CTCN Technical Assistance

Request Submission Form

Requesting country or countries:	Nigeria
Request title:	Developing a national eMobility policy and framework for deploying and scaling up E-mobility in Nigeria
NDE	Mr. Chukwuemeka Okebugwu (chuksokebugwu@yahoo.com) Department of Climate Change, Federal Minister of Environment Website: https://climatechange.gov.ng/ Address: Plot 444, Aguiyi Irunsi Way, Maitama Abuja +234 80 6442 6144
Request Applicant:	Anthonia A. Ekpa Director, Road Transport & Mass Transit Administration Federal Ministry of Transportation Dipcharima House, CBA, Abuja Phone: +2348034533477, +2348070965377 Email: thoniaekpa@gmail.com , thoniaekpa2@gmail.com

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):

This section should answer the question "what is the problem?" Please summarize the problem related to climate change and/or the negative impacts of climate change in the country that the request aims to address.

The transport sector contributes to the 28.4 % of total GHG emissions in Nigeria, the second largest contributor after the energy industries(40.7%[1]). During the period of 2000 to 2016, emissions in

[1] The Third National Communications (March 2020)

transport sector increased 150%.? Among the six key transportation activities of road, rail, pipelines, water and air transport services, and post and courier services, the road transport takes up the most significant portion. The country has the largest road network in West Africa although still connection has not been perfect throughout the country. Nigeria's road transport sector has played an important role in the country's economy contributing 86.35% of the national GDP in 2016. The country heavily relies on road transport as people do not have many alternative choices after the collapse of the rail system since 1970s/80s.

Estimated vehicle population in Nigeria at Q2 2018 was put at 11,760,871 among the total population of 198,000,000. This translates into 0.06 vehicle per population ratio [2] and the ratio is witnessing unprecedented increase due to urbanization involved with long commuting distances. Major modes of passenger vehicles are cars, LD trucks, buses and motorcycles fueled by petroleum, motor gasoline and diesel. Among the total petroleum consumed in the country, transport sector is responsible for 77% and passenger cars are responsible for 75.3% of those. In addition, 64.9% of national AGO/diesel consumption are used for powering road transport and light/heavy duty trucks and buses are responsible for significant portion of it. According to its Third National Communications, due to its fossil fuel use, Nigeria is estimated to see rapid increase in emissions from motorcycles (265%), cars (112%) and trucks and buses (8%) over the period of 2000 to 2016.

If the country, however, prepares and transit from using fossil fuels to power passenger vehicles to install low carbon transportation system, the country can realize a significant mitigation potential from amounting to 4,897.90 Gg CO2-eq. In reflection of this, the country recognizes the potential to improve infrastructure and adopt low-carbon transportation system[3]. As a part of this, Nigeria indicated to replace fractions of cars, motorcycles, Light passenger and Heavy-Duty passenger buses used as BRT transport, resulting in a 22.1% contribution to total passenger km by 2035. Still, ultimate transition would be required for Nigeria to reduce fossil fuel use consumed in road transport and increase adoption of renewables.

In light of this, Electric-Mobility (EM) is globally recognized as a viable and attractive option that can help the country redress the adverse issues faced with conventional transportation system. The shift also has the potential to offer important co-benefits such as reduced energy imports, green growth and local job creation.

With this, the government of Nigeria is seeking the assistance of the Climate Technology Centre and Network to assist in the development of an Electric-Mobility and implementation framework for the nation. The framework is integral in the country's efforts to mitigate its GHG emissions within its first Nationally Determined Contributions and third National Communication something is missing here submitted recently that are envisaged to be economy- wide.

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

This section should answer the question "what has been done or is currently being done to address the problem?" Please describe past and on-going processes, projects or initiatives implemented in the country or region to tackle the climate problem as described above.

Federal Road Safety Corps in Nigeria in line with the global trend reviewed the Nigerian Road Safety Strategy which was anchored on the UN Decade of Action to accommodate the advent of electric and solar based vehicles on Nigerian roads. Such strategy also enhanced the discharge of Nigerian

[2] Road data (2018) http://www.nigerianstat.gov.ng/pdfuploads/Road_Transport_Data_-_Q2_2018.pdf
[3] Low-Carbon Development: Opportunities for Nigeria (2013)

responsibilities in her commitment to the Paris Climate Agreement.

The NADDC was also in the forefront of developing and implementing policies for sustainable low emission transport system in Nigeria in line with UN Environment Programme particularly the UN Environment's Chemicals and Waste Sub-programme 2018-2019 and Climate Change Sub-programme 2018-2019 of which the expectation was "To strengthen the ability of Countries to move towards climate-resilient and low emission pathways for sustainable development and human well-being[4]. In 2019, the National Automotive Design and Development Council (NADDC) has charged importers and manufacturers in the local auto sector to import and manufacture only zero emission vehicles.

