Project_Scoping
Urban Electric Mobility
Initiative 2019

VIETNAM

PROJECT SCOPING

HANOI

Hanoi e-mobility for last-mile connectivity

Wuppertal Institut

UN HABITAT
FOR A BETTER URBAN FUTURE

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Berlin, 2019

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SCOPING STUDY SUMMARY

VIETNAM

1 COUNTRY OVERVIEW

Vietnam has a population of 93.5 million (2015) and is located in Southeast Asia between the Mekong River Delta to the south, the Red River Delta to the north and the South China Sea to the east. Between the period of 1980-2015, Vietnam's rate of population growth in rural areas significantly declined to near zero, while the resultant migration has led to rapid urbanisation across all major cities. Although the country's current level of urbanisation is low at around 35.7%, it is projected that urban areas would accommodate over half of the country's population by 2045 (Vietnam Habitat III National Report, 2016).

Vietnam currently contributes **0.6% of the world's total greenhouse gases (GHG) emissions** and ranks 27th globally in terms of GHG emissions (Vietnamnet, 2017). For the period of 1990-2014, the country's cumulative GHG emissions were 252 $MtCO^2e$. During the same period, GHG emissions for energy (electricity sub-sector) were 50 metric tons, for transport: 31.9 metric tons and waste: 9.4 metric tons (WRI-CAIT, n.d.).

Overview

Hanoi

Hanoi, the capital of Vietnam, has a population of 7.7 million and the 2nd most populated city in the country. The urban area of Hanoi is about 320 sq. km. Vietnam's GDP per capita was 2,060 USD in 2016. Vietnam currently contributes 0.6% of the world's total GHG emissions. The country's GHG emissions for transport was 31.9 tonnes (1990-2014). Vietnam's high dependence on private vehicles powered by fossil fuels has resulted in increased GHG emissions and air pollution. Transport accounts for 12.7% of the total GHG emissions of Vietnam.

HANOI


Red River
QL5
CỔ LOA
Từ Sơn
QL1A
DT276
CT07
AH14
QL3
Red River
BẮC NINH PROVINCE
NHẬT TÂN
DT179
TAY TỰU
NHỐN
HANOI
DT422
QL32
MAI DỊCH
Hanoi
AH14
QL17
TRUNG HOÀ
BẠCH KHOA
CT08
AN KHÁNH
QL1A
DT70A
DT72
DT419
DT378
HANOI
TT. NHƯ QUỲNH
HƯNG
River Đáy
AH13
CT20
DT179
Red River
DT70A
DT378
HƯNG YÊN
DT200
QL21B
PHỐ NỐI
QL39A
HƯNG YÊN
DT427B
DT199
DT379

Policy environment supporting electric mobility in Hanoi

- In the transport sector, Vietnam's INDC mentioned the strategies to increase public transport in urban centres but does not explicitly mention promotion and development of electric mobility as an option.

- Hanoi aims to become a "global city" and this is fuelled by the rapid economic growth in the city. The result is various infrastructure projects in the city, especially megamalls. Yet the public transportation share in Hanoi accounts for only 10% of the total trips. Motorcycles reign supreme as a transport mode in the city.
  In 2017, the city announced a ban on fossil fuel motorbikes by 2030, resulting in several studies on efficient EV usage and public policy programmes and incentives that will support the accelerated adoption of sustainable transport technologies. Few electric vehicles are currently in operation in the city. In its 2020 plan, the government of Vietnam expresses the intention to increase the public transport modal share from below 10% to 25-30% by 2020 and introduce hybrid and plug-in hybrid buses. Financially, the government will support hybrid and plug-in hybrid buses via grants, through its low-carbon bus fund for up to 30% of the cost of the vehicle. The government of Hanoi has decided to invest 45 million euros in a Bus Rapid Transit (BRT) system, which will also connect to the forthcoming monorail system. Controversially, Hanoi's master plan sees public transport taking on only 55% of the city's transport needs by 2030.

