

To Combat Air Pollution and Worsening Energy Consumption Transport Sector in the Energy Transition

Jakarta, 31 December 2021. Total vehicle fleet in Indonesia has been increasing dramatically since the economic recovery period in 2001/2002, after the country has been heavily impacted by the monetary crises in 1997/1998. The country currently has over 146 million units motorized vehicles on the road, 82% of which are motor cycles. In 2019, the national automotive industry sells about 1.1 million units of 4 wheels and about 7 million units of two wheels, annually

The Imbalance growth of the vehicle fleet composition (private and commercial cars versus motor cycles), and the lack of appropriate public transportation system tends to cause inefficient fuel consumption causing national budget problems and serious air pollution by emitting over 255 M-tons of CO₂e/year (2019). The heavy air pollution created public health problems especially in the large urban areas. In the Capital City of Jakarta alone, people have spent Rp 51.2 T (over 3.6 billion USD) annually (2016) primarily for medical treatment of respiratory disease/illness related air pollution:

Lacking effective traffic and transportation policy in the urban sector tend to encourage people to choose relatively inefficient means of mobility. These preferences were further driven by the inadequate standards of services in the public transportation system such as comfort, schedule regularity, safety and affordability. In the commercial transportation sector, there is a lack of efficient logistic system which made the national economy facing competitiveness challenges in the global market. The significant growth of the vehicle fleet is obviously contributing to the increase of air pollution and depleting fuel stock. These challenges can only be overcome if Indonesia would embark in making serious efforts to improve transport policy and regulations which will include accelerated development of competitive EV industries, better traffic and transport management, particularly in large urban areas; through creating the trigger of fiscal and non-fiscal incentive/disincentive.

KPBB has mission to escort policy reform for better air quality as well as better GHGs mitigation, especially from transportation sector. As KPBB action since it was established in 1996, in 2021 KPBB continued to conduct serial activities on sustainable urban mobility with focus on reform fiscal policy to give more incentive for lower emission vehicle, as well as increasing fiscal disincentive for high emission vehicle; pull and push to utilize mass public transport and non-motorized mobility shifting (Commuter Line, MRT, BRT, LRT, walking and cycling), promote ERP (electronic road pricing) and parking management as tools to control private motor vehicle utilization (car and motor cycle) –*a pull trick to shift to mass public transportation*–, assisting to gain appropriate policy on BRT operation with lower emission, accelerate EV deployment including e-Bus, car, and motor-cycle, reduce side effect of motorization such as car battery –ULAB– recycling which has proven to cause lead poisoning in the environment, etc.

Activities Compilation

KPBB and its networking have been collaborating in the project of soot-free urban bus fleet with the bus rapid transit authority, Transjakarta since the initial workshop in October 2016. These two parties have signed officially for the project since July 2018 to conduct serial activities on the soot-free urban bus fleet project in Indonesia. The project has started due to the initiative of KPBB. KPBB initiated the idea of soot-free urban bus fleet to deploy more advanced technology to BRT operator of Transjakarta, and supporting the outreach work and data collection for analysis purpose, especially to develop Total Cost Ownership (TCO) analysis for guidance to operate BRT Transjakarta. The project provides the stage and abroad connection, as well as collecting very important data for analysis as above-mentioned purpose.

At the beginning, the soot-free urban bus fleet program has just started, and was unfamous compared with today situation. The soot-free urban bus fleet was unknown for many people, key stakeholders for deploying soot-free bus, the area of environment, and transport sector in Indonesia, both government officials, private parties, and industry association. The project is now becoming more prominent due to the team member and project expansion (from one staff to become four staffs). When it comes back to the 2018, KPBB and other partners have started from the scratch to deploy more various projects in Indonesia. KPBB also guides its networking which have work in Indonesia, such as UNEP – Global Partnership for Clean Fuel and Vehicle, UNEP ROAP, US Embassy, US EPA, ICCT, CAI, IEA, etc. to have more role to decrease emission of local air pollution as well as GHGs.

Opening and ending 2021, we have increased our partnership with all stakeholder at local, regional, and globally. by looking the newest update about the progress of electric buses (e-buses) that are going to be deployed by the bus rapid transit authority, Transjakarta. The success of e-bus deployment in the ASEAN first and biggest BRT system needs the support of all key parties, as well as the real deployment is in the form of sustainable procurement. We conducted several outreach activities, which is compilation of policy framework for e-bus, tax structure for e-bus compared to internal combustion engine buses and took the example in several provinces in Indonesia and its calculation, and other data collection activities to compile information about Transjakarta's tendering process. This document prepares the complete activities that we have performed in accelerating e-bus deployment endeavor in Jakarta in 2021. These below sections are describing the activities in each month of 2021 of ICCT and KPBB in Jakarta.



Policy Reform on Low Emission Vehicle and Low Carbon Emission Vehicle

KPBB just successfully conducted the public expose on soot-free urban bus fleet on December 23, 2020, to close the year. It was part of the advocacy process of KPBB and involved ICCT. On that event, there were contribution of Transport Agency of Jakarta province, Greater Jakarta area Transport Authority (BPTJ), PLN utility company, Transjakarta BRT authority, bus suppliers, and bus operators. Those are key elements in e-bus deployment. The result of this workshop is gaining all on the ground problems that potentially hamper the e-bus deployment. These are all findings from the workshop, such as:

1. High upfront costs for purchasing buses and its infrastructures. Operators are the only one who must invest in e-buses under Transjakarta management
2. Electricity tariff for daily operation is still too high due to lack of subsidy from the utility company (PLN)
3. The service tariff, tariff as the return from Transjakarta to bus operators who operate the buses in the form of IDR per km, it is considered too low
4. Contract of e-bus is 10 years, while the battery's lifespan is researched by many researchers and findings say that it is only for eight years, so, some operators is expecting if the contract can be 15 or 16 years
5. There is still unavailable secondhand battery recycling industry in Indonesia
6. There is an obligation set by Transjakarta to operators to invest the medium voltage (200kVA to 30 mVA) power addition, that includes substations, switchyard, and all distribution infrastructures to power hundreds the buses (will be adjusted by the roadmap in Q1 2022). For this investment, operators are demanded to invest about IDR 9.6 billion

Also in January 2021, we worked on the prospective project of heavy-duty vehicles program in Indonesia, with achievement as follow:

1. **Policy Draft on Sustainable Public Procurement toward Soot-free Urban Bus Fleet**

Procurement practices has been long decades applied in Indonesia in the form of traditional procurement. It is not only taking big percentage of the state budget in national level or regional budget in provincial level, but also prone to the corruption. At the end of the day, abuse of taxpayers' money by public officials and politician, generates bad quality of products / services for public, and there is inability by government to perform transparency to public. Sustainable public procurement offers the best practices of managing public money and its appropriate use by complying elements of sustainable public procurement, such as transparency, fairness, effectiveness, and accountability.

In one side, at present Indonesia is facing post pandemic COVID-19 and in aggressive way, Jakarta through Governor Anies R. Baswedan is preparing the event of Mayor Summit U20 that will take place in Jakarta in 2022. In the virtual event on September 3, 2021, governor Anies was meeting with other mayors from other countries. Governor Anies showed his commitment to collaborate, unite, and expand the best effort to fulfil Paris Agreement and sustainable development goals (SDGs) target. Before that, government of Indonesia has ratified SDGs 2030 agenda. By carrying the theme "Recover Together, Recover Stronger", governor Anies passed on six post-pandemic urban issues, that will become the main agenda for Mayor Summit U20 in 2022 in Jakarta.

Those six agenda including: (1). Productive and affordable housings, (2). The future of property industry in urban areas, (3). Sustainable mobility access for society, (4). Future of employment with global unemployment, as well as the demands for new skills to support environmentally friendly industries and the digital economy, (5). Reduced social interaction during restrictions that affect the mental health of the population, and (6). The increasing number of orphans due to the COVID-19 pandemic, and how the city can guarantee their future. Agenda three of all six agenda is sustainable mobility access for society.

In Jakarta context for environment and mobility issue, Jakarta is one step ahead of becoming a sustainable city by deploying advanced and clean technology for its buses under bus rapid transit (BRT) authority and it will increasingly grow until 2030. Governor and his team show powerful commitment to accomplish Jakarta as a sustainable city by stipulating various regulations. As agenda no. 3 about urban issues, that will become the main topic for U20 event, it is sustainable urban transport in the form of public transport in Jakarta under BRT authority management and has been in operation. Public transport, especially electric buses under BRT authority in Jakarta is representative in elements: (1). Basic needs for people that must be provided by the city government, (2). Sustainable urban mobility that considers health, economic, social welfare issues, (3). Deployment of advanced and clean technology, (4). Powerful collaboration in the form of various partnership, such as public – private, national – local, domestic – international, and multi-stakeholders' involvement, (5). Legal aspects, (6). SDGs 2030 agenda with multiple points, and (7). Appropriate use of public money to perform high quality products and services through sustainable public procurement.

Figure 1: Logical framework of this policy paper

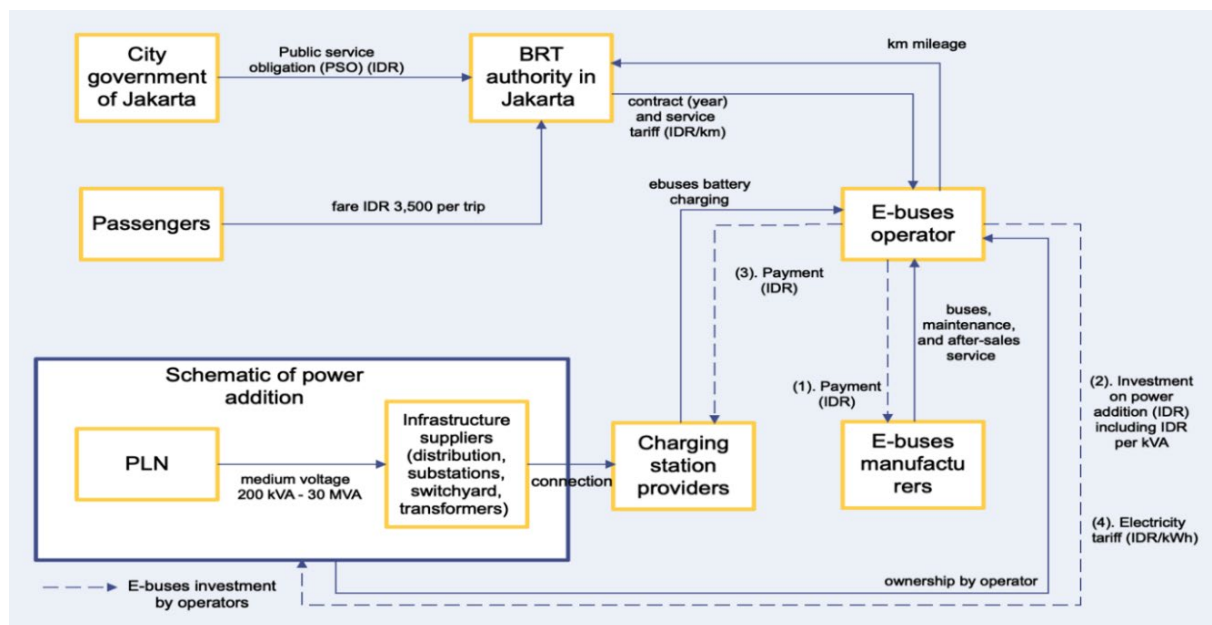
Logical Framework of SPP in Public Transport for Achieving SDGs 2030 Agenda

Program for sustainable urban mobility in Jakarta (U20 in 2022 and SDGs)	Roadmap for electric buses deployment 2021 – 2030						
Partnership	High level public – private partnership (PPP) and political commitment						
	National – provincial government	Public – private parties	International – local collaboration	People – CSO – media – academician as watchdog			
Current status of e-bus deployment	Private operator invests in entire infrastructure: grid, power addition construction, fleets, chargers, maintenance, and daily operations						
Lesson learned from other cities	Santiago	Bogota	Shenzhen				
Main and supporting regulations	Environment, clean air, exhaust gas emissions, transportation, and procurement. However, there are still no specific regulations on Sustainable Public Procurement on transport sector						
SDGs targets related to sustainable public transport	SDG 3. Good health and well-being	SDG 9. Industry, innovation and infrastructure	SDG 11. Sustainable cities and communities	SDG 12. Responsible consumption and production	SDG 13. Climate action	SDG 16. Peace, justice and strong institutions	SDG 17. Partnerships for the goals
	> 3.4 Reduce mortality from non communicable diseases > 3.9 Reduce illnesses and death from hazardous chemicals and pollution	> 9.4 Upgrade all industries and infrastructures for sustainability	> 11.2 Affordable and sustainable transport systems > 11.3 Sustainable urbanization > 11.5 Reduce the effects of disasters > 11.6 Reduce the environmental impact of cities	> 12.1 Implement the 10-year sustainable consumption and production framework > 12.5 Substantially reduce waste generation > 12.7 Promote sustainable public procurement practices	> 13.2 Integrate climate change measures into policies and planning	> 16.5 Reduce corruption and bribery > 16.6 Effective, accountable and transparent institutions	> 17.17 Encourage effective partnership
SPP role in public transport and urban mobility for SDGs	SDGs 2030 agenda with SPP intervention						
SPP public transport technology options	CNG bus	Ultra-low sulfur diesel fuel (Euro VI)	Electric drive (BEB)				
SPP legal drafting for public transport	Policy dialogue, targeted meeting, FGD, workshop, public hearing, and press conference	Review position & policy papers; academic texts	SPP standard operating procedures	Related laws and regulations	Legal drafting : planning, preparation techniques, formulation, discussion, ratification, promulgation, and dissemination		
Business model BRT fleets in Jakarta with SPP intervention	Three technology options: CNG - ULSD - BEB						
	Risk management and mitigation	Shareholder - concession financing	Commercial financing				
Final accomplishment	SDGs 2030 agenda						

Thirty unit of electric buses are now ready in operation in Jakarta. These buses have been procured by private operator amidst pandemic COVID 19 and extremely high upfront costs and investments. Investments of e-buses in Jakarta by one private operator including investment on grid, charging stations, fleets, maintenance, and daily operations, and will obtain IDR per km in return from BRT authority. The issue of sustainable public procurement becomes the best choice with the absence of other comparison of procurement in performing electric buses in Jakarta.