Lastly, in addition, as an effort to replace half of light duty trucks powered by gasoline to diesel powered buses, the BRT Transport Program is ongoing[5] which initially started in Lagos by the World Bank in 2008[6].

Specific technology[7] barriers (up to one page):

This section should answer the questions "what are the technology barriers that hinder national efforts described above" and "how will the CTCN technical assistance complement these efforts?" Building upon the problem statement and taking into consideration the existing efforts described above, please describe the specific technology barriers encountered by the requesting applicant to identify, assess or deploy climate technology (ies) in an effort to address the problem statement. The described barriers should be within the scope of the requested CTCN technical assistance (described in the section below).

- Lack of regulation on importation of Vehicles: Vehicles are largely traded in second-hand vehicle market with no regulatory measures or ban on vehicle standards / importation (ex. Age, emission level etc). Lack of regional or global agreements to govern the flow of used vehicles hinder the country to move away from conventional modes of vehicles and to more sustainable means of transport.

- Lack of traffic analysis and control scheme: A detailed analysis on modes of vehicles for passengers, traveling distances and time should be analyzed to control the traffic flow efficiently. Traffic congestion is very common and this leads usually to more emissions.

- Lack of detailed analysis on market and demand: There is lack of analysis on market for transport sector. In order to promote the adoption of EM in Nigeria, there needs to be more detailed analysis in local industry as well as users' needs including modes of transport they use, travel times and travel behaviours.

- Unreliable Energy supply: The penetration of EM should be based on reliable electricity supply. Potential supply charging infrastructure from renewable energy sources such as solar PV should be explored.

- Lack of a long-term/ integrated plan for E-Mobility: As the penetration of EM's would need coordinated actions across the ministries, national energy policy and development policy should be aligned with transport sector to send the strong policy signal for market players.

[4] 'Emission free vehicles only into Nigeria' (2019) https://autojosh.com/emission-free-vehicles-nigeria/
[5] The Third National Communications (March 2020) https://unfccc.int/documents/226453
[6] Africa's first BRT scheme (2008) http://documents.worldbank.org/curated/en/874551467990345646/Africas-first-bus-rapid-transit-scheme-the-Lagos-BRT-Lite-system
[7] *"**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)*

- High upfront cost of up-taking E-Mobility: In overcoming financial barriers and risk, the government would need a range of supporting policy incentives and concessions to mitigate market barriers and offset upfront cost.
- Lack of awareness across the EV value chain: There is currently limited public knowledge and understanding by the users for example information about available EM options, cost of obtaining access to the use of the station
- Absence of supporting structures: The Adoption of E-Mobility poses a challenge in as far as after sale services such as maintenance, repair whose skills needs to be enhanced.
- Absence of Public Charging Stations, regulations on Access, Standards and Connection: Currently, there are no requirements on operators of public charging stations in connection with Technical performance standards, maintenance and availability of public charging stations; The components of public charging stations and co-operation of service providers which is necessary in rolling out E-Mobility.
- Limited capacity to understand e-mobility value-chains, viable options, capacity requirements and sources of funding

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):

Founded on the problem statement, past/on-going efforts and technology barriers, please describe the requested technical assistance. The technical assistance should clearly contribute to mitigation or adaptation to climate change as described in the problem statement and contribute to overcome the specific technology barriers.

1. Overall objective

The overall objective of the TA is to develop national E-mobility and implementation framework for Nigeria for deployment and scaling-up of Electric transportation systems. The project proposal will cover benchmark analysis of international policy in E-mobility as well as national market readiness and cost assessment for uptake. The policy and the implementation framework will be developed with technology roadmap, suitable investment plans; detailed feasibility study for the selected interventions and capacity development of the relevant stakeholders. Financing models and streams of finances will be identified.

2. Anticipated groups of activities to be performed by the technical assistance

The anticipated group of activities and sub activities are the following:

I. *Assessment of the market readiness to deploy Electric transportation systems in Nigeria and draft the E-mobility framework*

a. Conduct the baseline analysis, collect data on registered and unregistered(informal) modes of transport;
b. Map out stakeholders in the E-Mobility value chain ranging from automobile manufacturers, part suppliers and the consumers;
c. Draft the policy objectives, quantitative targets on the number of E-Mobility, charging infrastructure and designated roles and responsibilities;
d. Identify barriers and suggest viable instruments (incentives on cars, buses, trucks, manufacturers, charging infrastructure and battery swapping stations)

II. Conduct policy review to recommend the implementation roadmap for deployment and upscaling of the Electric-mobility and supporting charging infrastructure on the basis of local context and develop a framework.

a. Consolidate and review transport plans and policies to recommend/develop the action plans relevant to EM implementation. The implementation framework will be categorized under short, mid and long term action plans;
b. Recommend suitable business models and investment plans to implement the actions based on blended approach of integrating international experiences and local context gathered based on market assessment.
c. Review the institutional arrangements and capacity gaps to implement the roadmap

III. Conduct detailed feasibility study on selected action plans to develop business case on procuring and deploying electric vehicles and charging infrastructure

The action plan(s) for detailed feasibility study will be selected based on their assessed investment size and horizon that can be accommodated in the preparatory fund support.

a. Conduct detailed technical and financial feasibility analysis of selected action plan(s) with scalable business model. The feasibility will be carried out for the EM as well as the supporting charging infrastructure.
b. Develop technical specifications to support the tendering and procurement of the electric vehicles and charging infrastructure.

