield | TRAMOC/PTA and HPMU |
| **Component 2. Ring Road 2** | | | | | | | |
| 7a. Travel time by bus Cau Giay to Dyke Road at Nhat Tran | 28min | | | 22 min | Annually collected, reported in semi-annual PPR | | |
| 7b. Travel time by motor-cycle Nhat tan to Cau Giay (PM peak, Wednesday) | 21min | | | 15 min | Annually collected, reported in semi-annual PPR | | |
| 8A. Adoption of Land-use TA leading to implementaion of pilots, or policy change in land-use planning or controls | | 1 significant change | | 2 significant changes | Semi-annual PPR | PMU, Supervision | PMU, DAPM |
| 8B. Number of DAPM Staff trained | | 15 | | 20 | Semi-annual PPR | PMU, Supervision | PMU, DAPM |
| 9. Compensation and resettlement program | | | | | Continuous internal monitoring and semi-annual independent monitoring | Regular monitoring and evaluation | PMU, HPC and independent monitor |
| **Component 3. Institutional Development** | | | | | | | Strategic Planning TA facilitator |
| 10. Coordinated institutional system to manage and coordinate public transport planning and operations. (see notes below) | Existing TRAMOC | Step1 | Step 2 | Step 3 | Semi-annual PPR | PMU, Supervision | PMU, TUPWS, Traffic Police, DONRE |
| 11. Coordinated institutional system for AQM policy making in place based on monitoring system and emission data | | | | | Mid-term review | PMU, Supervision | PMU, DONRE |

| | | Data Collection and Reporting | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Outcome Indicators** | **Baseline** | **2010** | **2011** | **2013** | **Frequency and Reports** | **Data Collection Instruments** | **Responsibility for Data Collection** |
| 12. Number of staff trained | | 20 | | 25 | Semi-annual PPR | PMU, Supervision | PMU, TUPWS, Traffic Police, DONRE |
| 13. Number of replication activities (workshops, studies in other Vietnamese cities, study tours ) | | 1 | 3 | 5 | Semi-annual PPR | MoC | |

Notes:
1. Indicator 3 (GHG emissions saved through 2025) is a cumulative estimate of emissions saved through 2025. At Project closing this estimate would be updated in view of the actual experience with BRT boardings and trips diverted from other modes.
2. Indicator 4 (financial performance of the bus system) is for monitoring purposes only. No targets are set.
3. Steps 1, 2 and 3 for indicator 10 (Coordinated institutional system to manage and coordinate public transport planning and operations.) are based on the discussion in Annex 1. Specifically:

- Step 1: The presence of multiple strong bus operators in Hanoi would indicate that the locus of control for managing bus operations rests not with any single operator, but with the planning agency.
- Step 2: Integrated fares and schedules between bus-based and any rail-based systems (if they are any in operation) is an indicator of success in this measure.
- Step 3: Institutionalization of steps 1 and 2 in a strong, financially secure, independent agency (measured by an adopted business plan) staffed by capable skilled personnel to coordinate and manage all public transport planning and operations for Hanoi.

## Annex 4: Detailed Project Description

## VIETNAM: Hanoi Urban Transport Development Project

The overall project has three main components, each of which has several sub-components

(1) Development of a Bus Rapid Transit System (BRT)
   A. BRT System Design and Implementation
   B. Non-motorized access to the BRT stations
   C. BRT Public Consultation, Communications and Media Strategy

(2) Road Infrastructure and Sustainable Urban Planning
   A. Second Ring Road between Nhat Tan and Buoi
   B. Resettlement Site CT1
   C. Integrated Sustainable Urban Land Development and Transport Planning

(3) Institutional Development
   A. Air Quality Management Program
   B. Traffic Safety and Project Monitoring
   C. Public Transport Authority Strengthening and Transport Planning and Policy Development
   D. National and Regional Replication and Information Dissemination
   E. Project Management assistance for the GEF project

The project is designed to balance major investment in road infrastructure needed to facilitate continued urbanization with a complementary set of mutually reinforcing activities that support environmentally and socially sustainable transport. A central feature of the design is the priority consideration given to public and non-motorized means of transport. The BRT system reserves erstwhile general-use lanes exclusively for public transport. Particular attention is given to system access and GEF financing is proposed to upgrade the pedestrian and cycle environment around BRT stations. The project will support the city to establish and strengthen a central nodal Public Transport Authority (PTA) that will manage all public transport issues on behalf of the City.

The establishment of the BRT will also provide operational flow and traffic safety benefits by separating buses and motorcycle traffic streams on the project corridors. Additionally, the major road investment has been engineered to provide priority to public transport by providing bus lanes and associated transit-oriented traffic engineering features which will ensure the availability of high-speed efficient public transport from the city center to newly urbanizing areas in the northwest sections of the city. Further, the project supports technical assistance to the City's Department of Planning and Architecture, designed to strengthen the City's urban planning and plan implementation systems with the goal of facilitating a public transport compatible built environment.

The project also continues to provide support for traffic management capacity (initiated in the now complete UTIP) with a focus on safety particularly for pedestrians; continuing support initiated in the Bank's earlier engagement with Hanoi in the sector. Effective traffic management, important in itself, is a critical building block for the success of the proposed BRT. As part of this effort the project also finances an examination of demand management

alternatives appropriate to Hanoi's to manage the ownership and use levels of private motorized transport modes.

Finally, the project supports a multi-donor initiative to establish an integrated air quality management program in Hanoi. Partially in response to an ongoing dialogue with the Bank, the City has agreed to consolidate all air quality monitoring under a single nodal agency (Department of Natural Resources and the Environment – DONRE). The project supports this consolidation and complements other donor initiatives to (i) improve the quality of air quality monitoring and (ii) develop and implement control strategies appropriate to Hanoi's context.

The information provided below includes estimated costs for each sub-component.

**Component 1: Development of a Bus Rapid Transit System (BRT)**
*(total US$99.88 million, US$84.12 million from IDA; US$11.76 million from the Government; co-financing from GEF US$4.00 million)*

This component includes civil works, buses and other equipment, consulting services for design and supervision, and advisory services for project management. Civil works will include the development of segregated busways and bus priority on a selection of new and existing roads, the construction of BRT stops, interchange stations, terminals and maintenance facilities. It will also support acquisition of special BRT vehicles, the establishment of a modern BRT management system, including bus ticketing and financial controls. Lastly, the component will finance the implementation of a public communications and media strategy for disseminating information on the BRT system. *The GEF is requested to co-finance the following three key barrier-removal sub-components: incremental civil works and studies/consultations to improve pedestrian and NMV access to the proposed BRT system (proposed GEF co-financing US$1.3 million); co-financing BRT stations to enhance their attractiveness for consumers with choice (i.e. motorcycle and automobile users) (proposed GEF co-financing US$1.4 million).; and BRT public consultation, communications and media strategy (proposed GEF co-financing US$1.3 million).* Costs for land acquisition and resettlement are included below, and will not be financed by IDA but by the Government.

The construction of the physical infrastructure, the acquisition of vehicles and other equipment, and the concessioning of trunk-line and feeder bus services will require careful coordination in order to achieve a harmonized conclusion of these activities so that the BRT bus operations can be initiated on the Giang Vo – Lang Ha corridor between Ha Dong and Kim Ma by October 2009. Subject to the contracting of detailed design consultants under the Project Preparation Facility (PPF) no later than August 2007, the procurement of works and equipment would commence in April 2008, with civil works completed and the first batch of buses and other equipment delivered by August 2009. The implementation of the Giai Phong line is scheduled to be implemented after an evaluation during construction of the first line. The implementation of the central city connector (BRT operation initially in mixed traffic) will commence after an initial phase of operations separately on each line; as the works are relatively minor, operations could start as early as the first semester of 2011.

The bidding process for bus service concessions would be carried out by TRAMOC (and its success for form, the new PTA), using specifications and bidding documents to be prepared by the PPF financed design consultants. It is expected that the bidding documents for the concessions would be published in June 2008. Following a process of publicity and consultations with potential bidders, the concession contracts would be awarded and signed in the first semester of 2009, with a view to initiate commercial operations by October 2009.

While the above timetable is highly ambitious, experience in Bogotá and some other Latin American cities has demonstrated that it is possible to design and implement BRTs in 2-3 years, as long as there is a strong political will to achieve this, supported by a competent and motivated implementation team. It is expected that, with the upcoming Hanoi Millennium celebrations in 2010, the implementation of the BRT will receive strong backing from the highest levels of HPC. With regard to the implementation team, the Project includes provision of high-caliber technical assistance through internationally experienced specialists in the implementation of BRT systems.

**Component 1.A: BRT System Design and Implementation** (*total US$97.28 million; US$84.12 million from IDA; US$11.76 million from the Government; US$1.4 million from GEF)*

The BRT System will include segregated busways, 43 BRT bus stations, one BRT terminal, and six interchange stations. This component will also finance consultant services for the construction supervision of all civil works activities. Relatively minor land acquisition and resettlement costs are also included though these will not be financed by IDA. The GEF Intervention will focus on pedestrian and NMV improvements in the overall BRT design.

### *i. BRT Busways*

The BRT busways will have one lane in each direction, operating from the periphery of Hanoi to the city center; (a) the Giang Vo corridor (from Ha Dong – Lang Ha – Kim Ma), (b) the Giai Phong corridor (from Quang Lai – Dai Co Viet – Pho Hue – Hai Ba Trung – Ba Trieu – back to Dai co Viet – Quang Lai), and (c) a central city connection in mixed traffic with bus priorities, (from Kim Ma to Hai Ba Trung and around Hoan Kiem lake); the relatively low-cost implementation of the latter section is yet to be confirmed by HPC, based on the experience of the initial BRT operation. The following are the general characteristics of the BRT lines.

- Length of BRT routes (a) Giang Vo – Lang Ha (from Ha Dong to Kim Ma): 9.1 km. (b) Giai Phong (from Quang Lai to Hang Khay): 10.1 km. (c) central city connection: 3.8 km. Total: 37 BRT lane-km on exclusive bus lanes and 9.1 BRT lane-km on mixed traffic/priority lanes.
- Number of stations: 1 terminal (Quang Lai), 6 interchanges (Khuat Duy Tien, Hoa Muc, Kim Ma, Nga Tu Vong, Linh Dam and Hoan Kiem), 43 regular stations – all with 70cm high platforms permitting level entry/exit into/from BRT buses
- Rolling stock: 12 m vehicles, 2.4 to 2.5 m width, 80 passengers (6 passengers per square meter), high-level doors to the left. Fleet under the Project: 130 buses.
- Energy : Diesel with at least Euro II standards
- 1 Depot
- Speed: Maximum speed allowed in urban site: 50 km/h. Commercial speed: 21 km/h (Giai Phong) to24 km/h (Giang Vo).
- Frequency in peak period (2010): 2 minutes.

- Expected capacity. As currently structured the BRT system will provide a capacity of about 3000 passengers per hour per direction. As demand increases this capacity can be increased with either
    - increased frequencies (up to 60 vehicles an hour) since the system is being designed with off-board ticketing, level boarding and wide doors to minimize station dwell times; and/or
    - larger capacity vehicles (either platoons of two 12 m buses, or articulated 18 m buses).

**ii. *BRT Stations, Terminals and Interchange stations***

GEF co-financing is proposed to purchase equipment that will support the **availability of real-time information at terminals, interchanges and key stations**. GEF co-financing of this sub-component will enhance the overall competitiveness of the BRT and specifically target consumers who have the choice of private vehicle modes (auto and motorcycle) and need to be persuaded that public transport offers an equal or better travel experience. In the absence of GEF, a solely radio-controlled operating control system was recommended in the feasibility study.

***BRT stations.*** BRT stations will be located along BRT busways to provide passenger access and egress to/from the system. Stations will be located on sites where existing travel demand is concentrated, and will consider characteristics that are conducive to attract passengers, such as cross roads, wide sidewalks, and alleys joining the corridor with adjacent neighborhoods. All sites were visually verified in the field by the project's specialists during rush hours and regular hours. Another planning criterion is the intended average distance of 350-500 m between adjoining stations, except for low demand sections, where the stations will be farther apart than the average. Other circumstances, such as areas with a high demand, determined the placement of a number of stations in some blocks, resulting in different lengths. Three main station types are to be included:

- Terminal (at Quang Lai);
- Interchange stations to facilitate transfers with feeder buses (Khuat Duy Tien, Hoa Muc, Kim Ma, Linh Dam, Nga Tu Vong and Haon Kiem). At the Nui Truc station, integration is planned with the proposed French financed Metro.
- Regular stations, a third of which are located on two-way busways, and two thirds on one-way busways.

Regular BRT Stations will have high-level platforms (at about 700mm above the carriageway) which will be covered against the rain and linked by ramps at gradients convenient for all passengers, including elderly and handicapped persons. Most stations located in the center of the road will be linked with the sidewalks via signalized crosswalks; at five such stations, pedestrian overpasses will be provided. Access to the station platforms will only be possible via turnstiles located at one or both ends of the station. Most stations in central Hanoi will be located on one-way streets and serve passengers going in one direction. In the outer parts of Hanoi, the stations will be located in the center of the road and serve buses in both directions. The widths of the platforms will depend on expected passenger demand, and the availability of space.

In summary, the proposed BRT stations would meet the following criteria:

- To ensure the distance of stations is about 350 – 500m on average.
- To be located in crowded areas with high trip generation; to meet the existing and future travel demand of passengers.
- To be located near junctions and other access facilities so as to interchange passenger to feeder bus routes or other bus routes and to facilitate their access from surrounding neighborhoods.
- Can be expanded when passenger volume increases.
- Location is suitable to landscape, not to cut many green trees, to minimize the removal of underground and above-ground works.
- To minimize the impact on adjacent shops and people living near the stations.

***BRT Terminals.*** According to the proposed trunk-feeder operation of the BRT system, the terminal is the first departure and also the last station in a closed service routine of the trunk-line services. Feeder bus services will converge at the terminals where sufficient space will be provided for the convenient transfer of passengers between trunk-line and feeder buses. The BRT terminal platform areas will be approximately 45 meters wide and 100 meters long. The terminal proposed at Quang Lai (Giai Phong line) will include the following facilities: terminal platform area; office and commercial space; bus parking and refueling area, car parking; motorcycle and bicycle parking; and green area. A similar terminal is envisaged for the future at Ba La (i.e. it is not financed under this project), if the Giang Vo line is extended beyond Ha Dong.

***BRT Interchange Stations.*** An interchange station is a station that facilitates the transfer of passengers from BRT to/from other motorized transport modes, particularly regular and feeder buses. Thus, an interchange station is a place for traffic management of BRT buses, feeder buses and for other activities such as ticketing, fare collection, control and supervision. Interchange stations will comprise wide platforms, bays for trunk routes, bays for feeder and district routes, and parking for bicycles and motor cycles. In some specific cases, they may also include administrative offices, commercial areas for passengers, and maybe parking for buses. At interchange stations located in the periphery of the city or near ring roads, motorcycle and bicycle parking will be provided to attract private-vehicle users and deter them from driving all the way into the center. The introduction of BRT will encourage some travelers to shift from using private motorized vehicles to public transport.

***Signal System.*** An important element of a functional BRT will be traffic actuated signal systems which will provide BRT priority at intersections, and include signalization at pedestrian crossings to and from BRT stations, to allow access when signalized intersections are relatively far from the station.

***Bus Patios and Maintenance Facilities.*** A patio with maintenance facilities will be built on Route 70, relatively close to the Quang Lai terminal of the Giai Phong line. Buses serving the Giang Vo line would reach the depot via the circumferential Route 70. Bus Maintenance Facilities will be provided to allow mechanical bus repairs, as well as a bus washing area. The bus wash area will entail operation automatic cleaning machinery. Additional area in the

facilities will be allocated for spare part storage. Diesel pumping stations will be located within the maintenance facilities to supply fuel to the BRT bus units.

***BRT vehicles.*** HPC decided to initially operate the BRT lines with single-body vehicles, with a capacity of 80 passengers. (Articulated vehicles with a capacity of about 160 passengers might be considered in the future if required to increase the BRT throughput and if deemed acceptable with regard to existing traffic and visual impact.) The vehicles will have maximum dimensions of 12 m length and 2.50 m width, have an inner platform height of 70 cm above the ground, have at least two large high-level doors on the left side, permitting rapid boarding and alighting at the stations. A total of 130 trunk-line buses would be needed to serve the estimated BRT passenger demand in 2010. In addition, feeder buses will be needed to connect with BRT trunk lines. Most of these would be the same type of bus currently operating in Hanoi, with step-down doors on the right to permit boarding and alighting from/to the sidewalk. In addition, special buses have been proposed which, in addition to the doors of the standard feeder bus, would have high-level (70 cm) doors to the left, thereby permitting operation both as trunk-line and feeder buses.

***Bus Ticketing System.*** It is proposed to use modern smart-card technology for the BRT and its feeder services, and probably also integrating with the remaining city buses. Apart from facilitating transfers between buses and reducing the risk of fare evasion difficult, this modern technology makes it relatively easy to allow for monthly passes for special fares for students and handicapped passengers; it would also permit full fare integration with other city buses and, eventually, rail systems that are under consideration. TRAMOC has been examining the introduction of smart cards for the existing buses, but has not yet signed a contract with suppliers as this would have limited Hanoi's ability to have an open system in terms of software development and smart card purchase. This experience highlights the need to procure the fare collection system with prudence, and thorough technological knowledge when preparing the specifications.

*ii.* ***Land acquisition and resettlement.*** *(US$1.08 m from the Government).*
Land will be needed for the terminal, the interchange terminal and the depot. Sites have been identified based on an extensive analysis of alternative sites and land acquisition processes are in process.

**Component 1B: Non-Motorized Access to the BRT System** *(US$1.3 million from GEF)*

Special pedestrian and bicycle facilities have been proposed to increase the attractiveness of the BRT, and will be integrated within the design of the overall BRT System. The focus will be on improving access by creating a friendly environment for non-motorized modes, particularly focusing on issues related to enhancing the pedestrian environment and increasing convenience, with consideration of the special needs of the handicapped, etc. Such improvements will enhance the BRT stations, interchange stations and terminals, provide better access paths, and include special features in the signaling system.

The preliminary design of the BRT junctions aims to provide adequate width of signalized pedestrian crossing – where practical with a separated phase for pedestrians so they can cross the junction without conflicting with vehicular traffic. Drop curb and colored road markings (yellow strip) will be used to enhance for the environment for both pedestrian and disabled wheelchair

users. Enhancements will be made to structures surrounding the proposed BRT station, including design changes between walkways and the BRT station to facilitate access. Clear routes for pedestrians will be suitably delineated with pavement textures, colors, planting and street furniture. At the detailed design stage, sight lines and visibility will be assessed to ensure that landscaping and trees do not block sight lines at at-grade crossing points. Pedestrian crossings at traffic signals will be segregated so that they have a separate signal wherever possible, but more often than not cross simultaneously. To maintain the capacity of the junction, some minor turning movements will run parallel to the pedestrian phase, however, the vehicular traffic should give way to pedestrian movement. Channelisation and staggered crossings will also be introduced in the junction design to reduce the length of the pedestrian crossing to facilitate pedestrian crossings.

Facilities for people with special needs will also be provided. Drop curb will be widely used at all crossing points to assist wheelchair users and other people with walking disabilities. Access to BRT stations will be by ramp and staircase and the ramp gradient is in a range of between 1:12 and 1:20 to facilitate disabled access under various site constraints. As appropriate, traffic poles will be equipped with push button and audible unit to serve the pedestrian demand as well as for people with vision impairment. Tactile guide ways, which are widely used in Asia to guide the people with vision impairment, shall be included in the detail designs. In addition, Braille maps will show the BRT station layout and all other information for the people with vision impairment. These have been discussed with the Disabled Group Representatives and they support the proposal of adopting this equipment to assist persons with disabilities.

GEF co-financing is proposed for the following five initiatives related to increasing pedestrian and cyclist access to the BRT:

- Improving access in areas around BRT stations (about 250 m from BRT station). This will include improvements to the road network, pavement and sidewalk, including changes in pavement and structures to reduce flooding during rain.
- Supplementing and constructing service structures and devices to support non-motorized transport in areas accessing to BRT line, such as lighting system, motorbike and bicycle parking.
- Constructing pilot complex pedestrian street sections.
- Training Activity. Training activities intend to inform key staff of Hanoi Department of Transport and Public Work on public transport and parking system management. The staff will be tasked with supporting the BRT and parking management activities.
- NMT awareness raising and public relations. Training activities intend to make the campaign to raise community awareness on encouraging non-motorized transportation and pedestrian and to increase public transport demand.

**Component 1C: BRT Consultation, Communications and Media Strategy** *($1.3 million GEF)*

The subcomponent will support the implementation of a public and decision-maker awareness awareness strategy of the BRT system. The public involvement strategy is intended to enable public participation in key decisions related to the BRT System, to keep the public updated on

the progress and key decisions related to implementation, and provide a framework for public feedback into all elements of system design and operation. This component will also finance study tours for key decision-makers and related technical officials. In addition, the subcomponent is intended to support a media management strategy, which will provide media content and appropriate materials for TV, radio, print, and public billboards and facilitate the media's ability to promote the BRT concept. Overall, this subcomponent will reduce risks associated with the acceptability of the BRT system by the public by increasing allowing for early awareness and understanding of BRT.

**Component 2: Road Infrastructure and Sustainable Urban Planning**
*(total US$194.33 million; US$64.65 million from IDA; US$ 127.92 million from Government of Vietnam; US$1.75 from GEF)*

The timing of the construction and completion of the ring road will need to be coordinated carefully with the construction of the resettlement sites, and the resettlement activity. The CT1 resettlement site will house the majority of the displaced persons. Detailed design consultants for this site are expected to be mobilized by June 2006 and construction is expected to start by March 2008. The buildings on the site are expected to be complete and operational by mid 2009. Much of the resettlement for the road would take place in the period between mid 2009 and mid 2010. Road construction would begin in 2010, with contracts for the Buoi intersection, where resettlement needs are maximum being let only as resettlement advances. Given the upcoming Hanoi Millennium celebration in 2010, Hanoi leadership has a strong interest in showing significant progress on the road by the time. It is reasonable to expect that by October in 2010 when the anniversary celebrations culminate, Hanoi will be keen to ensure that construction contracts have been let and visible construction has started. As per this schedule, most construction should be complete by 2012.

**Component 2A: Second Ring Road between Nhat Tan and Buoi**
*(total US$170.5 million; US$46.47 million from IDA; US$ 124.28 million from Government)*

This component will construct a section of approximately 7 km in length of the Second Ring Road between the proposed new bridge across the Red River (at Nhat Tan) and Cau Giay. The road is an important strategic element of the future network in West Hanoi, forming part of the basic infrastructure for the proposed development and expansion of Hanoi to the west of West Lake and, subsequently, to the north of the Red River. The road goes through a combination of farmland and settled land and will entail resettlement. The component will finance the construction of new housing tenements for project affected persons displaced by both the road and also the BRT project.

The 2RR project will introduce a dual, 3-lane roadway facility with grade separation at key junctions and segregated frontage roads for local traffic and access between the proposed Nhat Tan Bridge across the Red River and the Cau Giay area of western central Hanoi. The scope of the proposed works for the 2RR includes four elements, comprising two road segments and two interchanges: (a) the Northern Segment (approximately 4.6km) from Nhat Tan Bridge to the Buoi Interchange, constituting a new alignment across mostly open land but with some development; (b) the Buoi Interchange (580 m), proposed as a two level grade-separated

junction; (c) the Southern Segment (approximately 2.0 km), from the Buoi Interchange to Cau Giay, aligned adjacent to a drainage canal and existing local road; and (d) the Cau Giay Intersection involving a flyover for 2RR across the main western radial road - Route 32.

*(a) Nhat Tan Bridge to the Buoi Interchange.* The proposed scheme includes the provision of dual three-lane (11.25m) carriageways, two frontage roads (for local traffic and access), plus two footways and associated medians and dividers. A 5.5m transit reserve is included in the median of the northern 2.2 km, connecting with the Nhat Tan Bridge[10]. The total right-of-way (RoW) width is 67m for the northern 2.2km and 57m for the balance. Bus lanes are proposed on the kerb-side (right-hand) lane of the main carriageway with bus stops and passenger waiting areas on the green belt/divider between the main roadway and the frontage roads. Three signalized junctions are proposed to provide connections to local road network in accordance with the Master Plan for the development of the adjacent areas.

The corridor will provide an important access route for public transport serving the proposed major developments in North Hanoi and linking the area with the existing city core. Initially these public transport services will be provided by bus, and both express and local services may be expected to operate on the bus lanes provided: subsequently it may prove desirable to introduce higher capacity services, requiring the provision of either a dedicated bus-way (ie BRT) or rail-based services. The design of 2RR has been developed in consideration of these future requirements.

Local frontage (or service) roads are provided on both sides of the main carriageways to provide for non-motorised traffic and for access to the adjacent development areas (eg individual sites, parking areas, etc): right turning traffic at the key junctions would also use these lanes.

The section of road passes through an area of mostly low-lying agricultural land which is rapidly undergoing conversion to urban (mostly residential) uses, although the land required for the road has been protected in recent years. The road is proposed on a low (2m) embankment throughout.

*(b) Buoi Interchange.* At Buoi, the 2RR intersects with Huong Quoc Viet (a main radial route to the west) and joins the alignment of Duong Buoi which follows the Song To Lich drainage canal and the flood defensive dyke (bund) south towards Cau Giay. At Buoi, it is proposed to provide a 4-lane flyover in a north-south direction, along the line of the 2RR: all other local traffic, NMT and turning movements are accommodated at an at-grade roundabout.

The area around the Buoi Interchange is densely developed, with significant commercial land-uses: the design of the interchange has been devised to minimise the extent of land-take whilst providing adequate capacity. Specific attention has been paid to the needs of buses (and bus passengers) as the location will become a significant interchange between routes, especially those bound for North Hanoi.

*(c) Buoi Interchange to Cau Giay Intersection.* South of Buoi, the alignment follows the Song To Lich drainage canal and historic flood dyke: the recently constructed (JICA-funded) road

[10] At this point the proposed transit line leaves the alignment of the 2RR and heads west into the proposed development area.

along the canal will be used for southbound local traffic and the existing Duong Buoi (mostly on the existing bund) will be used for northbound local traffic. Separate new dual 2-lane carriageways will be constructed, linking the flyovers at Buoi and CauGiay for the north-south through traffic movements on 2RR. A series of slip roads will be provided between the local roads and the through carriageways to provide access to and from the Ring Road.

The Ring Road, which will be mostly at the height of the existing bund, will pass over local roads at Doi Can and Dao Tan, providing for uninterrupted traffic flow on 2RR. The two cross roads will be connected to the north and south-bound local roads, with links beneath the main Ring Road carriageways. The two local frontage roads will provide for local movements, buses and NMT.

Wherever practical the recently constructed drainage road (alongside the refurbished canal) will be utilized without change and, similarly, the existing mature trees and frontage properties along Duong Buoi will retained wherever possible.

*(d) Cau Giay Interchange*. A grade separated interchange is proposed at Cau Giay, with a dual 2-lane north-south flyover along the line of 2RR. The existing Cau Giay / Kim Ma east-west route (Highway 32) will be retained, mostly unchanged, at ground level but with improved channelisation and revised (and enlarged) roundabout. Slip-roads will be provided to the north and south to allow access to the Ring Road. To the south of Cau Giay, the Ring Road connects with the existing section of 2RR (Duong Lang) which has been recently upgraded to dual 2-lanes. A major public transport interchange is to be developed on land within the highway to the immediate east of Cau Giay interchange. This will be served by a proposed east-west urban rail system along the line of Highway 32 as well as buses, including buses to and from 2RR and North Hanoi. The proposed rail line is being designed to pass over the proposed 2RR flyover.

**Component 2B: Housing for Displaced Persons.** *(total US$21.83 million; IDA US$18.18; Government of Vietnam US$3.64 million)* This component will finance the CT1 resettlement site which can accommodate about 600 households. This site is well located within a 100 meters from the third ring road and well connected to the city transportation networks and proximate to existing and future employment centers. The site is less than 2 km from the neighbourhoods being resettled and is part of a new development called Cultural Community City. Though this development was approved in 2002, progress has been stalled. The proposed infrastructure design includes roads, sidewalk, landscaping and shared parking. High quality public bus service is available on ring road 3 within 100 meters of the complex gate. The site and housing design is generally well conceived. The placements of towers, connectivity to parking, and pedestrian access from plazas represent good urban design. The housing units design is acceptable with proportionately sized rooms and with access to natural light and air to the majority of spaces.

While the larger Cultural City program remains on hold, Hanoi PC has agreed to a plan that will provide the site with required connections to all urban infrastructure including street lights, electricity, water, wastewater and sewage systems.

**Component 2C: Integrated Sustainable Urban Land Development and Transport Planning** *(total US$1.75 million; US$1.75 million from GEF)*

This subcomponent will include studies that will support the Hanoi Department of Planning and Architecture to:

- review of existing planning regulations, institutional structures, standards and procedures and consider modifications that would result in facilitating urban growth that is more compatible with competitive public transport;
- review existing plans for the newly urbanizing areas, particularly west of West Lake and north of the Red River from the same perspective;
- conduct capacity building and training for officials dealing with urban development and transport planning; and
- case studies (feasibility studies, tax incentives, zoning exceptions) at particular locations that would make the recommendations of these reviews actionable.

This work will be done essentially for the urban planning body in the city that oversees the work of all sectoral plans, of which transport is only one. Ideally this department can play a critical role to (i) integrate different sectoral plans, particularly transport plans, spatial development plans and local development plans and actions planned by district governments; and (ii) monbitor implementation and ensure that there is consistency between actual development on the ground and the plan. The technical assistance will support this effort. The specialists used to provide related advisory services will be professionals with experience and a track record in supporting city management develop and implement effective integrated plans (such as in Singapore).

**Component 3: Institutional Strengthening**
*[total US$10.49 million, IDA US$6.44, US$4.05 million from the GEF]*

The Program has five subcomponents - an Air Quality Management (AQM) Program; a Traffic Safety program; supporting the strengthening of a newly established Public Transport Authority and transport planning and policy development; replication and information dissemination activities that have been designed to address GEF's priority on replication; and support for project management.

**Component 3A: Air Quality Management Program** *(total $1.65 million, IDA US$1.65 million)*

The primary objective of AQ sub-component is to develop an air quality management system to reduce human exposure to vehicular air pollution and consequent health impact in Hanoi. Emphasis will be placed on motorcycles which are supposed to be the primary contributor to traffic emissions. To this end, AQ sub-component will include the following key elements:

- Improvement of Air Quality Monitoring Network
- Pilot Operation and Demonstration of I/M for Motorcycles
- Technical Assistance for Mobile Sources Emission Inventory Development and Exposure and Health Impact Assessment

The table below summarizes the key components of this sub-component. *No GEF co-financing is proposed for this sub-component.*

| Key Element | Scope | Responsible organization for implementation |
|---|---|---|
| A. Improvement of air quality monitoring network | **Upgrading of existing monitoring stations.** Repair and replacement of outdated devices/instruments for each of the 5 monitoring stations<br><br>**Establishment of additional monitoring stations.** 3 new monitoring stations equipped with measurement instruments such as $O_3$, CO, $SO_2$, $NO_x$ and $PM_{10}/PM_{2.5}$<br><br>**Portable monitoring instruments**. Portable instruments for the use of ad-hoc or emergency event measurement | CENMA |
| B. Pilot operation and demonstration of inspection and maintenance for motorcycles | Demonstrative operation of several pilot inspection stations dedicated for motorcycles. The activities will include pilot equipment of motorcycle inspection instruments to several existing automobile inspection stations, voluntary inspection of motorcycles, public awareness raising campaign, data analysis, and development of policy options to be reported to HPC. | TUPWS |
| C. Technical assistance | **Mobile sources emission inventory development**. Review of existing available information such as traffic model and emission inspection data, additional emission measurements, and establishment of a mobile emission inventory by type of vehicle fleet.<br><br>**Exposure and health impact assessment**. Study on the conditions of exposure to polluted air among high exposure groups such as motorcyclists and street vendors, as well as their health impact. | DONRE |

**Component 3B: Traffic Safety** *(total US$1.92 million, IDA US$1.92 million);*
To achieve the long-term sustainability of all investments on traffic safety, a number of areas where road safety could be improved have been identified, including through engineering, education, and enforcement. The traffic safety subcomponent of HUTDP includes enforcement and engineering solutions that support the BRT Component (costed as part of the BRT component). In addition, this component will finance traffic safety equipment and necessary technical assistance for Hanoi City traffic control and Traffic Inspection Board. These proposed solutions will complement other solutions recommended by other projects like Road Safety Project funded by the World Bank. Details of the equipment being procured are provided in Table A4-1 and A4-2. *No GEF funding is requested for this Component.*

**Table A4-1. Equipment for Traffic Police**

| | Quantity |
|---|---|
| Vehicles | |
| Patrol car | 5 |
| Patrol motorcycle | 15 |
| | |
| Speeding Camera | 10 |
| Traffic accident investgation kits | 10 |
| Counter top Breath Tesing with printer | 10 |
| Software for traffic accident analysis software | 1 |
| Software for driving lincencing database | 1 |
| Communication Equipment | |
| Handheld mobile | 100 |
| Radio mobile (in the patrol car) | 20 |
| Base station and transponders | 1 |
| Office equipment | |
| Computer (with UPS) | 20 |
| Printer | 5 |
| Photocopy machince | 5 |

**Table A4-2. Equipment for Traffic Inspection Division – TUPWS**

| | Quantity |
|---|---|
| **Vehicle** | |
| Recovery vehicle | 2 |
| Truck with self-propelled crane | 1 |
| **Enforcement Equipment** | |
| Portable Electronic scale (60 tons) | 6 |

**Component 3.C: Public Transport Authority Strengthening and Policy development** *(total US$4.90 million, IDA US$2.2 million, GEF US$2.7 million)*

***i. Public Transport Authority Strengthening***

The PTA will be responsible for regulation and planning of all city bus operations and coordinating all new mass transit initiatives and the integration of existing services with new developments, and will play a critical role in: choosing BRT operators and monitoring BRT operations; managing the restructuring of existing bus-routes to feed and complement the BRT network; and, ensuring successful integration between the BRT, the existing bus system and future mass transit systems. IDA financing will be used to finance equipment for TRAMOC to be transferred over to the new PTA when it is formed. Table A4-3 lists the equipment to be procured.