BRT authority in Jakarta province, Transjakarta is the largest BRT system in ASEAN. Transjakarta is ready to operate e-buses owned by private operator, it answers the program of governor. However, some remaining obstacles still exist, the role of governor is needed to remove all stumble blocks.

2. **Green bus procurement guidance document.** In this expected outcome, ICCT consultant and KPBB, with supervision of ICCT researcher or project manager, are expected to produce guideline document on public procurement to accelerate the purchase of ZEBs. This document will provide solution to overcome Transjakarta's bus procurement to procure electric buses. It might include the economic valuation, such as CAPEX and OPEX or TCO analysis due to the high upfront costs to purchase the buses and its infrastructure. This guideline document can quickly overcome a significant obstacle to any progress towards electrification in the urban bus fleet of Jakarta and other cities in Indonesia. The role of us will be very important in supporting the revision to the existing procurement policy needed to standardize the process for city government and Transjakarta to embrace e-buses and ensure transparency (and absence of corruption) in the procurement process. KPBB will also be a key player to ensure that the procurement guidance document reaches the hands of the authorities in charge of public bus procurement- and proper recommendations dissemination across key players (bus manufacturers, operators, authorities) and the public



Source: authors' own compilation

Figure 2: Investment for deploying e-buses by operators under bus rapid transit (BRT) management

3. Assessment of Total Cost of Ownership for TJ buses

Electric buses present higher capital costs compared to traditional diesel solutions. However, e-bus technologies can be competitive with respect to diesel and CNG options when the operational costs (fuels and maintenance) are included in the analysis over the service lifetime of the bus. The data and its analysis also will be utilized by The ICCT to estimate the total cost of ownership of the fleet of buses operating along the target routes. TURBO incorporates the results of the real-world performance data and provides an accurate prediction of the fuel and energy consumption for the bus and routes studied. Results can be obtained by bus powertrain type (e.g., diesel, CNG, electric), bus size, (e.g., 12 m or 9 m), passenger loading conditions, use of air conditioning, and more. By tailoring the operational costs, the TCO results are truly representative of the local conditions and can be better used to inform e-bus tendering process and tariff definitions.

The modeling would include:

- Total cost of ownership for conventional and e-bus options
- Payback period for conventional and e-bus options
- Sensitivity analysis

The results of the analysis would be used to inform the current discussions on bus procurement, contracting and deployment options among TransJakarta and operators. We will deliver our technical, operational, and financial recommendations to the Jakarta Transport Authority to shape a Sustainable Procurement Policy requiring all new TransJakarta bus procurement to be zero emission.

While we are waiting more detail of advance route level TCO analysis which is developing by ICCT, we have delivered interim TCO analysis to BRT Trans Jakarta in relation to develop related policy and technical procedure on soot-free urban bus fleet, especially for e-Bus deployment.

Interim TCO Analysis for Soot-free Bus Fleet in Jakarta

Particular	ICE Diesel Bus with 1800 ppm Dirty Subsidied Fuel	ICE Diesel Bus with 350 ppm Non- Subsidied Fuel	ICE CNG-Bus	e-Bus	e-Bus with Incentive Tariff of Electricity
Contractual period (year)	7	7	7	8	8
CAPEX					
Chassis unit price	1.230.000.000	1.230.000.000	2.200.000.000	3.570.000.000	3.570.000.000
Import duty	-	-	-	178.500.000	178.500.000
Importation VAT	-	-	-	357.000.000	357.000.000
Importation Income Tax	-	-	-	89.250.000	89.250.000
Vehicle Tax	29.096.600	29.096.600	29.096.600	55.000.000	55.000.000
Total Price - Chassis unit	1.259.096.600	1.259.096.600	2.229.096.600	4.249.750.000	4.249.750.000
Caroserry	828.500.000	828.500.000	828.500.000	1.050.000.000	1.050.000.000
Air Conditioning	126.400.000	126.400.000	126.400.000		
Replacement Battery	-	-	-		
Replacement Caroserry	-	-	-		
Residu Price	- 126.197.806	- 126.197.806	- 126.197.806	- 302.085.750	- 302.085.750
Insurance and Provision	216.528.867	216.528.867	216.528.867	518.315.550	518.315.550
TOTAL CAPEX	2.304.327.661	2.304.327.661	3.274.327.661	5.515.979.800	5.515.979.800
OPEX					
Maintenance and Reparation	4.599.325.045	4.599.325.045	4.139.392.541	2.667.608.526	2.667.608.526
Fuel	1.200.212.650	2.598.518.650	722.458.100	2.093.737.375	1.871.275.990
Overhaed Cost	110.825.016	110.825.016	110.825.016	62.579.058	62.579.058
TOTAL OPEX	5.910.362.711	7.308.668.711	4.972.675.657	4.823.924.959	4.601.463.574
TOTAL CAPEX + OPEX	8.214.690.372	9.612.996.372	8.247.003.318	10.339.904.759	10.117.443.374
Rp/Km	19.100	22.352	19.176	21.037	20.584
Operation day/year	320	320	320	320	320
VKT/day	192	192	192	192	192

Source: The Next Steps for LCEV in Indonesia, KPBB, 2021

Vehicle Emission Standard in Indonesia, 2 February 2021

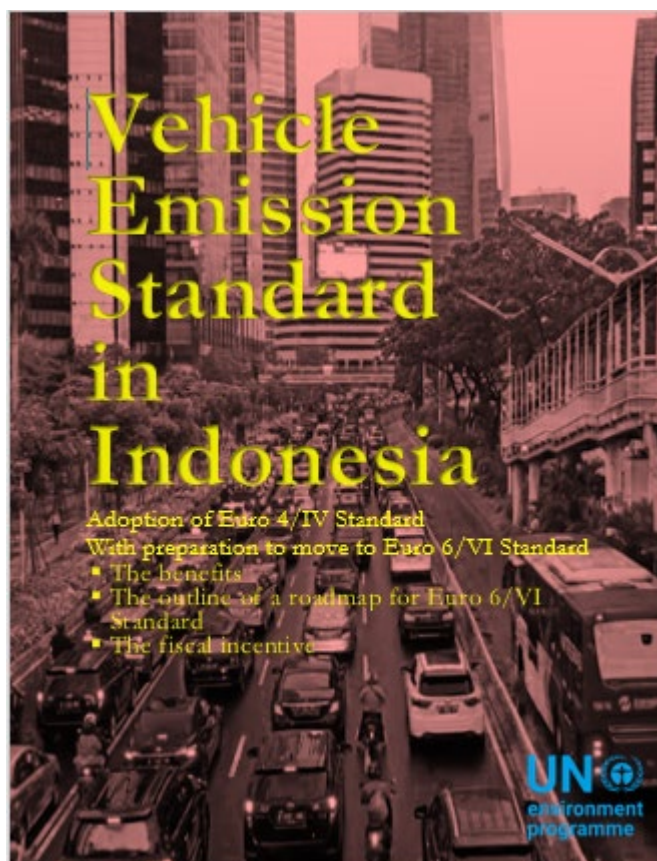
Jakarta, 2 February 2021. In February 2021, we conducted two big events, on February 2 and February 17. On February 2, 2021, KPBB conducted the event with the partnership with UN Environment Program and Partnership for Clean Fuels and Vehicles (PCFV). The title was “Economic Benefits of Vehicular Emission Control: Annotation toward Vehicle Emission Standard in Indonesia”.

The objective of the workshop covers: (1). To disseminate report on annotation toward vehicle emissions standard and its economic benefits in Indonesia, (2). To facilitate public consultation on vehicular emission reduction, and (3). Binding commitment among stakeholders on the next vehicular emission reduction agenda 2030.

The event provided Dr Anup Bandivadekar of ICCT to present, other speakers were Mr Bert Fabian from UNEP, ministry of finance, ministry of environment and forestry, coordinating ministry of maritime and investment, ministry of national development planning, ministry of energy and mineral resources, Pertamina Refining and Petrochemical, Automotive Industry Association, Motorcycle Industry Association, and Hyundai Motor Manufacturing Indonesia. Another session was the meeting only among non-governmental organization in Indonesia, such as GIZ, C40, ICCT, ICLEI, CAI Asia, ITDP, ADB, World Bank, WRI, and Vital Strategist.

At the event, we also published the book of Vehicle Emission Standard in Indonesia, a compilation data and its analysis on vehicle emissions in Indonesia, with its related matters in relation to control strategy, status, action, and effectiveness. In relation control strategy it covers promoting cleaner fuels/energy, lower emission technology, land use, traffic and transport management, emission standard and law enforcement. On the aspect of cleaner fuel/energy, this book criticizes the biodiesel policy with its futility/wasteful of fiscal incentives, and corrupt tendencies, in addition to its nature that encourages greed for expansion of oil palm land with the destructive power of natural forests.

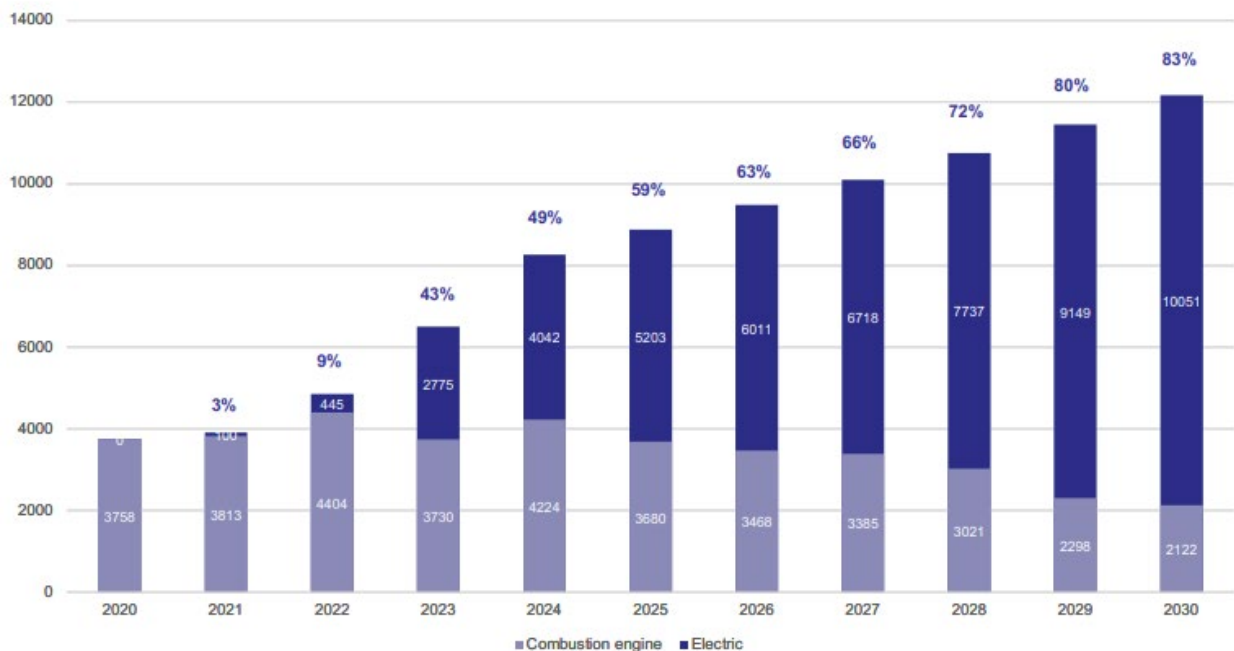
The second workshop of sustainable (green) public procurement (SPP/GPP) on February 17, 2021. This event was special due to ICCT project manager for HDV Indonesia Program, Francisco Posada presented also until almost midnight of his local time. Other speakers were PLN utility company, Goods and Services Procurement Agency (LKPP), ministry of environment and forestry, media, academician, SOEs, local government, MOI, and procurement expert. It was the first SPP / GPP workshop as part of outreach work.