IV. Conduct capacity building and awareness of relevant stakeholders from government and EM value chain

a. Brief factsheets on the basics of EM and its impact will be developed for general public awareness
b. The experiences from business case will be archived
c. Conduct experience sharing and capacity building workshop focussing on the possible solutions to overcome the barriers in EM deployment like cost optimization of the EM, battery management, grid integration of EM etc.

3. Anticipated products to be delivered by the technical assistance.

i. Report on the draft of national policy for Nigeria including market assessment and gap analysis on E-mobility
ii. Report on implementation roadmap with business models and investment plans
iii. Feasibility study, tender specification documents and report on business case
iv. EM factsheets and workshop reports
v. E-mobility policy and implementation framework

Expected timeframe:

Please indicate the expected duration period for the requested technical assistance. Please note CTCN technical assistance is limited to a maximum duration of 12 months.

18months

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

Please describe the activities with gender linkages as well as the anticipated gender and other co-benefits (e.g. biodiversity, economic, social, cultural, etc.) that are likely to be generated as a result of the technical assistance.

For more information you can find guidelines on the CTCN's website here:
https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development

Further reading on gender can be found on the CTCN website here:
https://www.ctc-n.org/technology-sectors/gender

Transportation networks are one of the most important elements of a country's infrastructure, giving access to resources and basic infrastructure in particular for rural population. In low-income countries, gender differences in mobility needs are very pronounced, requiring gender sensitive policy responses. In many countries, women are highly under-represented in decision-making with majority of the transport sector being managed and operated by men as well as in utilizing different modes of transport. A disruptive market change to cleaner and more efficient transport technologies (Electric Mobility) presents an opportunity to address this unequal distribution by increasing women's participation in the transport sector and provide socio-economic opportunities in new businesses and business models as drivers, charging solution providers, fleet operators etc. This transition will also contribute to reducing the negative public health implications from vehicles for women and children, which are more vulnerable to the impact of air pollution than men and provide mobility for them to access better social services.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	Engage and facilitate various international stakeholders in the EV value chain to obtain relevant technologies from various partner countries
Request Applicant	
Federal Ministry of Transportation	Coordinate inter-ministerial communication and align program with relevant national programmes or policies
Federal Ministry of Environment	Align with NDCs and partner with relevant stakeholders, coordinate EV targets with national plans and priorities for climate change mitigation
National Automotive Design and Development Council	Specify EM types and models, and analyse options what will be introduced, design regulations on manufacturing and importation
Lagos Metropolitan Area Transport Authority (LAMATA)	Collaboration on National Programmes or Policies on BRT
Federal Road Safety Corps (FRSC)	Provide support on road safety implication of the e-mobility transportation on Federal highways control and accident prevention.
State Traffic Management Agencies	Provide support on the implication of the e-mobility transportation in the states
Federal Ministry of Budget & National Planning Federal Ministry of Power Works& Housing, FERMA	(other potential roles to be specified for different stakeholders) Design fiscal incentives or policies to support EV in a long term like tax. Energy Efficiency, Technical specification for smart metering and charging, potential for grid integration, testing Urban Planning, Maintenance of Infrastructure Design provincial regulations on EV, and standardization on EV components, Address the range-anxiety problem and develop a detailed, EV charging infrastructure plan. Implement plans identifying, future charging locations across the country, and manufacturing/importation,
Nigerian Institute of transport Technology, Zaria	Capacity Building, Research, National Policy Framework in collaboration with FMoT
Please add as many stakeholders and lines as required.	**Academic research and development** **Civil service organizations, NGOs, Private sectors etc**

	Financiers

Alignment with national priorities (up to 2000 characters including spaces): Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.	
Reference document (please include date of document)	**Extract** (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances. Please include a direct reference to the INDC/NDC document (chapter, page number, etc.). Nigeria is committed to reduce Greenhouse gas Emission by 20% unconditionally and 45% with international support and has finally developed and finalized the Sectoral Action Plan (SAP) for the implementation of the NDC in the key priority sectors include, Energy, Oil & Gas, Agriculture & Land use.
Technology Needs Assessment	It is yet to be conducted.
National Adaptation Plans	It is yet to be conducted.
Nationally Appropriate Mitigation Actions	It is yet to be conducted.
Add others here as relevant	

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

Please describe how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles?) and describe any consultations or other meetings that took place to develop and select this request, etc.

