

TECHNICAL REPORT

FINAL EVALUATION OF THE DGD-DAMIEN FOUNDATION PROGRAMME “SUPPORT TO THE NATIONAL TUBERCULOSIS AND LEPROSY CONTROL PROGRAMMES IN BANGLADESH 2022-2026”

Prepared by
Prof. Giovanni Battista Migliori
Dr. Ananthu James

With the support of
Prof. Moijbur Rahman
Dr. David Pahan

And the invaluable support of the health staff of:

- *Upazilla Health Complex (UHC) Madhupur Tangail*
 - *Jalchatra Hospital*
- *Kendua Upazilla Health Complex. Netrakona*
 - *Mymensingh Hospital*

And of the whole staff of Damien Foundation- Bangladesh and the health units visited

Executive summary

Part A: Tuberculosis

1. Introduction

2. Scope

3. Methodology

4. Main findings

4.1 Desk analysis and document review

4.2 Results deriving from the interviews

4.3 Visit to Upazila health facilities at district level and DF hospitals for TB/MDR- TB and Leprosy

4.4 Analysis of the programme indicators (TB & Leprosy)

4.5 Participatory end-mission workshop

4.6 SWOT& Gap analysis

5. Recommendations

6. Conclusions

7. Main lessons learned

List of abbreviations

ACF	Active Case Finding
aDSM	Active Drug Safety Monitoring
AFB	Acid Fast Bacilli
AIDS	Acquired Immunodeficiency Syndrome
AO	Accounts Officer
BDQ	Bedaquiline
BI	Bacteriological Index
BRAC	Bangladesh Rural Advancement Committee
CCM	Country Coordinating Mechanism
CDC	Chest Disease Clinic
CDH	Chest Disease Hospital
CDR	Case Detection Rate
COVID-19	Corona Virus Disease 2019
CS	Civil Surgeon/ Culture & Sensitivity
CT	Complete Treatment
CXR	Chest X-Ray
DAC	Development Assistance Committee
DBLM	Danish Bangladesh Leprosy Mission
DDP	Drug Delivery Point (Leprosy, weekly)
DEPZ	Dhaka Export Processing Zone
DF	Damien Foundation
DFB	Damien Foundation Belgium
DFBD	Damien Foundation Bangladesh
DFCO	Damien Foundation Coordinating Office
DG	Disability Grade
DGD	Directorate General for Development Cooperation and Humanitarian Aid
DGHS	Directorate General of Health Services
DHIS2	District Health Information System 2
DPM	Deputy Programme Manager
DRS	Drug Resistance Survey
DSMO	District Surveillance Medical Officer
DST	Drug Susceptibility Testing
ECS	Extended Contact Survey

ENL	Erythema Nodosum Leprosum
EP	Extra-Pulmonary
EPTB	Extra-Pulmonary Tuberculosis
EQA	External Quality Assurance
F%	Female proportion
FC	Field Coordinator
FDA	Fluorescein Diacetate
FDP	Fixed DOT Provider
FTLCP	Faridpur TB Leprosy Control Project
FWA	Family Welfare Assistant
FWC	Family Welfare Centre
G0D	Grade Zero Disability
G1D	Grade 1 Disability
G2D	Grade 2 Disability
GFATM	Global Fund to Fight AIDS, Tuberculosis & Malaria
GIS	Geographic Information System
GNP	Gross National Product
GoB	Government of Bangladesh
GP	General Practitioner
GXP	GeneXpert
HCE	Household Contact Examination
HE	Health Education
HHC	Household Contact
HIV	Human Immunodeficiency Virus
HMIS	Health Management information System
HR	Human Resource
IC	Index Case/Infection control
icddr,b	International Center for Diarrheal Diseases Research, Bangladesh
IECS	Intensive Extended Contact Survey
IPC	Infection Prevention and Control
IPT	Isoniazid Preventive Therapy
IUATLD	International Union against Tuberculosis & Lung Diseases
JMM	Joint Monitoring Mission
KNCV	Dutch Tuberculosis Foundation
KOL	Key Opinion Leader
LCA	Leprosy Control Assistant
LED-FM	Light Emitting Diode – Fluorescent Microscope
LEPRA	Leprosy Relief Association
LFA	Local Fund Agent
L-J	Lowenstein Jensen

