Call for Expression of Interest

The Challenge TB (CTB) Project is the flagship global initiative for implementing USAID's TB strategy and is being implemented in 22 countries including Bangladesh by a unique coalition of nine international organizations in TB control. The CTB is being implemented in Bangladesh since 2014 and providing technical assistance to the National Tuberculosis Program (NTP), Directorate General of Health Services (DGHS) under Ministry of Health and Family Welfare (MoHFW), Government of Bangladesh (GoB). The current focus of the initiative is to lay strong ground for the Zero TB Cities Initiative recently launched by the MoHFW.

As part of its urban focused activities, CTB is interested to involve an internationally reputed academic/research intuition or independent expert to undertake a **"Mathematical modelling of tuberculosis hot spots and transmission potential in Zones 3, 4 and 5 of Dhaka South City Corporation (DSCC).** This TB modelling exercise is intended to identifying TB hotspots and provide the NTP and other stakeholders the opportunity to learn more about the TB transmission and interventions that are most likely to accelerate progress against TB on a population level in zones 3, 4 & 5 of DSCC.

Interested academic/research institution or independent expert should submit the following:

- Letter of expression with a concept note (maximum two pages)
- Proposed methodology and work schedule with time line (max one page)
- Estimated budget/fees
- CVs of key persons involved and profile of similar assignments, if any.
- Evidence of doing TB modelling or similar mathematical studies
- Team composition along with role of each team member and short profile/bio

Interested academic/research intuition or independent expert is requested to submit the letter of expression with a concept note (max two pages) and estimated budget/fees to the IRD Global Limited, 583 Orchard Road, #06-01 Forum, Singapore 238884 via email: atif.izhar@ird.global latest by 5th February 2018.

Terms of Reference (ToR) for

Mathematical modelling of tuberculosis hot spots and transmission potential in zones 3, 4 and 5 of Dhaka South City Corporation (DSCC)

The Assignment	Mathematical modelling of tuberculosis hot spots and transmission potential in zones 3, 4 and 5 of DSCC
Duration of the contract period	6 months
Primary survey location (s)	Zones 3, 4 and 5 of DSCC, Dhaka
Contracting entity	The Challenge TB Project, IRD

Context of the research:

Bangladesh is one of the world's 30 high Tuberculosis (TB) burden countries with annual occurrence of 353,600 new TB cases and treatment coverage rate (notified cases/estimated incidence) of 62% (Global Tuberculosis Report 2017). About 73,000 people die annually in Bangladesh due to Tuberculosis. Another important challenge is Multi Drug Resistance Tuberculosis (MDR-TB) - with an estimated 9,700 MDR-TB cases per year. The findings from 2015-16 National TB Prevalence Survey show that TB prevalence rates vary by location and demographic groups. The survey showed very high rates in urban areas, and among men and the elderly. These high rates of TB in urban areas and high risk groups may be due to huge rural-to-urban migration, overcrowded living conditions with poor housing in slum areas, poverty well as limited access to quality healthcare services. Based on this evidence, the 2018-2022 National Strategic Plan for TB calls for an approach that targets cities and the populations at risk.

Bangladesh has made significant progress in its fight to prevent, detect and treat TB. The National TB Program (NTP) of Bangladesh along with its partners has been maintaining good basic TB control services with reasonable case detection and excellent treatment outcomes. Bangladesh is the first country in the Region that introduced shorter treatment regimen for MDR-TB and is achieving high cure rate for MDR-TB patients (75%). Despite promising achievements, an estimated 150,000 TB cases remain missing every year in Bangladesh and addressing TB infection equitably and comprehensively is a challenge. This is particularly challenging in urban settings like Dhaka, where universal access to quality diagnostic services and treatment are over stressed by myriad factors such as the influx of rural-to-urban migrants and the complexity of urban health care infrastructure. The new perspectives and ways of addressing TB treatment and control are needed as the disease continues in a persistent manner. New technology, such as geographical information systems, will be useful in this process.

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In October 2017, the MoHFW with support from USAID and CTB Initiative has launched the Zero TB Cities Initiative with strong political commitment to ending TB and signed a declaration with a call for action "uniting to make our cities TB free." In order to lay strong ground for the Zero TB Cities Initiative the CTB will undertake a set of activities mostly focusing in urban Dhaka to support the Government to better prevent, identify missing cases and treat tuberculosis and help save lives in urban settings. The Urban TB initiative will use comprehensive evidence-driven interventions of the Search, Treat and Prevent (STP) strategy. The Initiative builds on existing platforms and relies on multi-stakeholder engagement including

coalitions of local governments, businesses, civil society and multiple funders under the leadership of the NTP.

Systematic information on TB transmission in urban settings, the availability of TB services and treatment and cascade of TB care for urban population is lacking. It is therefore essential to build evidence through using innovative and combined approaches of epidemiology, infectious disease modelling and economic evaluation. The mathematical TB models will help identify TB hotspots and provide CTB the opportunity to learn more about TB transmission and the interventions that are most likely to accelerate progress against TB on a population level in Dhaka.

Objectives:

The objectives of mathematical models on TB are to**:**

1. Identify and map TB transmission hotspots in zones 3, 4 & 5 of DSCC
2. Estimate the proportion of TB incidence that could be averted by targeting hotspots of transmission within zones 3, 4 and 5 of DSCC
3. Model the impact of different intervention approaches with specific focus on active screening programs
4. Provide technical details to support the modeling approach taken

The Assignment:

In order to assist the NTP, DGHS, MoHFW, Government of Bangladesh and CTB in achieving the stated objectives above, the hiring institution or independent expert is expected to carry out the tasks as described below.

The institution or independent expert will construct a model of TB transmission based on objectives as mentioned above. The findings and recommendations of the mathematical model will provide useful information about TB transmission hotspots and will help evaluate the relative impact on TB incidence from hotspot-focused interventions. These estimates will also help to inform a cascade of urban-focused care. This will provide evidence about TB transmission and the interventions that are most likely to accelerate progress against TB on a population level and guide the TB program to plan for urban focused TB activities. The institution/expert will provide a report at the end of mentioned timeline.

Expected Outputs and Deliverables

The hiring academic/research institution or independent expert will need to produce the following:

No	Description	Deadline to complete activities
1	Description of modelling approach	10 February 2018
2	Modelling exercise	20 April 2018
3	Model technical description (for initial review by CTB team)	10 May 2018
5	Preliminary results: projected impact of hotspot-targeted intervention	15 June 2018
6	Draft report with recommendations	20 July 2018
7	Dissemination of findings through a workshop	30 July 2018

Eligibility:

Any Internationally reputed academic/research institution or independent expert is eligible to participate in this call. However, the institution or independent expert must demonstrate previous international experience of conducting TB epidemiological research, infectious disease modelling, economic evaluation

and implementation research and/or related public health studies in Bangladesh or South Asian country context and have the ability to conduct TB mathematical modelling without compromising the international standards of excellence.

Specific Experience, Expertise, Abilities and Skills:

The academic/research institution or independent expert and the principal investigator and co-investigations associated with them should have the following skills and professional experiences.

1. The institution or independent expert should have previous experience of undertaking similar mathematical modelling with focus on urban TB and Zero TB Cities Initiative in Bangladesh or South East Asia as well as experience in USAID, and/or other donor agency funded studies/projects/programs.

2. The principal investigator and/or co-investigators should have:
   a. A PhD in public health, epidemiology, medical statistics, economics, health service or policy research with a minimum of 05 years professional experience specifically related to research in the field of TB, Public Health, Health systems and policy
   b. Each research team member (principal investigator/co-investigators) should have at least three relevant published papers in peer-reviewed international journals in the field of TB epidemiology and modelling.
   c. Good understanding about urban health system and Zero TB Cities Initiative with previous experience conducting research and/or interventions in urban/slum context in developing country settings.

3. Technical competence in prevention and control of TB and public health.
   a. Proven ability to conduct large-scale population-based studies including TB modelling, and prepare high quality reports of a similar nature.
   b. Ability to clearly identify and relate research findings with local, national and international TB policies and communicate the benefits of urban focused TB modelling in Bangladesh.
   c. Must possess excellent communication and reporting skills in English, both written and spoken
   d. Proven ability to write and present complex epidemiological research and TB modelling report in English for a non-technical audience
   e. Skills in providing realistic recommendations based on findings of the modelling exercise, and linking them with policies, strategies and action plans formulation TB control in Bangladesh.