The request was developed in a consultative way where several key players including the responsible Ministries (Energy, Transport and Climate) as well as Local Government which manages local authorities

Background documents and other information relevant for the request:

- Please list all relevant documents that will help the CTCN analyze the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.
- Please indicate if this request has been developed with the support of the CTCN Request

Incubator.

Road Transport Data (Q2 2018) from National Bureau of Statistics, Federal Road Safety Corps (FRSC)

http://www.nigerianstat.gov.ng/pdfuploads/Road_Transport_Data_-_Q2_2018.pdf

Nationally Determined Contributions (Ist INDC, 2017)

https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nigeria%20First/Approved%20Nigeria%27s%20INDC_271115.pdf

The Third National Communications (March 2020)

https://unfccc.int/documents/226453

National Policy on Climate Change One of the key pillars of the Vision 20:2020 is investment in low carbon fuels and renewable energy.

National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN) December 2011

Adaptation should be comprehensive and articulated in a way that recognizes the varying needs and vulnerabilities of all sections of the society. Accordingly, the Government of Nigeria and a number of civil society organizations embarked upon the development of National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CNN).

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[8].

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.

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

NDA name: Dr Peter Tarfa (petertarfa@hotmail.com)

Date:

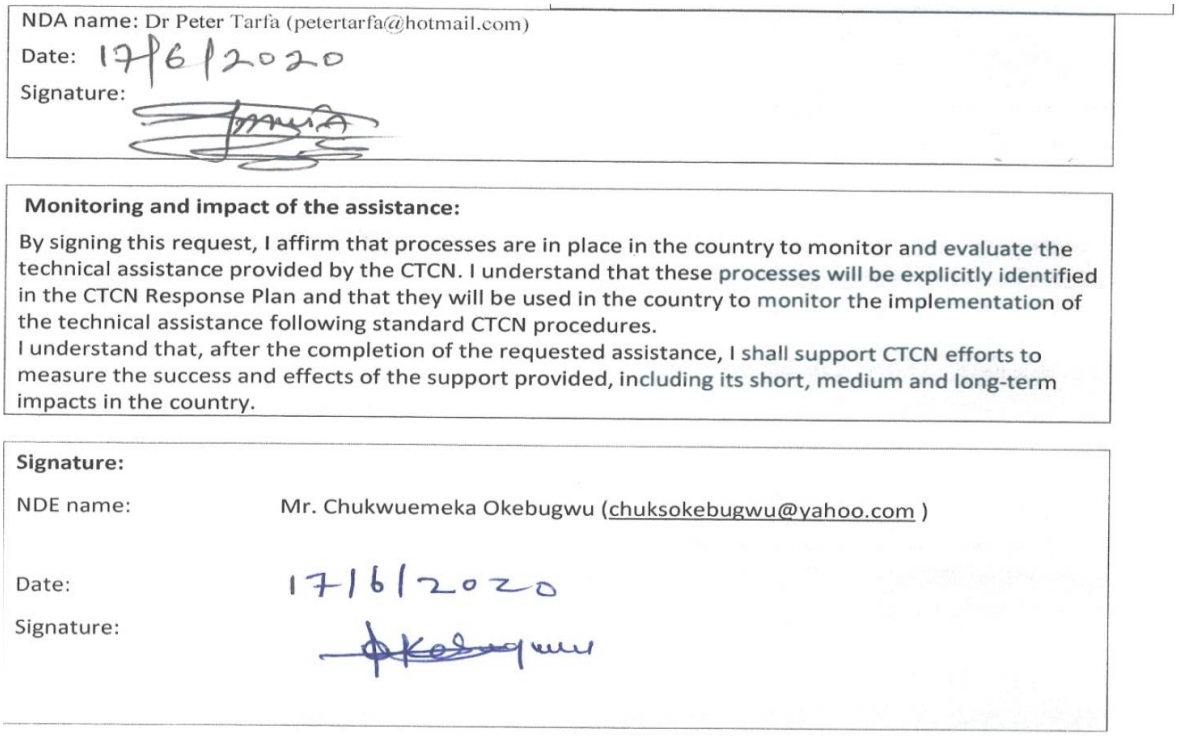
Signature:

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:	Mr. Chukwuemeka Okebugwu (chuksokebugwu@yahoo.com)
Date:	
Signature:	



NDA name: Dr Peter Tarfa (petertarfa@hotmail.com)
Date: 17/6/2020
Signature:

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Signature:

NDE name: Mr. Chukwuemeka Okebugwu (chuksokebugwu@yahoo.com)

Date: 17/6/2020

Signature: