CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

CTCN Technical Assistance
Response Plan

Country:	Bhutan
Request Identification Number:	2014-016/BTN-01

Title:	Reducing GHG Emissions from Transport by Improving Public Transport Systems through Capacity Building and Use of Technology

Project summary

The objective of this CTCN assistance are to improve the capacities of officials within the Road Safety and Transport Authority of Bhutan in the knowledge and application of Intelligent Transport Systems (ITS) and also enable them to access climate financing for implementing the ITS systems.

The primary modality of the assistance would be through a capacity building workshop in Thailand, where the participants would be provided training in key pertinent modules such as 'Intelligent Transport Systems: The Thai experience', and 'Low carbon mobility planning for Thimpu'. To complement theoretical training, the capacity building workshop will be interspersed by two field visits to observe the real time application of the relevant technologies in Thailand. It is expected that this capacity building program will provide the participants with good understanding of ITS and related aspects, which will help to contextualize the applications of ITS in Bhutan.

Another key part of the assistance will be to support the participants in developing proposal for availing the required funding for implementation of ITS systems. These proposals would be targeted to attract climate financing.

1. Overview of the assistance

1.1 Objectives (outcomes)

Transport sector in Bhutan is characterized by the dominance of road transport, and also accounts for highest energy related GHG emissions for Bhutan, at 44%. Two key assessments carried out for the country—Technological Needs Assessment (2013); and Bhutan Transport 2040: Integrated Strategic Vision conducted by the ADB in 2013—have emphasized on the use of sustainable models of transport, including managing traffic through the use of advanced technology.

This CTCN assistance builds on the recommendations of the aforementioned assessments by endeavoring to improve the capacities of officials within the Road Safety and Transport Authority of Bhutan in the knowledge and application of Intelligent Transport Systems (ITS), which will, understandably, lead to a low carbon mobility set-up. ***Two main outcomes are expected. First,*** *participants will have an improved understanding of how ITS works, and more importantly how this could be applied in Bhutan's context.* ***Second****, participants will have improved capacity to identify (a) doable options under the gamut of ITS technologies available, and (b) the appropriate financing sources, and pursue these options through the development of quality project proposals.*

1.2 Results (outputs)

Two main outputs are expected as a result of this assistance:

- *Conduction of a capacity building workshop in Thailand with selected officials from the Road Safety and Transport Authority of Bhutan.*
- *Development of at least one NAMA proposal to implement key doable activities in line with establishing selected features of ITS in Bhutan, and taking steps towards low carbon mobility.*

1.3 Technology aspects

*The primary technology supported through this assistance is building the soft skills of the participants in the **knowledge and application of Intelligent Transport Systems and low carbon mobility planning**. This particular technology has already been prioritized in the Technological Needs Assessment conducted for Bhutan. Furthermore, the ADB's Bhutan Transport 2040: Integrated Strategic Vision also emphasizes on sustainable models of transport, which understandably will inculcate principles of low carbon mobility.*

The deployment of this specific technology will be a two stage process. In the first stage, which is directly under the purview of CTCN, the focus will be on helping the country assimilate the required knowledge, and contextualize this to identify doable activities. This stage will essentially prepare the groundwork for scaling up, for meaningful impact, the identified activities. The second stage (which may extend beyond the assistance period) is peripherally under CTCN purview, and will focus on assisting the NDE in pursuing the options identified in the first stage.

2. Description of the Assistance

2.1 Activities

Describe the planned activities and sub-activities to be conducted under the assistance, as well as their corresponding deliverables. For each activity, provide of brief descriptions of actions to be conducted as well as their immediate results/usefulness to achieve the expected outputs.
Use the following format:

Activity 0 - Identification of team members from Bhutan

A core team of 10 members will be identified by the NDE in Bhutan. The core team will first participate in capacity building at Bangkok. Out of core team two members will further be directly responsible for development of NAMA proposal on ITS systems for which they would participate in training and proposal writing workshop at Copenhagen.

Activity 1 – Capacity building in Thailand

This will involve participation of 10 participants from the different departments related to the ITS implementation for a 5 day visit to Thailand. The capacity building workshop in Thailand will be carried over five days. On specific request of the project proponent and the NDE of Bhutan, this activity would be conducted by the NDE of Thailand namely National Science Technology and Innovation Policy Office (STI), Ministry of Science and Technology. The various components of the workshop are as follows:

Training and Field Visits in Bangkok and Chiang Mai

Module 1: Low carbon mobility planning

A training will show an overview of low carbon mobility concept and its important role for climate change mitigation. The training will focus on the key technology in transport sector, especially intelligent transport system (ITS) technology. A good experience from various cities to identify technologies and policies for achieving greenhouse gas mitigation and sustainable transport development will be shared to participants.

Module-2: Thai experience with Intelligent Transport

This activity will provide the participants with an overview of the Thai experience, both in Bangkok and Chiang Mai, with intelligent transport management systems by Thai intelligent transport system (ITS) experts. Through practical examples and case studies this module will seek to enhance the participants' knowledge on relevant technologies. Participants will also be taken for field visits to observe the application of Thailand's intelligent transport management systems, where they will get an opportunity to interact with the public and private sector officials and engineers. The organizations for visiting are as follows:

Bangkok	*The Intelligent Traffic Information Center Foundation (iTIC), Chulalongkorn University*
	Expressway Authority of Thailand (EXAT)
	Bangkok Mass Transit System (BTS)
	Traffic management and planning (Police Traffic Control)
	Vehicle emission and testing system, Pollution Control Department
Chiang Mai	*Chiang Mai City Traffic Control*
	Department of Rural Road Traffic Control Center
	Chiang Mai University Traffic Design and Control

Workshop Schedule

Day	***Time***	***Topic***	***Venue***
Bangkok			
15 Feb 2016	*9.00-9.15*	*Opening and Welcome Remark*	*National Science Technology and Innovation Policy Office*
	9.15-10.00	*Transport and Climate Change*	
	10.00-10.15	*Coffee Break*	
	10.30-12.00	*Introduction to Intelligent Transport System (ITS)*	
	12.00-13.00	*Lunch*	
	13.00-16.00	*The Intelligent Traffic Information Center Foundation (iTIC)*	*Chulalongkorn University*
	18.00-20.00	*Welcome Dinner*	
16 Feb 2016	*9.00-12.00*	*Expressway Authority of Thailand (EXAT)*	*EXAT Headquarter*
	12.00-13.30	*Lunch*	
	13.30-16.30	*Bangkok Mass Transit System (BTS)*	*BTS Headquarter*
17 Feb 2016	*9.00-12.00*	*Traffic management and planning (Police Traffic Control)*	*Office of Transport Planning*
	12.00-13.30	*Lunch*	
	13.30-16.00	*Vehicle emission and testing system*	*Pollution Control Department*

Chiang Mai			
18 Feb 2016	*9.00-12.00*	*Chiang Mai City Traffic Control*	*Municipality of Chiang Mai*
	12.00-13.00	*Lunch*	
	13.30-16.30	*Department of Rural Road Traffic Control Center*	*Department of Rural Road*
19 Feb 2016	*9.00-11.30*	*Chiang Mai University Traffic Design and Control*	*Chiang Mai University*
	11.30-12.00	*Conclusion of Workshop and Closing Remark*	*Chiang Mai University*
	12.00-13.00	*Lunch*	

Activity 2 – NAMA training related to the Transport

The ITS implementation would require procurement of technologies (hardware and software) as part of the ITS system (e.g., GPS devices, surveillance cameras, display boards, data management systems, etc) as well as technologies for measuring and reporting on the impacts (e.g., air quality samplers, systems of reporting of key criteria pollutants PM2.5., SO2, NOx, etc). Since ITS system was identified as a technology for mitigation with the TNA project the Bhutanese government will be helped in developing a NAMA for this. This activity would require that Bhutanese government identify 4 persons for this who would participate in the following activities.

1. Submit a draft in the NAMA template[1] before the 31 Jan 2015. The draft would provide all the basic information related to the NAMA.
2. Participate in an in-depth NAMA training for 2 days that will be undertaken as a continuation to the Activity 1 in Bangkok
3. Post training work to write down and finalize the NAMA proposal. This should be done in conjunction with activities on NAMAs proposal (UNDP) which is being developed by the Ministry official dealing with the transport sector in Bhutan.

The training at Bangkok would be given by the Experts from the CTCN consortium partner namely the UDP and would be done in continuation to the Activity 1 in Bangkok. This training would be held in Bangkok city and would have a mix of lectures and hands on work on the specific NAMA.

Activity 3 – Remote Support for NAMA development.

This will involve support to be provided by the expert from UDP for refining of the NAMA prepared by the Bhutanese officials. This would be done remotely through using different means of communications. The duration of the remote support would be for 5 working day spread over 3 month period.

Activity 4 – Organize a workshop for stakeholders in Thimpu

The workshop would be to communicate on the Request plan outcome, future steps and awareness about the CTCN activities and would be organized by NDE of Bhutan.

[1] template would be provided by UDP

Deliverables	Delivery date
Capacity building in Bangkok	*15th to 19th Feb 2016*
NAMA training in Bangkok	*20th -21st Feb 2016*
Remote Support for NAMA development	

2.2 Main partners

List and describe the role of in-country partners who will be involved in the implementation of the assistance in the country.

Stakeholder	Role to support the implementation of the assistance
Ministry of Information and Communications	Policy and Planning
Road Safety and Transport Authority (main counterpart)	- approve passenger transport services routes, fares; - approve bus standards; - provide public transport facilities (bus terminals, bus sheds and bus stops and shelters); - issue driving licenses, - conduct inspections on bus conditions (regular pre-departure inspections)
Private Bus Operators	Operate public passenger service
Traffic Police	Enforcement
Department of Roads	Construction and maintenance of road network

2.3 Synergies

Identify past and ongoing public and private sector initiatives at the local, national or regional level that the response will specifically build on and link to.

The project will set up the required base for achieving the transport development and management goals of the Department of Transport as envisaged in the Bhutan Transport 2040: Integrated Strategic Vision and the 11th Five Year Plan of the Department. These plans clearly indicate country's ambition to improve public transport service through building capacities of the public transport managers and operators.

The proposed project will also contribute to the strengthening of the transport department and its personnel in acquiring necessary skills and resources in terms of implementing transport management systems. The transport sector has been identified as a key sector contributing to rising emission growth of the country in the communication to UNFCCC. The framework to assess the emission reduction and other co-benefits through promotion of public transport will assist the government in prioritizing the low carbon transport options in the country and develop appropriate strategies.

Public transport system will be revamped and its efficiency will be improved with use of technology and by building the capacities of the public transport managers.

The request is in line with transport sector's outcome-1 for the 11th Five Year Plan "Access to adequate, sustainable and inclusive public transport". It is also in-line with the overall national goal for 11th Plan "Self-reliance and Inclusive Green Socio-Economic Development" .

2.5 Timeline

Provide a timeline for the CTCN technical assistance and list specific milestones for each activity. The timeline show the roll out of the activities and sub-activities to be conducted, throughout the whole duration of the assistance

	Jan 2016	*Feb 2016*	*March 2016*	*April 2016*	*May 2016*
Activity 0					
Activity 1					
Activity 2					
Activity 3 (linked to incubator program)					
Activity 4					

2.6 Indicative budget (TBC)

	Amount in USD
Activity 0	*0*
Activity 1	*28462.8*
Activity 2	*12000*
Activity 3	*1728*
Activity 4	*5000*

2.7 Gender considerations

Mobility of women and children in the developing countries is generally limited . The ITS system can help in improving access to transport however the design needs to be sensitive to the needs of women and children and these considerations are planned to be handled in the following ways:

1. The team that would be selected for training should have adequate representation of women so that gender aspects can be duly highlighted.
2. The training would provide inputs on how to improve the access to transportation for women and children.

Explain how gender considerations are included within the proposed activities, and also indicate any gender co-benefits that will be gained as a result of implementing this Response Plan.

2.8 Risk identification and risk mitigation

The two risks identified are:

Identify risks that could jeopardize the realization of project outcomes and expected impacts, their probability and how the assistance will mitigate these perceived risks.

Risks	Consequence	Probability	Mitigation
Difficulty in applying learning of ITS in Thailand to Bhutan	*Implementation of ITS system can be difficult*	*Medium/High*	*The project design has included besides Bangkok , Chiang Mai which is a relatively smaller city to provide a diverse experience*
Adequate financing for the implementation of ITS in Bhutan is not available	*Implementation of ITS system can be difficult*	*Medium/High*	*The training on NAMA will try to help in development of NAMA proposal underway with UNDP*

2.9 Monitoring and Reporting

Provide information on how the monitoring and reporting for the project will be constituted.

3. Long-term impacts of the assistance

3.1 Expected climate benefits

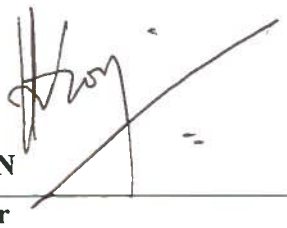
Transport sector contributes to 44% of GHG emissions and the growth of emissions has been on the back of rapid motorization in Bhutan. The number of vehicles has grown at more than 10% annually which a large part being private vehicles which besides climate change result in congestion and air pollution. A proven way of addressing this challenge is by promoting public transport however a good public transport system has to be completed by a sound management which can be facilitated by ITS system. Therefore ITS by complementing public transport can deliver substantial reduction in CO2 emissions because emissions intensity of public transport modes is much lower than private e.g., on average CO2 intensity of cars is 219 g/pkm compared to 118 g/pkm for a bus. ITS systems can ensure a higher occupancy and thereby the CO2 benefits can be still higher.

3.2 Co-benefits

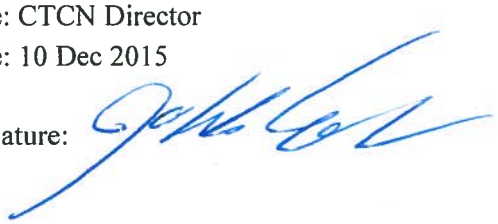
ITS system as discussed above can help in promotion of public transport which can help in improving mobility especially for socially and economically weaker sections. It can help in mitigation of local pollution which can improve air quality and health of city populations.

4. Formal agreement and signatures

Signatures of the requesting country

For the NDE	**For the Request Applicant**
Name: Karma Tshering	Name: Karma Tshering
Title:	Title:
Date: 10 Dec 2015	Date:
Signature: 	Signature:

Signatures of the CTCN

For the CTCN Director	**For the Climate Technology Manager**
Name: Jukka Uosukainen	Name: Rajiv Garg
Title: CTCN Director	Title: Climate Technology Manager- Ad Interim
Date: 10 Dec 2015	Date:
Signature: 	Signature:

Annex 1: Logframe

Activity	Description of sub-activities conducted by the CTCN	Output and deliverables	Main national partners involved	Objectively Verifiable Indicator	Responsible person/organization
Activity 1:	Capacity building in Thailand	Workshop at Bangkok		Workshop report	NDE Thailand
Activity 2:	NAMA training related to the Transport	Training at Bangkok		Training report including 1st draft of NAMA as Annex	UDP
Activity 3:	Remote Support for NAMA development.	Feedback on NAMA on ITS for transport		Draft final NAMA	UDP
Activity 4:	Organize a workshop for stakeholders in Thimpu	Workshop at Thimpu		Workshop report	NDE Bhutan

Annex 2: Budget

The budget template is based on the format required for legal agreements with the CTCN
It should be copied in excel and inserted in Annex 2 when finalized.

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Activity	Notes	Quantity	Unit	Unit Cost ($)	Cost 2016	Cost 2015	Total Cost ($)	In Kind Quantity	In Kind Cost
Activity 1 :	Capacity building in Thailand								
Personnel									
National staff - Professional	Preparation of Modules for Training, Conduct of Workshops including field visits	10	days	400	4000	xx	4000		
Component sub-total							***4000***		
Travel									
Ticket for NDE participants from Bhutan	Round trip ticket from Thimpu to Bangkok	10	Ticket	424.24	4242.4	x	4242.4		
Ticket for NDE participants from Bhutan	Round trip ticket from Bangkok to ChangMai	10	Ticket	151.52	1515.2	x	1515.2		
DSA for NDE participants from Bhutan	DSA (Bangkok, Thailand)	10	DSA (5 days)	198	9900	x	9900		
DSA for NDE participants from Bhutan	DSA (Chang Mai, Thailand)	10	DSA (2 days)	118	2360	x	2360		
Tickets for Experts consultant and Resource Demonstrators	Round trip ticket from Bangkok to Chang Mai	10	Ticket	151.52	1515.2	x	1515.2		
DSA for Resource Speakers	DSA (Chang Mai, Thailand)	5	DSA (2 days)	118	1180	x	1180		
Workshop in Bangkok	Rental meeting room and equipment including lunch , coffee break and stationery	15	5 Day	50	3750	x	3750		
Component sub-total							***24462.8***		
Sub-total activity 1							***28462.8***		
Activity 2 :	NAMA training related to the Transport								
Personnel									
Staff time- Resource Speakers	Preparation of Training Materials, Conduct of Training in Bangkok	8	days	864	6912	x	6912	2	1728

Activity	Notes	Quantity	Unit	Unit Cost ($)	Cost 2016	Cost 2015	Total Cost ($)	In Kind Quantity	In Kind Cost
Component sub-total							***6912***		***1728***
Travel									
Tickets for Experts consultant and Resource Demonstrators	Round trip ticket from Bangkok to Copenhagen	2	Ticket	1127	2254	x	2254		
DSA for Resource Speakers	DSA (Bangkok, Thailand)	2	DSA (4 days)	198	1584	x	1584		
Workshop in Bangkok	Rental meeting room and equipment including lunch , coffee break and stationery	10	2 Day	125	1250	x	1250		
Component sub-total							***5088***		
Sub-total activity 2							***12000***		
Activity 3 : Remote Support for NAMA development									
Personnel									
Staff time- Resource Persons	Review of NAMA on ITS for Transport	2	days	864	1728	x	1728	3	2592
toi							***1728***		***2592***
Sub-total activity 3							***1728***		
Activity 4 : Organize a workshop for stakeholders in Thimpu									
Travel									
Workshop in Thimpu	Rental meeting room and equipment including lunch , coffee break and stationery	1	LS	5000	5000	x	5000		
Component sub-total							***5000***		
Sub-total activity 4							***5000***		
TOTAL BUDGET							***47190.8***		

Annex 3: Terms of Reference for assistance provider *(in case of tendering process, and in line with UNOPS template/requirements TBD)*