

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:	Bangladesh
Request title:	Development of Framework for Real-Time Transport Information Systems for Public Transport in Greater Dhaka.
NDE	Dr. Abdul Hamid Director General Department of Environment E-16, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh. Phone: +88 02 81 81800 Email: dg@doe.gov.bd
Request Applicant:	Mirza Shawkat Ali Director (Climate Change and Int'l Convention) Department of Environment E/16, Agargaon, Dhaka, Bangladesh Phone: 88-02-8181797 (off); Cell: 88-01720-222363 mirzasa1@yahoo.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 – Greater Dhaka area
- 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):

Greater Dhaka is a metropolitan area of the capital city of Bangladesh and home to 17 million people in an area of 1,528 km². The city is experiencing rapid urbanization (38% living in urban areas) since its independence in 1971. The population is expected to rise to 24.65 million by 2025 (source: world population review 2022), with an average level of per capita income of 550\$ per year. With rising population and economic growth, the GHG emission in Bangladesh from the transport sector has been increasing since 2005 (In 2005, the transport sector contributed to 15% of CO₂ emissions from energy-related sectors which increased to 18% by 2012 (MoEFCC, 2012 & 2021). Bangladesh, according to its First Updated NDC 2021, is committed to reducing GHG emissions in by 6.73% by 2030, or by 21.85% below the business-as-usual level if sufficient and appropriate support is received from developed countries. The transport sector would contribute a 9.34% reduction in GHG emissions by 2030 or 26.79% if support is received from developed countries as per its Updated NDC targets submitted in August 2021 (MoEFCC, 2021). The country has planned to improve fuel efficiency by 5% unconditionally and additional 15% with international support along with improving road traffic congestion issues.

Around 70% of the CO₂ emissions from the transport sector come from roads. The major modes of transport in Dhaka City are motorcycles (41%), rickshaws, and public buses (BRTA, 2018). For people living in the city, buses and minibuses are the cheapest options, however, the level of satisfaction from users has been low due to long waiting and loading times, and long d from their point of residence to bus stops. The existing urban transport system poses many challenges to daily commuters due to operational inefficiency, increased costs, loss of time, air pollution, and psychological strain.

According to the records of the Bangladesh Road Transport Authority on 5 May 2010, 61 bus routes operated and either originated or terminated in the corridor around Greater Dhaka. The authorized fleet size is 3,356 buses and minibuses, out of which only 2,598 permits have been issued by the authority for 948 buses and 1,650 minibuses. The government realizes its need to incentivize the use of the public transport system and control the permitted user of automobiles to materialize its mitigation goals and cater to the mobility needs of citizens. In particular, the service quality for public buses should be significantly improved by adopting information and digital technology in its operation and management.

Against this backdrop, the Government of Bangladesh requests the CTCN to develop a framework for real-time transport information systems for public transport in Greater Dhaka. Implementation of GPS data monitoring for public transport can significantly increase service quality for its customers and give additional value to service providers. The project expects to optimize the use of public transport by providing real-time information on the vehicle location, waiting time, and route information and ultimately contributing to a reduction in vehicle emissions.

Past and ongoing efforts to address the problem (up to half a page):

Various government initiatives have been undertaken since the 1990s, including 'Dhaka Urban Transport Project, 1999-2005' and 'Strategic Transport Plan (STP), 2005' which serve as a basis of current urban transport planning in Dhaka. Along with this, several projects have been developed and implemented by various bilateral and multilateral development agencies such as:

- Greater Dhaka Sustainable Urban Transport Project [BRT Gazipur-Airport] – The government is implementing a 20km long BRT route that can carry 20 thousand passengers/hour/direction once the construction is completed.
- Bangladesh Road Transport Corporation (BRTC) Bus Project in Dhaka - BRTC is adding new buses to its fleet to overcome the shortage of supply.
- Intelligent Traffic System (ITS) in the City of Dhaka - Again, to solve the congestion issue and reduce the number of Road Accidents DTCA will introduce an Intelligent Traffic System (ITC) in the city. Under the intelligent traffic system (ITS), closed-circuit cameras (CC cameras) or vehicle detectors (car detecting equipment) will calculate and monitor the number of cars on the road. The device will keep records of the number of vehicles passing through a lane at a certain time.
- Introduction of a bus franchise system: In order to remove the unfair competition of drivers to get passengers in their buses Dhaka Transport coordination Authority (DTCA) has drafted a franchising system by dividing Dhaka into 10 companies. Such a franchise system could also encourage the replacement of smaller buses, with larger buses with higher carrying capacities. In line with this plan, 4000 modern buses are being planned to introduce in Dhaka city which will improve the fuel efficiency of the bus stock

Nonetheless, most of the projects in urban transport are implemented on an ad hoc basis under line agencies, with very limited integration. To improve the efficiency of the public transport system, developing the framework for real-time intelligent information systems would be essential for various agencies to have comprehensive and holistic traffic planning.