Advocacy to Accelerate e-Bus Deployment

Jakarta, 31 March 2021. We created the summary of all electric vehicles (all types) policy framework in February 2022. We prepared the detail and complete regulations that accommodates EV, specifically e-bus in Indonesia. It starts from the scope of environmental issues as a background, such as regulation around air quality targets, green-house gas emissions reduction targets, and national determined contribution. In the level of institutions, it starts from presidential level, ministerial level, other government agency level, and provincial government level, include the corporate strategic plan such the road map of e-Bus. The list of policy summaries has the details of regulation name, number and years, scope of the regulations, which specific articles say about its support to e-buses, types of policy, timeline, and its brief descriptions. At the process, we also assist related institutions (government as well as other related institutions) with technical matter and preparing everything for umbrella regulation for e-Bus implementation under advocacy for policy reformulation.

Transjakarta Roadmap on E-buses



2



Figure: Roadmap of e-Bus Deployment in BRT TransJakarta



Figure. Vehicular Carbo Tax, Carbon Excise, documentation of public discussion which was conducted on 31 November 2019

The regulations from presidential level, ministerial level, other government agency level, and provincial government level:

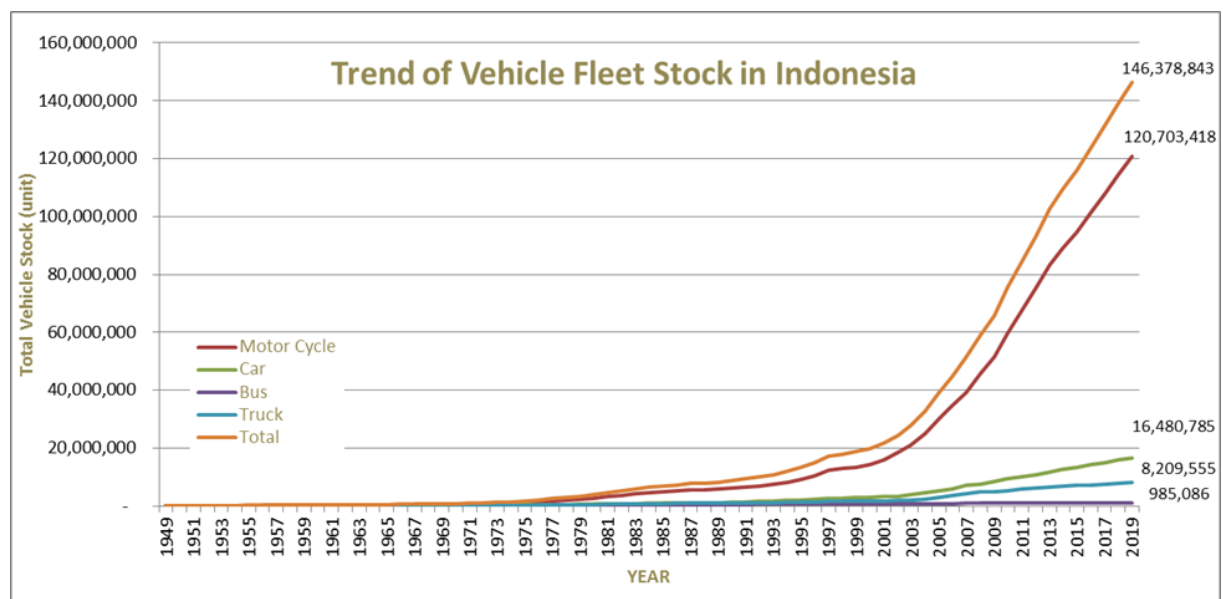
1. Presidential decree No. 55/2019 on acceleration of the battery electric vehicle (BEV) program for road transportation
2. Minister of Home Affairs decree No. 8/2020 on the basic calculation for the imposition of vehicle tax, the transfer fee for vehicles
3. Minister of Transportation decree No. 44/2020 on physical testing of motorized vehicles using electric motor
4. Minister of Energy and Mineral Resources decree No. 13/2020 on the provision of electricity charging infrastructure for BEV.
5. Minister of Industry decree No. 27/2020 on specifications, roadmaps development and provisions for calculating domestic content levels for battery electric vehicles
6. Minister of Industry decree No. 28/2020 concerning battery electric vehicles in the form of CKD and IKD
7. Police Traffic Corps Regulation No. 5/2020 on the standardization of technical specifications for vehicle number signs and vehicle trial signs for four or more wheels and two or three wheels
8. Minister of Finance decree No. 72/2020 concerning the standard input cost 2020
9. Minister of Transport decree No. 65/2020 on the conversion of conventional technology motorbikes to battery electric motorbikes
10. Bank Indonesia No. 22/13/PBI/2020 on loan to value ratio for property loans, financing to value ratio for property financing, and down payments for loans or financing for motor vehicles
11. Financial Services Agency (OJK) regulation published in press release No. SP 62/DHMS/IX/20 on OJK incentives to support environmental friendly motor vehicles program, including: Provision of funds to debtors with the purpose of purchasing BEV and/or the upstream industry for BEV, provision of funds for producing BEV and its infrastructure, assessment of credit quality for BEV purchases, and credit for the purchase of BEV and /or the

development of the upstream industry from BEV for individuals or business entities (micro and small business)

12. DKI Jakarta provincial governor decree No. 3/2020 on incentives for transfer fee of BEVs for road transportation
13. Bali provincial governor decree No.48 / 2019 on the utilization of BEV.

Regulation around air quality targets, green-house gas emissions reduction targets, and national determined contribution

1. Government regulation No. 41/1999 on air pollution control
2. Presidential Decree No. 61/ 2011 on National Action Plan to Reduce GHG Emissions (RAN-GRK)
3. Presidential Decree No. 71 / 2011 on GHG emission inventory
4. MoEF Decree No. 18/2015 on organizations and procedure for the Ministry of Environment and Forestry
5. Presidential Decree 16/2015 on Ministry of Environment and Forestry
6. Act 16/2016 on Ratification of Paris Agreement to the UNFCCC
7. MoEF decree No. 73/2017 management and reporting guidelines on national GHG emissions inventory
8. GHG Inventory Report: Monitoring, Reporting, and Verification
9. Presidential Decree No. 22/ 2017.



Graph 1. Trend of Total Population of Motor Vehicle in Indonesia (1949 – 2019)

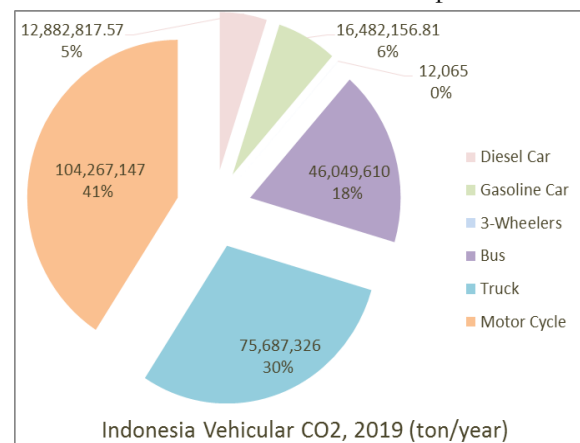
EV policy summaries are enlarged to the form of policies to manufacture industry of e-buses in the upstream side to the final operation in the road or in the downstream side. Several policies in the upstream side, it is the real commitment of government of Indonesia to accelerate the EV, and e-bus deployment from the aspect of its manufacture and investment, described in these several policies, for instance:

1. Government Regulation 73/ 2019 then revised by Government Regulation 74/2021 (Luxury Tax for Vehicles) on luxury tax for the goods in the form of motorized vehicles that are subject to sales tax on luxury goods. This decree specifies the ease to invest EV and e-bus, written in article 42: the luxury goods tax imposed on various types of ICE, EV, and other technology vehicles.

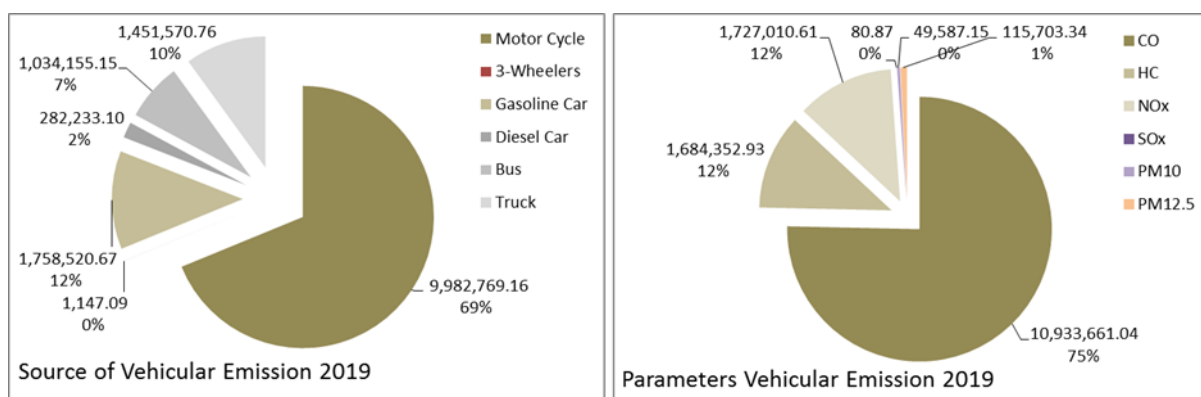
Especially for EV, it is explained that the relaxation for imports for four years in the form of CBU.

- Coordinating Ministry of Maritime and Investment (Marves) is the leading ministry for accelerating the BEV, including buses in Indonesia, from investment to operation. It has been stipulated in the Presidential Decree Mo. 55/2019 to assign Marves to lead BEV industry and operation. Answering the Marves provides relaxation for any manufacturers to fill the local market of Indonesia. The relaxation is in the form of permission for manufacturers to import any types of BEV including buses in the form of CBU as long as manufacturers are committed to build factories in Indonesia. While manufacturers are facilitating the procurement of buses in the form of CBU until 2024, manufacturers are building a partnership with local bodybuilders for the construction of bus assembly. The relaxation is stipulated by the Marves in July 2020, the period of relaxation is from 2020 to 2024

MOF decree (PMK) 150/PMK.010/2018 on the provision of facilities for reducing corporate income tax (Tax Holiday): Corporate taxpayers who make new investments in the electric vehicle manufacturing industry are categorized as industry pioneers, receiving corporate income tax deductions with a minimum investment value of 100 billion rupiah (Art 2), reduction of corporate income tax by 100% of the total outstanding corporate income tax with a value of at least 500 billion rupiah; 50% of the total corporate income tax payable for new investment with a value of 100 billion rupiah - <500 billion rupiah for 5 tax years (Art 2). The period of reducing corporate income tax is 5 years for a new investment value of 500 billion - <1 trillion rupiah, for 7 years with an investment value of between 1 trillion rupiah - <5 trillion rupiah, for 10 tax years with an investment value of between 5 trillion - <15 trillion rupiah, for 15 years for an investment value of between 15 - <30 trillion rupiah, and 20 years for an investment value of at least 30 trillion (and above) (Art 2).



Graph 5a. National Vehicular CO2 Source Apportionment (ton/year)



Graph 5. National Vehicular Source Apportionment – air pollution (ton/year)

- Government Regulation No. 78 / 2019 on income tax facilities for investment in certain business fields and/or in certain regions: Investment in the EV sector is categorized as investment in the industrial sector that has a high investment value, it is export-oriented, absorbs a large workforce,

and has a high local content, so corporate taxpayers receive Income Tax incentives for new investment or expansion of certain sectors including national priorities and in regions that have a potential that is worthy of being developed. The form of income tax incentive here is foreign investors receive dividends from domestic corporate taxpayers who have been determined to receive income tax incentives, these investors receive a dividend tax rate for foreign taxpayers by 10% or more (Art 2).