**Table A4-3: Equipment to be provided to TRAMOC and to be transferred to PTA**

| Item | Qty |
|---|---|
| **Hardware and Office equipment** | |
| Server FTP and LAN upgrading | 1 |
| Computer | 15 |
| Note book | 2 |
| Color Printer | 1 |
| Printer | 3 |
| Digital Video Camera | 1 |
| Digital Camera | 2 |
| Scanner | 1 |
| Projector | 1 |
| Portable GPS and GIS software for travel time | 3 |
| **Management Software** | |
| Software for managing contracts | |
| Software for managing infrastructure and equipment | |
| Software managing public transport planning and opera. | |
| **PTMA Centre** | |
| Decoration and furniture (reserve) | 1 |

As the PTA will be a key component in ensuring the sustainability of the Urban Transport Development Project in Hanoi, GEF funding is sought to strengthen the PTA's capacity for BRT planning, concessioning, and implementation as outlined in this section. It should be noted that GEF funding for technical assistance for the PTA is considered essential to establish the long-term sustainability and operational efficiency of the PTA, and for the successful implementation of the BRT system in Hanoi.

To support the design and establishment of the PTA, technical assistance and services will be provided to ensure that the agency gains the necessary capacity to perform:

- long term public transport planning;
- co-ordination of all existing and new schemes in conformity with the plan;
- procurement of service providers on a contractual basis;
- control of common infrastructure (e.g. terminals); and
- control of finance, including ticketing and revenue collection.

The following tasks are anticipated:

- Review existing institutional structure for transport in Hanoi with special attention to public transport.
- Review previous studies and proposals, particularly these related to the creation of the PTA, both in the PPIAF study and the draft feasibility and preliminary designs.
- Review the normative regarding urban transport and public transport, particularly in relation to the legal tools available for the creation of the PTA and implementation of the

BRT system as the first major mass transit system to be implemented and managed by the PTA).

- Recommend an institutional action plan for the creation of the PTA and implementation of the BRT system and seek HPC's views and approval of the recommendations and action plan.
- Support HPC on the creation of the PTA and implementation of the BRT, in the preparation of pro-forma Decisions, Decrees, and any other legal tool required for the creation and implementation of the BRT system, as well as assist HPC in advancing and obtaining approval of the proposed legal tools.
- Support HPC on the organization and operational setup of the PTA.
- Preparation of operational rules manual: establishment of routes, selection of the type of vehicles, information system for the entrepreneurial operation of public transportation, control and supervision of the quality of service.
- Prepare a detailed procurement plan. The procurement plan shall include infrastructure, equipment, software and technical training program.
- On-the job training of assigned counterpart personnel on all the aspects related to the technical Assistance.

GEF is requested to co-finance training, including consultants to provide on-the-job support for PTA, and to support for BRT commercialization and (iii) support for planning and operating aspects of the BRT. GEF co-financing is sought to support this authority with training and related activities that would (i) ensure sustainability of the HUTDP investments and help allay GEF's stated concerns related to sustainability; and (ii) ensure that low cost coordination and planning measures that would maximize the effectiveness of the BRT and other complementary investments in public transport are properly implemented.

***ii. Transport Management and Policy Development***

This subcomponent will support equipment for the transport and urban management division of TUPWS (Table A4.4 financed entirely by IDA) and technical assistance to support capacity enhancement at this agency as well as technical assistance to support Hanoi agencies to explore and implement traffic management measures successfully.

**Table A4-4. Equipment for Urban Transport Management Division – TUPWS**

| Item | Qty |
|---|---|
| **Traffic and Highway Engineering Equipment** | |
| Automated traffic counting machine | 2 |
| Handheld electronic counting machine | 8 |
| Falling weight deflectometer (FWD) | 1 |
| Utilities Detector | 1 |
| **Management Software** | |

Transport planning and related policy development is an important part of HPC's mandate. Consequently, Hanoi invests significant resources and managerial effort on the issue. A JICA financed plan that includes transport is near completion. Issues related to restrictions on motorcycle and auto ownership, and parking are important and constantly on the HPC's agenda.

However, Hanoi's attempts to enforce restrictions on the use of auto and motorcycle ownership to manage congestion have been largely ineffective. Additionally, the Bank's assessment is that Hanoi has not fully understood the potential of economic instruments based on *price* as alternatives to command-and-control methods, to effectively manage the urban transport system. Properly implemented, such instruments have the potential to significantly reduce the amount of private motorized travel (and consequently GHG emissions), by inducing shifts to public transport and encouraging trip combination.

Activities will include the following:

- raise awareness, understanding and comfort of decision-makers with economic instruments to manage/restrict private vehicle *use* as a means to address congestion and related transport problems in Hanoi's context;
- support the development of an actionable long-term plan in this respect;
- examine the role parking policy and can play to assist the HPC to manage the transport system, focusing on the development of a parking and enforcement policy that can serve to *manage* demand rather than just accommodate it;
- support the development of a fuel use and CO2 inventory and promote the use of indicators related to total motorized travel/energy use in Hanoi's transport policy development;
- support an impact evaluation of the BRT; and
- support planning for subsequent phases of the BRT system.

**Component 3D National and Regional Replication and Information Dissemination** *(GEF US$0.90 million)*

The BRT project in Hanoi has a strong potential for replication, especially in similar sized cities both in Vietnam and in the region. The proposed project seeks to actively promote replication, in other Vietnamese and Asian cities, by leveraging the demonstration nature of the project and disseminating information gathered during implementation.

As the implementation of Hanoi's BRT line sets an example for other Vietnamese cities and in the larger region, the project replication activities, therefore, will actively target replication both within Vietnam and within the region through the following:

(a) BRT promotion for Vietnamese cities: Replication within the country will be promoted by briefing the managers of other major Vietnamese cities on the project and by keeping them appraised of its progress and impacts:
  (i) Information will be made available on a regular basis through the production of public information announcements and other materials;
  (ii) A launch meeting will be held that will seek to inform other cities about the benefits of BRT, the urban planning process, and related information; and,
  (iii) At either the project's midpoint or towards the end of the project, a dissemination workshop will be hosted to present and assess the progress of the implementation, and will include a focus on lessons learned.
  (iv) Feasibility studies for priority demonstration corridors will be financed in interested cities.

(b) Replication outside the country will be promoted through:
  (i) publications (e.g. lessons learned document) on the Hanoi BRT;

(ii) exhibits and presentations will be made by Hanoi at major transport fora in the region. These exhibits and presentations will focus both on the experience of Hanoi is planning and implementing BRT, but also on the lessons learned; and,

(iii) by hosting and promoting study tours to Hanoi for senior urban development and transport planners from other Asian cities. It should be noted that, based on experience from other successful systems such as Curitiba and Bogotá, replication is often not a problem. Once the BRT systems are being implemented, great interest tends to follow quickly. Recognizing this trend, the Hanoi project will facilitate the process both by organizing tours for interested parties and also by presenting information and lessons learned on BRT in a synthesized manner.

(c) For all interested cities within the region, the Hanoi BRT website will be a central repository for information on the progress, achievements, lessons learned and contact information.

The Hanoi project is already having an impact through the demonstration effect of the planning process for BRT: Ho Chi Minh City is following in Hanoi's steps and considering/planning a demonstration BRT line and has formally asked the Bank to support such a project with an investment loan.

Several of the project components have elements of information dissemination (including Component 1C (BRT Consultation, Communications and Media Strategy; Component 3E on National and Regional Replication and Information Dissemination, and Component 2B on Integrated Sustainable Land Development and Transport Planning). These components were designed to be orthogonal to each other, and will be conducted to ensure that there is no overlap and that opportunities for cost savings are emphasized during project implementation.

**Component 3E Implementation support for the PMU** (*total US$ 1.12 million, IDA US$ 0.67million, GEF US$0.45million*)

This subcomponent consists of two elements:

**(i) Results management and project management.** Consulting service support for GEF financed project management assistance for HPMU to provide assistance in GEF component management and implementation, measuring and monitoring project performance and assisting results management and outcome measurement related to GEF.

**(ii) Equipment and training for Hanoi agencies.** This includes:

a. Equipment, institutional strengthening for the HPMU (see Table A4-5)
b. Training for Hanoi agencies including the Hanoi PC and TUPWS-DPI and Hanoi DPI.

**Table A4-5. Capacity Building for HPMU**

| | Quantity |
|---|---|
| **Hardware and Office equipment** | |
| Server FTP and LAN | 1 |
| Computer | 20 |
| Note book | 3 |

| | |
|---|---|
| Digital Video Camera | 2 |
| Digital Camera | 3 |
| Printer | 5 |
| Color Printer | 1 |
| Projector | 1 |
| Scanner | 1 |
| Photocopy machine | 2 |
| Other office facilities (cabinet,tables and chairs, air conditioner) | |
| **Training and Technical Assistance** | |
| Local training for project management, procurement management, financial management, concessionaire contract design and management and project monitoring and evaluation | |
| Project management, transport planning, study tours | |
| Technical assistance for training advisor and office operation | |
| Project Technical and Financial Audits | |

## Annex 5: Project Costs

## VIETNAM: Hanoi Urban Transport Development Project

Project costs reported in this Annex reflect the estimates in the final project feasibility studies. Project files include a more detailed analysis of the cost calculations. The analysis suggests that the overall costs are appropriate. IDA is financing reasonable taxes calculated to be about US$15 million.

**Table A5.1. Component - BRT component**

| US$ million | Base Total | TAX Total | Total after tax Total | IDA Total | GEF Total | GOV Without Tax |
|---|---|---|---|---|---|---|
| **Component 1 - BRT component** | | | | | | |
| **BRT Civil Works** | | | | | | |
| Infrastructure Civil Works Lang Ha | 15.98 | 1.60 | 17.57 | 15.98 | 0.00 | 1.598 |
| Infrastructure Civil Works Giai Phong | 9.59 | 0.96 | 10.55 | 9.59 | 0.00 | 0.959 |
| Terminal at Quang Lai | 1.56 | 0.16 | 1.71 | 1.56 | 0.00 | 0.156 |
| Interchange Station | 3.08 | 0.31 | 3.39 | 3.08 | 0.00 | 0.308 |
| Depo | 1.19 | 0.12 | 1.31 | 1.19 | 0.00 | 0.119 |
| BRT Station | 7.40 | 0.74 | 8.14 | 7.40 | 0.00 | 0.740 |
| GEF BRT System and NMT& Pedestrian | 1.30 | - | 1.30 | | 1.30 | |
| GEF BRT system Stations & Interchanges | 1.40 | - | 1.40 | | 1.40 | |
| **Subtotal BRT Civil Works** | **41.49** | **3.88** | **45.37** | **38.79** | **2.70** | **3.88** |
| **BRT Equipment** | | | | | | |
| Signal System for BRT | 6.95 | 0.69 | 7.64 | 7.64 | 0.00 | 0.00 |
| Ticket Checking System | 5.25 | 0.53 | 5.78 | 5.78 | 0.00 | 0.00 |
| Equipment for BRT Offices | 0.330 | 0.033 | 0.36 | 0.36 | 0.00 | 0.00 |
| Safety Equipment | 0.16 | 0.016 | 0.18 | 0.18 | 0.00 | 0.00 |
| Repair and Maintenance Equipment | 2.06 | 0.21 | 2.27 | 2.27 | 0.00 | 0.00 |
| BRT Bus Fleet | 10.96 | 1.096 | 12.06 | 12.06 | 0.00 | 0.00 |
| **Subtotal Equipment for BRT** | **25.71** | **2.57** | **28.28** | **28.28** | **0.00** | **0.00** |
| **Consulting Services for BRT** | | | | | | |
| Design of Civil Works | 0.97 | 0.097 | 1.07 | 1.07 | 0.00 | 0.00 |
| Design of BRT system | 0.64 | 0.064 | 0.71 | 0.71 | 0.00 | 0.00 |
| *Supervision* | | | | | | |
| SPN CW | 1.94 | 0.19 | 2.13 | 2.13 | 0.00 | 0.00 |
| SPN Equipment (Except Buses) | 0.74 | 0.07 | 0.81 | 0.81 | 0.00 | 0.00 |
| Other Consulting Services fee of BRT[(1)] | 4.18 | 0.19 | 4.38 | 0.19 | 0.00 | 4.18 |
| Outreach & Communications BRT Media Strategy | 1.30 | - | 1.30 | 0.00 | 1.30 | |
| **Subtotal Consulting Services for BRT** | **9.77** | **0.62** | **10.395** | **4.91** | **1.30** | **4.18** |
| **Resettlement Cost** | **1.08** | **0.00** | **1.08** | **0.00** | **0.00** | **1.08** |
| **Contingency** | **8.00** | **0.00** | **8.00** | **6.49** | **0.00** | **1.51** |
| **Price Contingency** | **6.76** | **0.00** | **6.76** | **5.65** | **0.00** | **1.10** |
| **Total BRT System** | **92.81** | **7.07** | **99.88** | **84.12** | **4.00** | **11.76** |

**Table A5.2. Component 2. Road Component**

| US$ million | Base Total | TAX Total | Total with Tax | IDA Total | GEF Total | GOV Without Tax |
|---|---|---|---|---|---|---|
| **Civil Works RR2** | | | | | | |
| Nhat Tan to Buoi | 10.58 | 1.06 | 11.64 | 10.58 | 0.00 | 1.06 |
| Buoi Interchange | 7.15 | 0.71 | 7.86 | 7.15 | 0.00 | 0.71 |
| Buoi to Cau Giay | 10.09 | 1.01 | 11.09 | 10.09 | 0.00 | 1.01 |
| Cau Giay Interchange | 5.69 | 0.57 | 6.26 | 5.69 | 0.00 | 0.57 |
| Utility Tunnels | 9.03 | 0.90 | 9.93 | 0.90 | 0.00 | 9.03 |
| **Subtotal Civil Works RR2** | **42.54** | **4.25** | **46.79** | **34.41** | **0.00** | **12.38** |
| **Consulting Services RR2** | | | | | | |
| Design of Ring Road # | 1.06 | 0.11 | 1.17 | 1.17 | 0.00 | 0.00 |
| Supervision of Ring Road | 2.13 | 0.21 | 2.34 | 2.34 | 0.00 | 0.00 |
| Other Consulting Services fee of Ring Road | 3.04 | 0.13 | 3.17 | 0.13 | 0.00 | 3.04 |
| **Subtotal Consulting Services RR2** | **6.23** | **0.45** | **6.68** | **3.64** | **0.00** | **3.04** |
| **Support for DAPM for Urban Planning** | **1.75** | **0.0** | **1.75** | **0.0** | **1.75** | **0.0** |
| **Resettlement Costs Ring Road 2** | | | | | | |
| Nhat Tan to Buoi Land & Compensation | 40.81 | 0.00 | 40.81 | 0.00 | 0.00 | 40.81 |
| Buoi Interchange Land & Compensation | 37.42 | 0.00 | 37.42 | 0.00 | 0.00 | 37.42 |
| Buoi to Cau Giay Land & Compensation | 26.04 | 0.00 | 26.04 | 0.00 | 0.00 | 26.04 |
| Cau Giay Interchange Land & Compensation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Monitoring | 0.05 | 0.00 | 0.05 | 0.05 | 0.00 | 0.00 |
| **Subtotal Resettlement Costs Ring Road #2** | **104.32** | **0** | **104.32** | **0.05** | **0.00** | **104.26** |
| **CT1 Civil Works** | **15.38** | **1.54** | **16.91** | **15.38** | **0.00** | **1.54** |
| **CT1 Equipment** | **1.31** | **0.13** | **1.45** | **1.31** | **0.00** | **0.13** |
| **Consulting Services CT1** | **1.35** | **0.14** | **1.49** | **0.00** | **0.00** | **1.49** |
| **Contingency** | | | | | | |
| Contingency of RR2 | 5.35 | 0.00 | 5.35 | 3.33 | 0.00 | 2.01 |
| Contingency of CT1 | 1.98 | 0.00 | 1.98 | 1.50 | 0.00 | 0.48 |
| **Subtotal of Contingency** | **7.33** | **0.00** | **7.33** | **4.84** | **0.00** | **2.49** |
| **Price Contingency** | **7.61** | **0.00** | **7.61** | **5.03** | **0.00** | **2.58** |
| **Total - Road Infrastructure and Sustainable Planning** | **187.82** | **6.51** | **194.33** | **64.66** | **1.75** | **127.92** |

## Component 3. Institutional Development

| | Total | IDA | GEF | Vn |
|---|---|---|---|---|
| **Component 3A. Air Quality** | **1,639,000** | **1,639,000** | | |
| *Upgrading existing stations* | 165,000 | *165,000* | | |
| *3 new monitoring stations* | 770,000 | *770,000* | | |
| *Motorcycle I&M equipment* | 330,000 | *330,000* | | |
| *Portable emissions equipment* | 99,000 | *99,000* | | |
| Mobile Source Emissions inventory | 220,000 | 220,000 | | |
| Exposure Study | 55,000 | 55,000 | | |
| *Component 3A Equuipment* | *1,364,000* | *1,364,000* | | |
| Component 3A Services | 275,000 | 275,000 | | |
| **Component 3B. Traffic Safety and project monitoring** | **1,918,200** | **1,918,200** | | |
| *Traffic police equipment* | *849,600* | *849,600* | | |
| Traffic Police Training and TA | 224,700 | 224,700 | | |
| *Traffic Inspector Board equipment* | *628,900* | *628,900* | | |
| Traffic Inspector Board training and TA | 215,000 | 215,000 | | |
| *Component 3B Equuipment* | *1,478,500* | *1,478,500* | | |
| Component 3B Services | 439,700 | 439,700 | | |
| **Component 3C. PTA Strengthening and Transport policy development** | **4,926,510** | **2,198,900** | **2,727,610** | |
| *Equipment for PTA/Tramoc* | *820,000* | *820,000* | | |
| Institutional Strengthening for TRAMOC | 303,710 | | 303,710 | |
| Technical assistance for PT (also TRAMOC) | 1,390,000 | | 1,390,000 | |
| *Equipment for TUPWS-TUMD* | *345,600* | *345,600* | | |
| Technical assistance for TUMD | 320,600 | | 320,600 | |
| Technical assistance supporting traffic and demand management | 1,746,600 | 1,033,300 | 713,300 | |
| *Component 3C Equuipment* | *1,165,600* | *1,165,600* | *0* | |
| Component 3C Services | 3,760,910 | 1,033,300 | 2,727,610 | |
| **Component 3D. Replication** | **900,000** | | **900,000** | |
| **Component 3E. Project management for GEF** | **1,122,200** | **672,200** | **450,000** | |
| Results management, project management support | 450,000 | 0 | 450,000 | |
| HAPI training | 26,600 | 26,600 | | |
| TUPWS-DPI training | 95,900 | 95,900 | | |
| HPC Training | 17,400 | 17,400 | | |
| HPMU training and TA | 439,800 | 439,800 | | |
| *HPMU equipment* | *92,500* | *92,500* | | |
| *Component 3E Equuipment* | *92,500* | *92,500* | *0* | |
| Component 3E Services | 1,029,700 | 579,700 | 450,000 | |
| **Total** | **10,505,910** | **6,428,300** | **4,077,610** | |
| *Total Component 3 Equipment* | *4,100,600* | *4,100,600* | *0* | |
| Total Component 3 Services | 6,405,310 | 2,327,700 | 4,077,610 | |

| Components Project Cost Summary | Total |
|---|---|
| **Development of the BRT System** | |
| BRT System | 97.28 |
| BRT Pedestrian-NMT-Access | 1.30 |
| BRT Consultation, Communication, Media | 1.30 |
| **Subtotal Development of the BRT System** | **99.88** |
| | |
| **Road Infrastructure and Sustainable Planning** | |
| Ring Road 2 | 170.75 |
| Construction CT1 Site | 21.83 |
| Integrated Sustainable Urban Land Development and Transport Planning | 1.75 |
| **Subtotal Road Infrastructure and Sustainable Planning** | **194.33** |
| | |
| **Institutional Strengthening** | |
| Air Quality Management | 1.65 |
| Traffic Safety and enhancement of project monitoring | 1.92 |
| Public Transport Authority and Transport Planning & Policy Development | 4.90 |
| National and Regional Replication and Info Dissemination | 0.90 |
| Results management and Project Management support | 1.12 |
| **Subtotal Institutional Strengthening** | **10.49** |
| | |
| **Total PROJECT COSTS** | **304.7** |

## Annex 6: Implementation Arrangements

## VIETNAM: Hanoi Urban Transport Development Project

### I. Institutional Arrangements

**Hanoi People's Committee (HPC)**
Hanoi People's Committee will be fully responsible for executing the project and will be responsible for overall project management and oversight at the city level. HPC has established a Project Steering Committee to facilitate project implementation. To manage, coordinate and supervise the project, the HPC has established a HUTDP Project Management Unit (HPMU), under the Hanoi Transport and Urban Public Works Service (TUPWS), to prepare and implement the proposed project. The core HPMU staff have worked as PMU staff to implement UTIP. The HPMU will be maintained at all times during the implementation period with adequate budget and qualified fulltime staff.

**Project Steering Committee (PSC)**
HPC will establish a steering committee to ensure coordination and accountability during project implementation (as a condition of project effectiveness). Members will include participating agencies including the TUPWS, HAPI, Department of Finance (DOF), Police, DAPM, and DONRE. A Vice Chairman will serve as the chair-person of PSC. The steering committee will consider and decide on issues related to the guidelines, policies/strategy and implementation of HUTDP's detailed tasks. Its main function will be project monitoring and reviewing, and deciding and commenting on objectives, problems, resources, and project planning.

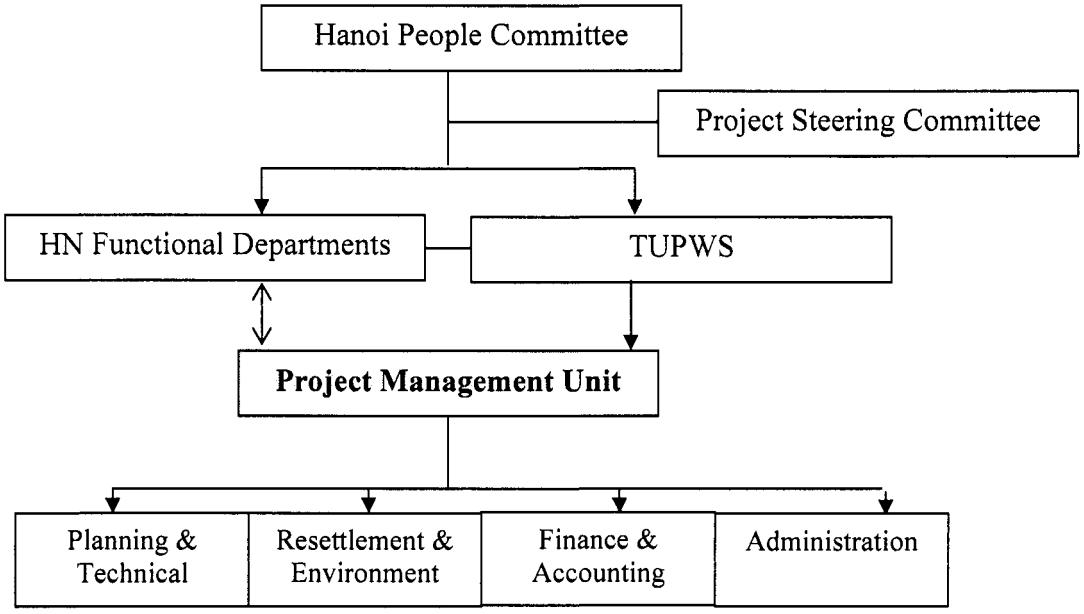
**Transport and Urban Public Works Service (TUPWS)**
TUPWS will be the project/investment owner. TUPWS's responsibility will be supervision of HPMU implementation, review and appraisal of all submissions from PMU, and approval of detail design of BRT and RR2 components. The roads and BRT road will be turned over to TUPWS after construction and will be maintained by TUPWS.

**Hanoi Project Management Unit (HPMU)**
The PMU will be the executing agency managing the implementation of all project components including overall coordination, quality assurance, procurement, financial management, monitoring and reporting, obtaining site working permissions for contractors, and day-to-day supervision of project activities. The PMU will be responsible for the overall management of the project procurement plan and will sign all contracts of the project.

The HPMU is headed by a general director who reports to the Director of TUPWS and to the chairman of the PSC. The General Director (GD) is supported by deputies in areas of functional responsibility.

HPMU organization consists of four functional divisions: Planning and Technical Dept., Resettlement, Finance and Accounting, and Administration.

**Project Organizational Structure**




**Other co-implementation agencies of Sub-components**

*TRAMOC/Public Transport Authority (PTA)*
HPC will establish the Hanoi Public Transport Authority from current TRAMOC which is responsible for management of all transport public modes. The main roles of PTA are public transport planning, policy making, management, and monitoring. The PMU and PTA together will manage the implementation of procurement of the buses and all equipment related to the BRT system and the BRT concession processes. BRT buses, terminals, depots and other equipment will be owned by the City (with the PTA potentially representing the City) and leased out to operators as appropriate. The operators will be selected based on competitive tendering.

*The Traffic Police Department (TPD)*
TPD will participate in the detailed design stage of BRT component, to implement the traffic re-organization, traffic signal priority for facilitating BRT operation, traffic law enforcement in two BRT routes. The traffic police and traffic inspection unit under TUPWS will be involved in the acquisition and installation of all equipment related to traffic management.

*Department of Architecture and Planning Management (DAPM)* will manage the implementation of the urban planning TA, appraise and coordinate in road planning line, infrastructure system, plans of adjacent projects.

*Department of Natural Resources and the Environment (DONRE)* will be responsible for managing the implementation of the air quality component under the supervision of HPMU. Given the lack of experience in project management, DONRE will set up a working group consisting qualified staff in charge of daily project operation and coordination with PMU, and also hire a consultant who helps manage AQ sub-component. Regarding the AQ sub-

component, DONRE will develop and evaluate technical matters including specifications and requirements for equipment and services with TUPWS's help. The owner of air quality monitoring equipment and motorcycle inspection equipment will be DONRE and TUPWS, respectively, and they will be responsible for the operation and maintenance of their own equipment. DONRE will collect and process air quality monitoring, emission and other relevant data, and made the processed information available for air quality control policy in collaboration with other related agencies including traffic police, Vietnam Register and TUPWS. Regarding supervising the implementation of EMP, apart from the project specific arrangements, DONRE will review project monitoring reports, and may implement regular/ad hoc monitoring, and request further mitigation measures based on their own environmental management jurisdiction.

*The City Resettlement Committee (RC)*
RC is responsible for monitoring, supervising, and reporting the resettlement implementation of related agencies. The resettlement program will be implemented through a multi-level institutional structure at Hanoi Municipality, district and ward or commune levels. Hanoi People's Committee, with a City Steering Committee, assumes the overall responsibility for the RAP implementation. It holds the final approval for land acquisition and allocation, compensation rate updating. It is responsible for financing the resettlement program.

The PMU is the implementing body of the resettlement program. It is responsible for updating the design of the resettlement program, supervising its implementation, maintaining a RAP data base for internal monitoring, recruiting and supervising the independent monitor, and reporting regularly to the World Bank on resettlement progress. District Resettlement Committees, assisted by ward and commune resettlement committees, will be responsible for planning and implementation of the resettlement programs in their respective district, including finalizing the resettlement design, preparing the compensation and relocation package, delivering compensation payments and assisting in the relocation process.

**Hanoi project co-ordination agencies**

*Hanoi Authority for Planning and Investment (HAPI)* will be responsible for reviewing and commenting on submissions relating procurement, project adjustment, and counterpart funds.

*Department of Finance (DOF)* will be responsible for arrangement counterpart funds, appraise compensation cost, and resettlement housing price.

*Department of Internal Affairs* will be responsible for procedures of establishment of PTA.

**Government Agencies**

*The Ministry of Construction (MOC)* will implement the national replication component. This component will be implemented late in the Project implementation cycle. Finalization of implementation arrangements including procurement and financial management arrangements satisfactory to IDA, are disbursement conditions on this component.

*The Ministry of Planning and Investment (MPI),* at the national level, the MPI provides overall sectoral guidance on investment policy and approves and monitors the progress of all large foreign-assisted projects. For sector-specific issues, MPI consults with the sector ministry, in this case the Ministry of Transport (MOT), the national agency responsible for developing and managing the transport sector

*The Ministry of Natural Resources and Environment (MONRE),* with support from local authorities, will ensure compliance with all government instructions relating to environmental protection and will monitor implementation of the EMP.

*The Ministry of Finance (MOF)* will allocate adequate funds to the project on a timely basis and will deposit government counterpart funds into the executing agency trust account for the project.

*The Ministry of Transport (MOT)* will ensure compliance with technical standards/specifications relating to BRT and road components.

**Summary**

The following table summarizes participating agencies' project responsibilities.

| Agency | Responsibility/Role |
|---|---|
| Hanoi PC | Overall project management and oversight |
| Project Steering Committee | Strategic project coordination, monitoring and direction of project delivery |
| Functional Departments | Management functions, as requested, to support project management and oversight role |
| HPMU | Project implementation, coordination, monitoring, and supervision, and coordination. |
| DAPM, DONRE, TPD, TRAMOC | Support to and participation in project activities as needed |
| Ministry of Construction | Implementation of Component 3E (replication) |
| Other Ministries | Coordination as requested |

## II. Arrangements for Reporting

(i) The PMU is to submit twice-yearly EMP and RAP monitoring reports to IDA, by February 15 and August 15 of each year, starting on February 15, 2008, covering the periods January-June and July-December respectively.

(ii) Progress reporting and mid-project review: The PMU is to submit, by February 15 and August 15 of each year, starting with February 2008 and until the project is completed, a semi-annual progress report on project implementation covering the period January-June and July-December respectively.

(iii) The detailed audit reports will be submitted to IDA within six months after the end of each fiscal year;

(iv) The Government will hold annual implementation reviews (by June 30 of each year, beginning in 2008) and a mid-term review (by December 31, 2010)

Implementation will be monitored through the Quarterly Financial Management Reports (QFMRs), and bi-annual supervision report prepared by HPMU.

The World Bank will conduct Supervision Missions every six months and will conduct a mid-term review after about 24 months of implementation. The Bank will work closely with PMU and recipients agencies to review the performance of technical assistance consultants.

*III. Arrangements for Monitoring and Evaluation*

**General**

The TUPWS in consultation with HPMU has drafted a comprehensive Monitoring and Evaluation Framework. This framework will be finalized as part of the Project Implementation Plan prior to Credit Effectiveness. The HPMU will use specific technical, social and economic indicators defined in the Financing Agreement (FA) to assess project progress and effectiveness. The monitoring of such indicators will be integrated into the day-to-day work routines of the project implementing agency.

Information from the monitoring and assessment of the HUTDP implementation progress will anchor the agenda of Project Steering Committee meetings. The key performance indicators which will serve as the basis for measuring project effectiveness, efficiency, appropriateness, procurement procedures, quality of works supervision, and the frequency and quality of participation by stakeholders.

**Monitoring Arrangements and Responsibilities**

HPMU will report every six months on project progress. TUPWS will annually issue a summary report to the HPC and to the World Bank. The annual reports will include tables of exceptional events and conditions, which have been identified through the monitoring process, as well as indications of the actions to be taken in response to each of these events. The preparation of this annual report will be assisted by HPMU, Project audit consultant, supervision consultant, and TA consultants.

## Annex 7: Financial Management and Disbursement Arrangements

## VIETNAM: Hanoi Urban Transport Development Project

### Country Issues

The 2001 Country Financial Accountability Assessment (CFAA) for Vietnam concluded that the public financial management system represented some level of fiduciary risk. The 2005 Public Expenditure Review- Integrated Fiduciary Assessment (PER-IFA) recognized improvements in transparency and accountability arising from (i) a new audit law (May 2005) which will enhance oversight by the National Assembly and Provincial People's Councils over public finances and increase public access to information on government finances; (ii) the new decree on independent audit (March 2004) which regulates the status of auditors and audit firms and define the value of audit results; and (iii) the accounting law (2003) which establishes the legal framework for Vietnamese Accounting Standards for public and private sectors on the basis of international standards.

However, the PER-IFA identifies a large agenda for improvement in public financial management. The key challenges include: (i) implementation of the legislative frameworks which are largely in place; (ii) strengthening the effectiveness of the State Audit of Vietnam; (iii) streamlining the internal control framework; (iv) building financial management capacity, particularly at the sub-national level; and (v) adopting international public sector accounting standards.

Recently, corruption and collusion has been highlighted as a significant risk in donors funded projects in Vietnam. The risks particularly relate to procurement. However the weaknesses in internal control and financial monitoring and oversight, combined with capacity weaknesses, increase the inherent risk in relation to misuse of funds for approved purposes which are accounted for through government systems and processes to substantial.

### Risk Assessment and Mitigation

The HPMU includes a functioning dedicated financial management unit with experienced personnel (transferred from UTIP). The audit reports of UTIP, which were managed by the same personnel, revealed no issues of accountability with only one audit qualification which was promptly and properly fixed. As a result, the inherent risk to the project from the financial environment is assessed as **moderate**. The project specific control risk taking into account the risk mitigation measures that are to be implemented for the project is also assessed as **moderate**.

| Risk | Risk Rating | Risk Mitigation Measures Incorporated into Project Design | Risk After Mitigation Condition of Negotiation, Board or Effectiveness |
|---|---|---|---|
| **Inherent Risk** | | | |
| GOV may be unable to meet its funding obligations due to budgetary constraints | Substantial | (i)IDA is financing 100% of goods and services and 90% of works. This minimizes counterpart requirements. (ii) The People's Council of Hanoi has provided a decision committing | Substantial |

| Risk | Risk Rating | Risk Mitigation Measures Incorporated into Project Design | Risk After Mitigation Condition of Negotiation, Board or Effectiveness |
|---|---|---|---|
| | | required counterpart funds on a timely basis. | |
| Entity and Project level: Funds may not be used efficiently and economically and for purposes intended | Moderate | (i) Annual financial audit by external auditor, (ii) performance audit by external auditor, (iii) enhanced accounting and reporting system. | Moderate |
| Entity and Project level: Potential corruption mainly arising from procurement | Moderate | (i) ICB applied for all contracts at and above USD 2 m (work), USD 0.1 m (goods), (ii) prior review for contracts with value of USD 0.2 m or more (work), USD 0.1 m or more (service), See also Annex 19. | Moderate |
| **Overall Inherent Risk** | **Moderate** | | **Moderate** |
| **Control Risk** | | | |
| 1. Budgeting | Moderate | (i) Operational budget to be linked with financial budget which should be integrated in the financial management software, (ii) variances analysis should be done on a quarterly financial monitoring reports | Moderate |
| 2. Funds Flow | Moderate | Funds will flows directly from the IDA to the designated accounts maintained at a commercial bank acceptable to IDA whose signatories are PMU management. | Negligible |
| 3. Staffing | Moderate | Further training to update FM personnel on new IDA requirements (if any) | Low |
| 4. Accounting Policy & Procedures | Moderate | A consistent set of accounting policies and procedures to be set up and applied in all implementing agencies (which will be detailed in a Financial Management Guidance). Training of the accounting policies and procedures to be organized for the staff. | Moderate |
| 5. External Audit | Negligible | Annual Financial Audit of the project's financial statements by independent auditors; Performance (technical and financial) audits annually | Negligible |
| 6. Reporting & Monitoring | Substantial | The current system to be updated so that (a) consistent report requirements for all implementing agencies, (b) there is a link with the project physical progress and (c) all reports can be automatically prepared by the System | Moderate |
| 7. Information Systems | Moderate | FM software to be set up at the PMU | Moderate |
| **Overall Control Risk** | **Moderate** | | **Moderate** |

**Implementation arrangements**

HPC is the executing agency for the project and will be responsible for overall project management and oversight. HPC has overall responsibility for governing Hanoi. Its responsibilities include coordinating activities of City functional Departments and other relevant organizations on all matters in Hanoi other than those within the jurisdiction of the National Government. HPC has established a Project Management Unit (HPMU) under its Transport and

Urban Public Works Service Department (TUPWS) to implement this project. HPMU will be responsible for overall coordination, quality assurance, procurement, financial management, monitoring and reporting, and day-to-day supervision of project activities.

MOC is responsible for implementation of the national replication component which will be implemented late in the Project implementation cycle. The finalization of a financial management arrangement, which includes organization, staffing, budgeting, internal controls, accounting, reporting and auditing, is a disbursement condition of this component.

***Staffing***
Most of the personnel of HPMU have been transferred from the Project Management Unit of UTIP. Thus HPMU has already established financial functions that are adequately staffed.

***Budgeting***
The annual disbursement plan prepared by the HPMU will be reviewed and verified by Hanoi TUPWS before being approved by the HPC. HPC will send the plan to MOF for allocation of funds. HPMU's annual procurement plan will serve as the basis for the financial plan.

***Accounting***
The current accounting system used in HPMU is the Accounting System for Investment Projects, which is based on the Decision 214 of MOF. The current chart of accounts of the PMUs will need to be revised, despite conformity with Decision 214, in order to meet the Project financial management requirements of the report by project components, activities and disbursement categories.

**Internal Controls**
The PMU Director will be responsible for ensuring that an adequate internal control framework and internal controls are in place and operating. The project's internal control system will include the key controls of (i) clearly defined financial management responsibilities and reporting structures; (ii) segregation of duties; (iii) defined and documented financial processes and procedures; (iv) regular timely reconciliations; (v) security and safeguarding of cash and assets; (vi) timely reporting, review and monitoring; (vii) timely remedy actions and follow up on financial issues, variances and audit findings; and (vi) proper documentation and retention of project financial records and documents.

The project's internal controls are documented in a Financial Management Manual (FMM) and will be updated regularly to take into account any changes in procedures.

**Funds Flow and Disbursement Arrangements**

The table below details the allocation of IDA Credit and GEF grant as follows

| Expenditure Category | Amount of Credit Allocated (SDR) | % of Expenditures to be Financed (inclusive of taxes) |
|---|---|---|
| **IDA Credit** | | |
| Works | 64,930,000 | 90 |
| Goods and Consulting services (including training and seminars) | 29,320,000 | 100 |
| Project Preparation facility | 1,640,000 | |
| Unallocated | 5,910,000 | |
| TOTAL | 101,800,000 | |

| **GEF Grant** | (US$ million) | |
|---|---|---|
| Works, goods and consulting services under components 1A, 1B, 1C and 2C; and Consulting services under component 3C | 8.45 | 100 |
| Component 3D (to be implemented by Ministry of Construction) | 0.9 | 100 |
| Unallocated | 0.45 | 100 |
| Total | 9.8 | |

***Disbursement Methods***

The project will use the following disbursement methods:

- *Reimbursement* - The Bank may reimburse the borrower for expenditures eligible for financing pursuant to the Credit Agreement ("eligible expenditures") that the borrower has pre-financed from its own resources.
- *Advance* - The Bank may advance loan proceeds into a designated account of the borrower to finance eligible expenditures as they are incurred and for which supporting documents will be provided at a later date
- *Direct Payment* - The Bank may make payments, at the borrower's request, directly to a third party (e.g., supplier, contractor, and consultant) for eligible expenditures.
- *Special Commitment* - The Bank may pay amounts to a third party for eligible expenditures under special commitments entered into, in writing, at the borrower's request and on terms and conditions agreed between the Bank and the borrower.

The *Disbursement Deadline Date* will be four months after the Closing Date of the project.

***Reporting on Eligible Expenditures Paid from the Designated Accounts.*** Withdrawal applications reporting eligible expenditures paid from the designated account will be submitted monthly, with the following documentation:

- Use of Statements of Expenditure (SOExs). For: (a) goods costing less than $100,000 equivalent per contract; (b) works costing less than $500,000 equivalent per contract; (c) services of individual consultants costing less than $50,000 equivalent per contract; (d) services of consulting firms under contracts costing less than $100,000 equivalent per contract; and (e) workshops, training and incremental operating costs, withdrawals under the

Credit Agreement will be made on the basis of SOExs. The related payment documents will be made available for the required audits, as well as to the Bank supervision missions upon request.

- Other Expenditures: All other expenditure above the SOEx thresholds will be submitted on the basis of full documentation, which will include copies of receipts, supplier invoices, bills of lading, etc.

*Applications for direct payment:* Contract and purchase records evidencing the eligible expenditures, e.g., copies of contracts, purchase orders, supplier invoices, receipts, will be submitted together with the withdrawal application setting out clear payment instructions. The minimum application value for direct payment requests will be set in the project disbursement letter.

*Applications for reimbursement*: Withdrawal applications for reimbursement of eligible expenditures will be submitted to with the same documentation as required for reporting of eligible expenditures paid from the designated accounts.

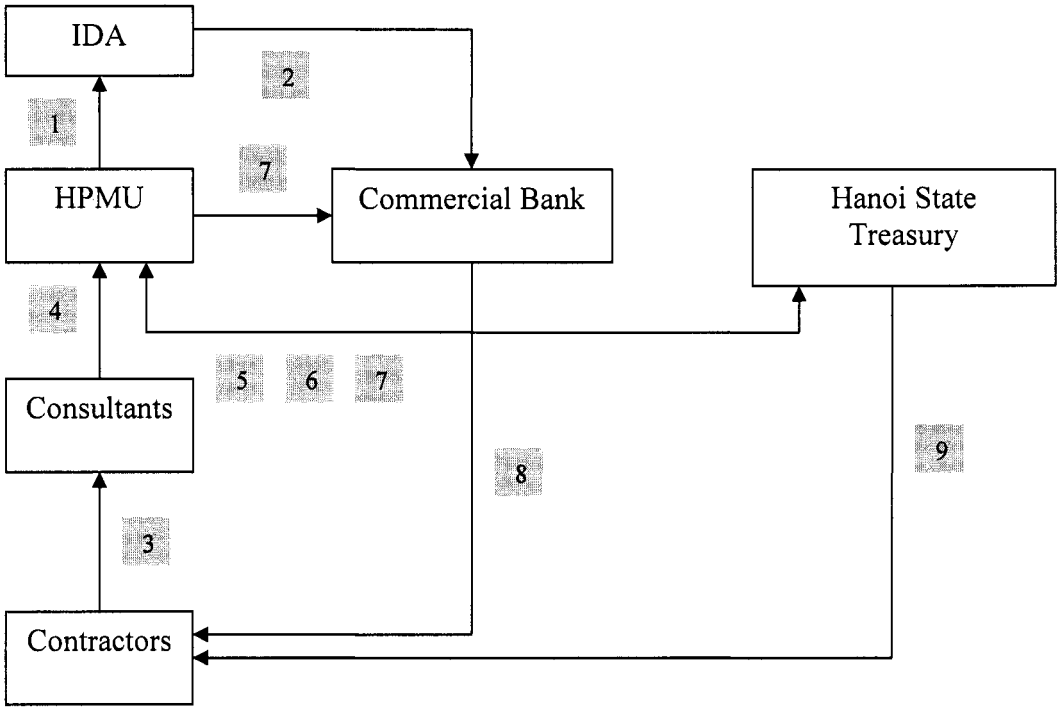
*Special Commitments*: The concerned commercial bank will provide its confirmation directly to the Bank that conditions for release of payments committed for withdrawal have been met.

*Designated Accounts*
One designated account for IDA and two separate Designated Accounts for GEF will be opened in commercial banks with terms and conditions satisfactory to IDA. The IDA Designated Account will have an authorized allocation of US$5 million. One of the GEF Designated Accounts (linked to Component 3D and to be operated by MOC) will have an authorized allocation of US$200,000. The other GEF Designated Account (to be operated by Hanoi) will have an authorized allocation of US$1,000,000. Replenishment applications will be submitted monthly or when the account is drawn by 50 percent of the authorized allocation, whichever occurs first. For withdrawal outside the designated account (applications for direct payment or for issuance of special commitments), a minimum application value of 20 percent of the authorized allocation of the Designated Account will be observed.

**Counterpart Funds**
The overall budget for the Project will be approved by the HPC and sent to DOF for budget allocation. The counterpart funds will be made available for the HPMU at Hanoi State Treasury. HPMU will have an account at Hanoi State Treasury and payments to contractors/suppliers will be made upon approval of Hanoi State Treasury on the payment claims.

**Funds flow to Contractors and Beneficiaries from the Designated Accounts**
Funds flow arrangements for payments from the designated accounts to suppliers and beneficiaries is proposed as in the Figure 1.

*Figure 1: Fund flows*




1. HPMU prepare the withdrawing application and send to IDA
2. IDA disbursed monies to the Designated Accounts of the HPMU at commercial bank
3. Contractor submit certificates, invoices to Consultant
4. Consultant reviews, certifies and then submit to HPMU
5. HPMU reviews, certifies and then submit to Hanoi State Treasury
6. Hanoi State Treasury checks, approves and send back to HPMU
7. HPMU send the request for payments to the Hanoi State Treasury and commercial bank
8. The commercial bank makes payment to the Contractors
9. Hanoi State Treasury makes payment to Contractors

**Financial Reporting and Monitoring**

***Quarterly Interim Financial Reports (IFRs)*** will be prepared by the HPMU for monitoring of financial performance of the project in the format agreed between the representatives of the GoV and the IDA HPMU must be able to produce the IFRs from their accounting systems before project effectiveness.

HPMU will be required to submit IFRs to the Bank within 45 days of the end each quarter to the Bank. The IFRs will cover all project activities, including counterpart funding and will include:
*Financial reports (analyzing expenditures against budgets)*

- Sources and Uses of Funds by expenditure category;

- Uses of Funds by project activities/components;
- Designated Account Statements (and Project Account Statements if applicable);

*Contract monitoring reports*

- Implementation Progress by contract (combined with Contract Monitoring);
- Procurement Process Monitoring.

The IFRs are not required to be audited.

***Annual Project Financial Statements:*** HPMU will prepare annual financial statements covering the portion of the project components and activities for which they are responsible. The financial statements must be prepared on a modified cash basis in accordance with international and national accounting standards.

The Project Financial Statements will consist of:

- A Statement of Sources and Uses of Funds / Cash Receipts and Payments which recognizes all cash receipts, cash payments and cash balances controlled by the entity; and separately identify payments by third parties on behalf of the entity.
- The Accounting Policies Adopted and Explanatory Notes. The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets, and a schedule of credit/grant withdrawals, listing individual withdrawal applications; and
- A Management Assertion that IDA funds have been expended in accordance with the intended purposes as specified in the relevant IDA legal agreement.

The annual financial statements are required to be audited and submitted to IDA within six months of the end of each financial year.

**Audit Arrangements**

*External Audit*

For this project, the annual financial statements will be audited in accordance with international auditing standards by independent auditors and TORs acceptable to IDA. The audited financial statements and audit reports will be submitted to IDA within six months of the end of each financial year, and the date of closing of the project.

The HPMU will be responsible for engagement and management of the audit contract. It will appoint the auditor at the early stage, within six months after the signing of the FA, following IDA procurement procedures. The cost of audits will be financed from project funds.

The annual financial statements and audit reports will be made publicly available through the project web-site.

**Supervision Plan**

As the FM risk is assessed as moderate, supervision of project financial management will be performed at least once a year. The supervision will review the project's financial management

system, including but not limited to operation of Designated Account, Statement of Expenditures, internal controls, reporting and follow up of audit findings and mission's findings. The financial management supervision will be conducted by IDA's financial management specialist staff.

**Strengths and Weaknesses**

According to the financial assessment done in September 2006, the following strengths and weaknesses have been observed.

***Strengths.***

i. The HPMU has competent financial management personnel who have experience with IDA funded project financial management, procedures and requirements;
ii. An accounting system based on MOF's Decision 214 has been established and is functional;
iii. Basic internal control procedures (for example: segregation of duties between procurement, payment and accounting function or annual assets inventory procedures) are in place.

***Weaknesses***

i. The HPMU does not maintain an updated financial management manual. Though IDA guidelines on disbursement and procurement are adequately followed, there is inadequate FM guidance. Although current practices conform with domestic regulations, they are not adequate. This is particularly true of guidance provided and procedures used for issues such as budgeting, planning, asset management (cash count, bank reconciliation) and reporting;
ii. Transactions are recorded and reported generating a spreadsheet (MS EXCEL). No other accounting software is used. This system does not adequately ensure the integrity of the data and records. Furthermore, there is no link between the financial records and the project implementation progress management.

**Conditionality and FM Action Plan**

| Action | Responsibility | To Be Completed By |
|---|---|---|
| *1-Software*<br>Integrated financial management software which should include at least (i) appropriate chart of accounts, (ii) contract management module, (iii) General Ledgers modules, (iv) fixed assets, cash, account payables, account receivables modules, (v) planning and budgeting, (vi) generating financial reports following both IDA and Government requirements | HPMU | Effectiveness |
| *2- Training*<br>Training on IDA regulation, requirement on financial | HPMU | Effectiveness |

| Action | Responsibility | To Be Completed By |
|---|---|---|
| *3- External Audit*<br>Appoint an independent external auditor for all implementing agencies with terms of reference acceptable to IDA | HPMU | 6 months after FA signing |
| *4- Financial management for MOC component*<br>Satisfactory FM arrangement is established in MOC for its relevant component | MOC | Disbursement |

## Annex 8: Procurement Arrangements

## VIETNAM: Hanoi Urban Transport Development Project

### A. General

Procurement for the proposed project would be carried out in accordance with the World Bank's *"Guidelines: Procurement under IBRD Loans and IDA Credits"* dated May 2004; and *"Guidelines: Selection and Employment of Consultants by World Bank Borrowers"* dated May 2004, and the provisions stipulated in the Development Credit Agreement. The general description of various items under different expenditure category is described below. For each contract to be financed by the IDA Credit and the co-financing GEF Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed and documented in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

**Procurement of Works**: Civil works to be procured under this project include development of segregated BRT busways and bus priority on selected new and existing roads, construction of BRT stops, interchange stations, terminals and maintenance facilities under the BRT Component; and construction of about 7 km of RR2 and housing for displaced person under the Road Component. Works estimated to cost US$2 million equivalent or more per contract shall be procured through International Competitive Bidding (ICB) procedures using the Bank's Standard Bidding Documents (SBD) for Procurement of Works dated May 2006 and/or SBD for Procurement of Works – Smaller Contract dated May 2004. Small works estimated to cost less than US$2 million per contract may be procured using National Competitive Bidding (NCB). The NCB procedures to be used shall be those set forth in the *Law on Procurement 61 / 2005/QH11* dated November 29, 2005 and *Decree 111/2006/ND-CP, Guiding Implementation of Law on Procurement and selection of contractor bidder in accordance with Law on Construction* dated September 29, 2006 and subject further to the provisions stipulated in the NCB Annex to the Development Credit Agreement. (Annex 8 – Attachment 1). Bidding documents for NCB contracts will follow the Model NCB Documents prepared by the World Bank Vietnam Office. Works under special circumstances outlined in paragraph 3.6 of the Bank's Procurement Guidelines may be procured through Direct Contracting subject to the Bank's prior agreement.

**Procurement of Goods:** Goods to be procured under this project would include vehicles, accessories, as well as equipment for the operation and maintenance of BRT systems, goods and equipment relating to air quality management, traffic enforcement, inspection and management agencies, as well as equipment for the HPMU, and other Hanoi departments/agencies. Goods estimated to cost equivalent or more than US$150,000 per contract shall be procured through ICB using the Bank's Standard Bidding Documents for Procurement of Goods dated May 2004. Goods estimated to cost less than US$150,000 per contract may be procured through NCB. The NCB procedures to be followed shall be those stated *Law on Procurement 61 / 2005/QH11* dated November 29, 2005 and *Decree 111/2006/ND-CP, Guiding Implementation of Law on Procurement and selection of contractor bidder in accordance with Law on Construction* dated September 29, 2006 and subject further to the provisions stipulated in the Annex to the FA (Annex 8 - Attachment 1). Bidding documents for NCB contracts will follow the Model NCB

documents for procurement of goods prepared by the WB Vietnam Office. Goods items which are available off-the-self or standard specification commodities of small value (not more than US$30,000 per contract) may be procured using Shopping procedures. Goods under special circumstances outlined in paragraph 3.6 of the Bank's Procurement Guidelines may be procured through Direct Contracting subject to the Bank's prior agreement.

**Procurement of non-consulting services:** Domestic and/or international training, workshops, study tours, etc if self-organized by the PMU, would be procured on the basis of actual reasonable expenses following the Government's financial management procedures and cost norms.

**Selection of Consultants:** Consulting services to be procured under this project would include preparation of feasibility studies and engineering designs, contract management and supervision, financial management, procurement support and other technical assistance for capacity building and project management, resettlement/environmental monitoring, financial audit, etc. These consulting services shall be mainly procured through Quality and Cost Based Selection (QCBS) procedures. Other selection methods such as Quality Based Selection (QBS), Least Cost Selection (LCS), Selection Based on Consultants' Qualifications (CQ), Individual Consultants (IC) may also be used depending on value, nature and complexity of each particular assignment. CQ method shall only be used for consulting assignments estimated to cost less than US$100,000 per contract. Services for preparation of engineering designs may be procured using phasing approach under which the contract for next phase will be renewed only if the performance of the consultant under the previous phase is to the Client's satisfaction. Short lists of consultants for services estimated to cost less than US$200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. Consultant services required in exceptional cases described in paragraph 3.10 of the Bank's Consultant Guidelines may be procured through Single Source Selection subject to the Bank's prior agreement.

**Operational Costs:** The Bank will not finance any operational costs.

## B. Assessment of the agency's capacity to implement procurement

An assessment of the procurement capacity of the project implementing agency was carried out during the project preparation. This assessment found that (i) the project implementing agency named Hanoi Urban Transport Development Project Management Unit (HPMU) was officially established in May 2006 with full functions and staffing in place; (ii) the majority of the HPMU's professional staff have had knowledge and experience with WB-funded operations as they had participated in implementing the recently closed UTIP; (ii) procurement under the project would be handled by the Planning-Technical Department which was already set up and staffed within the HPMU under the direction and management of the HPMU's director and a deputy director; (iv) the proposed procurement staff and the HPMU's director/deputy director have suitable qualifications and fairly good knowledge/experience with World Bank competitive procurement rules and procedures. Based on the above findings and given that majority of the project procurement are packaged in large contracts to be procured using competitive bidding methods such as ICB, QCBS and subject to the Bank's prior review, the procurement risk for the proposed project is rated as ***"average"***.

To mitigate the procurement risk and to strengthen the project procurement implementation capacity, a detailed capacity strengthening plan has been developed and agreed with the Borrower and will be followed up by the Bank team throughout project implementation. This plan includes the following primary measures/actions:

(i) (a) Renewing and updating HPMU procurement staff and procurement review/clearance staff on the Bank's procurement rules and procedures;
(b) Encouraging and facilitating key procurement staff to attend international training courses on procurement (such as those organized by Asian Institute of Management in the Philippines), and on international contract management.

(ii) Developing and implementing a GTAP including specific measures to improve transparency and fairness in procurement and financial management (refer to Annex 19 for this Action Plan);

(iii) Hiring consultants to assist the HPMUs in handling procurement and contract management of large and complex contracts.

(iv) Adding an Annex to the FA clarifying NCB procedures applicable to the Project;

(v) Setting up and implementing an effective mechanism to receive and handle bidder's complaints for the project;

(vi) Preparing the Project's overall Procurement Plan including a detailed plan for the first eighteen months of project implementation;

(vii) Strengthening/tightening Bank procurement prior and post reviews, and carrying out enhanced project implementation supervision.

## C. Procurement Plan

The Borrower has developed a Procurement Plan for the entire project implementation including a detailed plan for the first 18 month period (see Annex 8 - Attachment 2) which provides the basis for the procurement methods. This plan has been discussed and agreed between the Borrower and IDA during negotiations. The Procurement Plan will be made available in the Project's database and in the Bank's external website. It will be updated in agreement with the Project Team at least annually or sooner if required to reflect the actual project implementation needs and improvements in institutional capacity.

## D. Bank Prior-Review and Frequency of Procurement Supervision

The following thresholds for Bank procurement prior-review will apply:

(i) first NCB contract for works and goods regardless of value;

(ii) each contract for works estimated to cost US$500,000 equivalent or more;

(iii) each contract for goods estimated to cost US$100,000 or more and the first shopping contract for goods;

(iv) each contract with consulting firms estimated to cost US$100,000 equivalent or more;

(v) each contract with individual consultants estimated to cost US$50,000 equivalent or more;

(vi) All contracts for goods and works procured through Direct Contracting and all contracts for consultants procured through Single Source Selection; and

(vii) Terms-of-reference of all consulting services regardless of value.

It is estimated that some 95% of contracts would be subject to Bank prior review.

In addition, it is recommended to carry out supervision missions to conduct post review of contracts which are not subject to the above prior review requirements on a frequency of every six months. The procurement post-reviews should cover at least 20% of the post-reviewed contracts.

**Details of the procurement arrangements involving international competition**

**1. Goods and Works and non-consulting services.**

(a) Contract Packages to be procured following ICB method and Direct Contracting:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| **Ref. No.** | **Contract (Description)** | **Est. Cost ($ m)** | **Proc Method** | **P-Q** | **Domestic Pref. (yes/no)** | **Review by Bank (Prior / Post)** | **Expected Bid-Opening Date** | **Comments** |
| | **BRT Component** | | | | | | | |
| BRTCP1 | Giaiphong line road works | 10.22 | ICB | Yes | Yes | Prior | Dec 2008 | PQ to be reconsidered |
| BRTCP2 | Giai phong line station and terminal | 5.71 | ICB | No | Yes | Prior | Dec 2008 | |
| BRTCP3 | VanDien depot comlex | 3.25 | ICB | No | Yes | Prior | Jul 2008 | |
| BRTCP4 | GiangVo-Langha line road works | 15.16 | ICB | Yes | Yes | Prior | Jul 2008 | PQ to be reconsidered |
| BRTCP5 | Giangvo- Langha line stations | 7.68 | ICB | No | Yes | Prior | Jul 2008 | |
| BRTCP6 | Signal system | 6.95 | ICB | No | Yes | Prior | Aug 2008 | |
| BRTCP7 | Equipment supply of Giai phong&Giang Vo-Lang Ha | 5.74 | ICB | No | Yes | Prior | Aug 2008 | |
| BRTCP58 | Vehicle fleet | 10.96 | ICB | No | Yes | Prior | Sept 2008 | |
| | **Road Component** | | | | | | | |
| RCCP 01 | Civil work Nhattan-Buoi | 9.23 | ICB | No | Yes | Prior | March 2008 | |
| RCCP 02 | Civil work Buoi Junction | 6.69 | ICB | No | Yes | Prior | Apr 2008 | |
| RCCP 03 | Civil work Buoi-Caugiay | 9.41 | ICB | No | Yes | Prior | Aug 2009 | |
| RCCP 04 | Civil work Caugiay junction | 5.71 | ICB | No | Yes | Prior | Sep 2009 | |
| | **Institutional Strengthening Component** | | | | | | | |
| IS09* | AQM Equipment | 1.362 | ICB/NCB/ Shopping | No | Yes | Prior | March2008 | |
| IS11* | PMU &TUMD Equipment | 0.44 | ICB/NCB/ Shopping | No | Yes | Prior | Dec2007 | |
| IS12* | TRAMOC Equipment | 0.821 | ICB/NCB/ Shopping | No | Yes | Prior | March2008 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Resettlement Site CT1** | | | | | | | |
| RS3 | Civil work Building CT1A | 5.124 | ICB | No | Yes | Prior | Jan 2008 | |
| RS4 | Civil work Building CT1B | 5.520 | ICB | No | Yes | Prior | Apr 2008 | |
| RS5 | Civil work Building CT1C | 5.124 | ICB | No | Yes | Prior | Apr 2008 | |
| RS8 | Elevator of CT 1 | 0.571 | ICB | No | Yes | Prior | June 2008 | |

**Specific procurement packaging and planning is subject to change and revision when technical designs are completed*

(b) All ICB Contracts will be subject to prior review by the Bank.

2. **Consulting Services.**

(a) Consulting Assignments with short-lists to include international firms.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| **Ref. No.** | **Description of Assignment** | **Est. Cost (US$m)** | **Selection Method** | **Review by Bank (Prior/Post)** | **Expected Proposals Submission Date** | **Comments** |
| | **BRT Component** | | | | | |
| CS01a | BRT D/D and Procurement Support | 1.57 | QCBS | Prior | May 2007 | |
| CS02 | BRT Construction supervision | 2.60 | QCBS | Prior | Feb 2008 | |
| CS03 | Communication and media program | 1.30 | QCBS | Prior | Mar 2008 | |
| | **Road Component** | | | | | |
| CS01b | Road D/D and Procurement support | 1.48 | QCBS | Prior | May 2007 | |
| CS04 | Road Construction supervision | 2.16 | QCBS | Prior | Dec2007 | |
| CS05 | Integrated Urban Planning and Transport Planning | 1.75 | QCBS | Prior | March2008 | |
| | **Institutional Strengthening Component** | | | | | |
| | Financial Audit | 0.15 | LCS | Prior | March 2008 | |
| IS01* | AQM Inst Strengthening | 0.29 | QCBS | Prior | March2008 | |
| IS03* | PMU Inst Strengthening | 0.44 | QCBS | Prior | Jan 2007 | |
| IS05* | TRAMOC Inst Strengthening | 0.276 | QCBS | Prior | March2008 | |
| IS07* | TA traffic and demand management | 1.747 | QCBS | Prior | May 2008 | |
| IS08* | National Regional Replication and dissemination | 0.900 | QCBS | Prior | Sep 2008 | |
| | **Resettlement Site CT1** | | | | | |
| RS2 | Construction Supervision | 0.434 | QCBS | Prior | Sep 2007 | |

**Specific procurement packaging and planning is subject to change and revision when detailed capacity building plans are prepared*

(b) Consultancy services estimated to cost above US$100,000 equivalent per contract will be subject to prior review by the Bank.

(c) Shortlists of consultants for services estimated to cost less than US$200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

## Annex 8 - Attachment 1: Procurement under National Competitive Bidding

## VIETNAM: Hanoi Urban Transport Development Project

The procedure to be followed for National Competitive Bidding shall be those set forth in Article 18 on Open Bidding of the *Law on Procurement 61 / 2005/QH11* dated November 29, 2005 and *Decree 111/2006/ND-CP, Guiding Implementation of Law on Procurement and Selection of Contractor Bidder in Accordance with Law on Construction* dated September 29, 2006 with modifications set forth below in order to ensure economy, efficiency and transparency and broad consistency with the provisions of Section I of the of the "Guidelines for Procurement under IBRD Loans and IDA Credits" published by the Association in May 2004 (the Guidelines) as required by paragraph 3.3 and 3.4 of the Guidelines.

Eligibility

(i) The eligibility of bidders shall be as defined under Section I of the Guidelines; accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the Association for reasons other than those provided in Section I of the Guidelines. Foreign bidders shall be eligible to participate in bidding under the same conditions as national bidders. In particular, no domestic preference over foreign bidders shall be granted to national bidders in bid evaluation, nor shall foreign bidders be asked or required to form joint ventures with national bidders in order to submit a bid. Bidders located in the same province or city as the procuring entity shall not be given preference over bidders located outside that city or province.

(ii) In addition to the foregoing requirements, equitized Government-owned enterprises in which the Recipient or procuring entity holds less than fifty percent of the shares are eligible to participate provided that that the governing Board and management team are autonomous from the Recipient. Military or security units or enterprises which belong to the Ministry of Defense or the Ministry of Public Security shall be ineligible to bid.

Registration

(iii) Registration shall not be used to assess bidders' qualifications. A foreign bidder shall not be required to register as a condition for submitting its bid and, if determined to be the lowest evaluated responsive bidder, shall be given reasonable opportunity of registering, without any let or hindrance. Bidding shall not be restricted to any particular class of contractors, and non-classified contractors shall also be eligible to bid.

Advertising; Time for Bid Preparation

(iv) Invitations to bid shall be advertised in at least one widely circulated national newspaper, allowing a minimum of thirty (30) days for the preparation and submission of bids, and potential bidders shall be allowed to purchase bidding documents up to any time prior to the deadline for the submission of bids. In addition, the Recipient is encouraged to advertise in the Government Public Procurement Bulletin and on a free and open access website.

Standard Bidding Documents

(v) Standard Bidding Documents, acceptable to the Bank, shall be used.

Qualification Criteria

(vi) Qualification criteria shall be clearly specified in the bidding documents, and all criteria so specified, and only such specified criteria, shall be used to determine whether a bidder is qualified. Qualification shall be assessed on a pass or fail basis and merits points shall not be used. Such assessment shall only take into account the bidder's capacity and resources to perform the contract, specifically its experience and past performance on similar contracts, capabilities with respect to personnel, equipment and construction and manufacturing facilities, and financial capacity.

Bid Submission, Bid Opening and Bid Evaluation

(vii) Bidders may submit bids, at their option, either in person or by courier service or by mail. Bids shall be opened in public, immediately after the deadline for submission of bids. Bids received after the deadline for bid submission shall be rejected and returned to the bidders unopened.

(a) Bidding documents shall be sold to anyone who is willing to pay the required fee of the bidding documents which shall not exceed the costs of printing, reproduction and delivery, and no other conditions shall be imposed on the sale of the bidding documents.
(b) Evaluation of bids shall be made in strict adherence to the criteria that shall be clearly specified in the bidding documents and quantified in monetary terms for evaluation criteria other than price; merit points shall not be used in bid evaluation.
(c) A contract shall be awarded to the technically responsive bid that offers the lowest evaluated price and no negotiations shall be permitted. A bidder shall not be required, as a condition for award, to undertake obligations not specified in the bidding documents or otherwise to modify the bid as originally submitted.
(d) A bidder shall not be eliminated from detailed evaluation on the basis of minor, non-substantial deviations.
(e) No bidder shall be rejected on the basis of a comparison with the employer's estimate and budget ceiling without the Association's prior concurrence.
(f) A copy of the minutes of the public bid opening shall be promptly provided to all bidders, and to the Association with respect to contracts subject to prior review.

Rejection of All Bids and Re-bidding

(viii) All bids shall not be rejected or new bids solicited without the Association's prior written concurrence.

Complaints by Bidders and Handling of Complaints

(ix) The Recipient shall implement an effective and independent protest mechanism allowing bidders to protest and to have their protests handled in a timely manner.

Fraud and Corruption

(x) The Association shall declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by the Association, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive practices in competing for, or in executing, a contract financed by the Association.

Right to Inspect/Audit

(xi) Each bidding document and contract financed from the proceeds of a Credit shall include a provision requiring bidders, suppliers, contractors to permit the Association, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract and to have said accounts and records audited by auditors appointed by the Association.

License

(xii) Foreign contractors shall be given a reasonable opportunity to apply for and obtain license, which shall not be arbitrarily withheld.

Publication of the Award of Contract

(xiii) The Recipient shall publish the following information on contract award in the Government Public Procurement Bulletin or on a free and open access website or on another means of publication acceptable to the Association: (a) name of each bidder who submitted a bid; (b) bid prices as read out at bid opening; (c) name and evaluated price of each bid that was evaluated; (d) name of bidders whose bids were rejected and the reasons for their rejection; and (e) name of the winning bidder, price it offered as well as the duration and summary scope of the contract awarded. This publication shall be updated regularly.

## Annex 8 – Attachment 2: Indicative Procurement Plan for first Eighteen Months

## VIETNAM: Hanoi Urban Transport Development Project

| Contr No | Discription | Base Cost (mil USD) | Contract Type | Procu Method | Bank Review | Bid/ToR Doc Prep | Bid/TOR Doc Approval | Bid/Propos Submission | Bid/Propos Evaluation | Bid/Pro Evaluation Approval | Contract Signing | Contract start | Contract completion | Funding |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRT Component | | | | | | | | | | | | | | |
| CS01a | BRT D/D and Procurement Support | 2.50 | Consulting | QCBS | Prior | Feb 2007 | Mar 2007 | May 2007 | Jun 2007 | Jul 2007 | Sept 2007 | Oct 2007 | Jun 2009 | IDA |
| CS02 | BRT Construction supervision | 2.60 | Consulting | QCBS | Prior | Sep 2007 | Nov 2007 | Feb 2008 | May 2008 | July 2008 | Aug 2008 | Sept 2008 | Dec 2011 | IDA |
| CS03 | Communication and media program | 1.30 | Consulting | QCBS | Prior | Oct 2007 | Dec 2007 | Mar 2008 | Jun 2008 | Aug 2008 | Sep 2008 | Oct 2008 | Dec 2011 | GEF |
| BRTCP1 | Giaiphong line road works | 10.22 | Civil Works | ICB | Prior | Sept 2008 | Oct 2008 | Dec 2008 | Feb 2009 | Mar 2009 | Apr 2009 | May 2009 | Apr 2011 | IDA/GEF/GoV |
| BRTCP2 | Giai phong line station and terminal | 5.71 | Civil Works | ICB | Prior | Sept 2008 | Oct 2008 | Dec 2008 | Feb 2009 | Mar 2009 | Apr 2009 | May 2009 | Apr 2011 | IDA/GEFGoV |
| BRTCP3 | VanDien depot comlex | 3.25 | Civil Works | ICB | Prior | Mar 2008 | May 2008 | Jul 2008 | Sept 2008 | Oct 2008 | Nov 2008 | Dec 2008 | Apr 2010 | IDA/GoV |
| BRTCP4 | GiangVo-Langha line road works | 15.16 | Civil Works | ICB | Prior | Mar 2008 | May 2008 | Jul 2008 | Sept 2008 | Oct 2008 | Nov 2008 | Dec 2008 | Jul 2010 | IDA/GEF/GoV |
| BRTCP5 | Giangvo- Langha line stations | 7.68 | Civil Works | ICB | Prior | Mar 2008 | May 2008 | Jul 2008 | Sept 08 | Oct 2008 | Nov 2008 | Dec 2008 | Jun 2010 | IDA/GEF/GoV |
| BRTCP6 | Signal system | 6.95 | Goods | ICB | Prior | Apr 2008 | Jun 2008 | Aug 2008 | Oct 08 | Nov 2008 | Dec 2008 | Jan 2009 | Jun 2011 | IDA |
| BRTCP7 | Equipment supply of Giai phong&Giang Vo-Lang Ha | 5.74 | Goods | ICB | Prior | Apr 2008 | Jun 2008 | Aug 2008 | Oct 08 | Nov 2008 | Dec 2008 | Jan 2009 | Jun 2011 | IDA |
| BRTCP58 | Vehicle fleet | 10.96 | Goods | ICB | Prior | May 2008 | Jul 2008 | Sept 2008 | Nov 08 | Dec 2008 | Jan 2009 | Feb 2009 | Jun 2011 | IDA |
| Road Component | | | | | | | | | | | | | | |
| CS01b | Road D/D and Procurement support | 3.10 | Consulting | QCBS | Prior | Feb2007 | March2007 | May 2007 | May 2007 | June 2007 | Apr 2008 | May 2008 | Dec2009 | IDA/GoV |
| CS04 | Road Construction supervision | 2.16 | Consulting | QCBS | Prior | Oct 2008 | Nov 2008 | Jan 2009 | Feb 2009 | Mar 2009 | Apr 2009 | May 2009 | Dec2012 | IDA/GoV |
| CS05 | Intergrated Urban Planning and Transport Planning | 1.75 | Consulting | QCBS | Prior | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2009 | GEF |
| RCCP 01 | Civiwork Nhattan- Buoi | 9.23 | Civil Works | ICB | Prior | Dec 2008 | Jan 2009 | March 2008 | Apr 2009 | May 2009 | June 2009 | July 2009 | Oct 2010 | IDA/GoV |
| Institutional Strengthening Component | | | | | | | | | | | | | | |
| IS01 | AQM Inst Strengthening | 0.29 | Consulting | IC/CQ | Prior | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2011 | IDA |
| IS02 | Traffic Police and Traffic Inspector Board Inst Strengthening (Consulting services/capacity building/training/workshops/study tours) | 0.425 | Consulting | QCBS | Prior | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2009 | IDA |
| IS03 | PMU Inst Strengthening (capacity building, training, workshops and study tours | 0.50 | Consulting | QCBS/ IC/CQ | Prior | Oct 2007 | Nov 2007 | Jan 2007 | Feb 2007 | March 2007 | Apr 2008 | May 2008 | May 2009 | IDA/GEF |
| IS04 | HUTDP Financial Audit | 0.04 | Consulting | LCS | Post | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | Dec 2012 | IDA/GEF |
| | HUTDP RAP monitoring | 0.04 | Consulting | IC | Post | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2010 | IDA/GEF |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IS05 | HUTDP Environment monitoring | 0.04 | Consulting | IC | Post | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2012 | IDA/GEF |
| IS06 | HUTDP Implementation monitoring | 0.04 | Consulting | IC | Post | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2012 | IDA/GEF |
| IS07 | TUMD HPC, HAPI, TUPWSDPI Inst Strengthening (Consulting services/capacity building/training/workshops/study tours | 0.46 | Consulting | QCBS | Prior | Oct 2007 | Nov 2007 | Jan 2007 | Feb 2007 | March 2007 | Apr 2008 | May 2008 | May 2009 | IDA |
| IS08 | TRAMOC Inst Strengthening (Consulting services/capacity building/training/workshops/study tours) | 0.276 | Consulting | QCBS/ IC/CQ | Prior | Jan2008 | Feb 2008 | March2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2009 | IDA/GEF |
| IS09 | TA supporting public transport (Consulting services/capacity building/training/workshops/study tours) | 1.390 | Consulting | QCBS | Prior | Jan2008 | Feb 2008 | Apr 2008 | April 2008 | May 2008 | May 2008 | June 2008 | June 2011 | IDA/GEF |
| IS10 | TA traffic and demand management (Consulting services/capacity building/training/workshops/study tours) | 1.747 | Consulting | QCBS | Prior | Feb 2008 | March 2008 | May 2008 | June 2008 | July 2008 | July 2008 | Aug 2008 | Aug 2009 | IDA/GEF |
| IS11 | National Regional Replication and dissemination (Consulting services/capacity building/training/workshops/study tours) | 0.900 | Consulting | QCBS | Prior | June 2008 | July 2008 | Sep 2008 | Oct 2008 | Nov 2008 | Dec 2008 | Jan 2009 | Jan 2010 | GEF |
| IS12 | AQM Equipment | 1.362 | Goods | ICB | Prior | Dec 2008 | Jan 2008 | March2008 | March2008 | April2008 | April2008 | May2008 | May2012 | IDA |
| IS13 | Traffic police &TIB Equipment | 1.48 | Goods | ICB | Prior | Dec 2008 | Jan 2008 | March2008 | March2008 | April2008 | April2008 | May2008 | May 2009 | IDA |
| IS14 | PMU Equipment | 0.096 | Goods | NCB | Post | | | | | | | | | |
| IS15 | TUMD Equipment | 0.34 | Goods | ICB | Prior | Oct2007 | Nov2007 | Dec2007 | Dec2007 | Jan2008 | Jan 2008 | Feb2008 | Aug2008 | IDA |
| IS16 | TRAMOC Equipment | 0.821 | Goods | ICB | Prior | Dec 2008 | Jan 2008 | March2008 | March2008 | April2008 | April2008 | May2008 | May2009 | IDA |
| Resettlement Site CT1 | | | | | | | | | | | | | | |
| RS1 | Detailed Design and Procurement Support | 0.392 | Consulting | QCBS | NA | Jan 2007 | Feb 2007 | Mar 2007 | Apr 2007 | May 2007 | Jun 2007 | Jun 2007 | Aug 2008 | GoV |
| RS2 | Construction Supervision | 0.434 | Consulting | QCBS | Prior | Jul 07 | Aug 2007 | Sep 2007 | Sep 2007 | Oct 2007 | Nov 2007 | Dec 2007 | Mar 2010 | IDA |
| RS3 | Civil work Building CT1A | 5.124 | Civil Works | ICB | Prior | Oct 2007 | Nov 2007 | Dec 2007 | Jan 2008 | Feb 2008 | Mar 2008 | Apr 08 | Oct 2009 | IDA/GoV |
| RS4 | Civil work Building CT1B | 5.520 | Civil Works | ICB | Prior | Dec 2007 | Jan 2007 | Mar 2008 | Apr 2008 | May 2008 | June 2008 | July 2008 | Dec 2009 | IDA/GoV |
| RS5 | Civil work Building CT1C | 5.124 | Civil Works | ICB | Prior | Dec 2007 | Jan 2007 | Mar 2008 | Apr 2008 | May 2008 | June 2008 | July 2008 | Dec 2009 | IDA/GoV |
| RS6 | Road and infrastructure | 0.547 | Civil Works | NCB | Prior | Nov 2007 | Dec 2007 | Jan 2008 | Feb 2008 | Mar 2008 | Apr 2008 | May 2008 | May 2009 | IDA/GoV |
| RS7 | Electrical network | 0.293 | Civil Works | NCB | Prior | Nov 2007 | Dec 2007 | Jan 2008 | Feb 2008 | Mar 2008 | Apr 2008 | May 2008 | Oct 2008 | IDA/GoV |
| RS8 | Elevator of CT 1 | 0.571 | Goods | ICB | Prior | Feb 2008 | Mar 2008 | May 2008 | June 2008 | Jun 2008 | July 2008 | Aug 2008 | Aug 2009 | IDA |

## Annex 9: Economic and Financial Analysis

## VIETNAM: Hanoi Urban Transport Development Project

# ECONOMIC EVALUATION

**Overview**

The project finances two key pieces of infrastructure that together constitute over 95 percent of the project cost and about 97 percent of the IDA Credit:

- The BRT component finances the Giang Vo – Lang Ha and Giai Phong Corridor.
- The road infrastructure component finances a section of approximately 7 km in length for the proposed second Ring Road between the proposed new bridge across the Red River (at Nhat Tan) and Cau Giay. The component will also finance the construction of new housing tenements for residents displaced by the project.

A formal economic evaluation based on an analysis using a transport planning model was conducted for both of these investment elements. Both costs and benefits reflect 2006 values assuming a discount rate of 12 percent and project completion by 2010. Financial costs have been converted to economic costs by eliminating price contingency, taxes, and customs duty on imported materials. Separate evaluations have been conducted for the BRT and Ring Road 2 and are presented below.

The third, institutional strengthening component consists of relatively small expenditures on equipment, consulting services and training related to air quality management, traffic safety, transport planning and public transport planning and regulation. Past experience indicates that these investments can provide very significant benefits in increased levels of safety (better air quality leading to increased health levels, lower levels of accidents, fatalities and associated economic loss).

## A. ECONOMIC EVALUATION FOR BRT COMPONENT

### *Evaluation Procedure and Key Project Economic Impacts*

The economic evaluation was based on a transport planning analysis implemented using the 'STRADA' software model calibrated and in-use in Hanoi and used as the basis for the JICA 2005 masterplan update. Costs and benefits for a 'with BRT' scenario were estimated relative to a 'without project' business-as-usual base case. The analysis accounts for the impact of all factors that can be readily quantified including construction and maintenance costs, travel time savings and road user costs.

*Key costs and benefits.* The users of the BRT system will be the primary beneficiaries of the investment and will benefit in terms of an enhanced travel environment (travel-time savings, a safer more comfortable ride than their alternative mode) and the economic 'consumer surplus' of the trip (for generated trips). Non-users of the system will benefit from enhanced air quality and reduced congestion on remaining general-use lanes (due to diverted trips reducing total volumes), and increased traffic safety (from separating buses and motorcycles onto separate traffic streams). The City will incur the construction costs and the maintenance costs for the

infrastructure. The operators will incur operational and maintenance costs associated with the vehicles. Non-users of the system may incur travel delays from additional congestion on the general-use lanes after one of the lanes is reserved for buses.

*Estimated impacts.* Base public transport and general traffic on the road network were calculated for the 'without BRT' base case. BRT traffic volumes were estimated using a disaggregate modal choice model based primarily on travel-time savings. The model is conservative, it understates diversion to BRT since it does not take into account the non-travel time savings of the BRT relative to existing bus and motorcycle alternatives (usually modeled in the form of a 'BRT modal constant'). No generated traffic is estimated. Air quality and traffic safety benefits accruing from diversions from private vehicle trips to the BRT are also not estimated. (The global benefits of the diversion, accruing in the form of lower CO2 emissions are estimated separately for the global incremental cost analysis presented in Annex 15 but were not included in the general economic analysis). Therefore the estimate of benefits can be considered conservative. The travel time impacts of the BRT on non-users were calculated based on two factors; a reduction in general-use lane capacity due to the reservation of one lane for BRT, and a reduction in traffic levels due to diversion to BRT.

Annual cost and benefit streams have been considered over a 22-year period from 2007, the commencement of investment. The project uses November 2006 values as the base value, applying 12 percent discount rate to adjust values of other years. Civil works have been assumed to be completed by the end of 2009, giving benefits for a period of 20 years. It has been assumed that the whole system comes into operation at the beginning of 2010. No costs to road users caused by disruptions to traffic during the construction period have been included.

*Key Assumptions.* Forecasts of traffic (and the estimates of project benefits) were modeled based on forecasts for related variables, in particular, population and economic growth. Table A9.1 presents two alternative sets of population forecasts for Hanoi. The official Masterplan projections, made in 1995 are based on a policy that mandates up to 20 percent lower populations in the inner city districts of Hoan Kiem, Ba Dinh, Hai B Truong, Dong Da and Thanh Xuan. The 'Current Trends' alternative, are population forecasts based on actual trend changes since 1995 and have been used in the draft 2005 JICA plan update. Conversely the Masterplan forecasts very rapid increases in the populations of outer districts such as Dong Anh (north of the Red River). While there is little doubt that this district will be an important element of Hanoi's urban fabric in the future, existing trends indicate that urbanization will occur at a slower rate than forecast in the Masterplan. The economic analysis presented here is based on the more realistic 'Trend' forecasts.

**Table A9.1: Hanoi Population Projection (2002-2020)**

| | 2002 | 2010 | | 2020 | | Percent Change 2002-2020 | |
|---|---|---|---|---|---|---|---|
| | Population | Trend | Masterplan | Trend | Masterplan | Trend | Masterplan |
| **Urban core** | **1,109** | **1,226** | **1,012** | **1,390** | **911** | **1.3%** | **-1.1%** |
| Ba Dinh | 212 | 234 | 192 | 340 | 170 | 2.7% | -1.2% |
| Hoan Kiem | 173 | 191 | 152 | 193 | 130 | 0.6% | -1.6% |
| Hai Ba Trung | 374 | 413 | 362 | 399 | 352 | 0.4% | -0.3% |
| Dong Da | 350 | 387 | 306 | 458 | 259 | 1.5% | -1.7% |
| **Urban Fringe** | **413** | **457** | **453** | **973** | **515** | **4.9%** | **1.2%** |
| Tay Ho | 98 | 108 | 110 | 316 | 132 | 6.7% | 1.7% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Thanh Xuan | 170 | 188 | 174 | 322 | 180 | 3.6% | 0.3% |
| Cau Giay | 145 | 160 | 169 | 335 | 203 | 4.8% | 1.9% |
| **Suburban** | **470** | **520** | **554** | **1,338** | **630** | **6.0%** | **1.6%** |
| Tu Liem | 215 | 238 | 253 | 619 | 284 | 6.1% | 1.6% |
| Tranh Tri | 255 | 282 | 301 | 719 | 346 | 5.9% | 1.7% |
| **Outer** | **879** | **972** | **1,346** | **1,198** | **1,818** | **1.7%** | **4.1%** |
| Soc Son | 253 | 280 | 306 | 309 | 388 | 1.1% | 2.4% |
| Dong Anh | 69 | 297 | 543 | 333 | 830 | 1.2% | 6.5% |
| Gia Lam | 357 | 395 | 497 | 556 | 600 | 2.5% | 2.9% |
| **Total** | **2,871** | **3,174** | **3,365** | **4,899** | **3,874** | **3.0%** | **1.7%** |

Source: Masterplan and own estimates.

Table A9.2 presents Hanoi's economic development outlook. The forecast rates of growth are in line with estimates made by independent agencies and lower that the average growth rate of 11.2 percent experienced by Hanoi in the last five years.

**Table A9.2: Economic Development Strategy Goals of Hanoi City (2004 to 2020)**

| | | | | | Rate of Increase | |
|---|---|---|---|---|---|---|
| **Criteria** | **Unit** | **2004** | **2010** | **2020** | **2004-10** | **2010-20** |
| GDP (in year 1994) | 10^9 | 27,391 | 54,453 | 141,237 | 10.3 | 10 |
| Economic Structure | % | 100 | 100 | 100 | | |
| Agriculture, Forestry, Fishery | % | 3.1 | 2 | 1 | | |
| Industrial and Construction | % | 38.4 | 48 | 60 | | |
| Service | % | 58.4 | 50 | 39 | | |
| GDP/capita | USD | 1025 | 1999 | 5180 | | |

Source: Strategy on Socio-economic Development of the Capital

Table A9.3 presents the forecast modal split in Hanoi in 2010 and 2020 in the 'without BRT' case. This modal split has been estimated assuming (i) that by 2010 only infrastructure investments already programmed will be completed, and by 2020 all the urban rail and road investments envisaged in the current Masterplan will be complete; and (ii) auto ownership continues to grow as per recent trends (which are at levels higher than assumed in the official Masterplan).

**Table A9.3. Modal Split in without BRT Case**

| | **2004** | **2010** | **2020** |
|---|---|---|---|
| Bicycle | 10% | 7% | 4% |
| Motorcycle | 73% | 64% | 49% |
| Car | 7% | 13% | 22% |
| Bus | 10% | 15% | 15% |
| Urban rail | 0% | 0% | 10% |

Source: Feasibility study estimates

Table A9.4 presents total traffic in the BRT corridors, total BRT volumes and estimates of BRT traffic diverted from private modes on the proposed corridors in 2010 and 2020. As the Table

indicates, about three quarters of the BRT ridership is expected to come from erstwhile bus users and most of the remaining from motorcycle riders.

**Table A9.4 BRT Ridership Forecast**

| | 2010 | | | 2020 | | |
|---|---|---|---|---|---|---|
| | **Total Corridor Volume (daily trips)** | **Forecast Diversions to BRT (daily trips)** | **Share of BRT traffic (percent)** | **Total Corridor Volume (daily trips)** | **Forecast Diversions to BRT (daily trips)** | **Share of BRT traffic (percent)** |
| Bus | 306,000 | 162,200 | 73.8 | 457,000 | 270,600 | 75.9 |
| Motorcycle | 1,250,000 | 56,900 | 25.9 | 1,440,000 | 83,900 | 23.5 |
| Cars | 269,000 | 700 | 0.3 | 678,000 | 2,200 | 0.6 |
| BRT | | **219,800** | | | **356,700** | |

*Alternatives considered.* At Project identification it was agreed that IDA investment support to Hanoi's public transport would focus on incremental solutions based on providing on-street priority to buses. All of the major traffic corridors in the city were screened based on total traffic levels, present bus trip volumes, potential for traffic growth and physical corridor characteristics (feasibility of providing on-street priority). The east-west route 32 corridor was rejected because of ongoing plans to develop a French-financed urban rail system on the corridor. Among the remaining alternatives, the chosen corridors reflected the best balance of benefits (potential BRT trips) and costs.

Different alternative forms of providing bus priority were evaluated. The chosen alternative of a full-scale hub and feeder type BRT system with left-hand side doors operating on a mix of segregated median lanes and selected sections in mixed traffic was found to best balance the needs for a high-quality reliable rapid transit system with existing operational and physical constraints. In particular the alternative of using (existing buses) on existing routes, also known as an 'open system' was rejected due to bunching concerns: international experience suggests that at the forecast bus volumes (over 40 an hour from the start of operations) it is difficult to maintain schedules for buses operating in mixed traffic for a substantial period of time prior to getting on the busway. The use of articulated buses was considered but rejected for initial operations after widespread public concerns (reflected in the Hanoi press) about potential safety issues with turning radii of articulated buses in the center city (where mixed operations are planned). Though the turning radius of articulated 18 meter buses is actually smaller than unarticulated 12 meter buses currently operating in the city, Hanoi preferred to start operations with the smaller 12 meter vehicles, with the possibility of switching to articulated buses once the public was used to the BRT system and demand increased.

## *Evaluation Results*

The results of the evaluation of the BRT system are summarized in Table A9.5. The BRT shows an IRR of 21.0 percent and an NPV with a 12 percent discount rate of US$41.3 million. The two largest sources of benefits are travel time savings to bus passengers and VOC savings of other vehicle users. The bus passenger time savings are net savings, including disbenefits to some

passengers as a result of the proposed changes of the existing bus routes when the BRT system is introduced. The VOC savings to other vehicles result mainly from a reduction in the number of kilometers operated (by vehicles), resulting from journeys being diverted to the BRT system. These savings take into account the increase in per km operating costs for all vehicle types, as a result of the slowing down of vehicle speeds caused by the reduction in road capacity. There is a slight saving in overall bus and BRT vehicle operating costs compared with the base case, despite the increase in passenger numbers, because of the lower cost per passenger km on the BRT buses. There are significant time losses to passengers in vehicles other than buses, as a result of the slower speeds.

**Table A9.5: BRT Summary Economic Evaluation (US$ million)**

| | Present value of total costs (US$ millions) | EIRR (in %) | NPV (million US$, 12% discount rate) |
|---|---|---|---|
| Base Case | 66.58 | 21.0 | 41.3 |
| 20 percent reduction in benefits | 66.58 | 17.3 | 23.1 |
| 20 percent increase in costs | 79.89 | 17.9 | 31.2 |

Source: Feasibility Study Estimates

The project also offers substantial global environmental benefits related to reduced greenhouse gas emissions. A portion of these benefits may translate into additional cash flow and financial returns to the Borrower through the sale of carbon credits under the Kyoto Protocol's Article 12 which establishes the Clean Development Mechanism (CDM) allowing public and private sector parties in industrialized countries to invest in greenhouse gas mitigation projects implemented in developing countries. The CDM enables investors to receive a credit toward their emission reductions target under the Kyoto Protocol and associated regional agreements such as the European Union Greenhouse Gas Emission Trading Scheme (EU ETS). The Bank is currently exploring a Carbon Finance Project based on the emission reductions associated with the anticipated savings in fossil fuel consumption.

## B. Economic Evaluation For Road Component

### *Evaluation Procedure and Key Project Economic Impacts*

The economic evaluation process has followed a standard evaluation methodology for urban transport infrastructure investments. That is, costs and benefits of the "with project case" have been compared with those of the "base case' – the situation expected if the second ring road were not built. The process takes into account factors that can be quantified, including costs of civil works, design and supervision, land acquisition and resettlement, and road maintenance, as well as benefits from savings in VOCs and passenger and freight travel time.

*Key costs and benefits.* Users will be the primary beneficiaries of the project from increased levels of access to urban development in the west and northwest sections of Hanoi south of the Red River, and eventually to urban development north of the River. The increased access will be capitalized in the form of increased urban development and increases in and/housing prices in northwest Hanoi. Due to the lack of roads, the northwest section of Hanoi is currently

significantly less developed relative to other equivalent areas at similar distances from the center city. Non-users of the system will also obtain benefits; development in this section of the city should also relieve some of the development pressure in the City's south and southwestern suburbs and northeastern suburbs (east of the Red River), potentially easing congestion on those corridors and in the city center relative to a business-as-usual scenario. Costs include construction, land acquisition and maintenance costs.

*Estimated impacts.* The project benefits are estimated from an urban transport network analysis through the development of the STRADA traffic demand model, which generated simulated results on parameters such as travel distances, time, and speed. The VOCs and time savings are calculated based on the simulation results. The project costs are estimated from financial costs of each cost category. No benefits have been included for any savings that may occur before the opening year as a result of some sections of works being completed before the end of the overall construction period. Similarly, no costs to road users caused by disruptions to traffic during the construction period have been included.

*Key Assumptions.* As with the BRT, forecasts of traffic (and the estimates of project benefits) were modeled based on forecasts of population and economic growth presented earlier in Tables A9.1 and Table A9.2. The population forecasts used for this analysis are a modified form of the 1995 Masterplan forecasts to account for a slower rise in population of the Dong Anh district than projected at that time. This analysis was conducted using fixed origin destination tables that assume that the planned levels of population growth forecast in the west and northwest would be achieved even in the absence of the project investments. To the degree that such an assumption overstates the willingness of people to move to these areas in the absence of quality transport links to the central city, this assumption understates the benefits of the investments and is conservative. If the actual growth is not realized, actual benefits would be expected to be lower than forecast. However, that risk is considered low given Hanoi PC's strong focus on the development of this area; a Korean investor has already bought rights to significant elements of development in the newly urbanizing areas west of West Lake, South of the Red River.

Traffic assignment has been carried out to represent traffic volumes at the end of project implementation and by 2020. The current and forecast motor vehicle flows (pcu/h) during peak hour are presented in Table A9.6 below. Two different sets of forecasts are shown for 2020, with and without the completion of a planned 'Skytrain' urban trail project. As per the Masterplan, the Skytrain will be completed by 2020; if it is built by that time, such a system will divert some vehicles away from the road network. International experience with urban rail, as well the particular experience in Hanoi and Ho Chi Minh City in this regard, all suggest that the timing of rail projects is very difficult to predict. Urban rail projects are very expensive and significant delays are not uncommon. For the purposes of this appraisal, we will present results both without (base case) and with a completed Skytrain in 2020.

**Table A9.6: Current and Forecast Peak Hour Flows**

| Year | | Items | 2RR South of Cau Giay | 2RR Cau Giay to Buoi | 2 RR North of Buoi |
|---|---|---|---|---|---|
| 2004 | | Design Traffic in | 25,300 | 24,100 | 0 |
| | | Peak Hour | 1,800 | 1,700 | 0 |
| 2010 | BASE (No Skytrain) | Design Traffic in | 22,100 | 17,400 | 0 |
| | | Peak Hour | 1,100 | 900 | 0 |
| | BASE+2RR (No Skytrain) | Design Traffic in | 27,500 | 51,800 | 49,100 |
| | | Peak Hour | 1,400 | 2,600 | 2,500 |
| 2020 | BASE (no Skytrain) | Design Traffic in | 32,000 | 28,200 | 0 |
| | | Peak Hour | 1,600 | 1,400 | 0 |
| | BASE+2RR (no Skytrain) | Design Traffic in | 52,500 | 89,400 | 87,600 |
| | | Peak Hour | 2,600 | 4,500 | 4,400 |
| | BASE (with Skytrain)* | Design Traffic in | 32,700 | 26,700 | 0 |
| | | Peak Hour | 1,600 | 1,300 | 0 |
| | BASE+2RR (with Skytrain)* | Design Traffic in | 49,100 | 80,500 | 80,500 |
| | | Peak Hour | 2,500 | 4,000 | 4,000 |

* Skytrain assumed to be implemented in 2020

*Alternatives Considered.* The design of the second ring road (RR2) involved analyses of a series of different alternatives in view of significant technical, social, economic and financial constraints. The final project design for the second ring road reflects many features of interest: (i) the alignment of a reserve median for the future mass rapid transit (BRT or rail) was identified and compatible with long term growth plans for the region north of Red River and west of West Lake; (ii) there are significant reductions from the previously identified alignment at Buoi interchange and on the Hoang Hoa Tham to reduce involuntary resettlement and the cost associated with it; and (iii) the final design chosen for the section between Cau Gaiy and Buoi reflects an extensive analysis to provide forecast capacity in a constrained space bounded by the dyke and the drainage canal.

**Evaluation Results**

The results of the evaluation for the RR2 project are summarized in Table A9.7 in terms of the EIRR and the NPV expressed in 2007 values. The results show that the economic viability to building the ring road is robust; the economic internal rate of return stays close to or above 12 percent even if all costs (including the significant resettlement costs) increase by 10 percent and the Skytrain is completed on its current schedule of 2020.

**Table A9.7: Summary of Evaluation Results**

| | EIRR (in %) | NPV (million US$, 12% discount rate) |
|---|---|---|
| Base Case (no Skytrain in 2020) | 14.5 | 34.0 |
| Skytrain by 2020 scenario | 12.8 | 9.4 |
| Skytrain and 10 percent increase in capital costs | 12.5 | 6.3 |
| Skytrain and 10 percent increase in all costs | 11.9 | -1.5 |

Source: Feasibility report

## Financial Analysis

### Financing Arrangements and Fiscal Impact:

The IDA Credit, US$155.21 million equivalent, would be passed on to Hanoi City as a grant, according to Prime Minister Decision No. 169 TTg-CN dated January 30, 2007. This would be supplemented by a GEF grant of US$ 9.8 million supporting integration of non-motorized modes, public transport development and integrated transport planning. The total counterpart funding requirement for the project, estimated at about US$140 million representing 46 percent of the project cost, most of it (US$105 million) to finance resettlement activities, would be provided by Hanoi City.

An assessment of the financial performance of Hanoi's budget showed that the City has the necessary counterpart funds for the project. The average annual counterpart fund required, about US$22 million, would be about five percent of the city total annual capital expenditure for 2006 (US$454 million, see Table A9.8). During peak implementation period from 2008 to 2010 (mainly for resettlement activities) the annual counterpart funding requirement, estimated at $35 million, would not exceed a manageable eight percent of the current city capital expenditure budget.

**Table A9.8: Hanoi Budget Performance**

| US$ million | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 (Est.) |
|---|---|---|---|---|---|---|
| State Budget Income in the area | 1,055 | 1,247 | 1,394 | 1,751 | 2,040 | 2,510 |
| City budget revenue | 232 | 334 | 392 | 462 | 612 | 726 |
| Of which, municipal bond | | | | | | 33 |
| Annual revenue increase % | | 44% | 17% | 18% | 32% | 18% |
| Capital expenditure | 91 | 170 | 183 | 176 | 349 | 454 |
| Recurrent expenditure | 139 | 162 | 174 | 203 | 223 | 250 |

Hanoi's GDP has been growing at 11-12 percent annually since 2001 and is expected to continue growing at least at this pace over the next 10 years. As a result, annual budget revenues have been growing at around 20 percent a year. Hanoi issued its first municipal bond of VND 500 billion, or US$33 million in 2006 with medium to long term maturity. This was the first debt issued by the City of Hanoi. This bond issuance alone could cover the peak annual counterpart fund requirement.

The city focuses most of its financial planning on year-to-year efforts and no formal forward financial plan is available. This is not unusual in Vietnam or in the region. Revenues are expected to continue to grow as are budgets for capital expenditures. The city also plans to continue issuing bonds, at least VnD 1000 annually (amount US$6.7 million), of long-term maturity, in the next five years. Projections of municipal revenues (assuming growth at levels lower than recent experience) and expenditures were made based on current trends and future plans (see Table A9.9). These projections confirm that by itself, HUTDP is financially affordable and Hanoi is in a sound position to meet its counterpart funding requirements.

**Table A9.9: Hanoi Budget Projections**

| US$ million | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|
| State Budget Income in the area | 2,800 | 3,220 | 3,700 | 4,260 |
| City budget revenue (15% annual increase) | 850 | 980 | 1,120 | 1,300 |
| Of which, municipal bond | 65 | 65 | 65 | 65 |
| Capital expenditure | 560 | 650 | 750 | 880 |
| Recurrent expenditure | 280 | 310 | 340 | 380 |
| Likely counterpart funding requirement | 10 | 30 | 45 | 35 |
| Counterpart funds as % of Cap. Exp. | 2% | 5% | 6% | 4% |

Further, it is the Government policy to provide counterpart funds in a sufficient and timely manner. The People's Committee and People's Council have put the project in the list of most important investments in the city program towards 2010, the 1000 year anniversary of Hanoi. The People's Council, as the top agency in Hanoi deciding budget allocations, formally committed counterpart funding requirement in the Chairperson official announcement 20 TB-HDND dated July 6, 2006 and announcement 05/TB-HDND dated March 14, 2007. As such, the counterpart funding requirements have been secured technically and politically.

