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Our ref : S.203/PPI/MSAR/KLN.1/6/2019 Jakarta, 13 June 2019
Attachment : 1 (one) document
Subject : Request for Technical Assistance Indonesia NDE "Support for e-mobility transition in Jakarta"

To:
Mr. Jukka Uosukainen
Director, Climate Change Technology Center and Network (CTCN)
Marmorvej 51
Copenhagen 2100, Denmark

Dear Mr. Uosukainen,

Thank you for the email from CTCN Regional Manager for Asia Pacific, Ms. Jaime Webbe of June 7, 2019, acknowledging the change of Indonesia NDE.

The former Indonesia NDE, Dr. Nur Masrupatin has discussed with Ms. Jaime Webbe during COP 24 in Katowice, Poland, and afterwards also a visit from and discussion with Dr. Sudhir Sharma from the CTCN Asia Pacific Office, regarding the possibility of CTCN technical assistance to Indonesia. Indonesia finally has come up with another request for CTCN Technical Assistance. The proposed request title is "Support for e-mobility transition in Jakarta", and the request applicant is the Provincial Government of Jakarta, Indonesia.

The applicant has communicated with us and submitted a proposal and filled in the CTCN Request Submission Form. Please find enclosed the above mentioned proposal for CTCN consideration. The proposal by the Provincial Government of Jakarta is in line with Indonesia's goal to reduce emission from the energy and transportation sector and to achieve Indonesia's NDC targets.

We would also like to inform you that since 2017 we are in the process of developing Technology Needs Assessment and Capacity Building Needs Assessment documents, which are geared towards the achievement of our NDC. Therefore, all climate technology transfer and development, including TA's, will also be focused on NDC related priorities.

Thank you for your kind cooperation.

Yours sincerely,

Dr. Ruandha Agung Sugardiman, MSc.
Director General for Climate Change, and Indonesia NDE to CTCN
Ministry of Environment and Forestry Indonesia

CC.
1. Ms. Jaime Webbe, CTCN Regional Manager for Asia and the Pacific
2. Mr. Sudhir Sharma, CTCN Asia Pacific Office
3. Ms. Sri Haryati, Economic and Financial Assistant to the Provincial Secretary, Provincial Government of Jakarta

CTCN Technical Assistance

Request Submission Form

Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: http://unfccc.int/ttclear/support/national-designated-entity.html
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Indonesia
Request title:	Support for e-mobility transition in Jakarta
NDE	Dr. Ir. Ruandha Agung Sugardiman, MSc. Director General for Climate Change, Ministry of Environment and Forestry Manggala Wanabakti Building Block IV, 7th floor, Jl. Gatot Subroto, Senayan Jakarta 10270 - INDONESIA Cell Phone +62 813 99112007 E-mail: ra.sugardiman@gmail.com; ndectcn.idn@gmail.com
Request Applicant:	Sri Haryati Economic and Financial Assistant the Provincial Secretary, Provincial Government of DKI Jakarta, Indonesia Email: sriharyati7771@gmail.com ; biroperekonomianjakarta@jakarta.go.id

Climate objective:

- ☐ Adaptation to climate change
- ☒ Mitigation of climate change
- ☐ Combination of adaptation and mitigation of climate change

Geographical scope:

- ☐ Community level
- ☒ Sub-national
- ☐ National

☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

Jakarta is one of the megacities in the world facing transport-related challenges like severe traffic congestion, air pollution, and high fuel consumption. As a step in this direction, the Government of Jakarta has established a Bus Rapid Transit System, which now has 13 trunk routes. Further, it has established 2 MRT lines, which are to be further expanded. Efforts for the next step are already ongoing, i.e. to connect inter-city and intra-city rail and its integration to the existing comprehensive bus system which will be significant to make urban transport more environment friendly.

However, there are still many old and low-technology public transport and private vehicles in Jakarta. Air pollution is one of the key challenges along with congestion in the city. State Owned Enterprise TransJakarta introduced CNG buses to address the issue, but the volume of vehicles negates the positive impact. Though the increasing volume and quality of public transport will help in time address the air pollution and GHG emissions, a faster transition to technologies that reduce the tailpipe emissions to zero is required. Further, the City of Jakarta contributes about 15% of GHG emissions of Indonesia, of which the Transport sector is a significant contributor. Thus, technology solutions are needed to de-carbonize the Transport sector.