4. MOF Decree (PMK) 176/PMK.011/2009 stdtd PMK 188/PMK.010/2015 on exemption from import duty on imports of machinery and goods and materials for industrial development or development in the context of investment: Investment in the EV industry is categorized as an industry that has not been produced domestically, or has been produced domestically but has not met the required specifications, or has been produced domestically but the amount is not sufficient for the needs of the industry, so imports of machinery, goods and materials by the company granted exemption from import duty (Art 2). This exemption from import duty is granted for an import period of 2 years, and if the company that has obtained the facilities as intended (exemption from import duty for an import period of 2 years) but has not realized all imports of goods and materials within 2 (two) periods years, can be granted an extension of the importation period for 1 (one) year from the expiration date of the import duty exemption facility

5. MOF Decree (PMK) No. 131

Table 2. Estimation of Vehicular Fuel Consumption in Indonesia 2019 (L)

/PMK.04/2018 on bonded zones: Goods, both raw materials and supporting materials imported from the customs area to the Bonded Zone are subject to suspension of Import Duty, are granted Excise exemption and are not

Type of Vehicles	Fuel Consumption p.a.	Percentage
Diesel Car	6,920,246,541.86	10.08%
Gasoline Car	9,160,012,413.67	13.34%
3-Wheelers	7,665,000.00	0.01%
Bus	9,291,096,900.00	13.53%
Truck	17,682,076,863.00	25.74%
Motor Cycle	25,624,976,905.70	37.31%
Total	68,686,074,624.23	

levied on import taxes (Income tax on imports, VAT, and luxury tax) (Art 20). Bonded Zone, for example Bonded Zone of Marunda Archipelago and Batam.

6. MOF Decree (PMK) No. 248/PMK.011/2014 on import duties borne by the government on the import of goods and materials to produce goods and / or services for public purposes and enhancing the competitiveness of certain industrial sectors: The EV industry is categorized as a Certain Sector Industry, (an industry that is eligible for Government Borne Import Duty / BMDTP in accordance with the national industrial development policy), the EV industry is also considered to meet the criteria of meeting the provision of goods / services for the public interest (40%), increase competitiveness (30%), absorption of labor (20%) and increase state income (10%) so that a total of 100%. The EV industry is eligible and deserves to be granted BM DTP with the following provisions: (1). Goods and materials have not been produced domestically, (2). Goods and materials have been produced domestically but do not meet the required specifications, or (3). Goods and agencies have been produced domestically, but the amount is not sufficient for the industry's needs according to the recommendations of ministries/agencies.
7. Government Regulation No. 45/2019 on amendments to Government Regulation No. 94/ 2010 on the calculation of taxable income and payment of income tax in the current year: Investment in the EV industry is categorized as a pioneer industry, where the EV industry is seen as an

industry that has broad linkages, provides added value and high externalities, introduces new technology, and has strategic value for the national economy. Taxpayers who make new investments in pioneer industries can obtain Income Tax facilities in the form of a reduction in net income by 60% of the total investment in the form of tangible fixed assets including land used for main business activities, which is charged within a certain period (article 29A). Domestic corporate taxpayers who carry out work practice, apprenticeship, and / or learning activities in the framework of fostering and developing certain competency-based human resources can be given a gross income reduction of up to 200% of the total costs incurred for work practices, apprenticeship, and/or learning (article 29B). Domestic corporate taxpayers who carry out certain research and development activities in Indonesia, can be given a reduction in gross income for a maximum of 300% of the total costs incurred. Issued for certain research and development activities in Indonesia that are charged for a certain period (article 29C).

One to One Meeting, Dialog, and Technical Assistance

Jakarta, 22 April 2021. In April 2021, we organized serial meeting to conduct discussion, dialog, and deliver TA with e-Bus manufacturers/authorized agencies, such as Mobil Anak Bangsa (local bus supplier), and BYD (bus supplier) toward the tax structure of e-Buses, with aim to create fiscal incentive for e-Bus. The tax structure is so complete by detailing: (1). The conventional (diesel) versus alternative bus technology (electric), (2). Comparison between CBU and CKD, (3). Specific tonnage in GVW between 5 to 24 ton because of average GVW of buses is 18 ton, (4). Comparison of tax structure for both diesel and electric buses in Jakarta province, North Sumatera province, West Java province, and Bali province, and (5). Example calculation of both technologies.

Collect the Data

Jakarta, 31 May 2021. We updated several information from the ground, such as:

1. **Second trial after the first trial of e-bus:** TransJakarta had conducted the first trial for one brand of bus manufacturer, BYD from July to October 2020, BYD has passed all of stages of requirements in Ministry of Transport and Ministry of Industry. BYD bus is low deck with 12 m length. After BYD, another newcomer in e-Bus industry, a state-owned enterprise, INKA which has long reputable experience in manufacturing urban and cross-province railways is now starting to tap the e-Bus industry. INKA has manufactured units of e-Bus, it is low deck bus with 8 m length. INKA even though has not passed type of approval test in MOT, and other stages of examination to make it reliable to go on the road in urban cities, joined TransJakarta pretrial phase. It was conducted from December 2020 to March 2021. INKA also has experience on CNG Bus manufacturing in the stage of joint venture with Icarus.



2. **Technology update in worldwide:** We continue the activities, and have never stopped to gain updates from authority side. Recently, local team has gained information about the Transjakarta roadmap for 100 unit of buses, it still doesn't have any concrete guarantee to decide to pass all of suppliers. Due to even in other parts of the world the e-buses technology for battery is still on the process of trial. Pantograph is exception, it has been used in many cities across the world, however, the battery e-Bus is still very limited. There is still also no proven reality that the battery will last until eight years, due to all buses that have been produced even in the world largest e-bus producer, Shenzhen still hasn't performed the year of eight.
3. **KPBB's collaboration with UNEP in 2020.** That Indonesia will gain benefit by IDR 9,600 trillion by 2030 in the form of public health benefit, fuel saving, and productivity increase due to the utilization of EV, including e-Buses. EV efficiency is 30-40% higher than ICE vehicles. EV and e-Bus are still facing a lot of challenges due to huge conflict with ICE technology producers' association, such as the taxation structure which have more bias on ICE manufacturer interest.

4. **Transjakarta's roadmap:** The ambition for 50% of their total fleet are electric by 2025, and 100% fleets will be electric by 2030. Several challenges on the ground found by local team, such as: there are remaining issues, such as the charging station availability, power supply/wiring/grid, the used battery recycling industry, and advocacy process to all components of key stakeholders. On this step, KPBB has serial meetings with Director of Technical and Facility of TransJakarta to assist on the legislation process to gain umbrella regulation on e-Bus deployment. So, e-Bus roadmap legislation is a necessity, and must be finalized as soon as possible.
5. **Factsheet on procurement in Indonesia to collaborate with procurement expert:** It is found that 70% of public goods and services procurement is corrupt, there is mark up, and single suppliers. It is a must to use local approach for the case of procurement in Transjakarta.
6. **Dialog on SPP:** We have several meetings with the Governor Team for Development Acceleration to conduct advocacy process on e-Bus deployment with SPP (Sustainable Public Procurement) agenda. We have prepared all preparation on the advocacy process such as the logistics on the ground, meeting needs in the form of one-on-one meeting with key stakeholders, prepared materials, Term of References for related meetings, logistics, including meeting venue. It was planned to provide updates from other countries (Chile, India, and Bogota) how did they do procurement for buses. Then, we have implemented part the agenda on SPP, and currently are still continuing other agenda. On February 2022 we will launch Policy Draft on SPP.
7. **GPS tracker devices installation at the bus fleets:** According on proper data GPS tracker, we have plan to install by ourselves on the bus fleet in relation to gain realtime data of GPS tracker that will be cover data of coordinate, speed, timing; all with interval per second. The data will be utilized to develop advance route level of TCO analysis, to get more detail of TCO analysis, which resembling reality in bus fleet operations.
8. **Meeting with Governor Team for Development Acceleration on May 27, 2021, 8 September, 30 September, and 16 December 2021:** We did meet with governor team to gain clarity on sustainable public procurement details and how it works under city government and TransJakarta. It was clear procedure and stages that must be taken. It covers the legality, format of advocacy process for policy reform on public procurement for public transportation and official vehicle. As above-mentioned, we have done with the policy draft (will be launch on February 2022), and other communication process with related key stakeholder, but still need to continue with details plan and intensive communication with related stakeholder to binding their commitment on SPP for public transport and official vehicle.

A breakthrough in electric bus adoption

Jakarta, 30 June 2021. June is a special month for DKI Jakarta Province due to it is the anniversary of Jakarta province, in June 22. 20 unit of e-buses are ready in Jakarta, with the brand of BYD, and it was prepared to be performed in the downtown area of Jakarta to celebrate the Jakarta anniversary. However, due to certain reason, so that e-Buses have not approved to be operated by taking the momentum of Jakarta anniversary on June 22, 2021, that is the operating contract (Joint Collaboration Agreement). There are several activities engaged on June 2021:

1. **Inputs have been delivered by the Operating Director of PPD:** PPD is one of the largest public bus operators that have been operating in Indonesia's road for about more than 40 years ago. Director mentioned about several things that must be solved on the ground:
 - a. From the list of C40 cities, which cities in which countries have been successful to deploy e-bus, who are the suppliers, how many buses, and taking how many years from the initial plan, mandate from the government, mapping the stakeholders, define the needs, until pre-pilot, pilot, and finally officially operating on the road and building the whole and complete ecosystem of e-buses (ecosystem starting from energy generation, charging infrastructure, battery technology, e-Bus, feeder/and public transport connections, used EV battery recycling).

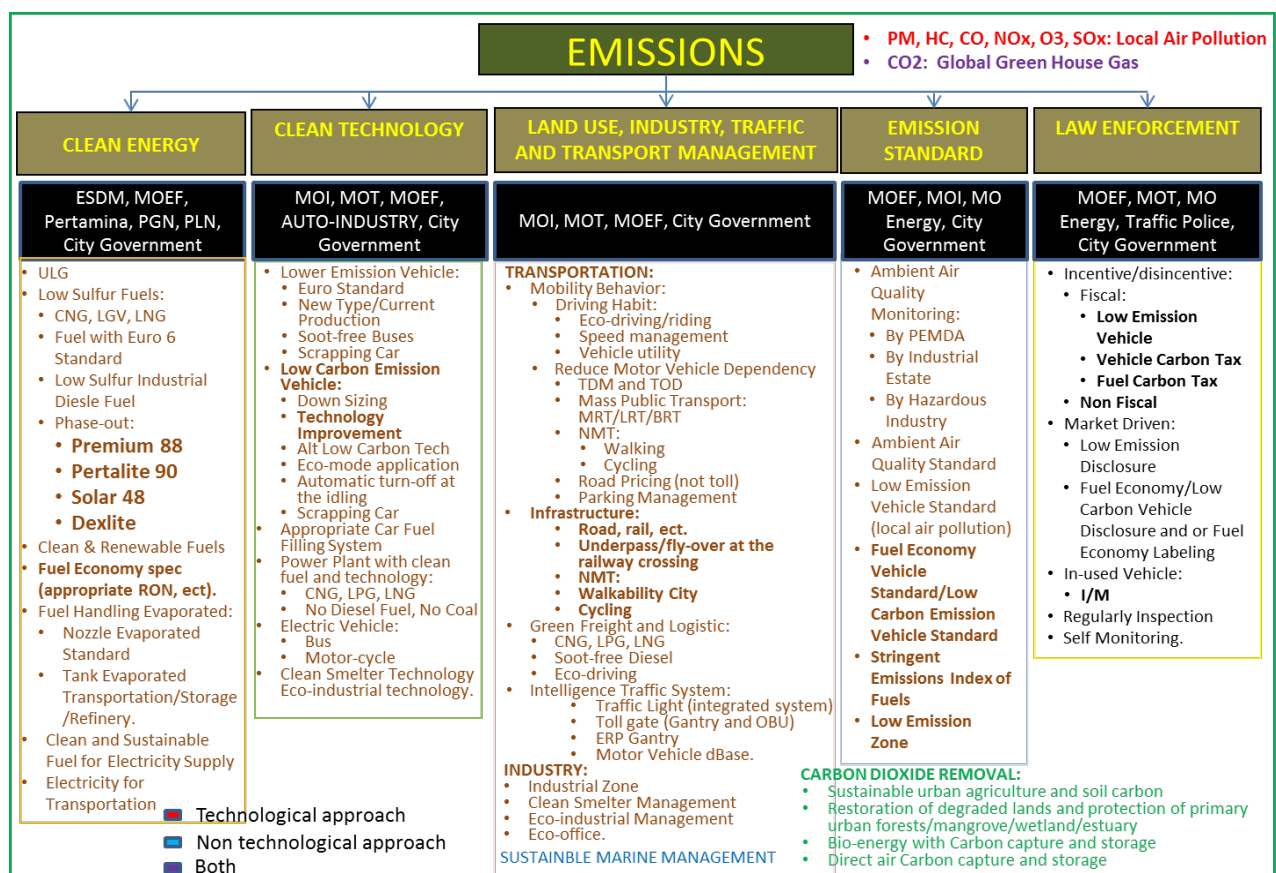


Chart. Scheme of Vehicular Emission Reduction Control Strategy

- b. For deploying 100 e-Buses, it needs huge number of megawatts, if it is in the city context, which is Jakarta, a very crowded city with 12 million of residences which has 44 sub-districts, it needs additional power of electricity that equal to the needs of one subdistrict in the city. How much does it cost to supply that electricity needs? Of course, PLN as an electricity provider can answer it, but surely it needs huge cost investment. Who will pay for that? The answer is operators, even though it is unfairness business, normally must be provided by the electricity provider, especially according to the Presidential Decree No 55/2019.