That said, it should be noted that HUTDP is only one element of a large investment program that Hanoi is considering for the coming five years. An agreement has been signed with French donors (the Ministry of the Economy and AFD) to develop a metro project with total costs currently estimated at US$600 million plus the cost of resettlement; of which Hanoi is to provide about US$220 million and the costs associated with resettlement. The feasibility studies for this project are being reviewed and the process to identify a general consultant for detailed designs (to be financed by tied French aid) is in process. The City also has been investing significantly in major trunk road and bridges crossing the Red River. The timing of all of these different projects remains unclear. However, if all of them were to be implemented in the next five years, these major transport projects in themselves would need US$100-150 million every year. Therefore the possibility of budget deficits, or delayed allocations, will need to be monitored during project implementation.

**Fares, Subsidies, and Cost Recovery in the public transport system**

The bus system in Hanoi is currently subsidized. As Table A9.10 shows, the income from tickets in 2006 (US$19.18 million), covered only about 60 percent of expenditures incurred by TRAMOC (on behalf of the city) paid operators (US$32.26 million). About US$1.67 million of the total operating subsidy cover the cost of public service obligations (PSO), primarily

subsidized student tickets. The remaining subsidy is $11.41 million a year (or 35 percent of the total expenditure). This subsidy comes out of Hanoi's recurrent budget. The absolute level of the subsidy has increased in the last three years, despite a fare increase and restructuring that significantly increased the average revenue per journey (see below). This is because of a substantial increase in costs due to a doubling in fuel price. However, even at the increased levels the subsidy remains affordable, at about three percent of recurrent expenditure.

**Table A9.10. Financial performance of Hanoi bus service**

| | 2004 | 2006 |
|---|---|---|
| Fare income | US$12.59 m | US$19.18 m |
| PSO amount due* | N.A. | US$ 1.67 m |
| Total income including PSO dues | N.A. | US$ 20.85 m |
| Operational expenditure | US$20.25 m | US$ 32.26 m |
| Net income/subsidy | US$ (7.75) | US$ (11.41) m |

*PSO subsidy estimated based on sales of student passes in May 2006.
**Source.** TRAMOC, March 2007. PSO calculations based on Ecotrans data on May 2006.

***Tariffs and fare structures***. The current bus fare system in Hanoi provides two methods of paying for journeys: (i) monthly passes that allow an unlimited number of bus journeys during a month for a fixed payment; and (ii) single journey tickets (SJT) paid on each boarding. The monthly passes are available either for one specified route or for all routes, with adult and student versions available. Prices were increased in early 2005. The single journey tickets are based on a flat fare for a journey of any distance, and are payable upon boarding, with no concession for students. The average fare paid by single journey ticket (SJT) passengers is approximately VND 3,200 according to revenue information from TRAMOC. Details of the current and previous (pre-April, 2005) fares are given Table A9.11.

**Table A9.11. Ticket Types and Fare Levels**

| Ticket Type | Old Fares (VND) | New Fares (VND)[1] |
|---|---|---|
| **Monthly Passes** | | |
| - Adult | | |
| One Route | 30,000 | 50,000 |
| Two Routes | 45,000 | Not offered |
| All Routes | 60,000 | 80,000 |
| - Student | | |
| One Route | 15,000 | 25,000 |
| Two Routes | 20,000 | Not offered |
| All Routes | 30,000 | 50,000 |
| **Single Journey Tickets** | | |
| Within Urban Area | 2500 | 3000 |
| Long routes | 2500 | 4000 |
| Very long routes | 2500 | 5000 |

[1] From 01 April 2005.

The price of SJT tickets, at US$0.19 per trip is comparable to Bangkok (US$0.19 per trip) and most cities in China (US$0.13 to $0.26 per trip). However, although SJT journeys account for less than 40 percent of the trips, they still account for close to three-quarters of the total revenues. The monthly passes are the most common means of paying bus fares, with student passes valid for all routes being a high proportion of these. An analysis of revenues and ridership attributable to the different kinds of tickets estimated that the bus system obtained average revenue of VnD 1800 a journey (US$ 0.11). While this is significantly higher than the corresponding figure prior to the fare increase (US$0.06 per journey), this average revenue per paid trip is low by regional standards. At the same time, the integrated fare, responsible for the low yield, is a welcome innovation that greatly increases the attractiveness of the system for passengers. The decision to price the monthly pass at the current low levels is a political decision and reflects a priority to build ridership and develop a culture of bus ridership in a city which has first world levels of private mobility and had almost no public transport five years ago.

***Reimbursing operators***. The city (TRAMOC) collects fare revenue, and pays operators a fee to provide a specified number of vehicle-km of BRT bus services. TRANSERCO, until recently the only operator, has traditionally been paid according to a negotiated standard rate per km for each type of bus operated. Under a system introduced for some new conventional bus routes in 2005 bus operators were chosen to provide a service after they submitted competitive tenders, again specified as a rate per vehicle-km. (In the case of the standard rates the buses are owned by the city authorities whereas in the most recent tenders the buses are owned by the operators.) This system is being gradually extended to TRANSERCO routes that are judged to be particularly loss-making. In summary, although a large part of the operating costs are paid at negotiated rates due to history, a process is in place to transition to a system of competitive tendering, so that Hanoi can obtain the most efficient services for its money.

***In conclusion***, although the bus system in Hanoi needs a subsidy for operations, indications are that the current level of subsidy reflects a political choice to provide high quality public transport at an affordable fare. While average revenues remain low, city authorities have shown the political will to raise fares when they considered it appropriate. The current level of subsidy is affordable for Hanoi and the political commitment to bus service remains high. Steps are underway to control costs and ensure that the city's money is used as efficiently as possible.

**BRT financial analysis**

A financial analysis was conducted of the BRT operations. The results of this financial analysis demonstrate that the project is financially viable without fare subsidy (revenues are based on the current average revenue of VND1800, or US $0.11 per journey). The BRT service will provide an operating surplus from the beginning and help lower the total subsidy associated with bus operations. The financial projections were prepared on an annual basis over the 2007-2028 period, based on the following premises:

- The IDA Credit will be passed onto Hanoi as a grant.
- The costs of establishing and operating the BRT system are based on market prices. The financial arrangements for the BRT services will be similar to those of present bus services;

TRAMOC/PTA will be responsible for the financial operations of the BRT, and due to the State-owned nature of TRAMOC/PTA, tax payments are not applicable.

- TRAMOC/PTA will collect the fare revenue, and pay operators a fee (assumed to be equal to the operating costs) to provide a specified number of vehicle-km of BRT bus services. The capital costs of the BRT fleet are incorporated in the operating costs, as for the conventional bus fleet. This simplifies the calculation, and has very little impact on the results compared with using operating costs based on running costs only, with the capital cost of buses included as an initial investment cost.
- The BRT service will be integrated into the existing Hanoi public bus system, with existing routes modified to take into account the introduction of the BRT. A common ticketing system will be used, with monthly passes valid on both conventional and BRT buses, including through tickets for journeys using both types of bus service. Therefore the financial appraisal was based on changes in the projected overall fare revenue over the whole public bus system, rather than the fares collected on BRT routes alone.

Revenues have been estimated based on the current yield of VND 1800 per journey, assuming no change in the fare system or fare levels associated with introducing the BRT, i.e., assuming that the general pattern of ridership and type of ticket used will be the same in both the base case without the BRT and with the BRT. With an unchanged fare system, the increase in revenue from introducing the BRT system will result from an increase in the number of monthly passes and single-journey tickets sold, with the main increase expected from people diverting from motorcycles to buses for regular journeys and buying monthly bus passes. The impact of inflation has been incorporated in the revenue projections as an annual increase. In practice fares would be increased periodically (they were last raised in April 2005), but this does not affect the result significantly.

***Financial Internal Rates of Return (FIRR).*** A financial appraisal was carried out to estimate if the net change in revenue from the project will cover incremental operating costs. As shown in Table A9.12, in this case the project has an NPV of US$10.64 million. It produces a net surplus of approximately US$3 million per year initially, rising to US$6.05 million in 2028. A sensitivity analysis also suggests that, if required, the BRT system would be able to generate revenues to cover loan repayments at IDA terms. If the system were to need to repay the Credit, a NPV of US$5.5 million was estimated at a 12 percent discount rate. Though modest, this suggests that at the terms of the concessional IDA Credit, the BRT project is financially viable, being able to cover the cost of servicing the loan, expand and replace the BRT fleet, and provide a return on the direct investment.

**A9.12: BRT Project Financial Evaluation - Annual Cash Flow with Full World Bank Loan Financing (US$ million)**

| | Investment | Fleet Operating costs | BRT System Costs | | Cost Savings | | Net cash flow |
|---|---|---|---|---|---|---|---|
| | | | Maintenance | Operations | City Buses | Road Works | |
| 2007 | | | | | | | |
| 2008 | 2.7 | | | | | 0.36 | -2.34 |
| 2009 | 2.7 | 0.726 | 0.008 | 0.224 | 0.64 | 0.75 | -1.69 |
| 2010 | | 2.273 | 0.021 | 0.615 | 3.179 | 0.77 | 2.91 |
| 2011 | | 2.505 | 0.022 | 0.633 | 3.422 | 0.79 | 2.96 |
| 2012 | | 2.762 | 0.023 | 0.652 | 3.683 | 0.81 | 3.01 |
| 2013 | | 3.044 | 0.024 | 0.672 | 3.964 | 0.84 | 3.05 |
| 2014 | | 3.356 | 0.025 | 0.692 | 4.267 | 0.86 | 3.08 |
| 2015 | | 3.699 | 0.027 | 0.713 | 4.593 | 0.89 | -1.73 |
| 2016 | | 4.077 | 0.028 | 0.734 | 4.944 | 0.92 | 3.13 |
| 2017 | | 4.494 | 0.069 | 0.756 | 5.321 | 0.94 | 3.09 |
| 2018 | 1.76 | 4.954 | 0.031 | 0.779 | 5.727 | 0.97 | 3.13 |
| 2019 | 1.76 | 5.461 | 0.034 | 0.802 | 6.165 | 1 | 3.11 |
| 2020 | 1.76 | 6.019 | 0.036 | 0.826 | 6.635 | 1.03 | 3.07 |
| 2021 | 1.76 | 6.572 | 0.039 | 0.851 | 7.245 | 1.06 | -12.71 |
| 2022 | 1.76 | 7.175 | 0.088 | 0.877 | 7.91 | 1.09 | 3.58 |
| 2023 | 1.76 | 7.834 | 0.046 | 0.903 | 8.636 | 1.13 | 3.95 |
| 2024 | 1.76 | 8.553 | 0.051 | 0.93 | 9.428 | 1.16 | 4.3 |
| 2025 | 1.76 | 9.338 | 0.057 | 0.958 | 10.294 | 1.2 | 4.68 |
| 2026 | 1.76 | 10.195 | 0.064 | 0.987 | 11.239 | 1.23 | 5.09 |
| 2027 | 1.76 | 11.131 | 0.126 | 1.016 | 12.271 | 1.27 | 5.48 |
| 2028 | 1.76 | 12.153 | 0.058 | 1.047 | 13.397 | 1.31 | 6.05 |
| | | | | | | NPV (@12%) | $10.64 |

## Annex 10: Safeguard Policy Issues

## VIETNAM: Hanoi Urban Transport Development Project

### Part I. ENVIRONMENT

The environmental assessment for HUTDP including its resettlement sites has been carried out by a reputable international firm working with a reputable domestic agency. Both organizations are independent of the Borrower. The drafts of EIA and EAP were reviewed by the Bank and their final versions were submitted to the Bank in September 2006.

### SECOND RING ROAD (RR2) AND BUS RAPID TRANSIT (BRT)

#### A. Baseline Environmental Conditions

**Ecological environment**. The project area lies in Hanoi City and its ecological environment is highly artificial including some agricultural environment. The surface water system in Hanoi includes two major rivers (Red river and Nhue River), four small rivers and 118 lakes and ponds. West Lake is the largest of these lakes and richest in its ecosystem; it is located about one km away from the proposed RR2. A literature review and field survey showed that the major features of the flora include agricultural plants and road side plantation trees, and no protected fauna species were identified. There was no indication of the existence of valuable nature habitats.

**Water Quality.** Baseline water quality monitoring was conducted in June and October 2005. The results showed that the water qualities of rivers and ponds along the proposed alignments often exceeded the relevant standards in terms of chemical oxygen demand and bio-chemical oxygen demand (COD/BOD), ammonia and coliform due to domestic and industrial wastewater.

**Air Quality.** The baseline air quality was assessed based on the existing air quality monitoring data, as well as supplementary monitoring data conducted in July 2005 along the proposed alignments. In general, air pollution levels in the city exceed the national ambient air quality standards with respect to PM, and CO and $NO_2$ at some urban street locations sometimes exceed the air quality standards. The result of supplementary monitoring was almost the same as the general situation, i.e., the concentrations of PM were mostly higher than the standards while those of $NO_2$, $SO_2$ and CO did not exceed the standards. Recent estimates show that in terms of contribution to particulate matter less than ten microns ($PM_{10}$) exposure in Hanoi, traffic sources account for 23 percent and industry sources account for 15 percent while undetermined sources account for 63 percent. Traffic was identified as the major contributor to $NO_2$ concentration in the air.

**Noise.** Baseline noise monitoring was conducted in July 2005 together with the supplemental air quality monitoring. Noise levels along the proposed alignments were roughly around the relevant standard levels and often exceed the standards both in day-time and night-time.

**Cultural Relics.** A cultural relics survey identified 11 cultural relics sites along the proposed alignments. They include seven temples, two pagodas, one memorial house and ancient tree and

ancient dike; however, no deteriorated impacts are expected or relocation needed due to the construction of the proposed new alignment.

**Due Diligence.** The Bank reviewed the EIA of the Nhat Tan bridge construction project financed by JBIC for due diligence, where the south end of the proposed bridge would connect with the proposed RR2. The review found that the EIA was compatible with the Bank standards. No outstanding environmental issues which might bring reputational risk to the Bank were identified.

### B. Potential Environmental Impacts and Mitigation Measures

Overall, this project would significantly contribute to promoting the use of public transportation, reducing traffic congestion, and eventually improving air quality in Hanoi. These positive longer-term developments, together with the effects of proposed traffic management and air quality management measures, will help Hanoi City to build and implement an integrated urban air quality management policy to combat air pollution in the course of urban development. However, significant short-term adverse environmental impacts such as air pollution and noise might occur during construction phase and along the new alignment if adequate mitigation measures are not taken.

#### (a) Design Phase

**Noise**. Forty-two noise sensitive sites (residential areas, schools, hospitals, office buildings, etc.) were identified along the proposed RR2 and BRT alignments. Predicted noise levels exceeded the relevant standards at all of the sensitive sites along RR2. However, predicted levels stayed at roughly the same level as a result of balance between expected decrease in private transportation ratio and increase in truck and bus transportation ratio along BRT routes. At critical sensitive sites, permanent noise barriers will be incorporated in the design of RR2 and double glazed windows along the RR2 and BRT. It is noted that most of the households and buildings in Hanoi have already installed air conditioners to address extreme heat in summer so that it would not cause problems to keep windows closed even in summer.

**Air Pollution**. Predicted results of CO and $NO_2$ showed general improving trends towards the year 2020 due to anticipated modal shift to public transportation and tightened vehicular emission control. Besides BRT, the air quality sub-component of HUTDP will support this outcome by supporting the development of an improved air quality management policy making system, motorcycle pollution control measures and an air quality monitoring system in Hanoi.

**Cultural relics**. A 300 year old banyan tree is located within the originally planned right of way of RR2. As a result of consultation and design examination, the tree is proposed to sit in the median of the road. The ancient Buoi dyke surrounding inner Hanoi is located along the RR2 alignment; consultation with the flood prevention and dyke management authority resulted in the selection of an engineering design which maintains the dyke's flood protection function as well as its cultural and historical value.

**(b) Construction Phase**

**Noise**. Since the proposed alignments go through populated areas, heavy machinery and transport vehicle operation would cause adverse impacts. Strict regulations on the schedule of construction works will be implemented to minimize such adverse impacts. Temporal wall barriers will be installed at places where the construction would affect ongoing traffic or residential areas, and sound insulation windows will be installed at sensitive sites. The operation of piling machines and other noisy machines will be prohibited between 22:00 and 6:00. When night-time construction is deemed necessary, the approval of local authorities and prior consultation with nearby communities are required. Telephone numbers for registering complaints will be given in newspapers and posted at the construction sites.

**Air Pollution**. Dust during the construction work was identified as a major air pollution problem. Lower dust generation mixing machines will be used for concrete mixing operation. Excavation and demolition sites, loosed earth and dry backfill materials will be sprayed at least twice a day on dry days. Vehicles transporting construction materials, footpaths and other places of generating dust will be provided with covers. Since hot asphalt mixing plants were identified as a major source of toxic air pollutants, compliance with environmental regulations of their location and operation will be strictly enforced and supervised.

**Water Pollution**. Slurry wastewater produced from construction sites and domestic wastewater from construction camps might cause adverse impacts on water bodies and aquatic life. Wastewater from construction activities will be treated in settling ponds before discharged into water bodies. Domestic wastewater will be treated by the existing city sewerage system. Waste oils and other hazardous wastes will be collected in dedicated bins and disposed via certified and qualified vendors.

**Ecological Environment**. Roadside vegetation will be affected by construction activities. Cutting of trees will be minimized and new trees will be planted to make up for the loss. Green plantation for landscaping along expanded road corridors and new traffic interchanges will be vigorously provided. To minimize soil erosion, although very limited due to the urban nature of project sites, the removed surface soil layer will be re-used for covering the slope of road edges.

**Cultural Relics.** There are no significant impacts expected on cultural relics along the alignment of both RR2 and BRT due to their distance from the alignments and environmental considerations incorporated in the engineering design. However in order to minimize any unexpected environmental consequences during construction, prior to the construction the HPMU and contractors will consult with relevant authorities and local communities on necessary protection measures. The civil work contracts with contractors will include a statement that if any cultural relics are found during construction, the work will be suspended immediately and the local cultural authority informed. No works will resume until the cultural relics have been examined by the authorized institution and necessary preservation measures taken.

### (c) Operation Phase

Wastewater from bus terminals with public toilets and bus maintenance facilities will be treated with on-site facilities to meet applicable Vietnamese discharge standards before being discharged into city sewerage system. Oily waste from bus maintenance facilities will be separately collected in dedicated bins and disposed via certified and qualified vendors, and urban environmental service companies will be contracted for the collection and disposal of domestic solid wastes. Asphalt surface of roads will be regularly cleaned and water-sprayed in sunny days to minimize dust. Trees will be planted on both sides of roads and properly maintained to prevent dust generation, reduce noise and improve landscape.

## C. Alternative Analysis

Annex 9 includes a discussion of the alternatives analysis underlying the appraised components. Briefly, in the design of the BRT, environmental considerations related to reduced pollution and energy consumption from a shift to public transport were considered in comparing: (i) BRT versus an enhanced traditional bus system; and (ii) different BRT system alternatives. The convenience and safety for pedestrians and non-motorized users, as well as the need to preserve the historic character of the city center were considerations in the planning and engineering design of cross sections, stops and transit stations. Bus terminal sites with bus maintenance facilities were also chosen as a result of extensive alternative analysis in terms of spatial, operational, environmental and social considerations.

In the design of RR2, different alternatives were considered in view of significant technical, social, economic and financial constraints. The final solution has been selected taking into account the possible future needs of space available for a mass rapid transit system, the minimization of involuntary resettlement and the cost associated with it, and the engineering constraints due to existing roads, dyke and drainage canals. Further to this, engineering design alternatives were considered for the structure of road and interchanges. The final design was selected in the light of minimizing resettlement needs, fewer impacts on air pollution and noise, cultural relics, landscape and traffic safety.

Hanoi does not currently have an approved transport master plan. The recently completed JICA financed HAIDEP infrastructure Master Plan includes both the Ring Road and BRT projects.

## D. Environmental Management and Monitoring Plan

A stand-alone Environmental Management Plan (EMP) was developed, and the proposed measures are to be incorporated into bidding documents and contracts. The EMP defines mitigation measures and costs, training plan, environmental monitoring plan, and environmental management organizations. The HPMU is responsible for the implementation of EMP. A specialized social and environmental unit will be set up under the HPMU with at least one professional staff designated to supervise the overall implementation of EMP. Environmental monitoring will be carried out by a qualified independent monitoring institution to be selected through procurement process. The implementation cost of environmental monitoring and mitigation measures is estimated as VND 9,896 million (about US$0.62 million).

During the construction and first two years of operation phases, environmental monitoring will be carried out at selected sensitive sites. The major variables to be monitored include noise, suspended solids, COD/BOD, nutrients, coliform and heavy metals for surface water, PM, CO and $NO_2$ for ambient air. Key staffs engaged in environmental management in contractors, construction supervision companies, road operation company and government organizations will receive intensive training.

A summary of environmental management, supervision and monitoring plans as well as key organizations involved in EMP implementation is provided below.

| Key Environmental Issues | Implementation of EMP | Supervision | Monitoring |
|---|---|---|---|
| **A. Design Phase (Mitigation measures are provided in B (a))** | | | |
| Noise, Cultural relics | Design Institute | HPMU | N/A |
| **B. Construction Phase (Mitigation measures are provided in B (b))** | | | |
| Noise | Contractor | HPMU | Independent environmental monitoring institute (noise, air & water) |
| Air pollution | | | |
| Water pollution | | | |
| Ecological environment | | | |
| Cultural relics | | | N/A |
| **C. Operation Phase (Mitigation measures are provided in B (c))** | | | |
| Water, Air, Noise, etc. | Relevant Hanoi Departments | HPMU | Same above |

| Key organizations for EMP implementation | Responsibilities |
|---|---|
| HPC | The ultimate decision making body for all matters related to environmental management |
| DONRE | • Environmental law/regulations and program enforcement<br>• Review project monitoring reports<br>• Provide guidance on environmental matters |
| HPMU | • Project proponent and executing agency<br>• Contract and supervise contractors, construction supervision consultant, and environmental monitoring institution<br>• Make sure implementation of environmental mitigation measures<br>• Review and respond with new mitigation as necessary to environmental monitoring reports. |
| Independent environmental monitoring institution | • Conduct environmental monitoring for both construction and operation stages<br>• Provide monitoring reports and<br>• Recommend further corrective actions<br>• Provide environmental training to contractors and construction supervision |
| Contractors and Construction supervision consultant | • Appoint one to two full time environmental staff<br>• Implement construction stage mitigation measures<br>• Report regularly environmental performance |

## E. Public Consultation and Information Disclosure

Two rounds of public consultation were carried out according to the World Bank's guideline in August 2005 (first round), and January/February 2006 (second round). The first round was conducted by a questionnaire survey (604 answers collected out of 700 questionnaires sent) and 12 series of meetings in project-affected districts (227 participants). The second round included a series of four meetings in project-affected districts (325 participants). During this process, project-affected individuals, groups and representatives of district PCs, NGOs, wards and communes were intensively consulted. The participants expressed concerns about environmental issues during construction and operation such as dust, exhaust gas and noise, and requested adequate mitigation measures such as noise insulation, regular water-spraying, tree planting and wastewater treatment. Their feedback was reflected in the engineering designs and EMP. The EIA and EMP were disclosed locally at DONRE, TUPWS offices and relevant four districts as well as at the InfoShop in May 2006.

## RESETTLEMENT SITES

**Baseline Conditions.** The CT1 resettlement site is located northwest of Hanoi city center and will occupy 2.09 ha of land with a 0.48 ha of construction area. Current land use is seasonal crop plantation and no protected flora and fauna and valuable natural habitats were found. Also there are no cultural and historical relics in this area. CT1 is a land plot in a 100ha of land zone which has been planned for a new city urbanized zone in Tu Liem District – Hanoi since 1996. Baseline monitoring results showed that nearby canals were polluted with domestic wastewater, and the air quality was relatively good.

**Environmental Impacts and Mitigation Measures.** Major environmental impacts would be limited to dust and noise during construction and water pollution due to domestic wastewater. Since there are few residents near the construction site, the impacts of construction dust and noise are very limited. In order to address domestic wastewater generated from the resettled residents, a wastewater collection and treatment system will be completed before the project site comes into operation.

**EMP.** HPMU is responsible for the implementation of the EMP. Air, water and noise monitoring will be carried out by an independent environmental monitoring institution. The cost of implementing environmental supervision and monitoring is estimated VND 80 million per year (US$5,000).

**Public Consultation and Information Disclosure.** Public consultation was conducted in January 2006 through a meeting at Tu Liem District PC Building with 83 participants. The main concerns expressed included environmental pollution and life disturbance during construction and their concerns were addressed in the EMP. Disclosure of the EIA took place locally and at the InfoShop in November 2006.

**Due Diligence.** IDA reviewed the EIA of the CT6 resettlement site for due diligence. The site would be funded and prepared by Hanoi Government to accept persons displaced by the project.

The review found that the EIA met the Bank's standards, and no outstanding environmental issues were identified which negatively influence the resettlement.

**Part II. Resettlement Action Plan Summary**

**Background and objective**. The civil works components of the project would require land acquisition and housing relocation. A Resettlement Action Plan (RAP) is developed in line with local laws, regulations and the World Bank's policy on Involuntary Resettlement. Its objective is to ensure that all project affected people will be compensated for their losses at replacement cost and will be provided with rehabilitation measures to assist them to improve, or at least maintain, their pre-project living standards.

**Project impacts**. The Project will affect nine wards and five communes in five districts of Hanoi City. Significant efforts were made in project design options to avoid and minimize its resettlement impacts. According to the social survey and preliminary inventory based on the project feasibility study, the project would require acquisition of about 31.2 ha of lands, affecting 7,329 people in 1,712 households. This includes 724 households who need to be relocated, 105 households who will lose more than 30 percent of their agricultural land holding and 626 households who will have business and /or productive assets to be impacted. A detailed measurement survey will be undertaken to update the project impacts once the project technical designs are completed.

**Project resettlement policy.** The project adopts the following key policy principles and approach for resettlement and livelihood restoration:

- Acquisition of land and other assets, and resettlement of people will be minimized as much as possible.
- All displaced persons (DPs) residing, working, doing business or cultivating land within the recovered area as of the cut-of-date are entitled to be provided with rehabilitation measures sufficient to assist them to improve or at least maintain their pre-Project living standards.
- Lack of legal rights to the assets lost will not bar the DPs from entitlement to such rehabilitation measures.
- The rehabilitation measures to be provided are: (i) compensation at replacement cost without deduction for depreciation or salvage materials for houses and other structures; (ii) priority given for compensation mode of agricultural land-for-land of equal productive capacity acceptable to the DP; (iii) transportation and subsistence allowances, and (iv) business/income rehabilitation allowances.
- Replacement premise and agricultural land will be as nearby as possible to the land to be lost. In case if there no land is available or it is the choice of the affected, compensation in cash or provision of apartment may be applied. Seriously affected households are entitled to additional rehabilitation assistance.
- Plans for acquisition of land and other assets and provision of rehabilitation measures will be carried out in consultation with the DPs to ensure minimal disturbance. Entitlements will be provided to DPs no later than one month prior to expected start-up of works at the respective project site.
- The previous level of community services and resources will be maintained or improved.

- Compensation payment and rehabilitation assistance to DPs should be completed satisfactorily in accordance with the approved RAP before starting of respective civil works.
- Reporting, monitoring and evaluation mechanisms will be identified and set in place as part of the resettlement management system. Evaluation of the land acquisition process and the final outcome will be conducted independent of the executing agency.

**Resettlement and rehabilitation**. Based on the above, a compensation and rehabilitation entitlement framework has been developed for those affected under the project. It maps out the entitlements for all categories of affected households, communities and entities under the project, including households losing land and houses in legal, legalizable and non-legalizable standings. The RAP has developed the resettlement and livelihood restoration strategies and action programs. Considering the large number of relocating households, the PPU and Hanoi Government have been working on the resettlement site options in consultation with the relocating households. One major effort is the development of two new resettlement sites in Hanoi City where planning and design work is progressing. Consultation with the relocating population is an important dimension of the planning efforts. This consultation process will continue to facilitate further evaluation of different resettlement options and finalize the household relocation decisions.

**Institutional establishment.** A multi-level organization will be established for the management and implementation of the resettlement program at Hanoi Municipal, district and ward levels. HPC will have overall responsibilities for implementation of the RAP. A City Steering Council will be established to assist the People Committee in carrying out its overall responsibility as follows. Its main responsibilities include

- Approval of project land acquisition and allocating the land to the project for its development;
- Decision on compensation unit costs, subsidies, allowances, and on supporting policies for DPs, poor and vulnerable affected groups
- Inter-agency coordination,
- RAP financing
- Successful RAP implementation.

The HPMU will be responsible for implementing the RAP on behalf of Hanoi People's Committee. Their main responsibilities include

- Signing contracts for RAP component implementation,
- Planning and supervising the resettlement program,
- Updating the RAP, including DMS and compensation rates,
- Setting up procedures for land acquisition and allocation,
- Maintaining a RAP databases for each component,
- Internal monitoring, recruiting and supervising the external monitoring organization,
- Receiving and handing over the sites to contractors; and,
- Reporting periodically on resettlement activities to the World Bank.

District Resettlement Committees shall be established at district level under the guidance of District People's Committees. The District Resettlement Committees will be responsible for the planning and implementation of the resettlement activities in their respective district, including carrying out the DMS, preparing and completing compensation forms, delivering of compensation to the affected households, assisting the relocation process and address grievances in resettlement implementation. Members of the ward and commune people's committees will work as part of the District Resettlement Committees and they will be the main operational force implementing the resettlement program.

**Program monitoring.** Both internal and external monitoring mechanisms will be established. While internal monitoring serves largely as a PMU internal tool for managing the resettlement program, an external agency will be engaged to carry out an independent monitoring, and evaluation of the RAP's implementation. The RAP describes the objective, scope of work, methodology, staffing requirements and reporting mechanisms for the external monitoring.

**Public consultation and redress of Grievances**. During the project preparation phase, project information and resettlement policy were disseminated through household visits, public meetings, group and focus group discussions and the household socio-economic survey. They were intensively consulted and actively participated in discussions on their development needs and priorities, about their perception towards project objectives. Their views, concerns and recommendations have been taken into consideration in the project design. This consultation process will continue during implementation as further project design information becomes available. The RAP details the plan for consultation during project design and implementation, including the procedures, methodologies and subjects of consultation. A Public Information Booklet (PIB) will be prepared and distributed to all affected population in the project area. The project has developed grievance redress mechanism and described it in the RAP. It describes the steps and procedures for grievance filing as well as the responsible institutions and timeframe for receiving and addressing the grievances.

**Cost and budget**. The resettlement cost was estimated on a preliminary inventory based on pre-feasibility study. The total estimated cost of compensation and resettlement is about US$106 million, including cost of DMS, compensation and relocation cost, administrative cost, monitoring and a contingency of about 10 percent of the base cost. The cost will be further updated using the updated inventory of impacts and unit prices for compensation. HPC will finance the resettlement program.

## Annex 11: Project Preparation and Supervision

## VIETNAM: Hanoi Urban Transport Development Project

| | Planned | Actual |
|---|---|---|
| PCN review | | 11/06/2003 |
| Initial PID to PIC | | 11/16/2004 |
| Initial ISDS to PIC | | 11/19/2004 |
| Appraisal | | 02/26/2007 |
| Negotiations | | 05/15/2007 |
| Board/RVP approval | 06/21/2007 | |
| Planned date of effectiveness | 12/03/2007 | |
| Planned date of mid-term review | 12/01/2010 | |
| Planned closing date | 12/31/2013 | |

Key institutions responsible for preparation of the project:

- Hanoi People's Committee
- HUTDP Project Management Unit (HPMU) under the Hanoi Transport and Urban Public Works Service (TUPWS)

Bank staff and consultants who worked on the project included:

| Name | Title | Unit |
|---|---|---|
| Shomik Raj Mehndiratta | Sr. Transport Specialist, TTL | EASTE |
| Cuong Duc Dang | Senior Operations Officer, co-TTL | EASUR |
| Hoi-Chan Nguyen | Senior Counsel | LEGEA |
| Mei Wang | Senior Counsel | LEGEA |
| Edward Daoud | Senior Finance Officer | LOAG1 |
| Junxue Chu | Finance Officer | LOAG1 |
| William D.O. Paterson | Lead Infrastructure Specialist | EASTE |
| Alan Coulthart | Lead Municipal Engineer | EASUR |
| Samuel Zimmerman | Urban Transport Advisor | ETWTR |
| Tran Trung Kien | Senior Procurement Officer | EAPCO |
| Cung Van Pham | Financial Management Officer | EAPCO |
| Tran Thi Van Anh | Operations Officer | EASTE |
| Dung Anh Hoang | Operations Officer | EASTE |
| Hoa Thi Mong Pham | Sr. Social Development Specialist | EASSO |
| Christopher De Serio | Senior Program Assistant | EASTE |
| Jitu Shah | Country Sector Coordinator | EASRE |
| Hiroshi Ono | Senior Environmental Specialist | EASES |
| Chaohua Zhang | Senior Social Specialist | EASSO |
| Vinh Quoc Duong | Environmental Specialist | EASSD |
| Gerhard Menckhoff | Public Transport Specialist | Consultant |
| Kenneth Gwilliam | Transport Economist | Consultant |
| Rod Stickland | Road Engineer | Consultant |
| Trinh Dinh Toan | Road Engineer | Consultant |

| | | |
|---|---|---|
| Goh Hup Chor | Urban Planner | Consultant |
| Leong Teng Wui | Urban Planner | Consultant |
| Rafael Dely | Urban Planner | Consultant |
| Edward Dotson | Senior Urban Transport Specialist | Consultant |
| Gladys Frame | Traffic Management Specialist | Consultant |
| German Correa | Public Transport Strategy Specialist | Consultant |
| John Cracknell | Public Transport Specialist | Consultant |
| Nguyen Huong | Architect | Consultant |
| Juan Lopez-Silva | Consultant | LCSEN |
| Luc Lecuit | Sr. Operations Officer | EAPCO |
| Fei Deng | Young Professional | EASTE |
| Wenling Chen | Junior Professional Associate | EASTE |
| Mariana Torres | Junior Professional Associate | EASTE |
| Thuy Bich Nguyen | Program Assistant | EACVF |

## Annex 12: Documents in the Project File

## VIETNAM: Hanoi Urban Transport Development Project

### A. Borrower's Documents

*Approval No. 1837 dated May 10, 2007 of the Hanoi People's Committee on approval of the Feasibility Study Report - Hanoi Urban Transport Development Project.*

*Approval No. 169/TTg-CN dated January 30, 2007 of the Prime Minister on approval of Pre-feasibility Study Report and Resettlement Policy Frame Work - Hanoi Urban Transport Development Project.*

*Decree 131/2006/ND-CP dated November 09. 2006 of the Government on ODA financing Management.* Prime Minister, November 2006.

