# CHALLENGES AND SOLUTIONS FOR SUSTAINABLE URBAN TRANSPORT IN CITIES OF VIETNAM

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## 1. OVERVIEW OF URBAN TRANSPORT IN VIETNAM

As of 2015, Vietnam's urban network has been extended to 765 cities and towns (2 special cities including Hanoi and Ho Chi Minh City; 3 type-I cities under the management of Government including Hai Phong, Da Nang, Can Tho and 9 type-I cities under the management of Provinces, others are of type II, III, IV and V). Urban areas contribute annually about 70-75% of GDP of the whole country. Urban Systems has been formed with clearerfunctional distinction according to national, regional, provincial and district levels.

Over the years, Vietnam has witnessed a rapid development in the urban transportsystem. Many modern urban transport infrastructures have been invested and operated;plenty of means of public transport, modern facilities have been used in order to improve the quality of services to meet the travellingneeds of urban population.

***Transport Infrastructure system of urban areas*** throughout the country in general and 05 big cities (Hanoi, Ho. Ho Chi Minh City, Hai Phong, Da Nang, Can Tho) in particular havebeen paid much attention for investment and development in recent years. Transport infrastructure has been invested for newly construction or upgrading of existing facilities. Especially, Hanoi and Ho Chi Minh City have been invested for the construction of the slight structure overpass, elevated highway, ring roads, etc.

However,the structure of urban transport networkhas developed mainly under the uni-directional radial structure and herringbone structure along the national highway, typically urban centers along Highway No.1 from the North to the South over 2,300 km long. This structure has set many restrictions and nowadays many citiesare to restructure the urban road network by adding the urban ring roads and radial roads in many directions.

Along with the structural limitations, density of urban road is irregular and not high, the size of urban road network is small[2], intersections are

unintentionally support for personal transport instead of public transport. Urban arterials primarily consist of 3-4 lanes, and only 3 lanes for inter-regional roads.

Currently, land for urban transport is too small compared to urban centers in the region and in the world (both dynamic and stationary transport: other countries 20% - 30%, Vietnam 6% - 15%). Other transport infrastructure as walking space and space for terminals, parking is also very limited. Space for pedestrians is unsufficient, especially in big cities like Hanoi and HCM City, many sidewalks in the downtown areas are used for the business purpose. Space for the bus station and car park is very small compared to the developed countries.

In addition, the process of urbanization is happening quickly leading to the increasing demand in travelling, thus to the rapid increase of the transport means, especially personal vehicles. As a result, the rapid development of transport infrastructure did not catch up with the growth of transport means. To 12/2015, total number of road motor vehicles registered in the country is around 46 million vehicles (including 2.5 million cars, 43.5 million motorcycles), account for 90% in urban areas. Especially, the largest concentration of vehicles is in Ho Chi Minh City with 7.4 million vehicles (including 562,185 cars and about 6.9 million motorcycles) and Hanoi with 5.8 million vehicles (including 376,417 cars and 5.4 million motorbikes), not to mention a large number of vehicles from other provinces going in and out the city during the day.

***Public transport systems*** in urban areas of Vietnam were paid attention to be invested and developed, focussing on buses (BRT and urban railway are under construction in Hanoi and HCMC). However, public transport at urban areas meet only partially the travelling demand of urban people, specifically, public transport meet only 14.2% demand in Hanoi and 7% in Ho Chi Minh city, and under 1% in remaining cities.

Vietnam has 58/63 provinces with public passenger transport system by bus. Hanoi and HCM city are the cities which most develops bus system. Five provinces including 04 northern mountainous provinces such as Bac Kan, Ha Giang, Lai Chau, Yen Bai have no bus for specific conditions of the terrain, difficult transportation, sparsely density, and 01 southeastern province, Binh Phuoc, had the first bus in 2012 but ineffective activities, so should be stopped.

In 2015 there were a total of 654 bus routes with a total length of 25.693 km, including 521 urban routes with 19.241 km length, 133 km adjacent route with 6.020 km length. Central area in Hanoi, Ho Chi Minh city had good coverage by a route network factor (number of kilometers of bus route/ number of kilometers of bus can operate) is above 0.9 and more than 95% of the

population is served by public passenger transport service. The suburbs and other provinces and cities have poor coverage.