- c. Other issues such as unstable voltage in Jakarta, so to solve it must be stable in order to charge the bus at night to achieve the target only three hours of charging time; otherwise charging time will spent for overnight. If the current situation is not discussed and solved together, which is unstable voltage in the city, that will generate charging-time spent for about 7 to 8 hours¹. In the reality, they have to achieve maximum km mileage, which is 238 km per day.



- d. The issue of energy storage, e.g., the concept is like power-bank.
- e. Land availability for the bus depo is a crucial matter in Jakarta, according to the shortage land with high price per m². Moreover, e-Bus needs wider area to make maneuver, and its charging facilities. Only one of the public bus operators claim that has the widest land available for the depo with its enough space for bus maneuver.

2. Policy update:

- a. New policy from Ministry of Environment and Forestry issues MEF decree No. 12/2020 on Emission Standard for Lithium Battery Recycle, which is just issued in May 25, 2021. It stipulates the procedure to monitor emission related Lithium battery recycle, that cover parameters SO_x, NO_x, PM, and lead.
- b. Incentive for EV industry in upstream side, Ministry of Energy and Mineral Resources (MEMR) states that the electricity tariff for public charging stations (business entities who operate that) with IDR 1650/kWh multiplied by max is 1.5 is still very expensive. In other discussion in the end of 2020 any bargain through serial meeting among Directorate General for Electricity, PLN and other key stakeholder include BRT Trans Jakarta then resulted new tariff with IDR 1,145/kWh, even though it is still possible to be bargained as bulk tariff especially for public transport purpose, then agreed to be discounted to IDR 825/kWh; even though to create tariff incentive we need the tariff IDR 700/kWh.

¹ The public bus operator's calculation



- c. Ministry of transport MOT is accelerating and opening the EV market in Indonesia started from government official vehicles. It is not only stated in the MOI decree No. 27/2020, but it is also stated again by the Coordinating Ministry of Maritime and Investment. 25 units EVs have been operated, while 43 units are going to be ordered periodically.
- d. Ministry of Home Affairs calculates that tax, and transfer fee for any kinds of BEV is applied maximum 10% for all with no specification of 23 wheelers or 4 wheelers or buses. Indonesia has start up EV battery manufacturing, that is the Indonesia Battery Consortium (IBC). The IBC is established by the consortium of 4 (four) state owned enterprises (SOEs) of the Indonesia Asahan Aluminum (MIND ID), gold and nickel miner Aneka Tambang (Antam), Oil Company Pertamina, and Perusahaan Listrik Negara (PLN), plus two of others are international parties. The IBC is established in March 2021 for developing the extractive industry on Nickel, Manganese, and Cobalt, involving huge amount of investment about IDR 147 trillion. Other importance element that are needed for EV battery raw material (Lithium) must be imports from abroad, one of them are Australia.

Update on policy per July 2021

July 2021 [the critical time in Indonesia, especially in Jakarta due to a new variant, delta variant clashed the Indonesian health care system and it caused hundreds of deaths every day during July 2021. Due to these heartbreaking cases, all government offices and private activities were completely closed during the month]

Jakarta, 31 July 2021. Policy update: Governor Instruction (IN-GUB) No. 17/2021 on controlling climate disaster impact. This Ingub covers the assignment from governor to transport agency to encourage the deployment of 100 e-bus by 2021. This is a commitment from the governor of DKI Jakarta, this was signed on April 1, 2021. KPBB got this update from our communication with the CEO of Bakrie Autoparts, Dino A. Ryandi and this is a very clear policy support from the governor

We have successfully conducted a very productive meeting with EV manufacturers such as the CEO of BYD Bakrie Autoparts (July 15, 2021), SAG, and Higer Motor Indonesia. It covers several findings, such as:

1. Bakrie Autoparts' participation in supporting the e-Bus deployment plan, such as in 2018 has served e-Bus at the World Bank-IMF Annual Meeting in Bali, and ready to support for Formula E event in June 2020 but hampered by pandemic.
2. Bakrie Autoparts also conducted a trial in Bali and in Aceh after obtaining satisfactory results from a three months trial in Jakarta from July to October 2020.
3. With the support from Governor DKI Jakarta, DKI Jakarta Transport Agency (Dishub), and Governor Team for Development Acceleration (TGUPP); TransJakarta sent a letter to the operators, car bodybuilders, and suppliers to provide e-Bus in 2021 for Jakarta demand to fulfil Jakarta bus fleets. The assignment was accepted by Bakrie Auto-parts to release purchase order (PO) to BYD (in China) for 30 units e-Bus procurement on March 4, 2021. The 30 units e-Bus are low deck of CBU. In May 2021 BYD held a ceremony to celebrate the completion of the thirty buses.
4. Goods and services procurement agency invites operators to clarify the agreed price on June 24 – 25, 2021, then Bakrie Autoparts pays off the purchase of 20 units of a total of 30 buses via shipping to Jakarta so that it can be operated on June 22, DKI Jakarta's anniversary. The rest of 10 units e-Bus will arrive in the end of July 2021.
5. Bakrie Autoparts provides supervision to Mayasari Bakti for infrastructure development, such as charging system installation, and ensures infrastructure with enough stable voltage of electricity supply. This is excluded the procurement cost of buying e-Bus.
6. Transjakarta insists on IDR 22,956/km with a bus investment of IDR 5.3 or 5.6 billion, with a km mileage of 66,628 km/year.
7. The remaining of 70 units which are allocated from 100 buses; are CKD high deck. Bakrie Autoparts has opened a partnership and signed an MoU with several local bodybuilders/carrosserie, including Laksana, Tentrem, Adiputro, Trisakti, and New Armada, and the five are ready to build buses.
8. Charging infrastructure. Bakrie Autoparts does not use a charger from BYD, but they take a charger from a local company that has been certified by PLN, which has obtained a certificate from the Technical Inspection Agency from PLN, and Powerindo. One charger requires 200,000 (two hundreds thousand) watts, so it will take 2 (two) megawatts to install 10 (ten) chargers. The installation of a 2 (two) megawatts power supply requires a variety of infrastructure installations, including switchyard, substations, additional transformers, the grid, and distribution to the e-Bus depo. Powerindo has experience doing civil work, and is officially certified.

9. The needs to convey the provincial government and Transjakarta to manage about some of the challenges, including optimizing daily VKT or mileage, with aim to reduce operating cost per unit (BTS Rp/km).
10. The role of PLN needs to be up graded to handle the investment cost to extend wiring and transformer/grid construction which is almost equal to the price of 2 (two) units e-Bus ~IDR 10 B. The infrastructure for EV power supply must be provided by the electricity provider (PLN), as respectful to the national program on acceleration of BEV refer to the Presidential Decree No 55/2019.
11. BTS (buy the service) is potentially hinders the e-procurement process. The service tariff for (1). Articulated bus which has CAPEX IDR 4.2 billion, the service tariff is IDR 31,000/km; (2). Maxi-bus length 13.5 m which has CAPEX IDR 3 billion, the service tariff is IDR 26,000/km, and both minimum mileage per year is 84,000 km; (3). Diesel single-bus 12 m which has CAPEX IDR 2.3 billion, the service tariff is IDR 19,000-21,000/km with annual VKT or mileage is 80,000 km. (4)

Meanwhile, e-Bus which has CAPEX IDR 5.3 billion, the service tariff is IDR 22,956/km (8 years technical lifespan, with 196 km of daily VKT)².



As comparison, the other analysis³ shows us that (5) diesel single-bus 12 m which has CAPEX IDR 2.3 billion and powered by Diesel Fuel - Solar 48 with S content 1800 ppm, and annual VKT or mileage is 61,440 km; the service tariff is IDR 19,100/km. (6) Diesel single-bus 12 m which has CAPEX IDR 2.3 billion and powered by Diesel Fuel – Perta-DEX with S content 350 ppm (comply to Euro 3/III standard), and annual VKT or mileage is 61,440 km; the service tariff is IDR 22,352/km. (7) CNG single-bus 12 m which has CAPEX IDR 3.3 billion and powered by CNG, and annual VKT or mileage is 61,440 km; the service tariff is IDR 19,176/km. (8) e-Bus which has CAPEX IDR 5.3 billion, the service tariff is IDR 21,037/km (8 years technical lifespan, with 192 km of daily VKT, electricity tariff is IDR 825/kWh). (9) e-Bus which has CAPEX IDR 5.3 billion, the service tariff is IDR 20,584/km (8 years technical lifespan, with 192 km of daily VKT, special electricity tariff is IDR 700/kWh). [See table.](#)

12. **Challenge on Daily VKT (Vehicle Kilometre Travel).** With annual VKT is 66,628 km or daily 196 km, Transport Agency allocates the service tariffs of IDR 25,000/km (BTS, buy the service), taking into account for the e-Bus which has investment cost IDR 5.3 billion per unit, plus IDR 300 million per unit per year for maintenance. Look likes controversial with the diesel bus which run with dailiy VKT of km mileage 238 km. The daily VKT of e-Bus should be

² TransJakarta calculation

³ Calculated by KPBB, 2021

maximized even up to 300 km per day or at least similar with diesel bus (238 km/day). It makes sense, because the e-Bus specification which is requested by Transjakarta is technology with battery capacity of 320 kWh (minimum). Refer to the data of three months e-Bus trial, even with 20% tolerance, the battery capacity can reach up to 288 km per day, meaning that if the use is only 196 km per day, there is tolerance reaching 60% of the capacity. To reduce the BTS or service of tariff, it is necessity to reform the length of contract periods (technical lifespan) for e-Bus from 8 years to be 16 years; with condition (1) the minimum service standard (engine performance, battery performance, body, and interior of bus) must be applied strictly through monthly evaluation, parallel with daily random technical supervision; (2) the battery should be replaced when the technical lifespan reaches 8 years and or earlier when the battery is exhausted.



13. **Challenge on Battery Recycling Issue:** the operator has proposed number of IDR 24,300/km to IDR 24,900/km to stay within the budget range (regional budget from city government) of IDR 25,000/km as determined by Dishub, but that does not include the cost of replacing batteries in year 8, or before.
14. **Challenge on Electricity Tariff of IDR/kWh.** The explanation above is only in the form of power addition which is still expensive, but it is not clear about the IDR tariff per kwh expected by operators and e-bus manufacturers IDR 700/kWh from the initial IDR 2,300/kWh. The total investment: CAPEX on purchasing bus plus investment in charging infrastructure; it is temporarily concluded that the value to purchase 30 buses equivalent to the purchase of 32 buses, where price worth of 2 e-Buses is allocated for power supply installation.
15. **Challenge on Business Model.** According to the status of e-Bus fleet operation is start up business model globally, and there is no data to convene public bus operator, and refer to the 3 (three) months trial of e-Bus in Jakarta, then the public bus operators establish 3 - 4% additional cost excluded
16. CAPEX to mitigate uncertainty matter refers to the absence of this operational cost data. Even though, according the experience on the ICE bus fleets investment and operation, it is just need 1% additional cost.

August 2021

Jakarta, 31 August 2021. Our team was assigned to write memo to governor of Jakarta by KPBB to approach governor and take a visionary step in all challenges among e-bus deployment. Several important contents of memo to governor such as:

1. All activities from early 2019 to mid 2021 that have been initiated by ICCT and KPBB
2. The status of all key parties in deploying e-buses, such as city government, Transjakarta, bus suppliers, and bus operators
3. Commitment of bus operator:
They have made a fantastic investment for the realization of a clean air program from the road transportation sector, through a partnership contract with the BRT authority in DKI Jakarta. Their role is very crucial, including:
 - a. They present for the success of the electric bus program, when investment in purchasing electric bus units is still very expensive along with large number of buses_30 units, so that they invest a relatively huge amount
 - b. They will also become a barometer of the success of the BRT authority in operating electric buses which of course will inspire other cities across Indonesia in the adoption and implementation of electric buses
 - c. They are willing to invest in quite a fantastic amount for all financing expenses, such as electric bus units, electricity infrastructure for high-upfront, and various initial costs for operation, including operational and maintenance costs for electric buses.