*Construction Law 16/2003/QH11.* National Assembly, 26 November 2003.

*Decree No. 17/2001/ND - CP dated May 04, 2001 of the Government on ODA financing Management.* Prime Minister, May 2001.

*Announcement No. 20/TB-HDND dated 06 January 2006 of Hanoi People Council on Hanoi Urban Transport Development Project.*

*Announcement No. 534/KHDT-GTCC dated 25 August 2006 on coordination between Urban Transport Development Project and Nhat Tan Bridge Project.* TUPWS, August 2006.

*Proposal for Establishment of Centre for Environment Monitoring and Analysis.* DONRE, September 2005.

*Decision 158/2005/QD-UB dated 14 October, 2005 on Establishment of Centre for Environment Monitoring and Analysis.* Hanoi People Committee, October 2005.

*Vietnam Law on Environment Protection* dated 27/12/1993 issued by Vietnam National Assembly.

*Circular No. 490/1998/TT-BKHCNMT* dated 29/4/1998 of the Ministry of Science, Technology and Environment providing Guidelines on preparation and appraisal of EIA reports of investment projects.

*Circular No. 10/2000/TT-BXD* of the Ministry of Construction dated 8/8/ 2000 providing Guidelines on preparation of EIA on Construction Planning projects.

*Vietnamese Standards on Environment* issued in 1995, 2000, 2001 and 2002.

*Decree No. 175/CP* of the Government providing Guidelines on implementation of Law on Environment Protection.

*Adjustment to Master Plan of Hanoi until 2020* which has been approved by the Prime Minister in the Decision No. 108/1998/QD-TTg dated 20/6/1998.

*Decision No: 130/2005/QD-UB of Hanoi People Committee on Amendment, and supplement of the Provisional Regulation on transportation companies participating in public transportation by bus in Hanoi City area.* Hanoi People Committee, 2005.

*Decision No. 71/2004/QD-UB dated 14 May 2004 by the People's Committee regarding the issuance of provisional Regulation on transportation companies participating in public transportation by bus in Hanoi city area.* Hanoi People Committee, 2004.

*Report from GEF financed Latin American study tour.* Hanoi People Committee, December 2004.

*Report on European study tour (from 22-28, November, 2004) focusing on PT institutional issues.* Hanoi People Committee, 2004.

*Strategic Options for Private Sector Participation for Urban Transport in Hanoi*, Final Report. MVA Asia Limited, 18th Nov 2004.

*Hanoi Urban Transport Development Project – Project Implementation Plan.* MVA Asia Limited, March 2007.

*Hanoi Urban Transport Development Project – draft Governance and Transparency in project management Action Plan. HPMU.* January 2007.

*Hanoi Urban Transport Development Project - Feasibility Study and Preliminary Designs Volume 1 - BRT Component.* MVA Asia Limited, November 2006.

*Hanoi Urban Transport Development Project - Feasibility Study and Preliminary Designs Volume 2 - Roads Component.* MVA Asia Limited, December 2006.

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## Annex 13: Statement of Loans and Credits

## VIETNAM: Hanoi Urban Transport Development Project

| | | | Original Amount in US$ Millions | | | | | | Difference between expected and actual disbursements | |
|---|---|---|---|---|---|---|---|---|---|---|
| Project ID | FY | Purpose | IBRD | IDA | SF | GEF | Cancel. | Undisb. | Orig. | Frm. Rev'd |
| P084871 | 2006 | VN-2nd Transmission & Distribution | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 197.82 | 0.00 | 0.00 |
| P066051 | 2005 | VN - Forest Sector Development Project | 0.00 | 39.50 | 0.00 | 0.00 | 0.00 | 51.12 | 0.65 | 0.30 |
| P073763 | 2005 | VN-WATER SUPPLY DEV. | 0.00 | 112.64 | 0.00 | 0.00 | 0.00 | 110.40 | 0.03 | 0.00 |
| P074414 | 2005 | VN - GEF Forest Sector Development Proj | 0.00 | 0.00 | 0.00 | 9.00 | 0.00 | 9.00 | 0.60 | 0.32 |
| P074688 | 2005 | VN-2nd Rural Energy | 0.00 | 220.00 | 0.00 | 0.00 | 0.00 | 221.61 | 2.43 | 0.00 |
| P082604 | 2005 | VN-HIV/AIDS Prevention Project | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33.68 | 0.13 | 0.00 |
| P082627 | 2005 | Payment System and Bank Modernization 2 | 0.00 | 105.00 | 0.00 | 0.00 | 0.00 | 99.44 | 0.02 | 0.00 |
| P085080 | 2005 | VN-ROAD SAFETY | 0.00 | 31.73 | 0.00 | 0.00 | 0.00 | 30.64 | 0.00 | 0.00 |
| P085260 | 2005 | VN-Targeted Budget Support for EFA | 0.00 | 50.00 | 0.00 | 0.00 | 0.00 | 48.15 | 0.00 | 0.00 |
| P086360 | 2005 | Vietnam - PRSC IV | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 96.60 | 0.00 | 0.00 |
| P088362 | 2005 | VN-Avian Influenza Emergency Recovery Pr | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 4.19 | 0.91 | 0.00 |
| P070197 | 2004 | VN-URBAN UPGRADING | 0.00 | 222.47 | 0.00 | 0.00 | 0.00 | 206.78 | -0.97 | 0.00 |
| P065898 | 2004 | VIETNAM WATER RESOURCES ASSISTANCE | 0.00 | 157.80 | 0.00 | 0.00 | 0.00 | 149.18 | 0.05 | 0.00 |
| P059663 | 2004 | VN-ROAD NETWORK IMPROVT | 0.00 | 225.26 | 0.00 | 0.00 | 0.00 | 216.61 | 21.73 | 0.00 |
| P075399 | 2003 | Public Financial Management Reform Proj. | 0.00 | 54.33 | 0.00 | 0.00 | 0.00 | 56.76 | 13.49 | 0.00 |
| P044803 | 2003 | VN-PRIMARY EDUC FOR DISADVANTAGED CHILRE | 0.00 | 138.76 | 0.00 | 0.00 | 0.00 | 183.84 | 20.74 | 0.00 |
| P071019 | 2003 | VN-GEF Demand-Side Management & Energy | 0.00 | 0.00 | 0.00 | 5.50 | 0.00 | 4.44 | 2.20 | 0.00 |
| P073778 | 2002 | VN-GEF-System Energy Equitization-Renewa | 0.00 | 0.00 | 0.00 | 4.50 | 0.00 | 3.92 | 2.76 | 0.00 |
| P073305 | 2002 | VN-Regional Blood Transfusion Centers | 0.00 | 38.20 | 0.00 | 0.00 | 0.00 | 42.91 | 23.38 | 0.00 |
| P072601 | 2002 | VN - Rural Finance II Project | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 85.23 | -61.17 | 0.00 |
| P066396 | 2002 | VN-SYSTEM ENERGY, EQUITIZATION & RENEWAB | 0.00 | 225.00 | 0.00 | 0.00 | 0.00 | 210.04 | 195.29 | 0.00 |
| P051838 | 2002 | VN-PRIMARY TEACHER DEVELOPMENT | 0.00 | 19.84 | 0.00 | 0.00 | 0.00 | 18.63 | 13.75 | 0.00 |
| P059936 | 2002 | VN -Northern Mountains Poverty Reduction | 0.00 | 110.00 | 0.00 | 0.00 | 0.00 | 81.09 | 37.71 | 0.00 |
| P052037 | 2001 | VN-HCMC ENVMTL SANIT. | 0.00 | 166.34 | 0.00 | 0.00 | 0.00 | 161.51 | 59.27 | 49.00 |
| P062748 | 2001 | VN - COMMUNITY BASED RURAL INFRA. | 0.00 | 102.78 | 0.00 | 0.00 | 0.00 | 86.58 | 30.34 | 0.00 |
| P042927 | 2001 | VN-MEKONG TRANSPORT/FLOOD PROT. | 0.00 | 110.00 | 0.00 | 0.00 | 0.00 | 86.84 | 71.83 | 0.00 |
| P042568 | 2000 | VN - COASTAL Wetl/Prot Dev | 0.00 | 31.80 | 0.00 | 0.00 | 0.00 | 18.50 | 15.65 | 0.95 |
| P056452 | 2000 | VN-RURAL ENERGY | 0.00 | 150.00 | 0.00 | 0.00 | 0.00 | 36.81 | 31.13 | 26.81 |
| P059864 | 2000 | VN-RURAL TRANSPORT 2 | 0.00 | 103.90 | 0.00 | 0.00 | 0.00 | 23.97 | 21.67 | 0.00 |
| P004828 | 1999 | VN-HIGHER EDUC. | 0.00 | 83.30 | 0.00 | 0.00 | 0.00 | 42.27 | 35.41 | 36.03 |
| P051553 | 1999 | VN-3 CITIES SANITATION | 0.00 | 80.50 | 0.00 | 0.00 | 0.00 | 50.78 | 45.05 | 10.74 |
| P004845 | 1999 | VN - MEKONG DELTA WATER | 0.00 | 101.80 | 0.00 | 0.00 | 0.00 | 56.30 | 52.10 | -4.47 |
| P004833 | 1999 | VN-URBAN TRANSPT IMPRVT | 0.00 | 42.70 | 0.00 | 0.00 | 8.19 | 12.13 | 18.70 | 8.70 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P004839 | 1998 | VN - FOREST PROT.& RUL DE | 0.00 | 21.50 | 0.00 | 0.00 | 0.00 | 10.90 | 9.32 | 5.65 |
| P004843 | 1998 | VN-INLAND WATERWAYS | 0.00 | 73.00 | 0.00 | 0.00 | 0.00 | 27.66 | 23.13 | 10.41 |
| P004844 | 1998 | VN-AGRIC. DIVERSIFICATION | 0.00 | 66.90 | 0.00 | 0.00 | 0.00 | 21.61 | 20.12 | 0.15 |
| P045628 | 1998 | VN-TRANSMISSION & DISTR | 0.00 | 199.00 | 0.00 | 0.00 | 0.00 | 93.88 | 88.02 | 26.73 |
| P004838 | 1996 | VN-NATIONAL HEALTH SUPPORT | 0.00 | 101.20 | 0.00 | 0.00 | 2.35 | 18.13 | 27.71 | 0.00 |
| | | Total: | 0.00 | 3,690.25 | 0.00 | 19.00 | 10.54 | 2,909.95 | 823.18 | 171.32 |

# VIETNAM
# STATEMENT OF IFC's
# Held and Disbursed Portfolio
# In Millions of US Dollars

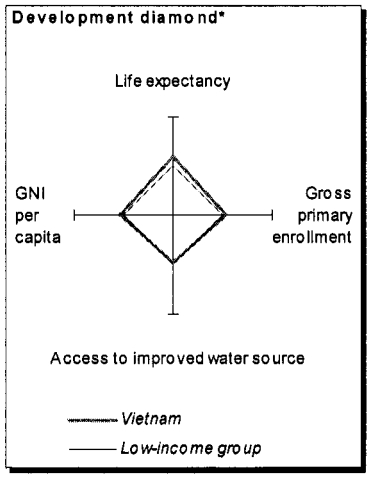
| | | Committed | | | | Disbursed | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IFC | | | | IFC | | | |
| FY Approval | Company | Loan | Equity | Quasi | Partic. | Loan | Equity | Quasi | Partic. |
| 2003 | ACB-Vietnam | 0.00 | 5.02 | 0.00 | 0.00 | 0.00 | 5.02 | 0.00 | 0.00 |
| 2002 | AZ/AGF Vietnam | 0.00 | 0.71 | 0.00 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 |
| 2002 | CyberSoft | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 |
| 2002 | Dragon Capital | 0.00 | 0.00 | 1.05 | 0.00 | 0.00 | 0.00 | 1.05 | 0.00 |
| 2002 | F-V Hospital | 5.00 | 0.00 | 3.00 | 0.00 | 5.00 | 0.00 | 3.00 | 0.00 |
| 2003 | Glass Egg | 0.00 | 1.19 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 |
| 2005 | Khai Vy | 6.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1998 | MFL Vinh Phat | 0.13 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 |
| 1997 | Nghi Son Cement | 12.74 | 0.00 | 0.00 | 5.63 | 12.74 | 0.00 | 0.00 | 5.63 |
| 2001 | RMIT Vietnam | 7.25 | 0.00 | 0.00 | 0.00 | 3.50 | 0.00 | 0.00 | 0.00 |
| 1996 | SMH Glass Co. | 3.89 | 0.00 | 0.00 | 0.00 | 3.89 | 0.00 | 0.00 | 0.00 |
| 2003/04/05 | Sacombank | 0.00 | 2.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2002/03 | VEIL | 0.00 | 8.00 | 0.00 | 0.00 | 0.00 | 8.00 | 0.00 | 0.00 |
| | Total portfolio: | 35.01 | 17.02 | 4.05 | 5.63 | 25.26 | 13.85 | 4.05 | 5.63 |

| | | Approvals Pending Commitment | | | |
|---|---|---|---|---|---|
| FY Approval | Company | Loan | Equity | Quasi | Partic. |
| 2002 | F-V Hospital | 0.00 | 0.00 | 0.00 | 0.00 |
| 2000 | Interflour | 0.01 | 0.00 | 0.00 | 0.01 |
| 1999 | MFL Chau Giang | 0.00 | 0.00 | 0.00 | 0.00 |
| 1999 | MFL Minh Minh | 0.00 | 0.00 | 0.00 | 0.00 |
| 2000 | MFL Mondial | 0.00 | 0.00 | 0.00 | 0.00 |
| 2000 | MFL-AA | 0.00 | 0.00 | 0.00 | 0.00 |
| 2005 | Paul Maitland | 0.01 | 0.00 | 0.00 | 0.00 |
| | Total pending commitment: | 0.02 | 0.00 | 0.00 | 0.01 |

# Annex 14: Country at a Glance

## VIETNAM: Hanoi Urban Transport Development Project

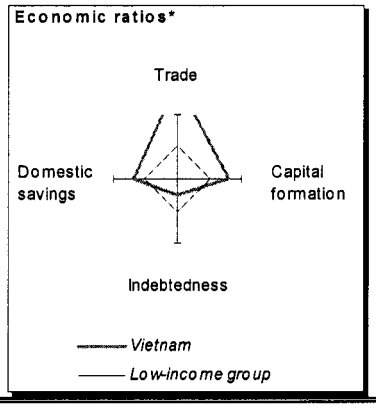
| POVERTY and SOCIAL | Vietnam | East Asia & Pacific | Low-income |
|---|---|---|---|
| **2004** | | | |
| Population, mid-year *(millions)* | 82.2 | 1,870 | 2,338 |
| GNI per capita *(Atlas method, US$)* | 550 | 1,280 | 510 |
| GNI *(Atlas method, US$ billions)* | 45.2 | 2,389 | 1,184 |
| **Average annual growth, 1998-04** | | | |
| Population *(%)* | 1.2 | 0.9 | 1.8 |
| Labor force *(%)* | 1.7 | 1.1 | 2.1 |
| **Most recent estimate (latest year available, 1998-04)** | | | |
| Poverty *(% of population below national poverty line)* | 29 | .. | .. |
| Urban population *(% of total population)* | 26 | 41 | 31 |
| Life expectancy at birth *(years)* | 70 | 70 | 58 |
| Infant mortality *(per 1,000 live births)* | 19 | 32 | 79 |
| Child malnutrition *(% of children under 5)* | 34 | 15 | 44 |
| Access to an improved water source *(% of population)* | 73 | 78 | 75 |
| Literacy *(% of population age 15+)* | 90 | 90 | 61 |
| Gross primary enrollment *(% of school-age population)* | 101 | 113 | 94 |
| Male | 105 | 113 | 101 |
| Female | 97 | 112 | 88 |




**KEY ECONOMIC RATIOS and LONG-TERM TRENDS**

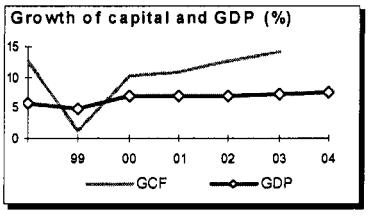
| | 1984 | 1994 | 2003 | 2004 |
|---|---|---|---|---|
| GDP *(US$ billions)* | .. | 16.3 | 39.2 | 45.2 |
| Gross capital formation/GDP | .. | 25.5 | 35.1 | .. |
| Exports of goods and services/GDP | .. | 34.0 | 59.7 | .. |
| Gross domestic savings/GDP | .. | 16.0 | 27.1 | .. |
| Gross national savings/GDP | .. | 14.5 | 32.6 | .. |
| Current account balance/GDP | .. | -8.2 | -4.7 | .. |
| Interest payments/GDP | .. | 0.4 | 0.7 | .. |
| Total debt/GDP | .. | 152.3 | 40.4 | .. |
| Total debt service/exports | .. | 5.7 | 3.4 | .. |
| Present value of debt/GDP | .. | .. | 35.0 | .. |
| Present value of debt/exports | .. | .. | 58.2 | .. |

| | 1984-94 | 1994-04 | 2003 | 2004 | 2004-08 |
|---|---|---|---|---|---|
| *(average annual growth)* | | | | | |
| GDP | 5.9 | 7.0 | 7.2 | 7.5 | 7.5 |
| GDP per capita | 3.6 | 5.5 | 6.1 | 6.4 | 6.4 |

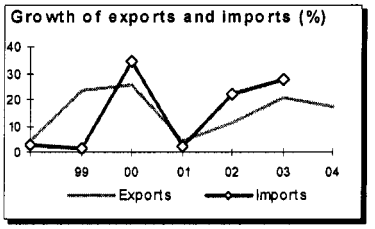



**STRUCTURE of the ECONOMY**

| | 1984 | 1994 | 2003 | 2004 |
|---|---|---|---|---|
| *(% of GDP)* | | | | |
| Agriculture | .. | 27.4 | 21.8 | .. |
| Industry | .. | 28.9 | 40.0 | .. |
| Manufacturing | .. | 14.9 | 20.8 | .. |
| Services | .. | 43.7 | 38.2 | .. |
| Household final consumption expenditure | .. | 75.7 | 66.0 | .. |
| General gov't final consumption expenditure | .. | 8.3 | 6.9 | .. |
| Imports of goods and services | .. | 43.5 | 67.6 | .. |

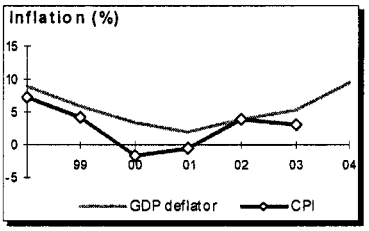



| | 1984-94 | 1994-04 | 2003 | 2004 |
|---|---|---|---|---|
| *(average annual growth)* | | | | |
| Agriculture | 3.3 | 4.2 | 3.2 | .. |
| Industry | 6.6 | 10.4 | 11.2 | .. |
| Manufacturing | 3.4 | 11.3 | 13.0 | .. |
| Services | 8.2 | 5.9 | 5.8 | .. |
| Household final consumption expenditure | .. | 5.1 | 7.4 | .. |
| General gov't final consumption expenditure | .. | 3.6 | 6.2 | .. |
| Gross capital formation | 24.9 | 10.3 | 14.0 | .. |
| Imports of goods and services | 16.6 | 17.8 | 27.8 | .. |



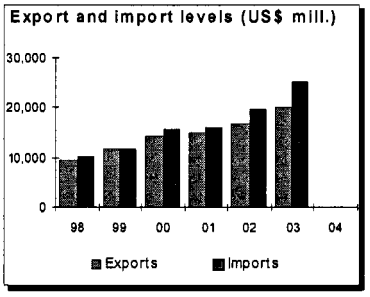
## PRICES and GOVERNMENT FINANCE

| | 1984 | 1994 | 2003 | 2004 |
|---|---|---|---|---|
| ***Domestic prices*** | | | | |
| *(% change)* | | | | |
| Consumer prices | .. | 9.3 | 3.0 | .. |
| Implicit GDP deflator | .. | 17.0 | 5.4 | 9.5 |
| ***Government finance*** | | | | |
| *(% of GDP, includes current grants)* | | | | |
| Current revenue | .. | 23.2 | 22.9 | .. |
| Current budget balance | .. | 4.8 | 5.9 | .. |
| Overall surplus/deficit | .. | .. | -2.0 | .. |



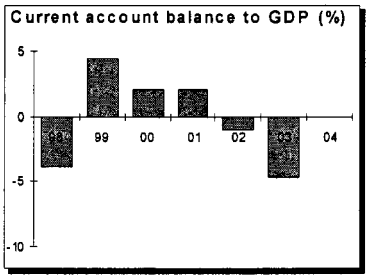

## TRADE

| | 1984 | 1994 | 2003 | 2004 |
|---|---|---|---|---|
| *(US$ millions)* | | | | |
| Total exports (fob) | 438 | 4,054 | 20,176 | .. |
| Rice | .. | 429 | 721 | .. |
| Fuel | .. | 866 | 3,821 | .. |
| Manufactures | .. | .. | 11,200 | .. |
| Total imports (cif) | 923 | 6,509 | 25,227 | .. |
| Food | .. | .. | .. | .. |
| Fuel and energy | .. | .. | 2,433 | .. |
| Capital goods | .. | .. | 7,500 | .. |
| Export price index *(2000=100)* | .. | .. | .. | .. |
| Import price index *(2000=100)* | .. | .. | .. | .. |
| Terms of trade *(2000=100)* | .. | .. | .. | .. |



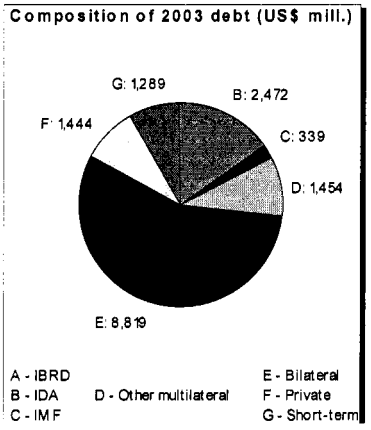

## BALANCE of PAYMENTS

| | 1984 | 1994 | 2003 | 2004 |
|---|---|---|---|---|
| *(US$ millions)* | | | | |
| Exports of goods and services | .. | 5,337 | 23,360 | .. |
| Imports of goods and services | .. | 6,509 | 26,490 | .. |
| Resource balance | -1,178 | -1,173 | -3,130 | .. |
| Net income | -77 | -337 | -880 | .. |
| Net current transfers | 26 | 170 | 2,157 | .. |
| Current account balance | -1,229 | -1,340 | -1,853 | .. |
| Financing items (net) | 914 | 1,457 | 3,753 | .. |
| Changes in net reserves | 315 | -117 | -1,900 | .. |
| ***Memo:*** | | | | |
| Reserves including gold *(US$ millions)* | .. | .. | .. | .. |
| Conversion rate *(DEC, local/US$)* | 1.0 | 10,962.1 | 15,463.0 | 15,772.3 |




## EXTERNAL DEBT and RESOURCE FLOWS

| | 1984 | 1994 | 2003 | 2004 |
|---|---|---|---|---|
| *(US$ millions)* | | | | |
| Total debt outstanding and disbursed | 55 | 24,799 | 15,817 | .. |
| IBRD | 0 | 0 | 0 | .. |
| IDA | 47 | 181 | 2,472 | .. |
| Total debt service | 2 | 306 | 805 | .. |
| IBRD | 0 | 0 | 0 | .. |
| IDA | 0 | 1 | 17 | .. |
| Composition of net resource flows | | | | |
| Official grants | 62 | 449 | 318 | .. |
| Official creditors | 2 | 100 | 1,373 | .. |
| Private creditors | 0 | -29 | -258 | .. |
| Foreign direct investment (net inflows) | 0 | 1,945 | 1,450 | .. |
| Portfolio equity (net inflows) | 0 | 0 | 0 | .. |
| World Bank program | | | | |
| Commitments | 0 | 246 | 293 | .. |
| Disbursements | 2 | 126 | 567 | .. |
| Principal repayments | 0 | 1 | 2 | .. |



## Annex 15: Incremental Cost Analysis and Global Environmental Benefits

## VIETNAM: Hanoi Urban Transport Development Project

### Overview

The proposed GEF project seeks to assist Hanoi in implementing a sustainable strategy of city development and transport improvement with a focus on promoting public transport. This project will provide support to the establishment of high capacity busways on major corridors, by integrating investments in road infrastructure with land-use plans to generate a transit friendly urban landscape, and by enhancing the capacity of the City's institutions to create/implement a growth strategy that is conducive to public transit oriented development.

This project is consistent with the objectives of the Global Environment Facility Operational Program 11 on "Promotion of Environmentally Sustainable Transport", and is consistent with the GEF climate change strategic priority related to Sustainable Transport is defined in the GEF Business Plan for FY04-06 (GEF/C.21/9). Specifically, this project will address modal shifts in urban transport through emphasis on BRT, non-motorized transport (bicycles and pedestrian areas), and non-technology measures (such as traffic demand management and economic incentives). The project will also build institutional and technical capacity at the local level, support policy development and public outreach initiatives.

This project has three key components: (1) BRT and public transport promotion; (2) a strategic road and urban transport planning; and (3) and an institutional capacity development, each of which has a GEF sub-component.

### Baseline Scenario

#### (1) BRT and Public Transport Promotion

At this stage, the without-GEF project baseline is a IDA-financed investment project that includes a significant BRT component. However, this baseline has considerable deficiencies. First, there remain significant risks related to successful implementation. The leadership of Hanoi is changing and it is anticipated that the Project will be implemented without the presence of any of the key leaders responsible for initiating and initially endorsing the project. The new leadership's exposure to the BRT concept is likely to be limited and continued efforts will be needed to build the new leadership's commitment to, and confidence in, the BRT. There also remains considerable uncertainty and nervousness in the public mind regarding the proposed BRT. Though awareness of the proposed system is rising, in part due to the GEF preparation grant financed activities, the public remains unclear on how the BRT would work and its applicability to Hanoi. International experience suggests that this is not unusual, while the public in most cities has been very receptive to BRT's once the systems are operational, there is skepticism until implementation is complete.

In addition, there are issues related to long-term sustainability of the public transport system in Hanoi's current regulatory environment. Despite significant improvements in recent years as a result of Decision 34, bus services are currently dominated by a single State Owned Enterprise

operator. The Bank's assessment is that there is a need for a unified regulatory body that plans, manages and regulates all public transport in Hanoi: an agency that ensures a level playing field for all operators, ensures a seamless experience for consumers across modes and operators and ensures that all elements of the system are operated in a manner that maximizes the benefits for Hanoi and its consumers. Hanoi has decided to establish a unified public transport authority that could play such a role, but in the baseline without initial capacity building support for this organization, it is doubtful that it would be effective.

Furthermore, in the baseline scenario, the system would not be optimized to attract current motorcycle and automobile users. Barriers to pedestrian and cyclist access to the BRT stations would likely dissuade some potential trip-makers, particularly those who have a choice between using a private motor vehicle. Physical and stakeholder surveys of pedestrian and cyclist facilities in the vicinity of the proposed BRT stations suggest that significant improvements are needed in ensuring high-quality non-motorized access to the proposed system. Further, the ability to brand the BRT as a high quality service appropriate for middle-class users who have the choice of a private vehicle would be limited by a low-key functional design for the stations; experience from other successful BRTs suggests that attractive and distinctive stations can play a crucial role in creating an attractive BRT brand image, particularly for users who have the choice of using their own motor vehicles.

It should be noted that, without the involvement of GEF, there may not have been any BRT project at all. Though a BRT system had been identified initially at Hanoi's request, Hanoi decision makers were hesitant in endorsing preparation, unsure if a BRT was appropriate for the City. Official endorsement of the project, which allowed preparation to proceed, came only after a study tour to Latin America, financed by PDF-B funds. In other words, by virtue of the PDF-B, GEF has already been able to play a catalytic role in this project.

**(2) Strategic Road Component and Sustainable Urban Planning**

In the absence of the GEF project, the strategic road component financed by IDA would likely be implemented as appraised. As planned this would significantly increase the access of the Dong Anh district (north of the red river) and the areas west of West Lake in the northwest of Hanoi to the rest of the city. That in turn is expected to spur significant growth in those areas as discussed already, Vietnam is urbanizing rapidly and significant growth in Hanoi's population is forecast in the coming years. The population of the Dong Anh and west of West Lake regions is forecast to grow from 370,000 in 2005 to about a million in 2020. However, in the baseline, this growth would occur in the 'Los Angeles' style unplanned medium-density manner that typifies peri-urban growth in Vietnamese cities today. As a result of fragmented institutional responsibilities, rigid standards, lack of effective planning controls, it is likely that growth would occur in a manner that is not compatible with competitive public transport services. International experience suggests that for growth to occur in ways that are compatible with competitive public transport even in the long-term (even as incomes rise) effective urban planning plays a crucial role. As the experiences of Singapore and Curitiba best illustrate, unless growth occurs in high-density nodes about public transport corridors, it is difficult for public transport to compete effectively, especially as the populace becomes affluent and can afford private vehicles.

**(3) Institutional Development**

In the baseline, as incomes rise, private vehicles in Hanoi would continue to increase. Even with public transport improvements, this would result in an increased level of trip making by private vehicles, ultimately increasing the risk that these increases would negate much of the benefits from the rest of the project. Auto ownership in Hanoi is currently low relative to other cities with similar income levels, in large part because of the relatively high taxes on auto ownership (and other related restrictions) being applied by City and national leadership. However the impact of such taxes will reduce as incomes rise (unless the taxes and other restrictions are increased concomitantly). Unless the city has a definite and strong vision for transport that precludes the widespread use of private vehicles and a comprehensive program to restrict ownership and use, the city will be under enormous pressure, especially from the urban elite, to relax restrictions related to private vehicle ownership and use. This is already evident: the city is under enormous pressure to relax rules related to auto ownership (linked to parking requirements), and has already rescinded (largely ineffective) restrictions on new motorcycle registrations in the central city.

**GEF Alternative**

**(1) BRT and Public Transport Promotion**

The key strategic contribution of the GEF co-financing will be to address barriers and risks related to successful project implementation and sustainability. The GEF Alternative project will finance public consultation, a media strategy and a strategy to build awareness and knowledge of Hanoi's new leadership (with additional study tours for the new leadership). The experience from the preparation of this project thus far, as well as other international experience, suggests that such a strategy will be critical to ensure that the BRT system is implemented as appraised. The media strategy component of the GEF Alternative project will help to reduce the risks associated with BRT implementation.

Additionally, the GEF Alternative project will finance technical assistance to support the newly established public transport authority to execute its responsibilities effectively. In addition, through general support to train authority members in issues related to the planning, regulation and management of a complex ultimately multi-modal system, this GEF financed component will enable support for

- the concessioning process to identify operators for the BRT. The financial sustainability of the BRT depends on ensuring that the City is able to implement efficient operating arrangements that minimize the financial burden on government without compromising the quality of public transport service to the public.
- integration between trunk BRT lines and the rest of the bus system including BRT feeder lines. Effective integration with the rest of the bus system is essential to achieve the benefits (including the GHG benefits) of the BRT. Without GEF support there is a risk (as with other mass transit systems including recent BRT systems in Jakarta and the metro system in Delhi) that the benefits and viability of the BRT investments would be compromised by competition from uncoordinated service offerings.

Finally, the GEF Alternative project will finance improvements in stations and pedestrian and bicycle access around BRT stations. In particular, based on extensive stakeholder and physical surveys, the GEF Alternative project will (i) co-finance the development of stations that enhance the Hanoi BRT's brand image and attractiveness; and (ii) finance improvements to pedestrian and cyclist infrastructure and co-finance the construction of secure cycle parking facilities.

**(2) Strategic Road Component and Sustainable Urban Planning**

The GEF Alternative project will co-finance TA for the Department of Urban Planning and Architecture in Hanoi to address the key deficiencies in the current planning regime. The TA will support specific pilots in the area north of the red river to demonstrate public transport friendly development and will also help the department and City government develop a modern planning and plan implementation system that can produce and implement a sustainable urban plan for growth.

**(3) Institutional Development**

In this sub-component, the GEF Alternative will co-finance development of price based approaches, including economic instruments that would address transport related problems such as congestion by encouraging a shift from private to public transport and reduce the overall volume of private motorized travel. An integrated set of activities illustrating the value of such instruments to address congestion, parking and other related problems are proposed. Furthermore, the GEF will co-finance replicability efforts to maximize the demonstration potential of HUTDP in other Vietnamese cities and the region.

# Incremental Cost Matrix for HUTDP

| | Baseline | Alternative | Increment |
|---|---|---|---|
| **Global Environmental Benefits** | Limited awareness and understanding in the city, country and region on the benefits of sustainable transportation and accelerating a modal shift away from personal motorized vehicles to bus transport; and, therefore, of continued high levels of CO2 emissions related to transport. Limited awareness and capacity for developing urban transport and urban land planning policies that are environmentally sustainable from a global perspective. | Increased awareness and understanding leading to the adoption of sustainble transportation intitiatives within Hanoi, and replication in the country and region; which leads to reduced CO2 emissions from transport. | Effective implementation and replication of the BRT emphasizing sustainable transportation and contributing to lower CO2 emissions by 1.70 to 2.23 million tons CO2-equivalent from 2005 to 2020. One of 20 cities with integrated, sustainable transport plans in place and one of 15 cities with bus rapid transit plans |
| **Domestic Benefits** | Hanoi decision makers were hesitant in endorsing preparation, unsure if a BRT was appropriate for the City. New leadership's exposure to the BRT concept is likely to be limited and continued efforts will be needed to build the new leadership's commitment to, and confidence in, the BRT. Considerable uncertainty and nervousness in the public mind regarding the proposed BRT, how the BRT would work and its applicability to Hanoi. | Increased awareness and full understanding of decision-makers, technical support and stakeholders, leading to effective implementation of BRT in Hanoi; and New leadership's exposure to the BRT concept is likely to be limited and continued efforts will be needed to build the new leadership's commitment to, and confidence in, the BRT. efficient and effective replication in the country and region. | Support and understanding of decision-makers, technical support and key stakeholders leading to domestic benefits (e.g., decreased congestion, decreased local emissions). |

| Components and Sub-Components | Baseline (US$ millions) | Alternative (US$ millions) | Incremental Cost (US$ millions) |
|---|---|---|---|
| **BRT** | | | |
| BRT System (except for stations, terminals and interchanges), and NMT and Pedestrian Access | 79.28 | 80.58 | 1.3( |
| BRT Stations, Interchanges and | 16.60 | 18.00 | 1.4( |
| BRT Consultation, Communications and Media Strategy | 0.00 | 1.30 | 1.3( |
| **Strategic Road Infrastructure and Sustainable Urban Planning** | | | |
| Strategic Road Implementation | 192.33 | 192.33 | 0.0( |
| Integrated Sustainable Urban Land Development and Transport Planning | 0.00 | 1.75 | 1.7 |
| **Institutional Development** | | | |
| Air Quality Management | 1.65 | 1.65 | 0.0( |
| Traffic Safety | 1.92 | 1.92 | 0.0( |
| Public Transport Agency Strengthening and policy development | 2.20 | 4.90 | 2.7( |
| National and Regional Replication and information dissemination | 0.00 | 0.90 | 0.9( |
| Project Management | 0.67 | 1.12 | 0.4 |
| **TOTAL** | **294.65** | **304.45** | **9.8(** |

**Global Benefits**

Making accurate estimates of GHG emission savings in the case of urban transport projects remains a difficult undertaking. The estimates below are limited to the impact of the BRT component of the project. The GHG impacts of the Program to Support Air Quality, Traffic Safety, the Public Transport Authority, Transport Policy and Replication (Component 3) and the land planning technical assistance activities (Component 2) are expected to be significant but difficult to quantify, and are not included in the calculations below. Thus, these estimates of GHG impacts can be considered conservative. The BRT is forecasted to have a 20 percent share of trips in the project corridors by 2020 (up from a 10 percent share for public transport at present). BRT can be expected to account for 5 percentage points of a modal shift to public transport and a 1 percent increase in the share of bicycle traffic.

Formal calculations of GHG emissions will be made as part of the GEF project, and the GHG emissions over the project life will also be monitored and reported on as part of the GEF project. An initial estimate of anticipated GHG emissions reductions attributable to this project has been made using the following basic approach:

| Transport emissions per mode | = | Number of vehicles | x | Distance traveled | x | Emissions per vehicle distance traveled |
|---|---|---|---|---|---|---|

Forecasts of CO2 emissions saved are based on estimates of modal shift to BRT, combined with estimates of average trip distance, vehicle occupancy and modal carbon emission estimates.

***Current modal shares***

Table A15.1 presents modal shares and daily trip estimates by mode in 2004. The table shows that motorcycle trips predominate, with autos representing a small but rapidly increasing proportion of the mode share. Bicycle trips remain significant, especially for local journeys, whilst use of public transport is now estimated at around 10 percent of total trip making, up significantly from just a few years ago. The public transport modal share has increased from about 2 percent in 1998 as a result of significant improvement in service quality.

**TABLE A15.1: 2004 HANOI VEHICULAR TRIPS BY MODE**

| Mode | Daily Trips (persons) | Modal Share (percent) |
|---|---|---|
| Bicycle | 516,400 | 9.6 |
| Motorcycle | 3,942,600 | 73.5 |
| Car/Taxi | 368,400 | 6.9 |
| Public Transport (Bus) | 534,300 | 10.0 |
| **All** | **5,361,700** | **100.0** |

Source: HUTDP BRT Feasibility Studies

***Traffic Forecasts***

BRT traffic demand was based on a modal choice analysis. Two sets of forecasts based on different land-use forecasts have been made to assess the impact of the BRT: the first is based on the official Hanoi masterplan which calls for limiting center city growth and rapid urbanization in the urban periphery; and an alternative forecast based on recent trends that suggests slightly

higher center city populations and slightly slower growth in the periphery. As discussed below, both methodologies yield BRT demand estimates within 5 percent of each other.

***(ii) Year 2010 Forecasts.*** *Between 230,000 to 243,000 daily BRT trips are forecast in 2010. The vast majority of the rider-ship (about 85 percent) is drawn from existing bus passengers with diversions from motorcycles representing the bulk of trips diverted from private modes.*

***(iii) Year 2020 Forecasts.*** *Between 352,000 to 379,000 daily BRT trips are forecast in 2020 with about 20 percent of the riders being drawn from private vehicles, predominantly motorcycles.*

In this context, the baseline planning estimates used by Hanoi, which form the basis of the current estimates, assume that public transport use will continue increasing and growth in auto usage will be modest. These assumptions produce conservative estimates of the impact of the proposed BRT. In reality, without significant improvements in public transport, such as the proposed BRT investments, the baseline public transport shares could not be achieved. In other words, the baseline (without project) forecasts over-estimate public transport usage, and thus under-estimate project impact. Similarly, if baseline auto ownership is under-estimated, the potential impact of the BRT on $CO_2$ emissions is similarly under-estimated.

### *Emissions Estimates*

The modal choice analysis also provided estimates of BRT trip length distribution, and traffic flows on the BRT corridors. These data were used to generate with and without project $CO_2$-equivalent emission estimates. As Table A.A2 indicates, these calculations suggest that approximately 1.70 to 2.23 million tons $CO_2$-equivalent emissions reductions are attributable to BRT in Hanoi over the 15 year period from 2005 to 2020.

**Table A15.2. Estimated GHG Emissions Reductions Attributable to BRT**

| Year | Do Nothing (tons CO2-equivalent per year) | | With BRT (tons CO2-equivalent per year) | | Emissions Reductions Due to BRT (tons CO2-equivalent per year) | |
|---|---|---|---|---|---|---|
| | *Base Forecast* | *Alternative Forecast* | *Base Forecast* | *Alternative Forecast* | *Base Forecast* | *Alternative Forecast* |
| 2005 | 668,665 | 668,665 | 599,719 | 599,719 | 68,945 | 68,945 |
| 2006 | 703,569 | 708,456 | 625,322 | 629,081 | 78,248 | 79,375 |
| 2007 | 738,474 | 748,247 | 650,924 | 658,443 | 87,550 | 89,804 |
| 2008 | 773,379 | 788,038 | 676,526 | 687,804 | 96,853 | 100,234 |
| 2009 | 808,283 | 827,829 | 702,128 | 717,166 | 106,155 | 110,663 |
| 2010 | 878,093 | 907,411 | 753,333 | 775,889 | 124,760 | 131,522 |
| 2011 | 870,095 | 944,381 | 747,386 | 806,773 | 122,709 | 137,609 |
| 2012 | 862,097 | 981,352 | 741,439 | 837,656 | 120,658 | 143,696 |
| 2013 | 854,099 | 1,018,323 | 735,492 | 868,540 | 118,607 | 149,783 |
| 2014 | 846,101 | 1,055,294 | 729,545 | 899,424 | 116,556 | 155,870 |
| 2015 | 838,103 | 1,092,265 | 723,598 | 930,307 | 114,505 | 161,957 |
| 2016 | 830,105 | 1,129,235 | 717,651 | 961,191 | 112,454 | 168,044 |
| 2017 | 822,107 | 1,166,206 | 711,704 | 992,075 | 110,404 | 174,131 |
| 2018 | 814,109 | 1,203,177 | 705,757 | 1,022,959 | 108,353 | 180,218 |
| 2019 | 806,111 | 1,240,148 | 699,810 | 1,053,842 | 106,302 | 186,305 |
| 2020 | 798,113 | 1,277,119 | 693,863 | 1,084,726 | 104,251 | 192,393 |
| **TOTAL** | **12,911,504** | **15,756,144** | **11,214,195** | **13,525,595** | **1,697,310** | **2,230,550** |

## Annex 16: STAP Expert Review and Response

## VIETNAM: Hanoi Urban Transport Development Project

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Date: August 22, 2007Date: March 22, 2006

(Including Comments from the WB Team)

### 1. Executive Summary

A. The following is a GEF-STAP Review of the Hanoi Urban Transport Development Project (HUTDP), currently under preparation by EASTR/World Bank. The review was guided by the general terms of reference provided by UNEP-STAP Secretariat, guidelines derived from various GEF documents listed in paragraph 2 and the specific TOR provided by the TTL of the project on March 11, 2006.

B. The task team and the TTL readily provided all the requested documents. The TTL was available for consultations and clarifications throughout the review period. The documents provided by the Bank and reviewed are listed in paragraph 3 below.

C. Paragraph 6 below details the review of HUTDP in the context of GEF goals, objectives, and operational parameters. The most recent documentation, regarding the GEF Operational Program #11: promoting Environmentally Sustainable Transport, was used a primary guide for the review.

*D. As a result of this review of HUTDP, the requested GEF funding is recommended for approval, subject to the conditions and suggestions detailed in paragraph 7 below.*

### 2. GEF-STAP Review Guidelines

This review is guided by and derived from the following documents:

A. The terms of reference for the technical review of projects proposals, issued by UNEP on March 13, 2006;

B. The terms of reference provided by the TTL of HUTDP, emailed on March 11, 2006;

C. GEF, Focal Area-Specific Annotations to the GTOR of the STAP Roster Review, March 14, 2006;

D. GEF, Operational Program # 11: Promoting Environmentally Sustainable Transport, June 21, 2001;and

E. GEF, Elements of A GEF Operational Program on Transport, GEF/C.12/14/Rev.1, March 14, 2006.

### 3. Documents Reviewed

The following documents, provided by the Task Team of HUTDP, were reviewed as part of the evaluation of the GEF proposals:

A. HUTDP: Project Concept Note (PCN), November 2004;
B. HUTDP: Project Appraisal Document (PAD), Draft, March 2006;
C. Environmental Management Plan for HUTDP, Hanoi Peoples Committee, Draft, January 2006;
D. HUTDP: Feasibility Study and Preliminary Designs, Vol. #1, BRT Component, MVA Asia Ltd, January 2006;
E. HUTDP: Feasibility Study and Preliminary Designs, Vol. #3 (AQ Management, Traffic Safety, Institutional Strengthening and Capacity Building), MVA Asia Ltd, January 2006; and
F. HUTDP: NMT Management and Access to Proposed BRT and in the Ancient Quarter of Hanoi, Consultant Memo, received on March 16, 2006.

**4. Consultations with the Task Team**

During the review period, the reviewer had the opportunity to consult with the TTL, Mr. Shomik Mehndiratta regarding the details of the GEF component and obtain additional information and documents as required. The reviewer is grateful to the TTL for the discussions, explanations and additional documentation provided on request.

**5. Project in Brief**

Briefly, the HUTDP consists of the following three primary components:

A. BRT System Design and Implementation including Pedestrian and NMV infrastructure improvements and a BRT Public Communications and Media Strategy;
B. Strategic Road Infrastructure construction including arterial road improvements, Housing for the Disabled Persons and an Integrated Sustainable Urban Land Development and Transport Planning Strategy; and
C. An Institutional Strengthening and Capacity Building Program including an air quality and GHG emissions management plan, traffic safety management, public transport management agency strengthening and assistance for capacity building for comprehensive transport policy development.

**6. General GEF Review (Based on GEF Operational Programs, Guidelines and GEF TORs)**

**A. Project Design vis-à-vis GEF Goals and Operational Programs (Strategies and Priorities)**

*i.* The components of the project are described in paragraph 6 above. The primary objective of the proposed project is to assist Hanoi to develop and implement strategies for sustainable urban development and the improvement of the urban transport infrastructure. In addition, it aims to assist the city in developing long term strategies for sustainable transport. This includes a BRT system in two arterial corridors, a related NMT infrastructure in these two corridors and modest efforts to encourage modal shifts in the long range. *The project's overall structure is technically sound and comprehensive in its approach to developing sustainable transport policies, plans and programs.*

ii. *The project, as proposed, is consistent with and comprehensively covers the priority areas detailed in the GEF Operational Program on Transport (GEF/C.12/14/Rev.1/March 14, 2006). It is also consistent with GEF strategic priorities regarding climate change and sustainable transport (GEF Business Plan for FY 2004-06, GEF/C.21/9).* More specifically, this project proposes to address the issue of modal shifts to environment friendly transport modes through an emphasis on BRT, non-motorized transport (pedestrian and bicycling infrastructure). A few non-technology measures such as traffic demand management and economic incentives are also included. The project also proposes to build institutional and technical capacity through technical assistance and training (both for the experts and the leadership), in order to support sustainable transport policy development and to initiate public participation.

**B. Client Ownership (Country-driven) of the Project**

i. *The PAD indicates clearly that the key components of both the IDA project and the proposed GEF components have strong ownership by the city of Hanoi.* The city had started looking for ways to implement bus priority (with the Asia-Urbs project) systems and institutional change (with decision 34 of the HPC) to make public transport systems more efficient and financially sustainable before they had asked the IDA to get involved with a new operation.

*ii.* Hanoi had asked the IDA for support for different elements of a comprehensive urban transport policy: parking, traffic management, safety and public transport development. Even though there is no recent history of Hanoi trying to preserve and enhance the use of NMT in urban travel, there are indications that the city is willing to adopt pro-active methods to increase the use of NMT. Furthermore, there is sufficient evidence to indicate that Hanoi is strongly committed to increasing travel by bus and thus, indirectly reducing MV use and consequent emissions. *It is concluded that the project has sufficient client commitment both to the project's short-term goals and to the underlying long term concepts to merit GEF support.*

**C. Citizen Participation and Stakeholder Involvement**

i. Stakeholder participation, involvement and inputs are integral to GEF operational programs on sustainable transport. In HUTDP, the BRT communications and media strategy, for which GEF funding is sought (1.5 m$), includes:

- Strategies for public participation,
- Knowledge dissemination through seminars and publicity,
- Pro-active plans to build a "BRT culture",
- Training courses for "safe driving" and
- Opportunities for citizen input into the decision making process at key junctures.

*ii.* The PAD indicates that the strategy also includes a framework for public feed back on all aspects of BRT operation and maintenance. *However, the process for this proposed citizen input and involvement is not clearly defined in Annex 4 of the PAD. Citizen involvement and participation in the decision making process is integral to the GEF operational programs and it is recommended that this process and various stages of citizen involvement be further defined and clarified in the PAD.*

*RESPONSE* - The importance of involving and soliciting input from the public and key stakeholders, as outlined by the STAP Reviewer, is acknowledged. From the inception phases of the HUTDP it has been recognized that, when much of the planning for urban areas is carried out at the central government level, it may not be as responsive as possible to the realities of social, economic and physical conditions on the ground. It is this disconnect coupled with the lack of clear guidelines on urban management and plan implementation that can prevent effective implementation of a BRT system and associated urban planning activities. In addition, the project recognized from the outset that insufficient stakeholder consultation may reduce the acceptability and ultimate usefulness of plans at the local level, which is especially important given the increasing involvement of the private sector in determining the pace and direction of development in Hanoi as well as other urban centers. Recognizing the general lack of public participation and/or consultation in the planning process at present, the HUTDP has developed the Stakeholder Consultation Plan.

Based on the recommendation from the STAP Reviewer, the project's design of the Stakeholder Consultation Plan has been modified to include a series of stakeholder consultations. Additional focus groups, and consultations with street (neighborhood) communes and shopkeepers associations and guilds in affected areas will be held periodically. All of the above consultations will be used as key opportunities for awareness raising among concerned citizens. In addition, effort will be made to document the changes in public sentiment and understanding of BRT during the course of the project by the administration of surveys at the stakeholder consultations. This public consultation process, including scheduling of consultation meetings, will be finalized during the PAD.

Annexes 4 and 19 of the Brief have been updated to include the above consultation process. For clarity, the former "Public Communication Strategy" has been renamed as the "Public Consultation and Communication Strategy", and will include these key consultations.

In addition, the Brief (Annex 19) has been supplemented to include additional information on consultations that have been held with the disabled, which had been identified as a key stakeholder group during project preparation. Representatives of HUTDP have made a presentation at a meeting of the VNAH (Vietnam Association for the Handicapped) which highlighted BRT and implications for the disabled. Regular meetings have subsequently been held with the VNAH to inform them of HUTDP's progress and to ensure that they become a constituency. This work has led to further discussions at the Hanoi Disability Forum, which has allowed for an enhanced understanding of concerns and ensured that these concerns are addressed in the project's design. Such outreach to the community is ongoing, with the PMU

being introduced to the VNAH and taking the lead on continuing to be responsive to the concerns of various stakeholder groups.

**D. Supporting and Encouraging the Development of Sustainable Urban Transport**

i. *Political commitment, to enhance public transport use, appears explicit in a series of recent decisions by the city government (HPC decision #34 of 2003, Prime Minister's decisions to establish priorities to implement policies to achieve public transport share of all person-trips to be 30% by 2010 and 50% by 2020).* The project seeks to provide technical support for the development of a sustainable urban transport policy. Planning, implementation and capacity building to sustain this momentum is included in the program.

ii. *The institutional and physical interventions in the BRT system have been conceived to ensure the sustainability of recent increases in bus usage by addressing the key limitations of the current paradigm for bus operations: a fast increasing fiscal burden and capacity limitations related to shared-use road space.* The sustainability of the BRT system has strong links to and will depend on several key long term factors which the project proposes to address in a positive way. Adequate regulatory oversight (management, efficiency, maintenance) is essential to the success of the BRT system. The project proposes to accomplish this through appropriate technical assistance and capacity building, particularly for the Public Transport Management Agency (PTMA).

iii. The project also proposes substantial investments for institutional strengthening and capacity building in the areas of integrated sustainable urban land development, transport planning and comprehensive transport policy development. These technical activities will be coordinated with well positioned media strategy and citizen participation. *These efforts, to strengthen existing institutional structures and to build capacity in the long range, are consistent with the general program objectives of GEF as well as with the objectives of the Operational program # 11 on sustainable transport.*

**E. Institutional Strengthening and Capacity Building**

Because of historical factors, the planning and implementation regarding urban transport is fragmented, distributed among several agencies and therefore, is not coordinated effectively. Institutional capacity regarding comprehensive planning for sustainable urban transport is lacking and it is essential that coordinating mechanisms are instituted and the institutional capacity to think and act in terms of sustainable transport is bumped up substantially. The project proposes to tackle these very complex institutional issues by a series of well defined modules as follows:

i. Integrated Sustainable Urban Land Development and Transport Planning This includes several modules which are complex and inter-related. As these institutional systems are entrenched and are very resistant to change

even in a transitional economy like Vietnam, the designers are to be commended for their proposals. The modules include:

- A review of the Hanoi urban planning system,
- A review of the institutional arrangements in the Hanoi urban sector,
- The preparation of comprehensive land use zoning and classification system for Hanoi,
- The review and updating of planning and design standards for Hanoi,
- The capacity building and training for key urban sector professionals,
- Raising public awareness campaign on urban development,
- The detailed design of pilot projects,
- A feasibility study of Red River public transport, and
- The installation of GIS systems in key HPC urban sector departments.

ii. *The proposed modules are consistent with the long term strategies of GEF and supportive of the operational program #11 on sustainable transport. Where site visits and study tours are proposed, it is recommended that selected cities include Jakarta (because of recent BRT developments), Singapore (as the world leader in transport demand management and modal integration) and Seoul (for the most recent bold and innovative steps to shift away from MVs).*

The recommendation that selected cities for the site visits include Jakarta, Singapore and Seoul has been noted in the Urban Land Planning section under "*Capacity Building and Training of Key HPC Urban Sector Departments*" (in Annex 4). Already, a representative from a key agency – ITDP – involved in the Jakarta initiative has visited Hanoi to present their experiences. During the project preparation process, experts who had been senior officials at Singapore's Urban Redevelopment Authority also provided lessons from Singapore's experience and it is expected that they will continue to provide guidance during HUTDP implementation.

It is anticipated that such exchanges of information, both through hosting of experts and site visits, will offer HPC staff the opportunity to:

i) learn from the experience of foreign urban planners and managers from the application of an integrated approach planning and development in a rapidly urbanizing environment;
ii) see first hand the advantages and possible disadvantages of an urban transportation network based on an extensive public transport network and restricted use of private motor vehicles; and,
iii) judge the relevance of these alternative approaches to the problems of Hanoi.

iii. Public Transport Management Agency (PTMA) Strengthening

PTMA is a key institution and its efficient and dynamic functioning is essential to the success of the project. The success of PTMA is also a pre-requisite to the long range viability of the BRT project. The project

proposal seeks GEF funding for technical assistance and training in several key areas:

- Long term transport planning,
- Coordination of existing and new proposals with the plans,
- Procurement of services on a contractual basis,
- Control and management of common infrastructure, and
- Financial management, including ticketing and revenue collection.

iv. *Since PTMA is central to the success of the BRT system, its efficiency and success are pre-requisites to the success of this project. This capacity building is also consistent with the GEF goals and it is recommended for GEF support as requested.*

v. Comprehensive Transport Policy Development

- Hanoi currently lacks a comprehensive approach to the development of comprehensive transport policy and urban transport demand management. While the political leadership has committed to the policy of increasing public transport trips to 30% of total person-trips by 2010 and to 50% by 2020, building institutional capacity and professional expertise to achieve these goals is essential to the success of the project.
- The project proposes to support Hanoi to attain these objectives by technical assistance and training. The areas covered in this regard are: urban transport visioning (at the professional and leadership levels), urban transport demand management, and site analysis and access management, parking policy development and parking analysis.

vi. *These proposals are to be commended as they are quite complex, often elusive and yet essential to the long range sustainability and success of the project as to attaining the stated long range objectives. These modules are quite consistent with the overall GEF goals and with the objectives of the operational program # 11 on sustainable transport.*

**F. Replicability, Knowledge Management and Added Value Beyond the Project**

i. The BRT project in Hanoi has a strong potential for replication in other Vietnamese cities and elsewhere in the region. It seeks to actively promote replication, in other Vietnamese and Asian cities, by leveraging the demonstration nature of the project and by disseminating project information freely.

ii. The project proposes to promote replication within Vietnam by periodic and regular briefings to the managers of public transport agencies in other major Vietnamese cities and also by keeping them apprised of its progress and impacts. Information will be freely available on a regular basis through the production of public information announcements, progress reports and other project related materials. Meetings will be

held to inform other cities about the benefits of BRT, the urban planning process, and lessons learned as the project proceeds.

iii. Replication outside Vietnam will be promoted through publications (e.g. lessons learned document) on the Hanoi BRT; exhibits and presentations will be made by Hanoi at major transport fora in the region; and by hosting and promoting study tours to Hanoi for senior urban development and transport planners from other Asian cities.

iv. The Hanoi BRT website will be a central depository for information on the progress, achievements, lessons learned and contact information.

v. Based on experience from other successful systems such as Curitiba and Bogotá, replication depends largely on information dissemination and personal experience by other system managers and leaders. Once the BRT systems are being implemented, much interest tends to follow initially. Recognizing this trend, this project proposes to further facilitate this process both by organizing tours for interested parties and also by presenting information and lessons learned on BRT in a synthesized manner.

*vi. The PAD indicates that the arrangements for the Replication Plan are currently being finalized through the Ministry of Transport, in conjunction with Hanoi and other medium sized cities in the region. The Hanoi project is already having a substantial impact through the demonstration effect: Ho Chi Min City is following in Hanoi's foot steps and considering/planning a demonstration BRT line.*

*vii. The project design indicates a very strong potential for replication in Vietnam and some potential for replication in other countries of the region. All project studies should be freely available on the website to other cities in Vietnam and in the region. For example, the project could make available, almost immediately to other Vietnamese cities, the excellent BRT case studies done by PADECO.*

The HUTDP website will promote available studies relevant to the region, including the BRT case studies by PADECO. This increased mandate of the public consultation and communication strategy has been included in Annex 4.

*viii. It is highly recommended that the project communications strategy include close liaison with and make use of highly poplar regional discussion groups such as SUSTRAN Network, initially started by the UNDP and ITDP. SUSTRAN attracts a very large group of transport professionals from Asia in particular and globally in general.*

*ix. The project design and sought-after goals are supportive of and consistent with the operational goals of GEF for the transport sector.*

The STAP Reviewer's recommendation to make use of the SUSTRAN Network is also noted. SUSTRAN (Sustainable Transport Action Network for Asia and the Pacific), is an Asian-based coalition of NGOs seeking to assist national campaigns and coordinate NGO input at both regional and international forums, among other advocacy and information sharing mandates. The

HUTDP's communications strategy will seek to include close liaison with SUSTRAN and other relevant groups, so as to leverage existing successful discussion groups with both regional and global reaches. Already, Project Task team members are involved with SUSTRAN and coordinating with other agencies active in this area, such as EMBARQ and ITDP. The above has been noted in Annex 4.

**G. National and Regional Replication and Information Dissemination**

i. Project proposals include several action elements to promote BRT in other Vietnamese cities as well as outside Vietnam. The project proposes to achieve this goal of replication by planned cyclical briefings for the managers of public transport systems in Vietnam regarding the project and information dissemination throughout the project implementation period. In addition, it is proposed disseminate project progress and other information periodically through public announcements and other materials.

ii. Replication outside Vietnam is proposed to be achieved by making freely available project reports and documents, exhibits at various regional professional fora, by hosting and promoting study tours, and through an easily accessible Hanoi BRT website (included as part of the BRT media and communications strategy).

*iii. Actively promoting the BRT system in general but with a focus on the HUTDP and hosting the senior professionals from other cities (which do not yet have a BRT system in place) in the region is a very positive approach and takes the project objectives beyond the confines of the project itself. If this component is implemented properly in the context of a two way on-site learning process, it could very well contribute enormously to the promotion of BRT within the region and thus assist in the reduction of emissions across the region. This is a very worthwhile component and is consistent with the overall objectives of Operational program #11 of GEF and thus should be supported.*

The two way on-site learning process – through hosting experts and study tours – is explicitly recognized in the Replication and Public Transport Agency Strengthening Component. The Hanoi project will facilitate information transfer to interested cities both by organizing tours for interested parties and also by presenting information and lessons learned on BRT in a synthesized manner.

**H. Air Quality Management and Emission Control Strategies**

i. MV Emissions Inventory and Monitoring

The proposed emissions inventory and monitoring program is part of an over-all air quality management plan for Hanoi. The proposal includes data systems management skills development and equipment procurement. It will help Hanoi to continue the implementation of the AQM, developed under a technical assistance project funded by the Swiss Development Agency: Swisscontact. GEF support will also allow for full incorporation of

climate change (GHG Emissions) into the design and analysis of transport strategies in Hanoi.

ii. MV Emission Control Strategies

Strategies focused on MVs include fleet inventory, new MV controls, old vehicle scrap program, environment friendly retrofit and upgrades for MVs, and emission patrols. Strategies focused on fuels include fuel quality monitoring, alternative fuel conversion, and fuel and oil additives program. This sub-component also includes public awareness and education and international cooperation (to share information, obtain assistance and attract investments for emission controls) elements.

iii. Inspections and Maintenance Program and Motorcycles Clinic

Because of the large presence of motorcycles in Vietnam and the fact they do contribute heavily to the deterioration of air quality, programs to control and reduce emissions from motorcycles are quite important in AQM. The project proposals include the development of an inspection and maintenance system for motorcycles as part of Hanoi's AQMP. It is proposed to include a "motorcycle clinic" both for instructions and awareness education regarding AQ as well "maintenance as a necessary component of asset management of motorcycles".

iv. Economic Instruments for AQ Management

Most of the AQM strategies used in Hanoi reflect the "command and control" methods. These methods essentially place the responsibility solely on the regulatory bodies "catch and punish" the polluters. The project proposes to use economic instruments, such as emission reduction subsidies, emission fees and taxes included in fuel prices, user charges, tolls at appropriate infrastructure points, transferable emission limits and dual fee programs.

*v.* All the 4 sub-component modules described are worthy of GEF support. *These are the very necessary basic infrastructure for proper AQM and emission controls. However, the PAD does not provide any details of how, when and if any or all of these instruments will be implemented within HUTDP. It is recommended that this be clarified and listed elements prioritized for implementation. It is possible that this is being done already as suggested because the reviewer has only seen the early march 2006 draft of the PAD.*

No GEF co-financing is proposed for the AQ subcomponent. However, at the current time, all of the initiatives outlined in the Brief are expected to proceed. A brief update is provided below:

- During the past two years, extensive work has gone into the preparation of the Air Quality project component. As a precursor to component design, the focus was on institutional issues. In late 2005, the HPC decided to consolidate the management of all existing AQ stations under DONRE. This resolved the Bank's prior concerns related to fragmentation in the management across DONRE, a university and other agencies. The component has been designed in coordination with other aid agencies active in Vietnam and has been designed to complement and leverage bilateral interventions of the Swiss aid agency (Swisscontact), EMBARQ and Norwegian interventions in HCMC. DONRE,

coordinating as appropriate with TUPWS, traffic police, the Vietnam Register and other related agencies will lead the implementation of this component.

- Technical specifications for the air quality monitoring equipment have been drafted and will be reviewed at appraisal. Works related to the emissions inventory has been scoped in coordination with EMBARQ's just concluded indicator's work in Hanoi.
- A key focus of the dialogue during preparation has been on issues related to implementing effective control strategies, and at this stage the HPC is fully cognizant of the need to extend the mandate of DONRE from monitoring to control. There is widespread recognition that the first steps will involve monitoring and analysis of the air quality problems, prior to finalizing control strategies and policies. It is expected that control strategies will be finalized towards the end the second year of the project and implemented in the last 2 years.
- In addition to processing monitoring data and identifying control strategies, motorcycle clinics will be key implementation activities for the two years. Preparation of a pilot motorcycle clinic is proceeding already in part using Norwegian trust funds, with the pilot clinic scheduled between April and July 2006. Local manufacturers have already agreed to participate in the process. Initial results from the clinic are expected before Appraisal is complete.

**I. Facilitating Modal Shifts to Climate Friendly Modes: Non-Motorized Transport**

i. To facilitate modal shifts to environment friendly modes, particularly to the non-motorized transport is one of the primary goals of the GEF operational program on sustainable transport. Hitherto, Hanoi has not paid much attention to either the preservation or the enhancement of NMT. However, the project proposes modest NMT improvements along the two BRT arterial corridors, more as a demonstration than as major policy shifts. It includes pro-active design improvements to enable mobility for the physically handicapped, safe accessibility to the BRT system for pedestrians and cyclists, and it demonstrates the positive value of these investments in proper and sustained maintenance and security.

ii. The PAD, Annex 4, describes the NMT investments to include a comprehensive pedestrian network (sidewalks) to access the BRT system, re-tooling the traffic signals to be pedestrian friendly and to provide safe crossings for pedestrians, drop-curbs for the physically handicapped and tactile guild paths to assist the visually impaired. *These are all positive investments which will serve as excellent demonstration tools to focus on benefits of NMT.*

*iii.* Further details on NMT investments are not listed in the PAD and they should be. However, it is recognized that this PAD is currently "a work in progress". The consultant report provided to the reviewer, provides the details which includes the NMT improvements to access the BRT system and also in the Ancient Quarter. They include 19.2 Km of lane separation between the MVs and the NMT and 33,093 $m^2$ of sidewalks, 8,000 m of curb replacement and 616 locations for drop-curbs. *These*

*are positive investments, yielding positive environmental benefits. It is recommended that these proposals be segregated (BRT System and the Ancient Quarter) and so detailed in the PAD.*

As requested by the STAP Reviewer, additional details on the NMT have been included in the Annex 4, under Component 1.A: BRT System Design and Implementation "*ix. Pedestrian & NMV Improvements of the BRT System*". This information includes information on the improvements and repairs to the road network and supplemental service structures and facilities, all of which are intended to promote NMT and pedestrian access. In addition, specific improvements have been designed to ensure accessibility of the handicapped, including low curbs and ramps. The proposed improvements for the BRT system, and exploration of potential ways to pedestrianize the Ancient Quarter, will be detailed separately in the PAD as requested.

**J. Identification of Global Environmental Benefits**

Global environmental benefits have been identified and listed in Annex 15 and the accompanying benefit tables. *Although Annex 15 provided to reviewer appears to be "work in progress", these benefits are sufficiently large to warrant GEF support for the project.*

**7. Recommendations**

**A. Component 1 A: BRT System - Pedestrian and NMV Improvements along BRT Corridors (GEF: 1.5 m $)**

Details of this component are discussed in paragraph 6 I above. It is recommended that this be approved, subject to clarification and details to be provided in the PAD, Annex 4.