In view of the Paris Agreement and to address the air pollution, the Government is thinking of promoting electric mobility as a strategy for Jakarta to leapfrog to zero-emissions tailpipe technology and reduce air pollutants and CO2 emissions. This project will demonstrate the impact of e-buses as part of Transjakarta and mainstream e-mobility in general in Jakarta and the rest of the country.

Transportation is a key contributor to the GHG emissions in Indonesia. Cities in the world occupy only 3% of the land on earth but consume 60-80% of energy and produce 75% of world GHG emissions (United Nations 2015). In Indonesia, activities in the cities also contribute enormous emissions. For example, in 2005, Jakarta emitted 35 million tons of CO2e, compared to 2.1 billion tons of CO2e throughout Indonesia. It is projected to increase to 113.94 million ton CO2e by 2030 (Jakarta Environmental Agency 2005). Of this, about 25% emissions come from the Transport sector.

Indonesia's Nationally Determined Contributions (NDC) describes an unconditional greenhouse gas (GHG) emissions reduction target of 29% and a conditional 41% reduction by 2030 compared to business-as-usual projected emissions. Emission reductions in Indonesia's NDC are being implemented through five sources of emissions, namely energy, which includes transport sector; industry; agriculture; land-use, land use change and forestry (LULUCF); and waste.

Electric mobility allows shifting away from the use of fossil fuel, and provides an opportunity to address air pollution in big urban areas immediately and decarbonize the transport sector as the share of renewable in electricity increases. Electric vehicle technology has matured, and a shift is already underway in developed countries, some even has announced banning conventional fossil-fuelled vehicles in several cities. Many developing countries have set ambitious targets for scaling up e-vehicle use, especially as this will also help address the import of oil in most of these countries. The Paris Declaration on Electro-Mobility and Climate Change and Call to Action, announced at COP21, expresses the ambition to achieve 100 million electric cars and 400 million electric two-wheelers on the road by 2030. The IEA 2°C scenario (2DS) calls for one third more EVs than these targets, and the Beyond 2°C scenario (B2DS) considers that they would need to be doubled and coupled with significant decarbonisation strategies in the power sector to deliver deep reductions of well-to-wheel GHG

emissions from transport.

Past and on-going efforts to address the problem (up to half a page):

The Government of the Republic of Indonesia (GOI), through its National Development Planning Agency (Bappenas) has started implementing a National Urban Development Policy and Strategy 2015-2025 that aims at having urban areas meet national service standards by 2025, achieve smart, green and liveable cities by 2035, and attaining sustainable urban development by 2045. Within this the Government has launched a Green Cities programme, which has eight components. The programme is led by the Ministry of Public Works and Housing, which is responsible for: Green Design and Planning, Green Open Space, Green Community. The remaining five, which includes Green Transport a key component of green sustainable cities, are under the responsibility of other ministries, i.e. the Ministry of Environment and Forestry, Ministry of Energy and Mineral Resources, etc.

The Government of Jakarta has, as has been mentioned above, has taken steps to enhance the public transport system to reduce air pollution and GHG emissions from vehicles. The Government has introduced the MRT system and CNG buses to make transport more environment friendly. Further the Government is working on last mile integration of public transport with better cycling and walking infrastructure to increase public transport use.

The awareness and interest in the use of E-vehicles has increased recently though the efforts are at nascent stages. The use of E-buses was tested in Nusa Dua, Bali; the government has procured 10 buses as an experiment to gain experience of using e-buses. PLN, the power company, provided the charging infrastructure in Jakarta for 2 wheelers. In December 2017, there were at least 1,300 electric recharging stations (SPLU*) available nationwide which spread across 24 cities, of which 71% of them (924 recharging stations) were located in the Greater Jakarta area. The President's office is working on a Government decree to promote the transition to e-vehicles. The Decree is expected to be published by February 2019. Further the government has set a target of 2.1 electric 2 wheelers by 2025.

Specific technology[1] barriers (up to one page):

The key Technology Challenges on technology are:

(i) Lack of public awareness and lack of familiarity with the EV related technologies in terms of development, operation and maintenance.
(ii) Risk perception of the users due to unfamiliarity of the technology as well as range anxiety (due to perceived low mileage per battery charge for vehicles).
(iii) Lack of charging infrastructure to address the range anxiety of consumers.
(iv) Very high, up to 200%, upfront acquisition costs of the vehicles and absence of financing schemes to enable procurement.
(v) Risk perceptions associated with battery failure and its consequences on operations and cost of ownership, also the management of scrap battery waste.
(vi) Lack of a clear comprehensive policy framework to provide e-vehicles competitive edge to the ICEs. It is also critical for the government to ensure that there are standards for the charging infrastructure and standards for payment methods. This allows for easier participation of the private sector later on in the operation (e.g., vehicle and equipment manufacturers and service providers, bank payment facilities, private charging stations,

[1] *"**any equipment, techniques, practical knowledge and skills** needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)*

etc…).

Sectors:

Please indicate the main sectors related to the request:

☐ Coastal zones	☐ Early Warning and Environmental Assessment	☐ Human Health	☐ Infrastructure and Urban planning
☐ Marine and Fisheries	☐ Water	☐ Agriculture	☐ Carbon fixation
☒ Energy Efficiency	☐ Forestry	☐ Industry	☒ Renewable energy
☒ Transport	☐ Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☐ Communication and awareness	☒ Economics and financial decision-making	☒ Governance and planning	☐ Community based
☐ Disaster risk reduction	☐ Ecosystems and biodiversity	☐ Gender	

Technical assistance requested (up to one page):

The Government of Jakarta has adopted the strategy of introducing the e-vehicle technology in public and government vehicles as a means to kick start the market, creation of supportive infrastructure, and stimulate local manufacturing of components and vehicles. The Government of Jakarta has agreed to take the following steps in this direction:

(i) Trial run of 10 e-buses on identified TransJakarta bus routes in 2019 to gain experience in the use of technology, maintenance and operation.
(ii) To induct e-buses in TransJakarta bus routes starting in 2020 and increase the share with time.
(iii) To install solar roofs on bus and/or MRT stations in and identify options for increasing RE share in operations of the E-buses (including trial on 1-2 stations in 2019).

The main objective of the proposed technical assistance is to support the Government of Jakarta in:

(i) Developing Investment plan and procurement documents for e-bus induction in 2020;

(ii) Assess the supportive policy requirements and actions required by Government of Jakarta and Government of Indonesia to facilitate the deployment of e-buses and related infrastructure;
(iii) Feasibility assessment of RE use in TransJakarta operations, including solar roofing for bus and/or MRT stations.

Output 1: Prepare public procurement plans and documents for the acquisition of electric buses and other electric vehicles for government use
Activity 1.1: Prepare and launch of Tenders for E-bus procurement and creation of charging infrastructure
Activity 1.2: Develop green procurement policy and enact for TransJakarta
Activity 1.3: Develop a financing scheme and business model for electric buses on TransJakarta BRT

Output 2: Development of Electric Mobility Framework and enabling policies and regulations for Jakarta
Activity 2.1: Consolidate and review transport plans and policies relevant for Jakarta. This also includes environmental and fiscal policies for vehicles and fuels.
Activity 2.2: Pull together and analyze transport information from TransJakarta, the feeder services (including angkots), 2-wheelers, the MRT and LRT plans, and current urban development plans for Jakarta.
Activity 2.3: Coordinate with relevant national government agencies to develop policies in implementing electric mobility both in national and local scale.
Activity 2.4: Develop comprehensive study and plan for public and private charging infrastructure for Jakarta.

Output 3: Integration of renewable energy-based electricity for all transport modes
Activity 3.1: Feasibility study and identification of options for sourcing renewable based electricity for all public transport modes of Jakarta;
Activity 3.2: Develop incentives to increase the share of renewable energy in the electricity mix for e-vehicle charging facilities;
Activity 3.3: Prepare tender designed to integrate solar roofs on existing TransJakarta and/or MRT assets, including trials.

The products achieved by the intervention will be:

(i) Investment plan and procurement documents for procuring E-buses and charging stations.
(ii) Feasibility study and options for use of RE for TransJakarta/ MRT and Government of Jakarta Operations.
(iii) Policy and regulatory actions to facilitate induction of e-buses in public transport.

The project will also feed into other efforts to access wider technical assistance and financial support to mainstream e-mobility in Indonesia, such in the preparation of a GEF and/or GCF proposal. Currently discussions are on with the Government in using its GEF 7 resources for a national e-mobility project. Further, the feasibility assessment of use of e-buses may also lead to development of full GCF proposal for investment.