Transport volume reached about 1.06 billion passengers/year, including Hanoi and Ho Chi Minh city accounted for 76% of the total volume to 803.4 million passengers. Transport market of public passenger transport by bus remains low, in Hanoi around 8.58%, Ho Chi Minh City about 7%; Hai Phong, Da Nang, Can Tho city about 1%.

Total buses in 2015 are 9,030 units which are mostly small and medium buses (with 78.14%). Number of large buses ismainly in Hanoi and Ho Chi Minh City wheredemand for passenger transport is larger. Average life of vehicles is 8.5 years in nationwide. Some cities have old vehicles such as Ho Chi Minh City, Tra Vinh, Ben Tre (11 years), Vinh Long (12 years), Can Tho (13 years), Quang Ninh (17 years), Ninh Thuan (20 years). Most vehicles do not use clean fuels and have no support for people with disabilities (only Ho Chi Minh City and Ha Nam bus using clean fuel with the number of 130 buses, Ho Chi Minh City, Lao Cai, Bac Lieu buses supportingdisability people but only low-floor buses).

**The problems and challenges that urban transport system is facing:**

***- The speed of development of road infrastructure (roads, static transport system, etc.) is slow, unable to catch up with the growth of the vehicles*** as well as the travel demand of people, especially in urban areas of big cities (Hanoi, Ho Chi Minh City, Hai Phong, Da Nang, Can Tho).

***- The growth of personal vehicles is still high*** (especially motorcycles and cars) despite the finance policy to control its growth (i.e increase the excise taxes, registration fee, etc.).

Currently, the number of motorcycles and motorbike used as mentioned above are one of the main sources of pollution emissions. In Hanoi and Ho Chi Minh City, the quantity of motorcycles, motorcycle contain up 95% of total vehicles, consume about 56% of gasoline (excluding diesel) but discharge to 94% HC (Hydrocarbure), 87% CO, 57% NOx và 33% PM10 (Particulate matter) of total emissions released from motor vehicles (including gasoline and diesel).

***- Passenger public transport system has not yet met the travel demand and the explosion of personal vehicles***, especially in Hanoi and Ho Chi Minh City, the progress of construction and operation for the big volume public transport (BRT, urban railway) missed the deadline. The productivity of buses in urban areas tends to be restrain and even going down in some cities ( the productivity of Hanoi buses reduced 0, 35% in 2015 compared to that of 2014).

***- The planning and management of urban transport*** is inadequate in urban areas (the projection target is high but fail to obtain).

***- The system of urban transport infrastructure is still in the process of investment and construction (many key projects are under construction and in planning),*** especially in Hanoi and Ho Chi Minh City, construction projects tend to be increased thus causing traffic jams.

***- The policies of Vietnamese Government, people's committees of provinces and cities do not target to control the personal vehicles in the traffic system.***

## 2. CURRENT POLICY ON URBAN TRANSPORT

In the current context, the Government and People's Committees of provinces and cities have paid much attention in the development of national transport systems in general and urban transport systems in particular, through the development of schemes and planning, together with the promulgation of the main mechannism and policies. Regulation content on urban transport development in documents prescribes mainly the market share of public transport in big cities; policy priorities for development of public transport; portfolio of projects, investment projects, etc.

Some schemes, planning and policy mechanisms have been enacted in recent years, specifically as follows:

- Road Traffic Law (Law No. 23/2008 / QH 12 dated 13/11/2008).

- Decision No.280/QD-TTg dated 08/03/2012 of the Prime Minister approving the Scheme on development of public passenger transport by buses from 2012 to 2020.

- Decision No. 355/QD-TTg dated 25/02/2013 of the Prime Minister on approving the adjustments of Transport Development Strategy in Vietnam to 2020, with a vision to 2030.

- Decision No. 356/QD-TTg dated 25/02/2013 of the Prime Minister on approving the adjustments of Master Plan for Development of Road Transport in Vietnam to 2020, with a vision to 2030.

- Decision No. 318/QD-TTg dated 04/03/2014 of the Prime Minister approving the Transport Development Strategy until 2020 and vision to 2030.