However, despite the encouraging progress in the early stages of the electric bus operation plan, there are still some challenges. This has the potential to hamper the process of implementing electric buses in DKI Jakarta Province. Solutions to the various challenges of operating electric buses in Jakarta include several institutional roles, such as Jakarta provincial government, PT Transjakarta and central governments such as PLN, the Ministry of Energy and Mineral Resources and the Coordinating Ministry for Maritime and Investment, as follows:

Action by Central Government:

1. PT PLN, Persero. PT PLN, Persero should build an additional power infrastructure network and a medium voltage distribution network. Operators are parties who have invested in the construction of PLN's distribution network infrastructure, which is a very advanced step considering investment in ebus deployment, however this should be the responsibility of PT PLN, Persero
2. PT PLN, Persero and the Ministry of Energy and Mineral Resources. These two institutions should discuss together to agree on an electricity tariff (Rp/kWh) to find more economical price than the current price of Rp. 1,600-2,300 per kWh to Rp 700 per kWh. It has also the potential to become more affordable with bulk rates used for mass transportation.

Actions at the Provincial Level:

1. Service tariff IDR/km. This must be the responsibility of Transjakarta to discuss tariffs in a fairness business with various related parties, especially operators so that there is fairness and continuity of electric bus operations
2. Contract. The contract between the operator and Transjakarta is seven years referring to Governor Decree No. 96, 2018. Meanwhile, the plan to revise this Governor Decree that requires the contract

period to become 10 years will be a problem in the sustainability of electric bus operations, both technical and financial problems considering the age of the battery is only 8 (eight) years

3. Kilometers mileage. The determination of the daily operational mileage kilometers needs to be re-discussed so that the achievement of the electric bus mileage is optimal.



Main thoughts on Policy Recommendations/Challenges of Electric Bus Acceleration of KPBB

1. The electricity tariff is IDR 1,600 – 2,300/kWh to IDR 700/kWh. Considering that various capital expenditure investments for electric buses are the fully responsibility of the bus operator, then with more an economical electricity tariff, it will reduce the burden on bus operators in charging energy for daily bus operations
2. The service tariff for the CNG bus service is IDR 29,000 per km; IDR 31,000 per km for CNG articulated buses; IDR 26,000 per km for medium bus 13.5 m - diesel, and other findings are IDR 19,000 – 22,000 per km. The capacity of the battery needs to be maximized in the form of operating km travelled as much as possible which is close to 300 km per day
3. The contract between the operator and Transjakarta is seven years. Considering that the duration of battery life is only eight years, if the contract between the operator and Transjakarta is 10 years, it will be difficult for the operator to achieve their economics target.

As part of key role of KPBB, advocacy, KPBB and ICCT local consultant did press conference in the yard of Jakarta city hall in front of journalists to announce the status of e-buses and steps that governor of Jakarta should take to accelerate the deployment.

We were working on Green Public Procurement (GPP) guideline document. Data were collected from all meeting results with key decision makers and their components in Greater Jakarta area in city level and several agencies as well as ministries in central level.

Green Public Procurements And Greater Jakarta Agglomeration on e-Bus

From September to December 2021, ICCT local consultant was assigned by the ICCT Indonesia HDV program to complete the GPP guideline document that is structured by the ICCT Indonesia HDV program project leader with the intention to engage with Transjakarta by providing the GPP guideline document. KPBB who has been working with Indonesia central and city governments totally understand to engage with local entity, in this case is Transjakarta. Even providing the best technical research from international agency will never solve any issue of procurement in Indonesia. But then ICCT local consultant is required to collect and gain all data related to the procurement of Transjakarta from the ground. ICCT consultant gained advantages of the involvement and help of KPBB staffs who always support for the site visit, interview, finding the best person to talk to.

1. **GPP guideline document:** Data collection from several confidential reports and site visit to several depo owned by Transjakarta and operators. It required expensive logistics to collect all data related to the procurement under Transjakarta management. Data was not available online or written in any documents. Data was completely gained in the real players of former Transjakarta tendering partners. The data was very detail and based on the real experience of all key parties. The compiled information covers the sensitive area of Transjakarta's tendering process, it took a lot of efforts, challenges, and risks to collect the data in order to fulfill the request of the leader of ICCT Indonesia HDV program. Several data were collected, as follows:
 - a. Tender eligibility: (1). Annual Turnover Requirements, (2). Types of Bidders, (3). Manufacturing Capacity, (4). Operating Experience
 - b. Contractual obligations: (1). Performance Bank Guarantee Amount and Duration, (2). Subsidy Bank Guarantee Amount and Duration, (3). Payment in The Case of Contract Termination, (4). Depot Development and Asset Transfer, (5). Statutory Taxes, (6). Asset Ownership at The End of Contract Tenure, (7). Third-party Insurance
 - c. Duration: Years of Contract for E-bus
 - d. Payment terms: (1). Assured-km of Payment, (2). Payment Periodicity and Late Payment Penalties, (3). Payment for Additional-km, (4). Payment for Underutilized-km, (5). Mechanism for Payment Revision, (6). Penalties and Service Level Agreements, (7). Minimum Amount to be Maintained in Escrow Account, (8). Charging/electricity cost subsidy.

That information are available online for several cities, such as Kolkata, Shenzhen, Santiago, and Bogota, but it is different with Indonesia with specific case of Transjakarta who have been famous due to its corruption and opacity in procuring its fleets. Those data are collected through complicated process of visiting site, depo, other meeting places and costed a lot of money for logistics, transport, and treating resources person. It took long process and big effort to interview targeted person. KPBB has been experienced in entire process, the experiences that have been gained since the last 20 years due to working with government.

2. **MoU with BPTJ that was initially planned to be held in October 22, 2021:** There was shifting of BPTJ leadership since 2020. ICCT and KPBB have signed the MoU in October 2018 to bind the commitment, where BPTJ is the transport authority in Greater Jakarta area and KPBB provides support from the ground, the MoU with BPTJ will ease ICCT works for long-term commitment in Indonesia, starts from Greater Jakarta area. It has the expiration date was three years until October 2021. This was the time to renew the MoU and fill in necessary additional needs of ICCT that is now expanding the members in Greater Jakarta area. BPTJ requires KPBB

to write the complete activities that KPBB and ICCT have been doing in the last three years for giving a hint to the new head of BPTJ about what have been done among all parties, moreover former head of BPTJ was actively involved in several ICCT and KPBB advocacy works.

3. **End of the year reflection.** KPBB and ICCT local consultant conducted the end of year reflection as a response of KPBB and local consultant to the current issue in Indonesia. Indonesia as one of the eight remaining countries who is still largely distributing RON 88, its 40 to 70% of total consumption comes from import with opacity of price. There was a statement of President of Indonesia to remove RON 88 gasoline by 2022, so that KPBB and ICCT responded the issue by launching the statement in front of media in December 30, 2021.

To End Lead Poisoning from ULAB Recycling Smelter

Jakarta, 30 September 2021. Lead poisoning has not been completely phased-out from Indonesia. In the past, we had problem with lead poisoning in the air came from tile-pipe motor vehicle which were powered by leaded gasoline (LG). Since leaded gasoline was banned in the Greater Jakarta by July 2001 and nation-wide by July 2006, today the threat of lead (Pb) poisoning comes from used lead acid battery (ULAB) recycling to produce lead ingot, a raw material to produce battery, electronic part, paint, glass, and other useful goods. In the economic perspective, we understood that ULAB recycling has high economical value that could support economic growth beside to help environment to save raw material from galena depletion.

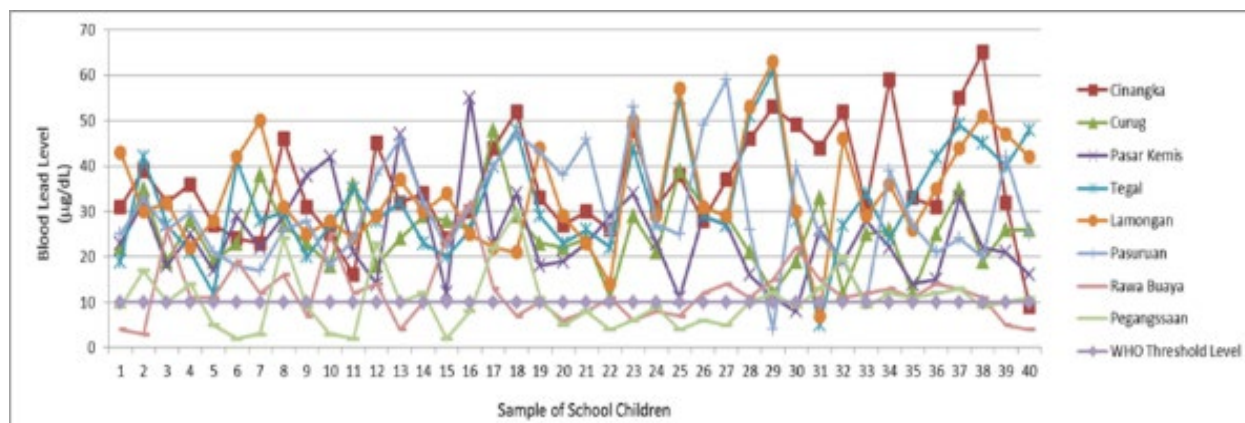


Figure 1: The Result of Schoolchildren BLL (Blood Lead Level) Test in 8 Cities (2016)

However, various research regarding lead poisoning shows us that lead exposure has negative effects to human health, with fatalistic impact for instance decreasing of children's point of IQ, increasing aggressiveness, and anti-social behavior, fetus abnormality, high blood pressure, spontaneous abortion, miscarriage, infertility, tremor, kidney failure, permanent brain damage, premature mortality, down syndrome, etc. At all surrounding areas illegal ULAB recycling smelters such as in 8 (eight) cities/regencies: Bogor, Tangerang, Tangerang City, Tegal, Lamongan, Pasuruan, West Jakarta, North Jakarta; we found above mentioned fatalistic impact of lead poisoning to the human health especially children. The mean of blood lead level (BLL) of school children in those cities/regency is $25.6 \mu\text{g}/\text{m}^3$. The first step to stop lead poisoning exposure is to stop the flow of ULAB as raw material to the illegal smelter. For this, it is importance to legalize and to nurturing dropping points of ULAB, how to handle ULAB properly, and guide to deliver their ULAB to the appropriate legal smelters.

Approximately, Pesarean Village emitted hazardous waste and its 1 ton per day, with particulate matter $5,429.97 \mu\text{g}/\text{m}^3$ (threshold level is $230 \mu\text{g}/\text{m}^3$), lead (Pb) concentration in soil is reach $128,672 \mu\text{g}/\text{m}^3$. And open dumping lead slag in residential areas and part of Amangkurat King Cemetery reach $16,200 \mu\text{g}/\text{m}^3$ (estimated by Ministry of Environment with University of Padjadjaran in 2011 which areas of 2500 m^2). If we are using reference soil as threshold level, it reach $33,925 \mu\text{g}/\text{m}^3$ or if we are using threshold level refer to PP No 101/2014 reach $25,722 \mu\text{g}/\text{m}^3$. Meanwhile, exposure of Cu in ground water covers $43,903 \text{ m}^2$, and Zn covers $55,885.33 \text{ m}^2$ with 3 m deep from the water table.

People in Pesarean Village are suffered by high lead exposure from smelters, so do people in some places in Tangerang, West Jakarta, Bekasi, Kerawang, Bogor, Purwakarta, Klaten, Lamongan, Pasuruan, sub-urban of Surabaya, etc.

Soils in surrounding areas of lead smelter in those cities are heavily contaminated by lead, arsenic, and Sulphur acid exceeding the threshold level. According to the WHO safe threshold level of lead in soil is maximum 400 ppm, but we found thousands ppm more over more than 100 thousand ppm in those places.

Blood Lead Levels (BLL) of children in Pesarean Village in average (2010) is 32.27 µg/dL, with minimum level of 8.2 µg/dL found in a six-year-old boy and maximum level above 65 µg/dL (very high) found in a five year old girl. And the BLL test that was conducted on 30 November 2018 shows the average 21.4 µg/dL with minimum 6.10 µg/dL, and maximum 73.4 µg/dL. Meanwhile according to WHO, the threshold for normal BLL is maximum 5 µg/dL. Before we also found the BLL's schoolchildren who stay in surrounding areas of smelter in 8 cities with minimum 2 µg/dL and maximum 65 µg/dL with average 25.63 µg/dL (KPBB, 2016).