Expected timeframe:

The proposed implementation timeframe for the technical assistance is 18 months.

Anticipated gender and other co-benefits from the technical assistance:

The proposed TA together with its government counterparts will pay specific attention in ensuring equal participation of women and men in the capacity building activities as well in the design of the various frameworks and mechanisms that will be prepared under the project. Equal participation among genders will be sought in the selection process in accordance with the Government's pursuit of gender-responsive governance. The TA will also ensure that gender related needs are taken into considerations especially in setting up the design standards required for PEVs and charging stations.

Key stakeholders:

(i) **Government of Jakarta (GoJ) – GoJ is the primary beneficiary of the TA. The Governor of Jakarta on 8th January 2019 authorized inducting the e-buses. The Govt will be a stakeholder in the policy work of the project and benefit from feasibility assessments to identify policy actions and budgetary allocations required to enable the implementation. GoJ will include but not limited to Planning Agency, Department of Transport, and Department of Industry & Energy.**

(ii) **PT Transportasi Jakata (TransJakarta) – TJ will be actively involved with CTCN experts in the conduct of study as well as in providing necessary information as per the requirements of TA.**

(iii) **PT Mass Rapid Transit Jakarta (MRT Jakarta) was established on 17 June 2008 to build, own, and operate MRT infrastructure and associated facilities, including developing and managing properties and businesses at the stations and the surrounding areas. PT MRT Jakarta will serve as a supporting stakeholder for this project.**

(iv) **PT Jakarta Propertindo (Jakpro) – Jakpro is a property and infrastructure company owned by the Provincial Government of DKI Jakarta. PT Jakpro is assigned to build and operate Light Rail Transit (LRT) Jakarta that will also support the project.**

(v) **PLN – The state electricity utility is responsible for creating the charging infrastructure. They have expressed keenness to support TransJakarta with charging infrastructure. PLN will be participants in all 3 components of the work.**

(vi) **Ministry of Industry; Ministry of Trade; Ministry of Energy & Mineral Resources; and Ministry of Transportation, Government of Indonesia – These ministries have the mandate to make policies and regulations on matters related to energy and transport operations and transport vehicles import and manufacturing. These stakeholders will be involved in policy components and be beneficiaries of the recommendations.**

Alignment with national priorities (up to 2000 characters including spaces):

Reference document (please include date of document)	**Extract** (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	Reduction of emissions by 29% compared to BAU by 2030 (2.881 GT CO2e), and covers energy including transport among others (Page 8).
Technology Needs Assessment	TNA 2012 identifies photovoltaic fuel cell (solar power) technology as a priority (Page 77)
National Adaptation Plans	NA

Electricity Supply Business Plan (2015-2024)	
National Energy Policy	

Development of the request (up to 2000 characters including spaces):

Further to discussions between the Governor of Jakarta and the UN Assistant Secretary-General and Head of New York Office, UN Environment, and the subsequent U20 Mayors Summit in Buenos Aires, the Governor of Jakarta requested UN Environment's support in helping to make Jakarta one of the greenest cities in the world, including by taking measures to address issues of air pollution, greening transport, energy and the built environment as well as green finance. In November 2018, a team from UN Environment visited Jakarta and met with representatives from the Government of Jakarta, TransJakarta, MRT Jakarta, Jakpro, Department of Transport of Jakarta, Ministries of Industry, and Transport and other important stakeholders, to understand the existing transport systems and policies and identify the initial set of options.

Based on the discussions a detailed presentation on options and a broad strategy was proposed to the Government of Jakarta (presentation attached). A presentation was made to the Governor of Jakarta on 8th January 2019 in Jakarta, where the Governor authorized TransJakarta to undertake preparatory work for inducting buses in 2020 and also its implementation department to pilot solar roofs on bus and MRT stops. The government also suggested exploring the potential use of solar power to run the public transport system, TransJakarta and MRT system and the feasibility of setting up a 50 MW solar power plant to energize Jakarta's transport system.

Background documents and other information relevant for the request:

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms[2].

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

☐ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:

Date:

Signature:

[2] Please see:
https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

CTCN Technical Assistance

Request Submission Form

Monitoring and impact of the assistance:
By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures. I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:	
NDE name:	Dr. Ir. Ruandha Agung Sugardiman, MSc.
Date:	
Signature:	

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.