- Document No. 148/TTg-KTN dated 27/01/2014 of the Government on the implementation of appropriate solutions for the development of transport modes in big cities.

- Decision No. 13/2015/QD-TTg dated 05/05/2015 of the Prime Minister on mechanisms and policies to encourage the development of public passenger transport by bus.

- Decision No. 568/QD-TTg of the Prime Minister dated 04/08/2013 approving the adjustments of Master plan for Transport Development of Ho Chi Minh City to 2020, with a vision after 2020;

- Decision No. 519/QD-TTg dated 31/03/2016 of the Prime Minister approving the Master plan for Transport Development of Hanoi to 2030, with a vision to 2050.

- The other relevant documents.

Futhermore, the Government, the Ministry of Transport and the People's Committees of provinces and cities have been and will implement a series of urban transport projects contribute to the development of key sustainable urban transport system. Basically the key projects currently concentrated in large urban areas mainly in Hanoi and HCMC. (**Details of the key projects in the Annex)**

## 3. PERSPECTIVE SOLUTIONS, POLICIES AND DEVELOPMENT OF URBAN TRANSPORT

### a. The goal of urban transport development:

- Transport in the urban areas of Vietnam is developed with the following key objectives:

- Development of urban transport must be associated with socio-economic development strategy of the country and individual localities;

- Development of appropriate infrastructure system for urban transport and public transport;

- Ensure land for urban transport from 16-26%;

- For big cities, especially Hanoi and Ho Chi Minh City, promoting bus system; speedy investment in the construction of public transport services such as elevated railway and metro;

- Appropriate policies to manage and limit the growth of private vehicles in big cities such as Hanoi, Ho Chi Minh City and the type-I localities directly under the government.

### b. Solutions and policies for development of urban transport:

❖ ***Solutions and policies for management and planning of urban transport:***

- Review and complete institutions to improve the quality of planning and urban transport planning. One of the principle is to develop the Planning Law with the general scope covering all kinds of planning on a national scale.

- Urban spatial planning to ensure economic-ecological efficiency, convenient for public transport development, increase the attractiveness, competitiveness and environmental friendly, saving travel time of residents.

- Complete and develope regulations, standards and guidelines for urban transport planning.

- Develop procedures and standards for integrating GIS in planning and urban management.

- Promote the formation of the Center for Management and Controlling urban transport in major cities.

❖ ***Solutions and policies on land development fund urban transport:***

- Issue land management policies for transport in urban areas.

- Regulate the land ratio for transport in old urban areas.

- Investment policies for multifunctional projects combining public and business on urban land.

❖ ***Solutions and policies on investment and development of urban transport:***

- Concentrate investment on infrastructure for urban transport and public passenger transport.

- Prioritize the development of public transport systems, especially large volumes of passengers transport means (bus rapid transit, urban rail) in Hanoi and Ho Chi Minh City. Promulgate policies to encourage the participation of all economic sectors to invest in the development of the system of public passenger transport.

- Organize and manage the urban transport in a scientific way, using technology and modern equipment such as signals, control stations, camera systems, intelligent transportation systems (ITS), etc to make smooth traffic protection, safety and environmental protection. Upgrading and expanding the two traffic control centers of Hanoi and Ho Chi Minh City.

- Issue policies for subsidies (urban areas with existing supported policies need to review and adjust prices accordingly to reality) to develop VTHKCC system.

- Research to make a Fund for Investment and Development of urban infrastructure in general and transport infrastructure in urban areas in particular.

- Accelerate the research on policies to expand revenue sources and collection methods in the large urban areas.

- Develop policies for urban infrastructure development with many capital sources, encouraging the participation of non-state sector.

❖ ***Solutions and policies for sustainable development of urban transport in order to protect the environment:***

- Promulgate regulations on noise, emissions and vibration for vehicles in urban transport.

- Encourage the development of public passenger transport, control private vehicles to save fuel and reduce environmental pollution.

- Investment policies with priorities to invest new public transport means with consistent engine power, using clean fuel.

- Policies to encourage the development of Non-motorize vehicles.

**c. Perspective orientations for urban transport development:**

- To prioritize investment in the development of urban transport systems with rapid and sustainable pace in order to meet the needs and pave the way for socio-economic development.

- To concentrate on renovating and upgrading the existing urban transport infrastructure system, new construction and complete the ring road system, the main road, etc. to create a synchronization connecting the modes of transport between urban transport with national transport.

- To apply science and technology in the organization of urban transport management.

- To develop urban transport systems towards using public passenger transport on the principle of provision, and controlling the private vehicles in traffic system.

- To encourage and prioritize the construction of the terminals system and car parks in urban areas.

*In order to best solve the traffic problems in urban areas of Vietnam in general and in the big cities (Hanoi, Ho Chi Minh Hai Phong, Da Nang, Can Tho) in particular, it is recommended to issue promptly and synchronously policies: gradually raise the market share of public transport; limiting the*

*growth of private vehicles; rehabilitation, upgrading and construction of transport infrastructure; improve the efficiency of the organization, management and operation of urban transport; education advocacy to raise awareness of people in traffic participation. However, urban transport problem in Vietnam is a difficult task to perform synchronization solutions, so we need to develop roadmaps in stages and selected on the basis of policies which can be implemented immediately and soon applied.*

## APPENDIX 1

## LIST OF URBAN RAILWAY AND BRT PROJECTS FOR THE PERIOD 2016 - 2020 IN HANOI

| No | Content | Implementation | Comments, Evaluation |
|---|---|---|---|
| **I** | **URBAN RAILWAY** | | |
| 1 | Route 1 (Ngoc Hoi - Yen Vien - Nhu Quynh) | | |
| | - Line Ngoc Hoi - Yen Vien | Not yet | 2020 |
| | - Line Gia Lam - Duong Xa | Not yet | 2030 |
| 2 | Route 2 (Noi Bai - Thuong Dinh - Buoi) | | |
| | - Line Nam Thang Long - Tran Hung Dao | Not yet | 2020 |
| | - Line Tran Hung Dao - Thuong Dinh | Not yet | 2020 |
| | - Line Thuong Dinh - Road 2,5 - Buoi | Not yet | 2030 |
| | - Line Noi Bai - Nam Thang Long | Not yet | 2030 |
| 3 | Route 2A | | |
| | - Route 2A (Cat Linh - Ha Dong) | In progress | 2017 |
| | - Extending Route 2A to Xuan Mai | Not yet | After 2030 |
| 4 | Route 3 (Troi - Nhon - Yen So) | | |
| | - Line Nhon - Hanoi rail station | In progress | 2018 |
| | - Line Troi - Nhon | Not yet | 2030 |
| | - Line Hanoi rail station - Yen So | Not yet | 2030 |
| | - Extending Route 3 to Son Tay | Not yet | After 2030 |
| 5 | Route 4 (Me Linh - Sai Dong - Lien Ha) | Not yet | After 2030 |
| 6 | Route 5 (Văn Cao - Hoa Lac) | | |
| | - Line Van Cao - Road 4 | Not yet | 2020 |

| No | Content | Implementation | Comments, Evaluation |
|---|---|---|---|
| | - Line Road 4 - Hoa Lac | Not yet | 2030 |
| 7 | Route 6 (Noi Bai airport - Ngoc Hoi) | Not yet | 2030 |
| 8 | Route 7 (Me Linh - Ha Dong) | Not yet | 2030 |
| 9 | Route 8 (Son Dong - Mai Dich - Duong Xa) | | |
| | - Line Son Dong - Mai Dich | Not yet | 2030 |
| | - Line Mai Dich - Road 3 - Duong Xa | Not yet | After 2030 |
| **II** | **MONO RAIL** | | |
| **1** | Route M1 (Lien Ha - Tan Lap - An Khanh) | Not yet | 2030 |
| **2** | Route M2 (Mai Dich - My Dinh - Van Mo - Phuc La and Giap Bat - Thanh Liet - Phu Luong) | Not yet | 2030 |
| **3** | Route M3 (Nam Hong - Me Linh - Dai Thinh) | Not yet | 2030 |
| **III** | **BRT** | | |
| 1 | Line Kim Ma - Le Van Luong - Yen Nghia | In progress | 2016 |
| 2 | Line follow Road 3 from Mai Dich - Duong Xa (Period 2 of Urban Railway Route 8) | Not yet | 2020 |
| 3 | Line follow Road 2.5 and QL5 (Urban Railway Route 4) | Not yet | 2020 |
| 4 | Line Ngoc Hoi - Phu Xuyen (follow QL1) | Not yet | 2030 |
| 5 | Line Son Dong - Ba Vi | Not yet | After 2030 |
| 6 | Line Phu Dong - Bat Trang - Hung Yen (follow Road 3 and Road Ha Noi - Hung Yen) | Not yet | 2030 |
| 7 | Line Gia Lam - Me Linh | Not yet | 2030 |
| 8 | Line Me Linh - Son Dong - Yen Nghia - Ngoc Hoi - QL5 - Lac Dao | Not yet | 2030 |

| No | Content | Implementation | Comments, Evaluation |
|---|---|---|---|
| 9 | Line Ba La - Ung Hoa | Not yet | 2030 |
| 10 | Line Ung Hoa - Phu Xuyen | Not yet | 2030 |
| 11 | Line Son Tay - Hoa Lac - Xuan Mai | Not yet | 2030 |

# APPENDIX 2

## LIST OF URBAN RAILWAY AND BRT PROJECTS FOR THE PERIOD 2016 - 2020 IN HO CHI MINH CITY

| No | Content | Implementation | Comments, Evaluation |
|---|---|---|---|
| **I** | **URBAN RAILWAY - UMRT (8 lines)** | | |
| - | Route No. 1: Ben Thanh-Suoi Tien | Its construction started in 2012, is expected to complete the route in 2019 and put into operation in 2020. | In progress,<br>Put into operation in 2020 |
| - | Line 2: Urban Northwest (Cu Chi) - Thu Thiem | Its construction started in 2010, the entire route is scheduled for completion in 2019, put into operation in 2020. | In progress,<br>Put into operation in 2020 |
| - | Line 3a: Ben Thanh - Tan Kien station | Not yet | Investment in construction before 2020, operating after 2020, use of ODA |
| - | Line 3b: Intersection No. 6 Cong Hoa - Hiep Binh Phuoc | Not yet | |
| - | Line 4: Thanh Xuan - Hiep Phuoc urban area | Not yet | Investment in construction after 2020 |
| - | Line 4b: Gia Dinh Park Station (Line 4) - Ga Lang Cha Ca | Not yet | |
| - | Line 5: Can Giuoc - Saigon Bridge | Has started a feasibility study phase 1 construction of the Bay Hien intersection segments - Saigon Bridge; The pre-feasibility study is the construction of phase 2 Bay Hien intersection segment - the new bus station Giuoc | Investment in construction in 2017, operating after 2020 |
| - | Route No. 6: Ba Queo - Phu Lam roundabout | Not yet | Investment in construction before 2020 |
| **II** | **OTHER URBAN RAILWAYS - TRAMWAY, MONORAIL (03 lines)** | | |
| - | Tramway 1: Ba Son-existing Western Bus Station | Not yet | Investment in construction after 2020 |
| - | Monorail Route No. 2: QL50-Binh Quoi new town | Not yet | Investment in construction before 2020, operating after 2020, use of ODA |

| No | Content | Implementation | Comments, Evaluation |
|---|---|---|---|
| - | Monorail Route No. 3: Intersection 4 (Phan Van Tri Nguyen Oanh) Tan Chanh Hiep dispatch station | Not yet | Investment in construction after 2020 |
| **III** | **BRT (6 lines)** | | |
| - | BRT Route No. 1: Mai Chi Tho - Vo Van Kiet | Preparing BRT No.1 online investment, the project is in the detailed design process and selection of contractors. | Investment in construction in 2017, put into operation in 2020 |
| - | BRT Route No. 2: New Western Bus Station - Phu My Bridge | Not yet | Investment in construction before 2020, mining after 2020 |
| - | BRT Route No. 3: Intersection 4 An Suong -new Western Bus Station | Not yet | |
| - | BRT Route No. 4: Kha Van Can - Victory Park | Not yet | |
| - | BRT Route No. 5: Intersection Four Communes -Nguyen Van Linh | Not yet | Investment after 2020 |
| - | BRT Route 6: Quang Trung axial road | Not yet | |