Furthermore, in surrounding areas of lead smelter is founded the children who are born, and or growing up with having disabilities which is suspected to be caused by lead poisoning, such as down's syndrome, mental disorders, abnormal bodies, acute anemia, tremors, autism, and among others. Many adults suffer from high blood pressure, tremors, stomach cramp, infertility, wrist drop, foot drop, erectile dysfunction, kidney failure, pneumonia, coronary artery diseases, disability, etc.

The villages of Pesarean in Tegal Regency, Cinangka, Parung Panjang in Bogor Regency, Cipondoh and Pasar Kemis in Tangerang City, Balaraja in Tangerang Regency, Rawa Buaya in West Jakarta, Pucuk in Lamongan Regency, Beji in Pasuruan Regency, and other places such as Medan, Batam, Pontianak, Banjarmasin, Makassar, Purwokerto, Pati; which have many well-established household smelting and metal-working activities. They have been operating for more than half a century. Various metals are handled: aluminium, copper, lead, zinc, mercury, tin, iron and steel. Raw materials come from scrap metal, including used lead acid batteries (ULAB) from cars, motorcycles and trucks. Smelting activities are open, and waste materials are dumped around the village.

Currently, there is not enough action to save the children in the surrounding areas of lead smelter. There is no real effort to stop permanently the sources of lead contamination from used lead acid recycling. The clean-up project also is still not followed up with another effective clean-up/remediation with broader areas, such as streets, yard, paddy fields, football field, river bank, etc.

So, while we are waiting the technical action on related clean up the hazardous waste contamination in those villages and its surrounding areas and install/operate clean metal smelter/crafting; it is importance to redesign spatial planning to relocate metal smelter to the industrial zone, beside to improve villagers understanding, awareness and skill to avoid high risk heavy metal exposure from both smelter/crafting industry, and heavy metal-slag dumping.

Material and Methods

A screening of BLLs of 106 children belonging to different schools and representing different classes of society was done. This screening showed that children belonging to a particular government primary school had higher lead levels when compared with their peers. A second screening program of 87 children was conducted in that school. It was found that only 19% had BLL <10 µg/dL, 44% had BLL between 10 and 20 µg/dL, and the remaining 37% had BLL >20 µg/dL. Forty-one children having BLL >20 µg/dL were selected from the two screening programs and divided into two age groups of 7 to 10 years and 11 to 13 years. Three children dropped out

of the study (left the school). Among the 38 children, a comparison of the results was done between the children of two age groups and between male and female children.

A screening of candidates of 350 schoolchildren who will be volunteers on BLLs test were invited regarding to the smelters location which were established as clusters. At this effort, first we conducted inventory and identify various smelters in various cities/regencies in 17 cities/regencies in whole country, then established 8 smelters in 7 cities/regencies. Those are Bogor Regency, Tangerang City, West Jakarta City, East Jakarta City, Tegal Regency, Lamongan Regency, and Pasuruan Regency. The next step is to conduct inventory and identify related smelters in the city/regency which has characteristic easy to be accessed, relatively has highest population at risk, and strong support from city/regency government. At this screening we established the list with 400 candidates representing 25 elementary schools in 8 villages/kampungs of 7 cities/regencies. Base on parental consent which was delivered through the Parental Consent Form, then we just have 311 candidates from 8 villages/kampungs. To fulfill total minimum candidates, then we invited directly to the parents in those areas and then gained addition 39 volunteers.

Sample Collection

Base on parental consent with above mentioned description, the study got 332 blood samples of school children representing those 25 schools. The study was approved by the ethical committee review board, and then the study was conducted on the range of August – December 2021. Per sample was taken fifty microliters of capillary blood, and was collected in graduated capillary tubes, then immediately transferred to the blood diluent reagent which was provided with the kits.

To estimate the BBLs, the study analyzed the collected schoolchildren blood by utilizing Lead Care II Analyzer [Environmental Science Associates (ESA Inc., USA)]. The analyzer uses anode stripping voltammetry (ASV) method for measuring the BLLs, where the sample blood was taken and placed to the reagent solution. When it is any lead present, it is released from the blood components then lead in the reagent solution was concentrated into a thin-film electrode during the plating step of the analysis cycle. The plated lead was removed from the electrode by applying a stripping current, and the amount of lead was measured by integration of the electric current released during this rapid electrochemical step. So, current released during the stripping step was directly proportional to the amount of lead present in the blood sample.

Up Date the Schoolchildren BLLs

In 2021-2022, KPBB has being up dated the data of schoolchildren BLLs in 8 cities/regencies that were tested before in 2016. Currently, we have finalized 1 (one) regency (Tegal Regency) upon 25 blood-samples of schoolchildren of elementary school. In 2022, we will continue to up date BLLs data for others of 7 cities/regencies.

Report on Blood Lead Level (BLL) Test

Table: Blood Lead Level Test

No	Code	Address	Born	BLL µg/dL
1	1811300045	Pesarean RT/RW 037/008 Adiwerna	08/12/2009	43,00
2	1811300050	Pesarean RT/RW 036/008 Adiwerna	01/03/2011	15,70
3	1811300051	Pesarean RT/RW 035/008 Adiwerna	19/04/2010	19,20
4	1811300052	Pesarean RT/RW 037/008 Adiwerna	30/11/2009	73,20
5	1811300053	Pesarean RT/RW 036/008 Adiwerna	22/08/2012	12,30
6	1811300054	Pesarean RT/RW 037/008 Adiwerna	23/03/2012	12,90
7	1811300055	Pesarean RT/RW 036/008 Adiwerna	15/05/2013	18,20
8	1811300056	Pesarean RT/RW 003/002 Adiwerna	29/10/2011	14,30
9	1811300057	Pesarean RT/RW 033/008 Adiwerna	01/01/2009	16,10
10	1811300059	Pesarean RT/RW 034/008 Adiwerna	02/02/2010	14,80
11	1811300060	Pesarean RT/RW 015/004 Adiwerna	28/12/2011	6,80
12	1811300061	Pesarean RT/RW 037/008 Adiwerna	28/09/2008	15,10
13	1811300062	Pesarean RT/RW 037/008 Adiwerna	10/07/2012	12,20
14	1811300065	Pesarean RT/RW 036/008 Adiwerna	01/09/2012	65,00
15	1811300066	Pesarean RT/RW 021/005 Adiwerna	09/04/2012	16,20
16	1811300067	Pesarean RT/RW 026/006 Adiwerna	29/04/2011	17,50
17	1811300068	Pesarean RT/RW 017/004 Adiwerna	15/07/2011	65,00
18	1811300069	Pesarean RT/RW 022/005 Adiwerna	05/01/2012	14,90
19	1811300070	Pesarean RT/RW 021/005 Adiwerna	10/12/2014	5,40
20	1811300071	Pesarean RT/RW 28/007 Adiwerna	28/08/2013	11,30
21	1811300072	Pesarean RT/RW 025/006 Adiwerna	21/02/2014	9,30
22	1811300073	Pesarean RT/RW 037/008 Adiwerna	29/09/2015	12,70
23	1811300074	Pesarean RT/RW 036/008 Adiwerna	28/07/2013	11,40
24	1811300075	Pesarean RT/RW 034/008 Adiwerna	28/07/2014	18,20
25	1811300076	Pesarean RT/RW 037/008 Adiwerna	12/11/2011	12,70

BLL Test Analysis

With regard to the BLL test that was conducted on 23 November 2021 supported by Medical and Paramedical Experts to take the blood samples, we get the data that the mostly people who are taken their blood (25 people) have average (mean) BLL 21.34 µg/dL or above the threshold level that is established by WHO (5 µg/dL) with minimum 5.40 µg/dL and maximum 65.00 µg/dL.

The result of BLLs test analysis is followed-up by recommendation for the parents of school-children, teachers, and also related official government especially from Health Agency to conduct related activity to avoid lead poisoning, chelation with high Calcium and other nutrition for their daily consumption, stopping the activity which have lead exposure, find income-generating alternatives to tin smelting and crafts that threaten public health.

Low Carbon Mobility

Urban non-motorized mobility with walking and cycling



New Trend of Walking and Cycling in the Post-pandemic

Campaign Programme for Climate Diplomacy Week, September – November 2021

- Virtual walking and cycling challenges
- Live report,
- Talk-show (moderator, speaker, translator)
- Short film documenter and re-launch gadget application for better pedestrian facilities.

Rational

It is known that people are depended on utilizing motor vehicle for their mobility for many years, even though just short destination with approximately for 100 m or 300 m, at least below 1 km, such as go traditional market, mosque, church, kinder garden, school, etc. They utilize their car, motor cycle, or just rent motor cycle (ojek), and avoid utilizing non-motorizing mobility such as cycling or walking with various reasons: inappropriate and secure sidewalk, unavailable bike path, uncomfortable with sun-sine/rain weather, spoil their beauty by sunlight, anxious sweaty and smudge their luxury perfume, and other various unwarranted excuse⁴. Indeed, it raises the problem then such as increasing people dependency on motor vehicle which tend to traffic jam⁵, increasing

⁴ Assessment Report, 2011, "Enhancing Walkability City in Yogyakarta", Jakarta, KPBB-GIZ.

⁵ Traffic jam in Jakarta caused social cost Rp 68 trillion (2014), Report, Ministry of Transport, 2014.

air pollution, more emitting green-house gas emissions, burden on energy supply, increasing illness and diseases caused by air pollution with its medical treatment cost⁶, urban depression, etc.



Many and various programs have been developed and implemented well, and success, even though still cannot achieve on optimizing of walkability and cycle-ability cities. KPBB, KoPK and Bike to Work have long experience on this field, and now we are still struggling on these efforts.

Blessing in disguise of pandemic Covid-19 tend to create momentum, which people back to utilize non-motorized mobility: walking and cycling; with modus to avoid spreading of virus outbreak in pandemic Covid-19 situation. Today, people are excited on walking and cycling for their mobility. It is a great momentum in relation to revive urban non-motorized mobility with walkability and cycle-ability cities, as in the past in the years before 1970s.

As civil society organizations which have experience on enhancing non-motorized mobility, KPBB, KoPK and Bike to Work are excited to escort this great momentum on reviving urban non-motorized mobility with walkability and cycle-ability cities with walking and cycling as transportation mode, moreover in the post pandemic. So, we have being conducted advocacy for public policy reform to convene related stakeholder especially government in relation to improve related infrastructure, regulation, as well as socio-engineering to welcome reviving urban non-motorized mobility with walkability and cycle-ability cities, as new trend in the post pandemic.

⁶ Jakarta people paid Rp 38.5 trillion (2010), and Rp 51.2 trillion (2016), The Cost Benefit Analysis for Fuel Economy in Indonesia, 2012, UNEP, Jakarta; up dated by KPBB 2016.



Objectives:

- a. To participate on Climate Diplomatic Week with excited public event on reviving urban non-motorized mobility with walking and cycling.
- b. To utilize Climate Diplomatic Week on increasing leverage of public campaign toward reviving urban non-motorized mobility.
- c. To raise people awareness on reviving urban non-motorized mobility as the way to stop spreading virus outbreak of pandemic Covid-19, as well as a new trend of post pandemic urban mobility with the goal to implement low carbon mobility.

Events:

- d. Walking and Cycling Challenge:
The soft launching was conducted on 1 September 2021 with objective to announce, promote, disseminate toward the activities. Then, grand launching was conducted on 5 October 2021, as part of opening Climate Diplomacy Week. The Walking and Cycling Challenge gives chance for public (more than 300 participants) to prepare their participation (walking and or cycling challenges) until 10 November 2021, then participants are suggested to upload their challenges by themselves to the social media and tagging to the account of Walking and Cycling Challenge team, and register to link belong the team with deadline 2 November 2021 at 19.00. Then, the team took assessment to all of participants on 4-5 November 2021 base on scoring index that was taken from walking/cycling purpose and the most excited/attractive challenge in the social media. The result was announced on 6 November 2021.
- e. Live report toward people preference and practicability of non-motorized urban mobility (24 October and 10 November 2021)
- f. Talk-show (moderator, speaker, translator) toward new trend of walking and cycling (9 November 2021)
- g. Short film documenter (3 minutes) “why do birds have wings?” at the time of talk-show on 9 November 2021.
- h. Re-launch “better pedestrian facilities”, a gadget application for public participatory on pedestrian facilities improvement at the time of talk-show on 9 November 2021.