Specific technology¹ barriers (up to one page):

Lack of incentives to use public transport: According to the Structure report of 2016-2035, over 80% of the buses are diesel-fueled causing severe air pollution in the city. As Bangladesh does not have any major policies regarding the transport mode emission factor, the air pollution is getting worse affecting citizens' health. The incrementally increasing number of private cars is worsening the situation even more. Therefore, the government plans to incentivize the use of public buses over private cars as a critical means to reduce the total amount of vehicle emissions from the transport sector.

Fragmented institutional framework: The current Dhaka Transport Coordination Board, under the Roads and Railways Division (Ministry of Communication), lacks the capacity and empowerment to coordinate effectively. A central body to manage information and data should be designated for its successful implementation.

Lack of inventory data on types of vehicles and its fuel (ex. CNG fuels, hybrid, etc) efficiency: More detailed analysis is required to collect and understand the vehicle information (numbers of vehicles on the road, numbers of rolling stock, number of vehicles registered and their emissions(gCO₂ /km)). In doing so, projects and programs in relevant themes can be well aligned to generate quantitative impacts like fuel efficiency improvement and GHG emission reductions.

Sectors:

Please indicate the main sectors related to the request:

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)*

- | | | | |
|---|---|---------------------------------------|---|
| <input type="checkbox"/> Coastal zones | <input type="checkbox"/> Early Warning and Environmental Assessment | <input type="checkbox"/> Human Health | <input checked="" type="checkbox"/> Infrastructure and Urban planning |
| <input type="checkbox"/> Marine and Fisheries | <input type="checkbox"/> Water | <input type="checkbox"/> Agriculture | <input type="checkbox"/> Carbon fixation |
| <input checked="" type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input type="checkbox"/> Industry | <input type="checkbox"/> Renewable energy |
| <input checked="" type="checkbox"/> Transport | <input type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

- | | | | |
|---|--|---|--|
| <input checked="" type="checkbox"/> Communication and awareness | <input type="checkbox"/> Economics and financial decision-making | <input checked="" type="checkbox"/> Governance and planning | <input type="checkbox"/> Community based |
| <input type="checkbox"/> Disaster risk reduction | <input type="checkbox"/> Ecosystems and biodiversity | <input type="checkbox"/> Gender | |

Technical assistance requested (up to one page):

The objective of this TA is to develop a framework for Real-Time Transport Information Systems for public transport in the Greater Dhaka area to ensure better performance and enhance reliability, safety, and service.

The envisaged and planned scope of work for respective deliverables includes but is not limited to the following;

1. Establishing a baseline by collecting the information and data required
2. Design of the overall system architecture
 - Defining the technical and functional specifications of an integrated information system
 - Deciding on the information offered and format
 - Selecting locations and media where information should be offered
3. Development of the information services architecture in detail
 - Definition of the data to be acquired, managed, communicated, and displayed
 - Creating an operational scheme
 - Designing the software required
 - Defining the design and characteristics of how the data will be provided - interface for administrators and end-users
4. Costing but not limited to
 - Equipment (hard- and software) and design of websites, internet- and mobile-phone trip planning tools

- Equipment for installation at stops, in stations and vehicles, which inform the users (e.g., signs, touchscreens)
- On-board equipment for buses and trams (e.g., GPS) and a central real-time prognosis server to manage and provide real-time information (hard- and software)
- Installation costs (e.g., installing real-time signs, touchscreens, the electrical supply to bus stops)
- Operation and management costs (hardware maintenance, software license, and operation, marketing and communication, costs for operations staff)
- Specific issues for interchanges (depending on the size of the interchange)

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.

The expected duration period for the requested technical assistance is twelve months.

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.

The operators and users from female and vulnerable groups were more adversely affected in the less accessible area. Women and children faced difficulty to travel to school, work, and hospitals. The barriers and needs can vary by these groups. For instance, prior research suggests the threat of harassment and abuse exists hindering their use of public transport at night. On the other hand, women have different travel characteristics. Hence, geographic targeting is needed to increase the access of those users in designing and sharing this real-time information for wider adoption.

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>

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the micro-grants project 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 micro-grants project
National Designated Entity	<ul style="list-style-type: none"> • Approve and provide guidance to the final deliverables of this technical assistance of CTCN. • Serve as a coordination body across different stakeholders in the public transport sector.
Designated Authority	<ul style="list-style-type: none"> • Coordinate the applicant institute • Consult regarding the quality of the project • Monitor the implementation of the project

Applicant	<ul style="list-style-type: none"> Closely monitor the design and execution of this technical assistance.
Other Stake holders	Role of the Stake Holders
Bangladesh Road Transport Authority (BRTA)/Bangladesh Road Transport Corporation (BRTC)/ Dhaka Transport Coordination Authority (DTCA)	<ul style="list-style-type: none"> Closely monitor the design and execution of this technical assistance in close discussion with other national authorities, city planners, policymakers, and citizens.
Dhaka North City Corporation (DNCC)/Dhaka South City Corporation (DSCC)	<ul style="list-style-type: none"> Provide technical support to implement the TA
Roads and Highways Department (RHD)	<ul style="list-style-type: none"> Provide technical support
Road Transport and Highways Division (RTHD)	<ul style="list-style-type: none"> Policy support
Bangladesh Police (BP)	<ul style="list-style-type: none"> Provide support related to law and enforcement

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)	<p>Updated NDC in 2021: In the list of potential mitigation actions in the Transport sector, 'introducing intelligent transport system based public transport management system to ensure better performance, enhance reliability, safety and service' is included.</p> <p>NDC implementation Roadmap in 2018: On page 59, section 3.3.2, the support for 'real-time information on public transport' is clearly stated to as an action to help facilitate carbon reduction in the transport sector.</p>
Technology Needs Assessment	Technology Needs Assessment for Bangladesh conducted in 2011: Transport is not specifically prioritized at the time when study was conducted.
National Adaptation Plans	National Adaptation Programme of Action (NAPA) developed in 2009 describes the adverse impacts of climate change are the reality and visible in many parts of the country. The Seventh Five Year Plan (2016-2020) was developed based on this study and elaborates on the urban challenges to growth, particularly those linked to the Dhaka city transport system. The

	Eighth Five Year Plan (2020-2025) is also emphasizes on the sustainable public transport system. The formulation of NAP will be completed by August 2022.
Nationally Appropriate Mitigation Actions	N/A
Add others here as relevant	<p>The Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009), covers 'Improving energy consumption pattern in transport sector and options for mitigation'. Specific actions under Theme five include (1) promotion of low-cost public transport modes such as rapid transit; (2) reducing the use of fossil fuels by improving the efficiency of energy usage, (3) review of political, institutional and fiscal planning and (4) substitution of bio-fuels, fossil fuels as appropriate.</p> <p>National Sustainable Development Strategy 2010-21 (2013) Also public transport means are to be developed, especially with regards to the bus system (i.e. increase of the network and capacities; introduction of Bus Rapid Transit Systems) and the rail system (i.e. development of a rail-based mass transit system in the Dhaka Metropolitan Area).</p> <p>The 3rd National Communication of 2018 identifies the following potential mitigation measures in the transportation sector:</p> <ul style="list-style-type: none"> • Improvement of road traffic congestion; • Urban MRTS; • Expansion and modernization of railways and a mode shift from road to rail <p>The updated NDC of 2021 identifies the following potential mitigation actions:</p> <ul style="list-style-type: none"> • Introduction of Intelligent Transport System (ITS) based public transport management system to ensure better performance and enhance reliability, safety and service. • Electrification of the railway system and double-track construction

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 project is initiated by the Department of Environment (DOE), a technical arm of the Ministry of Environment, Forest and Climate Change (MoEFCC) who are responsible for coordinating the implementation of the mitigation targets specified in the updated NDC. However, the TA will be implemented by the Ministry of Road Transport and Bridges (MoRTB) through its line agencies i.e.,

Bangladesh Road Transport Corporation (BRTC) and/or Bangladesh Road Transport Authority (BRTA) who are responsible for ensuring sustainable transport system in Dhaka city.

Background documents and other information relevant for the request:

- Please list all relevant documents that will help the CTCN analyse 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.
- [Country scoping of research priorities on low-carbon transport in Bangladesh, USAID](#)
- [Greater Dhaka Sustainable Urban Transport Project, ADB](#)
- [Integrating gender into World Bank financed transport programs : case study](#)
- [Incorporating Gender Analysis into Accessibility Planning for Transport in Dhaka Opens Doors for Women and Vulnerable Groups](#)
- [Achieving Energy Savings by Intelligent Transportation Systems Investments in the Context of Smart Cities](#)
- First Nationally Determined Contribution of Bangladesh (Updated submission) MoEFCC, 2021. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Bangladesh%20First/NDC_submission_20210826revised.pdf

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 address the Linkages between the Technology and the Financial Mechanisms².

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: Ms. Sharifa Khan

² Please see:

https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

Secretary, Economic Relations Division (ERD), Ministry of Finance

Economic Relations Division (ERD), Ministry of Finance, Block No:8, Room no:3&4, Shere-e-Bangla Nagar,
Dhaka, Bangladesh

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: Dr. Abdul Hamid

Date: 19.09.2022

Signature:



Dr. Abdul Hamid
Director General
Department of Environment
Ministry of Environment, Forest
and Climate Change

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.

<https://www.adb.org/news/adb-help-lao-pdr-s-vientiane-set-sustainable-transport-system>