Project concept

Hanoi e-mobility for last-mile connectivity

Hanoi, and Vietnam in general, already has a small share of e-scooters plying the streets, primarily used by students. There is a dire need to increase the awareness of the use of e-scooters in the wider public. Some of the reasons deterring people from the use of e-scooters is the presumption that e-vehicles cannot perform as well as their ICE counterparts in extreme weather conditions, such as flooding and heat. This belief is strengthened by the influx of low-quality electric vehicles into Vietnam.

Hanoi's planned project focuses on improving the attractiveness of e-scooters including plans for the development of charging stations and business models that will enable a wider use of e-scooters in the city, as well as developing charging solutions for E-mini-buses that are planned to be introduced in the city.

The demonstration project will focus on boosting the ridership and effectiveness of the currently running BRT and the forthcoming metro rail with a 200 shared E-scooter system (e.g. Valeo) as last-mile connectivity. This project will also include 20 E-mini-buses provided by the city and Vinfast, for which fast charging solutions (e.g. ABB chargers) will be tested. The shared E-scooter system will be equipped with state-of-the-art 10 docking-cum-charging stations, contact-less payment and will be developed that provides a hassle-free experience of e-mobility and clubbing it with longer trips on public transport.

The project will exploit the current efforts from the national and city administration to mainstream e-mobility in Vietnam. By involving the local public transport operators, a larger picture of sustainable transport including some e-mobility can be envisioned and the share of public transport can be increased by integrating e-scooters with public transport. Therefore, the project will be a win-win for both public transport and e-mobility. A technical support team will design and develop vehicles that are tailored for the local context and operated under the oversight of the local public transport operator and the city of Hanoi. The project will experiment innovative business models on E-minibuses and charging solutions, such as battery swapping technologies, using existing telecom and power distribution boxes to accommo-date vehicle charging. Smart services, fleet bundling and E-scooter GPS positioning that support eco-routing will also be the part of the project (MaaS App). Eco-routing options for the users will help identify the most efficient route to the destination while saving on battery useThe demonstration project will have a high potential to not only make e-mobility attractive but also reduce the GHG emissions from transport and increasing the share of public transport use.

Project demonstration activites

The project will aim to implement

- 250 e-scooters at 10 public transport stations (BRT and metro stations);
- 10 Docking-cum-charging stations for e-scooters at 20 locations within the pilot area;
- A smart phone app that allows users to locate an avail able e-scooter in their vicinity; and
- Business model on electric mini-buses
- and support the city of Hanoi develop charging infrastructure using existing facilities.

Project Finance

and implementation

The proposed demonstration project concept on ‘Hanoi e-mobility for last-mile connectivity’ was developed under Urban Pathways project and was submitted on 25 April 2019 as a part of EC H2020 proposal for funding. The technical support on project proposal development and activities, provided by “Urban Pathways” project, was funded by the International Climate Initiative and implemented by UN-Habitat, Wuppertal Institute and UN Environment.

Local, Industry, knowledge and implementation support partners

The implementation support partners for the project will be Hanoi Peoples Committee, the University of Transport Technology, Clean Air Aisa, UNEP and Vinfast. The equipments and charging solutions will be explored with ABB and Valeo.

At the local level, the city of Hanoi will lead the cooperation with the local public transport operator, universities, local e-mobility industry and the civil society. The partnership will encourage development of policy and regulatory frameworks, and vitalise the local e-vehicle industry and thus the local economy.

Project plan for demonstration action

Estimated budget plan for E-Scooter demo project is 500,000 Euros with the following features:
- 250 e-scooters at 10 public transport stations
- Each station has a capacity for docking 25 scooters
- Developing a smartphone app for locating e-scooters and checking availability

E-Scooter Demo Project estimate				
	Price/unit	***Units***	***Total***	***Remarks***
Cost per scooter	1,500.00 €	250	375,000.00 €	Est. Cost of 1 e-scooter by VinGroup model „Klara"
Cost per docking/charging station	4,000.00 €	20	80,000.00 €	about 25 scooters at each station, one station at the metro and one at a famous destination
Cost of the app	5,000.00 €	1	5,000.00 €	
Cost for charging infrastructure	40,000.00 €	1	40,000.00 €	Lump sum contribution
		Total	**500,000.00 €**	

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