Mobility for travel is one of the main demands of urban activities. Transport is a derived demand which is determined by the attractiveness of the destination. Travel behavior is affected by and affecting urban structure, urban transport infrastructure and socio-economic and demographic condition of the traveler. It is commonly agreed that an increase in travel costs has effects on the location of economic activities, and thus travel pattern in a two-way relationship. An increase in car ownership and car use will encourage suburbanization and the spread of population, creating low density area (Newman and Kenworthy, 1990, Macket, 1993). An increase in public transport use will encourage the growth or the slow-down of city center's decline and an increase in walking will shift the population and employment.⁷

Since every trip begins and ends with a walking trip, nearly all trips will require some walking, either directly to a destination or to another mode of transport. How well the pedestrian environment can service these trips will impact the overall quality and efficiency of the urban transportation network, and in turn, overall mobility and accessibility for residents and visitors.

Enhancing Walkability City is a first step campaign in the cities in Indonesia to increase walking and the development of walkable communities; with the goal to convene the government willingness to reform the city development planning by prior to develop pedestrian facilities. By encouraging more community development, this project seeks to address serious public health concerns such as cardiovascular disease, diabetes, asthma and obesity. Enhancing Walkability City policy strives to produce better environments for walking through changes the behaviour of communities at their neighborhood area by making it as traffic calming area, implementation of demonstration projects, and community support for physical changes that produce more friendly pedestrian environment.



Enhancing Walkability City and Improving Mass Public Transport

To Integrate Walkability and Public Transport Networking Improvement

Various cities (Jakarta, Bogor, Bandung, Palembang, Garut, Semarang, Solo, The cities) in Indonesia, and KPBB have being implemented project Enhancing Walkability City. The overall goal of this project is targeted to the safety, security, economy and convenience aspects of walkability that can be improved upon

⁷ Danang Parikesit, The Development of Land Use Transport Model Using Constant Travel Time Budget Principles

in the short, medium, and long terms e.g., availability of infrastructure and relevant policies. This is accomplished through four sub-goals/objectives:

1. To analyze neighborhood streets and sidewalks for walking in cities.
2. Identify specific pedestrian-related shortcomings, and implementing the recommendations for improving pedestrian facilities conditions.
3. Generate awareness of walkability as an important issue in the cities.
4. Encourage policy reform to enhance walkability in the city, congruence with the policy on developing mass public transport.

The purpose of activities are to provide guideline in relation to implement strategy, and action to assist enhancing walkability, synergy with city effort to improve mass public transport, especially BRT in the cities by providing policy draft, public campaign, public pressure, public consultation, etc. The project assists the cities through advocacy process: research/study for baseline data, policy dialog, community empowering/community training, and motivating efforts. The activities are being synergized with public consultation, community development, and dialogue in the frame of preparation and dissemination of the effort to measuring walkability neighbourhood in cities.

The activities are also formulating strategic planning to define stakeholder group vision, mission, goals and their roles to improve the walkability index in cities. This activities are being conducted since August 2011 until now.



Picture: Sidewalk and pedestrian bridge is occupied by motorist.

In term to integrate the project aims with anothers related project/activities on improving urban mobility/accesibility in cities such as urban transport, public transport, BRT project, sidewalk revitalization, etc, we also conduct the meeting, dialog, public consultation, informal meeting, etc toward “To Integrate Walkability and Public Transport Networking Improvement in Cities”, with objective:

- Sharing information toward urban mobility/accessibility issue
- Dialog on perspective to formulate integrated strategy on walkability and public transport networking improvement
- Formulate strategic agenda to integrate walkability and public transport networking improvement (policy side and technical side).

1. Networking

- Cities government (Transport Agency, City Planning Agency, Public Work Agency, Park Agency, Environmental Agency, Heads of Sub Districts, Special Police).
- Traffic Police Agency,
- Ministry of Transport,
- GIZ
- INDII
- KPBB
- Walhi
- Jatrans
- ADB
- World Bank
- Masyarakat Transportasi Indonesia
- Impulse
- UI
- ITB
- UNDIP
- UNIBRAW
- UMM
- UGM
- UNY
- Universitas Muhammadiyah The cities
- UII
- UNS
- University of Satya Wacana
- University of Muhammadiyah Surakarta
- University of Indonesia
- University of Trisakti
- Asosiasi Pedagang Kaki Lima
- Asosiasi Penarik Beca
- Asosiasi Pengusaha Parkir



Picture: Sidewalk is occupied by motor-cycle parking lot.

2. Lesson Learned

Mobility for travel is one of the main demands of urban activities. Transport is a derived demand which is determined by the attractiveness of the destination. Travel behavior is affected by and affecting urban structure, urban transport infrastructure and socio-economic and demographic condition of the traveler. It is commonly agreed that an



Picture: Zebra Crossing is occupied by motor vehicle.

increase in travel costs has effects on the location of economic activities, and thus travel pattern in a two-way relationship. An increase in car ownership and car use will encourage suburbanization and the spread of population, creating low density area (Newman and Kenworthy, 1990, Macket, 1993). An increase in public transport use will encourage the growth or the slow-down of city centre's decline and an increase in walking will shift the population and employment.⁸

Since every trip begins and ends with a walking trip, nearly all trips will require some walking, either directly to a destination or to another mode of transport. How well the pedestrian environment can service these trips will impact the overall quality and efficiency of the urban transportation network, and in turn, overall mobility and accessibility for residents and visitors.

Enhancing Walkability in The City (EWC) is a first step campaign to increase walking and the development of walkable communities. By encouraging more community development, this project seeks to address serious public health concerns such as cardiovascular disease, diabetes, asthma and obesity. EWC campaign strives to produce better environments for

⁸ Danang Parikesit, The Development of Land Use Transport Model Using Constant Travel Time Budget Principles

walking through changes the behaviour of communities at their neighborhood area by making it as traffic calming area, implementation of demonstration projects, and community support for physical changes that produce more friendly pedestrian environment.

KPBB has done the series activities at EWC project and have achieved our benchmark successfully. Fully support from stakeholders in The cities, primary from the cooperation division at City Planning Agency possibleness the engagement with community at each district in the city through series of Focus Group Discussion. Communication to open their mind about the importance of walking for their health and neighborhood. The result of rapid assesment survey on walkability at 14 districts have shown to the community in order to rise their awareness. The last part of our communication at the FGD is creating engagement from the community by identified problems related with walkability index at their neighborhood and gave possible solution which transformed to several programme action by theirsself.



Picture: Intensively public campaign success to encourage political will and transform to better mindset toward walkability city

Beside, develop strategic alliance with local community and NGO is the other important factor to support our success in this city. The improvisation on implementation of series activities was decided to optimize our work time while facing barrier which caused by political situation in the city. This action is needed to anticipate the intangibility respond from the city due to this situation.

Learned from our work during 11 month in the City , we certainly believe that series of activities in EWC project can be replicate to implement in other cities with minor adjustment.

- **Objective and Scope**

The objective and scope of the series activities on the walkability project, are as follows:

Specific Objectives

- To conduct simultaneous activities in relation to establish stakeholder forum on Pedestrian, NMT and Public Transport Users in the city :
- To conduct walkability survey along pedestrian facilities network in the city in order to mapping the walkability index and decide the appropriate action based on measure and recommendation from the result of walkability map in The cities.
- To improve public perception about how to optimize the space of the pedestrian and NMT facilities in order to increase the convenience and safety factors.
- To formulate strategic planning (vision and goals) on pedestrian and NMT facilities improvement along road networks in the cities.
- To conduct public outreach for the Promoting Better Pedestrian and NMT Facilities through preliminary public expose (press conference, launching programme, media campaign, and hearing/formal-informal meeting).
- To bind commitment, political will, and create harmonized coordination among related decision maker in relation to improve pedestrian and NMT facilities in the city.

Scope of Work

- To conduct a preliminary Baseline survey which identified appropriate measures for the new tools to shift community's perception related with pedestrian and NMT user
- To convince key stake holders and get their commitment to support our program by producing a series of Position paper and presenting it at series of policy dialogue such as public consultation and public hearing.
- To establish stakeholder forum and define its vision, mission, goals, priors action plan, and stake holder roles to improve pedestrian and NMT facilities in the city by conduct series of TOT, workshop, and producing campaign. Materials
- To bind commitment from the city Government by producing policy paper, policy draft and policy legislation related with Pedestrian and NMT facilities as a bridge to intermoda connectivity to enhance the utilization of Trans The cities

3. Applied Activity

1. Project Methods

- a. Type of Activities: Strategic plan (vision and goals) workshop, communication strategy, and public consultation (formal/informal), pilot project on Pedestrian Facilities Improvement
- b. Methods: Participatory approach at every step (see Figure 1)

2. Project Evaluation

The indicators to measures the rate of succesfull the implementaion project are as follows:

- All activities are conducted and involve all stakeholder include relevant targeted speakers, participants, and related key decision makers in the issue, and able to achieve the goal and objective.
- Numbers of the position paper, policy paper and campaign material that are define in the scope of work is implemented.
- The numbers of coverage media which are showed the shift paradigm about the importance of high quality spatial for pedestrian facilities in existence in The cities.
- The activities able to bind the commitment and political will among key stake holder
- To improve stakeholder perception about the importance of pedestrian and NMT facilities for creating intermoda connectivity to enhance the utilization of BRT and other public transport mode.

Picture: Persisten, consistent and sustain efforts to convine related people and government related to whatever the problems of pedestrian facilities through conventional media and social media; able to accelerate the willingness to redesign and reconstruct for better pedestrian facilities.



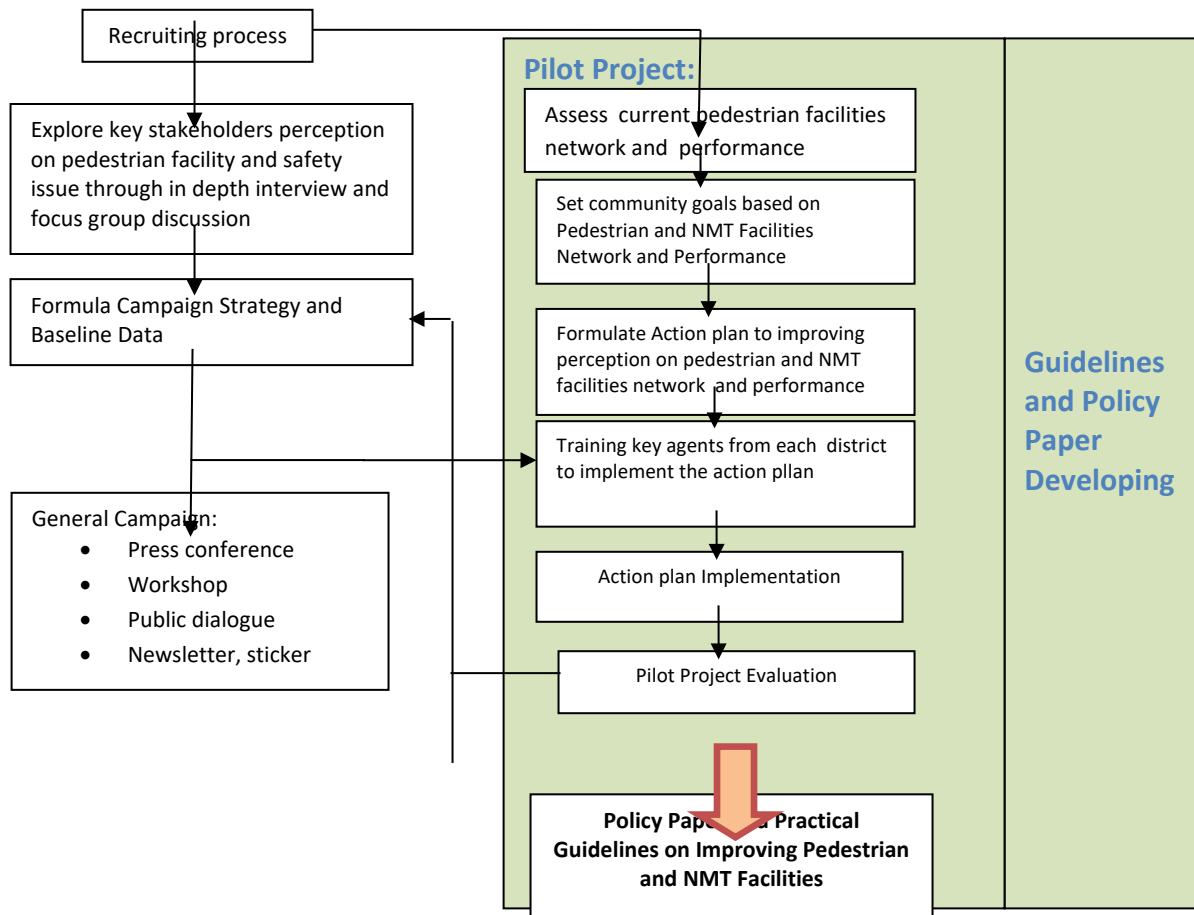


Figure 1. Participatory Process on Walkability City