Additional information has been added to Annex 4, as noted above.

**B. Component 1B: Citizen Participation and BRT Communications and Media Strategy (GEF: 1.5 m $)**

Details of this component are discussed in paragraph 6 C and 6 F above. It is recommended that this be approved, subject to the details to be provided in the PAD, Annex 4.

Information has been added to Annex 4, as noted above. In addition, further details have been added specifically on the disabled, including stakeholder consultations with the VAH and at the Hanoi Disability Forum.

**C. Component 2B: Integrated Sustainable Urban Land Development and Transport Planning (GEF: 1.5 m $)**

Details of this component are discussed above in paragraph 6 E. It is recommended this request be approved as is, with a request that the suggestions in Paragraph 6 E be considered in the plans for capacity building.

Information has been added to Annex 4 as noted above, including identification of particularly relevant examples (i.e., Jakarta, Singapore, and Seoul).

**D. Component 3A: Air Quality Monitoring Program (GEF: 1.15 m $)**

Details of this component are discussed above in paragraph 6 H. It is recommended this request be approved, subject to clarifications described in Paragraph 6 H.

Clarifications on the Air Quality Monitoring Program have been outlined above.

**E. Component 3C: Public Transport Management Agency (PTMA) Strengthening**

**i. TA for PTMA and Concession Support (GEF: 2.25 m $)**

Details of this component are discussed above in paragraph 6 E. It is recommended this request be approved as is.

ii. **National and Regional Replication and Information Dissemination (GEF: 1.5 m $)**

Details of this component are discussed above in paragraph 6 G. It is recommended this request be approved as is, with a request that the suggestions in Paragraph 6 E and G be considered in the plans for capacity building.

Clarifications have been provided above, and suggestions have been added to Annex 4 (also described in the responses above).

**F. Component 3C: Comprehensive Policy Development and Transport Management (GEF: 1.0 m $)**

Details of this component are discussed above in paragraph 6 E. It is recommended this request be approved as is, with a request that the suggestions in Paragraph 6 E be considered in the plans for capacity building.

Suggestions have been added to Annex 4, as described in the responses above.

## Annex 17: GEF Secretariat and other Agencies' Comments and IA/ExA Response
## VIETNAM: Hanoi Urban Transport Development Project

### *Comments from the GEF Secretariat*

(Including Responses from the WB Team)

| Component | GEF Secretariat Comments | WB Response |
|---|---|---|
| Component 1A.BRT System Design and Implementation, and NMT and Pedestrian Access. Total $68.2 m; GEF $1.5 m | Activities related to "safety and convenience" such as drainage system, sidewalk pavement, lighting system, public toilets, and traffic signs | (i) 2 toilets will be removed from GEF component<br>(ii) 'drainage' refers to pavement sub-base design to ensure sidewalk functions w.o. flooding during rains. Definitions will be clarified<br>GEF contribution will reduce slightly |
| Component 1B. BRT stations, terminals and interchange stations. Total 18.3m, GEF $1.7m | Activities to be financed by GEF are not specified | (i) Architectural competition for station design.<br>(ii) Design features for stations including interior design, climate control in selected locations |
| Component 1C. BRT consultation, communications and media strategy. Total US$1.5 million, all GEF | Training on safe driving. | (i) Bulk of component is critical consultation and PR activities – ideal for GEF support.<br>(ii) Training on safe driving will be removed from GEF component and size adjusted |
| Component 2B. Integrated Sustainable Urban Land Development and transport planning. Total $1.8 million all GEF | Purchasing of GIS Software etc. | (i) Purchase of GIS software will be moved to IDA.<br>(ii) GEF component will be reduced accordingly |
| Component 3C. Public Transport Authority Strengthening (Total US$2.4 million; GEF $1.2 million) | Activities funded by GEF not specified | GEF will co-finance<br>(i) Training, including consultants to provide on-the-job support for PTA<br>(ii) Support for BRT commercialization (as per UNEP comments) |
| Please ensure there is no duplication between Component 1C (BRT Consultation, Communications and Media Strategy) and Component 3E (National and Regional Replication and Information Dissemination), and between Component 2B (Integrated Sustainable Urban Land Development and Transport Planning) and Component 3D (Transport Planning and Policy Development). | | These components were designed to be orthogonal to each other. But we will review to ensure there is no overlap – and look specifically for potential cost savings. |
| Contribution to Key Indicators of the Business Plan | Should be more concretely stated in terms of CO2 reduction | We will indicate CO2 reduction targets of the project on the cover page |
| Institutional Strengthening component | Name is confusing | Separate components (air quality, traffic safety, PTA strengthening, transport policy will all be defined as such |

***UNDP Comments on World Bank's June 2006 Council submission: CC/OP 11: Hanoi Urban Transport Development Project (HUTDP)***

(Including Responses from the WB Team)

General: The proposal is in line with the present GEF strategic priority forOP-11, particularly on modal shifts in urban transport and a more balanced mix of sustainable transport options (including non-motorized transport). However, it does not consider all of the earlier comments that were raised by UNDP-GEF during the time the World Bank applied for a PDF-B grant to develop this proposal.

Specific:
1. Component 1-A: BRT System Design and Implementation ? It is not clear how the GEF funds will be utilized in this particular component of the project. It appears that $1.5m in GEF funds is sought to improve pedestrian access to bus stations, since such improvements can attract more passengers. This particular aspect of the BRT design must have been considered already in the IDA-financed project. If it was not covered in the BRT design, why will GEF pay for such improvements? Is this included among the activities that are allowed in OP-11?

Adequate pedestrian and bicycle access is indeed the base case of the BRT design. As described in great detail on pages 44-47 of the Project Brief, the GEF would, in addition, provide pedestrian improvements in an area of 250 meters around each BRT station, including alleys which have been taken over by motorcycles, addressing this Hanoi-specific problem. These facilities, as well as bicycle parking at stations, go beyond what has been provided in most BRT systems in Latin America and were chosen and designed as they are expected to be of particular relevance in the Vietnamese context.

The team has reviewed the detailed list of proposed items with GEF staff and reduced the scope of this component (and the size of the proposed GEF component) subsequent to that review.

2. Component 1- B: - Improvement of BRT stations, terminals and interchanges? While it is understood that attractive facilities can encourage more users of the BRT system and that the IDA-financed project is just paying for basic functional forms of the stations and terminals, why will GEF pay for making the stations more attractive? Is improving station design the most effective solution in increasing patronage of the BRT by the riding public? Is this included among the activities that are allowed in OP-11?

The base case includes adequate and functional station designs. The PDF-B grant is funding the start of an architectural competition, which is expected to develop a station concept that goes beyond the base case. The GEF grant would finance the additional costs of station construction and will ensure that these are actually implemented (e.g. in the Lima BRT project, currently being implemented under a World Bank loan, precisely these features are being dropped because of budget limitations faced by the municipality).

Further, the international evidence from successful transit operations in general, and BRT operations in particular, suggests that the quality and attractiveness of stations and interchanges is disproportionately important in attracting riders of choice (as opposed to captive riders). From a perspective of OP11 - reducing CO2 emissions from modal shift - the team would suggest that incremental investments in higher quality stations offers one of the best returns possible for GEF investments.

3. Component 1-C: BRT Public Consultation, Communications and Media Strategy? This should already address the need to improve the patronage for the BRT. While nice looking stations/terminals will contribute to improving BRT patronage, a well designed public campaign to promote the system should be able to ensure even higher ridership.

Similar to the preceding point, the publicity campaign is being designed under the PDF-B grant. We agree with the reviewer that carrying that the publicity campaign will be important in promoting BRT ridership.

4. Stakeholder Involvement: What is the role of Transerco, the state-owned transport company, in this project? What will happen to this entity? It seems that a more limited role by Transerco in the city?s transport system will be one of the outcomes of the project. Instead of the BRT system, why not instead improve the operation of Transerco?

The BRT and Transerco are not mutually exclusive: The BRT is an operating concept, Transerco is an operator. Transerco was involved throughout the two years of project design. While it is still a State-run company, the Government has decided to equitize it in the coming years. It is virtually certain that the new Transerco will operate some of the feeder services, and it is possible that it will be awarded one of the BRT trunk-line concessions.

The complex issues surrounding the framework of bus operations in Hanoi have been analyzed in the PPIAF-funded "Technical Assistance for Strategic Options for Private Participation in the Provision of Urban Transport Services".

5. Stakeholder Involvement: Why not promote the participation of the private sector in Hanoi?s transport system?

The private sector will be a major player in the operation of the BRT. Also, see recommendations of the PPIAF study mentioned above. This issue has been discussed in the 'sustainability' sections of the Brief.

### *UNEP/DGEF comments on: Vietnam: WB, CC/OP11, Hanoi Urban Transport Development Project (HUTDP) - June 06 CWP Submission*

(Including Responses from the WB Team)

In general this appears to be a well designed, sound proposal. We particularly appreciate the effort to evaluate BRT on a "business case" basis, with the resuls indicating it should have a positive NPV. The combination of elements, including support for BRT system development, integration with NMT and support for land use planning is encouraging. We do have two concerns:

- The GEF funding overall, and for certain components in particular (like the local information campaign and regional dissemination) seems fairly high, even taking into account that Hanoi is a city of about 4million residents. It may all be needed but it is hard to gauge this from the level of budget detail provided.

In consultation with the GEF Secretariat, the budget for GEF resources has been reduced.

- In component 1a, the BRT-related activities apparently will focus mainly on pedestrian/NMT access. Component 1b will cover station, terminal and interchange design. These are all very important, but we would also hope to see GEF project involvement in the broader issues of system design and operation. It is indicated that a general system plan has already been developed (at least for the first 2 corridors) but presumably there remains a detailed engineering plan to develop and perhaps critical issues such as sizing the passenger capacity of the system, ensuring efficient operation, etc. There may also be planning work needed for later system expansion, and support for implementing those phases. It would seem very useful

for the GEF-funded project to play a role in these aspects through to the fully developed system. Such activities may already be included but we didn't see it..

**These are excellent suggestions. Hanoi has been interested in using GEF co-financing to pay for some of the BRT detailed design but this request has not been fully included in the GEF request because of lack of clarity whether such a request would meet OP11's concerns with 'incrementality'. Component 3C on the PTA strengthening does include some support for the kind of operational planning that is suggested above. In addition, Component 3D includes some support for an extension of the system.**

Overall we support the proposal and believe it can lead to a successful implementation of sustainable transport in Hanoi.

## Annex 18: Stakeholder Participation Plan

## VIETNAM: Hanoi Urban Transport Development Project

A Public Participation Strategy is considered an important element of the BRT project component. This busway system would have significant benefits for many residents of Hanoi at present and is key to the sustainable development of the city in the future: current riders will see a higher level of service, congestion will be alleviated as riders switch from private modes to PT, the growth of the city can be facilitated along the corridors as accessibility increases and consequently land values outside the center can increase. Still, the introduction of a BRT system could face significant challenges. Some groups, such as motorcycle riders, may perceive that they were better off before road space was dedicated for use of buses, and feel that the improved BRT service is still inferior to bus services and car usage. Others may perceive glitches in the concept or implementation. In addition, it is important to ensure that Hanoi residents and decision-makers perceive the BRT in a manner consistent with what is being planned, that is as a high-quality, efficient, rapid, and modern mass transit system. A strategically planned and well-executed public consultation strategy is an important element of Hanoi's plan to manage these challenges.

Based on the experience of previous successful efforts to introduce comparably significant changes in the urban transport environment, the Stakeholder Participation Plan will include the following:

- Consulting the public on the BRT, and seeking their input primarily through scheduled "town hall" meetings;
- Generating public awareness, involvement and enthusiasm and transforming that into sustained political support for the BRT; and
- Instituting ways to generate interest in BRT through the media.

Language, culture and context are also important elements of any effective consultation strategy. Good connections with Hanoi media and Community Associations will be valuable, particularly given the need to raise the media profile of the proposed BRT system with limited resources.

During project preparation, the Stakeholder Participation Plan was informed by two groups:

1. Focus groups from a wide range of stakeholders in Hanoi that will be affected by BRT; and,
2. Selected stakeholders including special interest groups, the public sector, media and the private sector.

Results from each group are outlined in the section below.

### *(1) Focus Groups*

Based on the current state of public transport usage in the city, the project selected and interviewed 170 persons and classified them into eight categories of focus groups as shown in the Table A18.1.

**Table A18.1** Selected Focus Groups and Number of Participants

| Focus groups | No. of people |
|---|---|
| Student group | 34 |
| Retired group | 10 |
| Motorcycle riders group | 51 |
| Bus riders group | 16 |
| No private means of transport group | 21 |
| Inhabitants of new urbanization group (*where BRT is* | 9 |
| Small business around Hoan Kiem lake | 10 |
| Inter-provincial passengers | 19 |
| **Total** | 170 |

Source: BRT feasibility study, 2006

*Evaluation of Focus Group's Interest*

The opinions and feedback of interviewees were collected as the basic input for the formulation of the Public Consultation Strategy for BRT. As this is a new public transport mode in Vietnam, the result of the stakeholder interviews needs to be realistic and properly reflected. After asking general questions about the existing bus system, an introduction about BRT was made by the consultant before inviting the interviewee's opinion. The interests of the respondents about the existing bus system are summarized in Table A18.2.

**Table A18.2:** Focus Group Responses about Existing Bus System

| Criteria | Evaluation of people (%) | | | |
|---|---|---|---|---|
| | Good | Acceptable | Not good | No idea |
| The availability (in term of number of routes) | 14.7 | 45.8 | 34.7 | 4.8 |
| Service provided by bus staff | 12.9 | 49.4 | 32.3 | 5.4 |
| Safety of bus | 17.6 | 35.9 | 41.8 | 4.7 |
| Quality of bus (appearance and hygienic) | 15.3 | 51.2 | 30.6 | 2.9 |
| Ticketing system | 14.7 | 49.4 | 27.1 | 8.8 |
| Ticket price | 27.6 | 53.5 | 12.3 | 6.6 |
| Transit time for load and unload pax. | 18.8 | 44.1 | 32.3 | 4.8 |
| **Travel time** | 12.9 | 51.8 | 34.1 | 1.2 |

Source: BRT feasibility study, 2006

*Overall Findings from Focus Groups*

The focus group participants are recruited by random selection, indifferent to gender, age or occupational differences. Information about interviewees is presented in **Table A18.3**. Detailed responses from interviewees are summarized in **Table A18.4**.

In the survey, the motorcycle rider group constitutes 53 percent of the total sample, followed by the current bus riders group (23 percent), walking group (approximately 11 percent), while the remaining 13 percent are those who travel by other modes such as car, bicycle, motorbike, taxi or share rides with others. Although the biker group makes up the major portion, not all of them are satisfied with their current transport situation; around 30 percent of them are concerned about the lack of safety due to congestion and conflicts with public transport users. The survey result also showed promising potential of public transport development: over 70 percent of interviewees said they would be likely to use bus to travel around if bus services were improved; up to 95 percent expressed their desire for shorter waiting times; 69 percent of interviewees are willing to wait for bus only up to five minutes, 26 percent are willing to wait up to 10 minutes, and only four percent are willing to wait up to 15 minutes.

**Table A18.3:** Characteristics of Interviewees

| **Age** | **Number of interviewees** | **Occupation** | Number of interviewees |
|---|---|---|---|
| 18-25 | 71 | Office staff | 43 |
| 26-33 | 42 | Student | 58 |
| 34-41 | 22 | Worker | 7 |
| 42-49 | 7 | Governmental officer | 20 |
| Over 50 | 28 | Retired | 22 |
| | | Private business | 20 |
| | 170 | | 170 |

Source: Own estimates

**Table A18.4**: Summary of Responses

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Current means of transport[1]** | *Motorbike* | *Bicycle* | *Car* | *Bus* | *Walk* | *Honda om* | *Depend on other* |
| | **90** | **12** | **6** | **39** | **29** | **7** | **15** |
| **Likely use of public transport** | *Yes* | | *No* | | *Undecided* | | |
| | **102** | | **20** | | **48** | | |
| **Willing time to wait for bus** | *≤ 5 minutes* | | *10 minutes* | | *15 minutes* | | |
| | **117** | | **45** | | **8** | | |
| **Finding information about public transport** | *Mass media* | | *Web* | *Asking experience of current bus riders* | | *From street guide board* | |
| | **104** | | **15** | **75** | | **45** | |
| **Knowledge about BRT system[2]** | *Mass media (newspaper, TV, web)* | | | *Abroad* | | *Unknown* | |
| | **52** | | | **34** | | **86** | |
| **Support for private lane** | *Support* | | *Oppose* | | *No comment* | | |
| | **132** | | **11** | | **27** | | |
| **Likely use BRT in the future** | *Yes* | | *No* | | *Undecided* | | |
| | **110** | | **7** | | **53** | | |
| **Personal view about BRT** | *Supportive* | | *Opposing* | | *Need further study* | | |
| | **102** | | **5** | | **63** | | |

Source: BRT Feasibility Study, 2006

Notes: [1] **Some data might sum to g**reater than the actual samples because 22 interviewees use more than one means of transport

[2] Some data in this part might sum to larger than actual samples because some use more than one tool search channels.

### *(2) Selected Stakeholders*

Ten individual interviews with representatives of various organizations and business associations were conducted by the Consultants. The interviewed representatives include the following:

- Hanoi Police Service's representative
- Media representative
- Social community representative
- Transportation representative
- Representative of Vietnam Association for safe Water and Environment Sanitation
- Representative of Business Community

- Representative of the Government
- Representative of Hanoi People's Committee
- Representative of Vietnam Road Administration
- Representative of Hanoi Television.

Generally, representatives expressed their support to the development of urban public transport in general and public passenger transport in particular. For the BRT, most of representatives showed their concern about the limited space for transportation and the feasibility of dedicated BRT lane.

*General Conclusions of Individual Interviews*

Although all of the interviewees support the development of public transportation and limiting private transport to alleviate traffic congestion, most of them express their concern that BRT's exclusive lane will further limit the space on a number of streets. Representatives from transportation management authorities express two concerns about the development of BRT in Hanoi: that there is no space for BRT's exclusive lane, and that transportation habits of the Vietnamese differ from others. One of the advantages of BRT system is to provide access for disable people. However, the Secretary General of Hanoi Sport Association for the Disabled quoted that Vietnam does not have appropriate transportation infrastructure for disabled people. Some representatives do not directly express their opposition to the BRT system but they believe that BRT is more feasible and practical if it is developed from ring roads directing to the center.

In conclusion, the personal interviews indicate that representatives of professional and social organizations have limited knowledge of BRT systems in general and of the BRT project proposed for Hanoi city in particular. The public outreach campaign should be directed not only to the general public, but also targeted to professional and social organizations to respond to their particular concerns. This targeted outreach should provide their members with a better knowledge of the BRT system characteristics, including technical (infrastructure and equipment), operational, social, economic, and financial aspects, and its positive impacts and advantages to the city.

*Consultations with Vietnam Association for the Handicapped*

Consultations have been held with the disabled, which had been identified as a key stakeholder group during project preparation. Representatives of HUTDP have made a presentation at a meeting of the VAH (Vietnam Association for the Handicapped) which highlighted BRT and implications for the disabled. Regular meetings have subsequently been held with the VAH to inform them of HUTDP's progress and to ensure that they become a constituency.

This work has led to further discussions at the Hanoi Disability Forum, which has allowed for an enhanced understanding of concerns and ensured that these concerns are addressed in the project's design. Such outreach to the community is ongoing, with the PMU being introduced to the VAH and taking the lead on continuing to be responsive to the concerns of various stakeholder groups.

**Elements of the Stakeholder Participation Plan**

The Stakeholder Participation Plan will be implemented by the BRT Consultation, Communications and Media Strategy (see Component 1.B under Annex 4). The plan focuses on two key elements, both allowing stakeholders to participate in the implementation of BRT in Hanoi. The public involvement strategy is intended to enable public participation in key decisions related to the BRT System, to keep the public updated on the progress and key decisions on implementation, and provide a framework to incorporate public feedback into all elements of system design and operation. In addition, the subcomponent is intended to support a media management strategy, which will provide media content and appropriate materials for TV, radio, print, and public billboards and facilitate the media's ability to promote the BRT concept. See Annex 4 for complete details.

***(i) Public Consultation and Communication Strategy***

(a) Series of stakeholder consultations targeting input from focus groups, and consultations with street (neighborhood) communes and shopkeepers associations and guilds in affected areas
(b) Stakeholder consultations targeting input from Non-Governmental Organizations such as VNAH, Asia Injury Prevention Foundation, National Coordinating Council on Disability of Vietnam, etc.
(c) Build up BRT Website Organize a "Design BRT Website" Contest
(d) Organize Contests of "BRT's Vietnamese Name", "BRT's Logo" and "BRT's Slogan"
(e) BRT - Accessible Transit"
(f) Organize training course on "Customer Serving Technique" for bus and BRT drivers
(g) Expand "Painting Traffic Lanes" model on BRT routes
(h) Publicize "Bus Priority Signal System"
(i) Mobilize "BRT Fund" and "BRT Week" in Hanoi
(j) Organize seminars and/or conferences/ Conduct sociological research.

***(ii) Media Relations Strategy***

(a) Press Conferences
(b) Disseminate Press Release
(c) TV Reporting
(d) Advertise the BRT
(e) Monitor media coverage.

## Annex 19: Governance Framework

## VIETNAM: Hanoi Urban Transport Development Project

### General Overview

1. The borrower (led by HPMU) has developed a Governance and Transparency in project management Action Plan (GTAP) in consultation with the Bank. The Borrower's plan focuses primarily on actions that Hanoi PC and the HPMU commit to, in order to minimize waste and corruption and ensure timely use of project resources. The Bank is supporting the Borrower's action plan with a series of complementary actions in the form of capacity building, training, and enhanced Supervision to further enhance the governance framework. This section summarizes the key features of the GTAP (which is still being finalized) and the governance framework for the project. A copy of the final GTAP will be a part of the Project Implementation Plan and will need to be duly approved and adopted by the Borrower prior to effectiveness.

2. The objective of the plan is to identify risks related to corruption and waste and develop mitigation measures that might normally be beyond the standard control systems employed by Bank-financed projects. The plan was developed on the basis of:

- An **initial anti-corruption action plan developed by the HPMU in response to internal guidelines** in the wake of a high-profile case of alleged corruption in PMU18, a project management unit under the national Ministry of Transport to minimize waste and eliminate corruption. This plan, developed by the PMU independently of the Bank in the summer of 2006 provided the initial basis of discussions on governance. This plan focused primarily on increased review and an enhanced focus on financial management, existing controls and management supervision.
- A **risk mapping** that identified corruption and waste risks in different elements of the project cycle (design, procurement, financial management, implementation, and operation). This risk matrix was initially developed by the HPMU based on extensive discussions and feedback from the Bank. This discussion reflected the findings of the 2006 fiduciary approach paper developed to frame the Bank's dialogue on governance with the government in Vietnam.
- Revisions in the plan based on extended discussions and extensive feedback from the Bank on good practice in developing effective governance frameworks. The focus of the Bank's efforts has been to develop an **implementable action-oriented plan**, composed of actions that could be implemented (in a measurable way) at the project level.
- A **workshop hosted by HPMU** in Hanoi during appraisal. The Bank attended this workshop in which the HPMU introduced the GTAP and its key features to city agencies. This workshop was attended by all relevant stakeholders including TUPWS, Finance, HAPI, Hanoi treasury, representatives of the wards affected by the project, the Hanoi PC's Inspection Agency, civil society organizations including the Women's Union, the Veteran's Organization and several representatives from the Fatherland Front, and the media. The workshop was extensively covered in the local Hanoi press and the media expressed significant interest in the plan and on following up on its implementation.

### Principles underlying plan development

3. The key risks identified and addressed by the Project governance strategy include:

- Collusion – Bidders are manipulated by an 'arranger' for small NCB contracts;
- Bid evaluation manipulation – Evaluation scores are skewed to influence award of contract;
- Bid process - Interference with bid submission, substitution of documents or misreading of bid prices;
- Contract processing - Bribes to facilitate processing of contract award and subsequent payments;
- Preferred Suppliers – Nomination of preferred agents for key contract services such as bank guarantee, security, indemnity insurance, who provide kickbacks to project-level officials;
- Contract Variations – The size of some variations is inflated through estimates of quantities for pay items that are difficult to confirm or audit, such as repairs, excavation, landslide removal, etc. Usually results from collusion of contractor with officials, but may involve collusion of supervising consultant also;
- Implementation Quality Management – Falsification of quality control test results, defect or repair inspections, etc., through collusion between contractor and supervising officials or consultant.
- Payment Processing – Certification of invoices for payment may involve delays and bribes to project officials or supervising consultants.
- Resettlement compensation – Displaced and affected people are not paid the full amount due to them.

4. The borrower's GTAP details a series of actions, controls and activities planned for each stage of the project implementation cycle to minimize the risks of corruption, collusion and waste. Much of the plan draws on the government's own plan, focusing on training, capacity building, and review actions that would increase the overall quality of financial management, procurement and implementation and ensure close adherence to Bank procurement and financial management policies. In addition to these necessary and important actions, the governance framework draws on six key principles:

a. **Procurement Design** to mitigate corruption;
b. Enhanced **transparency and disclosure**
c. **Civil society oversight**
d. **Integrated technical quality audits**
e. A fully defined **and implemented complaint handling mechanism** with clearly identified sanctions and remedies.
f. **Enhanced supervision** by the Bank

5. **Procurement design.** The Bank's experience in Vietnam has been that collusion in small NCB and shopping contracts represents a key risk. A 2003 fiduciary review of 400 contracts in Vietnam under six World Bank Projects uncovered no irregularities in financial management or disbursements and found the overall quality of the physical works under the credits acceptable. However, the review found that most of the transactions reviewed had indicators consistent with collusion.

6. ICB represents a significant and important instrument to address the risks of collusion. Collusion is harder to plan and successfully implement in an ICB setting where the barriers to entry are lower and it is more difficult to know potential bidders in construction contracts in advance. Recent experience in road construction projects suggests that international contractors

have enough interest in Vietnamese contracts to make ICB truly competitive. In order to maximize the benefits of ICB procurement, the civil works and equipment packages in the project have been designed around a **limited number of ICB packages**. No Bank-financed NCB works packages are planned except for two small specialized contracts for supporting infrastructure for the resettlement site (for electrical network and constructing a short road connection to the main road).

7. **Enhanced transparency and disclosure.** Undue secrecy tends to foster corruption. The borrower's GTAP puts a focus on enhanced disclosure and transparency and lays out a proactive plan to ensure that knowledge about the project, including key project documents, is made available to the public.

8. A project website being developed by the HPMU using domestic resources prior to effectiveness is the central focus of this effort. The website will be maintained and updated by HPMU staff and offer unrestricted access to all key project documents to the public. The website will provide access to

- Monthly updated information on all project activities including all procurement plans, invitations for bids, bidding opening results, bidding results/contract award information, procurement policies, and related project documents including the borrower's GTAP;
- Detailed designs, particularly architectural drawings that are of interest to the public;
- All financial and technical audits, including audits with qualifications;
- Resettlement plans, policies, activities, and compensation related issues;
- Details (names, addresses) of HPMU staff and avenues for the public to ask questions, make claims, suggestions and complaints.

9. Outreach program. The HPMU will hold regular monthly open meetings to explain and answer questions of civil society organizations, the media and the public. The meeting schedules will be publicized on the project website. The importance of such outreach, especially on issues related to resettlement, was highlighted by participants in the GTAP workshop.

10. Enhanced transparency in all aspects of the procurement process. The GTAP spells out a series of measures to ensure transparency and fairness in the bidding process including requirements on advertising, availability of bidding documents, prior definition of selection criteria, and a structured role for civil society in supervising procurement.

11. **Civil Society Oversight.** Civil society oversight in procurement, resettlement and implementation activities is a key feature of the GTAP. Civil Society Organizations (CSO), completely independent of the government establishment, are still relatively rare in Vietnam. However, organizations such as the Fatherland Front, Veterans Organization, the Women's union and the media provide active oversight on government activities. Decentralized government bodies such as local wards, communes, and community boards are also important stakeholders from an oversight perspective. These CSOs and local government bodies will provide oversight on project implementation. A detailed protocol governing the oversight process is being finalized based on comments received from representatives of these bodies who attended the project's GTAP workshop. The comments at the workshop indicated:

- Resettlement activities were felt to be particularly vulnerable to corruption, and the need to ensure effective oversight of resettlement and resettlement compensation was strongly emphasized;
- There was the need to properly define a structured role for CSOs and ensure that CSOs were properly trained and informed of procedure; and
- In some cases effective oversight might need some form of formal contract, and even a paid contract. It was noted that independent oversight was both important and complex for large projects such as HUTDP, and a contractual relationship may have value to ensure that effective oversight was provided.

12. The current GTAP reflects the perception of resettlement being a critical source of corruption risk and suggests measures including the appointment of a 'site clearance board' and requirements for the board, along with local authorities to witness compensation payment.

13. **Independent technical audits.** International experience suggests that independently conducted *technical performance* audits (distinct from but similar in principle to independent *financial* audits) can play an important role in ensuring high quality outputs. The experience with the previous Bank financed urban transport intervention, UTIP, provides an example of the public perception implications of lapses of quality. The Hanoi component of UTIP was inspected by an Inspection Panel commissioned by Hanoi PC. The thrust of this panel's findings (such inspections are a well established procedure in Vietnam) were on defects in quality of construction such as spotty sidewalk pavement quality and durability. Though no major irregularities were found, the press extensively reported the relatively minor defects, with material debilitating effects on the focus and productivity of all related officials. In response to that experience, Hanoi will hire independent technical consultants to perform an annual audit of all works financed by the Project. The technical auditors will be financed from the Credit.

14. Terms of reference for the technical audit are being finalized. Comments of the Inspection Board under Hanoi PC on these terms of reference are being sought. A representative of the Inspection Board attended the Project GTAP workshop and expressed the Board's cooperation with the Project's GTAP-related efforts.

15. **Complaint handling system and identified remedies.** A well defined complaint handling system is a critical element of any governance framework. The importance of fully defining this system was reinforced in the workshop. This system will include clear procedures for bidders to complain, and for PMU to handle bidders' complaints (including appeals) in an effective and timely manner. On remedies, mechanism and procedures for sanctioning bidders, staff and officials engaged in collusion/corruption are being established. Specifically, the complaint handling system includes:

- Details of a variety of modes for receiving complaints including phone hotlines, the project website and in-person complaints.
- The protocol for processing complaints will be properly publicized including standards for service, and indicators to measure the performance of authorities in addressing complaints.

- Procedures and rules for escalating unsolved problems and guidelines on sanctions and remedies.

16. **Enhanced supervision** by the Bank is an important complement to the actions specified by the borrower in the GTAP. The Bank's role includes a focus on:

- **training and capacity building for financial management and procurement** including training, and the development of the financial management software; and
- **Strict adherence to Bank policies and controls** relating to procurement and financial management.

17. In this context delays in contract signing and disbursement procedures will be a particular focus of Bank attention. International experience suggests that delays in contract signing after selection of contractor, and delays in payment of invoices are often indicators of implementation agencies soliciting illegal kickbacks from contractors. The Bank noted that as part of the enhanced focus on governance, such delays would be particularly scrutinized, with specific attention given to:

- **Requests for extensions to bid validities**. It was agreed that the Bank would provide no-objections to requests for extensions to bid validities only as an exception, based on a case-by-case review of the causes for delays in contract signing.
- **Disbursement delays.** The Bank's experience has been that payments under Bank-financed contracts are significantly delayed due to inconsistencies between the terms of the signed contracts and the payment certification processes used. Contractors are paid only after payments are certified (after many other certifications) by the State Treasury - which is directly under the National Ministry of Finance; i.e. not under the Hanoi PC. Further, the State Treasury often does not seem to honor the terms of the signed contracts - rather than paying against deliverables, or against the terms of contracts – it asks for significant additional information. International contractors are not aware of these conditions when they sign the contract (these conditions are not part of the contract signed) and never have a full understanding of them. To the contractor these conditions often seem ad-hoc and raise the possibility that the PMU is looking for extra-contractual payments. In some cases the information the Treasury asks for is proprietary. The Bank is discussing this issue with the Ministry of Finance and providing the Ministry input for a planned update of disbursement guidelines for donor-financed projects.

## Annex 20: Map

## VIETNAM: Hanoi Urban Transport Development Project

MAP SECTION

JBIC assisted to Nhat Tan Bridge

Hồ Tây (West Lake)

QUẬN TÂY HỒ

QUẬN TÂY HỒ

CT1 RESETTLEMENT SITE

NUT GIAO BUOI

CAU GIAY DISTRICT

QUẬN BA DINH

Song To Lich

NUT GIAO CAU GIAY

KIM MA

HOAN KIEM

Hoan Kiem Lake

Sông Hồng (Red River)

QUẬN HOAN KIEM

QUẬN ĐỐNG ĐA

Bay Mau Lake

HOA MUC

QUẬN HAI BA TRUNG

KHUAT DUY TIEN

QUẬN THANH XUÂN

NGA TU VONG

HADONG

LINH DAM

DEPOT

QANG LAI

VIETNAM

# HANOI URBAN TRANSPORT DEVELOPMENT PROJECT

- BRT SHARES THE LANE
- SEGREGATED BRT LANE
- INTERCHANGE
- RING ROAD 2 PROJECT COMPONENT
- PROJECT INTERCHANGES
- CT1 RESETTLEMENT SITE
- UPGRADE EXISTING AIR QUALITY MONITORING STATIONS
- TERMINAL
- PARKS
- GREEN AREAS

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KILOMETERS

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