kWp	Kilowatt peak power
LL	Lepromatous Leprosy
LTFU	Lost to follow up
MAF	Multisectoral Accountability Framework (For TB)
M&EO	Monitoring & Evaluation Officer
MB	Multi-bacillary
MBDC	Mycobacterial Disease Control
MDG	Millennium Development Goal
MDR-TB	Multidrug-Resistant TB
MDT	Multi- drug Therapy
MO	Medical Officer
MODC	Medical Officer Disease Control
MoH&FW	Ministry of Health & Family Welfare
MoU	Memorandum of Understanding
MTB	Mycobacterium Tuberculosis
MTLCP	Mymensingh TB & Leprosy Control Project
NC	New cases
NCDR	New Case Detection Rate
NE	Not Evaluated
NFA	Nerve Function Assessment
NFI	Nerve Function Impairment
NGO	Non-Governmental Organization
NLP	National Leprosy Programme
NSP	National Strategic Plan
NTD	Neglected Tropical Diseases
NTLCP	Netrakona TB & Leprosy Control Project
NTLEP	National Tuberculosis & Leprosy Elimination Programme
NTM	Non-Tubercular Mycobacterium
NTP	National Tuberculosis Control Programme
NTRL	National Tuberculosis Reference Laboratory
OBS	Observation case (leprosy suspect who needs review)
OECD	Organization for Economic Cooperation and Development
OPD	Out Patient Department
PAL	People affected by Leprosy
PB	Paucibacillary
PTLD	Post TB Lung Disease
PBC	Pulmonary Bacteriologically Confirmed
PCD	Pulmonary Clinically Diagnosed
PD	Project Director
PEP	Post-exposure Prophylaxis

PM	Programme Manager
PO	Programme Organiser (govt official at district level)
POD	Prevention of Disabilities
PPM	Public Private Mix
PR	Principal Recipient
PT	Physio-Technician
PTB	Pulmonary Tuberculosis
PTLD	Post TB Lung Disease
QA	Quality Assurance
QMT	Quick Muscle Tests
RCS	Reconstructive Surgery
RFT	Released From Treatment (after MDT course)
RMO	Resident Medical Officer at hospital
RPR	Reregistered Prevalence Rate
RR	Rifampicin Resistant
RR-TB	Rifampicin-resistant TB
RTLCP	Rajshahi TB & Leprosy Control Project
SDG	Sustainable Development Goal
SDR-PEP	Single-dose Rifampicin Post-exposure Prophylaxis
SSS	Slit Skin Smear
SR	Sub-Recipient
ST	Sensitivity Test/Sensory Test
SWOT	Strength, Weakness, Opportunity and Threat
TB	Tuberculosis
TB REACH	TB Resource group for Education and Advocacy for Community Health
TLCA	TB & Leprosy Control Assistant
TLCO	TB & Leprosy Control Officer
TLM	The Leprosy Mission
TO	Transferred out
ToR	Terms of Reference
TPT	TB Preventive Therapy
TTLCP	Tangail TB & Leprosy Control Project
UHC	Upazila Health Complex
UHFPO	Upazila Health & Family Planning Officer
USAID	United States Agency for International Development
UZ	Upazila/Sub-district
VD	Village Doctor
VOT	Video Observed Therapy
VR	Voluntary Reporting
WHO	World Health Organization
XDR	Extensively Drug Resistant

Xpert	Xpert MTB/RIF
ZLI	Zero Leprosy Initiative
ZN	Ziehl Nielsen

Executive summary

The evaluation was conducted in Bangladesh from May 14 to May 21, 2026 (Mr. Ananthu James from distance), and organised as per ToR, according to the following sections: **1.** Desk analysis and document review; **2.** Evaluation of the results deriving from the interviews; **3.** Visit to Upazila health facilities at district level and DF hospitals for TB/MDR-TB and Leprosy (*TB & Leprosy Clinic, Tangail Sadar; Jalchatra Hospital; TB & Leprosy Clinic, Netrakona Sadar; Mymensingh Hospital*); **4.** Analysis of the programme indicators; **5.** Participatory end-mission workshop and debriefing; **6.** SWOT & Gap analysis; **7.** Recommendations; **8.** Conclusions; **9.** Main lessons learned.

The interview of 44 individuals representing different perspectives via questionnaire indicated a strong agreement on the effectiveness, quality and impact of the TB and Leprosy services provided by DF (>95% agreement in average on the question on the usefulness and impact of DF collaboration and >90% on the more technical question about the indicators of the project).

Additional interviews of staff and patients done during the visit confirmed these findings.

The field visits confirmed the excellent quality of the prevention, diagnosis and treatment services for TB and Leprosy. Guidelines, known and available, were followed, recording and reporting forms were adequately kept and correctly filled, the outcomes were correctly reported (confirming the consistency of data received at DF headquarter level), health education/counselling was performed regularly with standardised materials.

In terms of TB programme indicators all were met except the proportion of children, set at 7%, and reaching 6% in 2023, and then remaining stable, although with an increasing number of children diagnosed over time. The TB research indicators were met by 2025, as 5 research projects have been initiated, with several publications and a large number of manuscripts under preparation.

This final evaluation of the leprosy component (Result 1) of the 2022–2026 DGD–Damien Foundation programme was conducted in Bangladesh during the field mission of 14–20 May 2026 (Dr. Ananthu James contributing partly from distance, with national co-evaluator Dr. David Pahan), and organised as per the Terms of Reference (ToR).

The field visits confirmed the excellent quality of leprosy prevention, diagnosis and treatment services. National and WHO guidelines, known and available, were followed; recording and reporting forms were adequately kept and correctly filled; outcomes were correctly reported (confirming the consistency of data received at DF headquarter level); and health education and counselling were performed regularly with standardised materials. Particular strengths were observed in the prevention of disabilities (POD) services, the provision of protective footwear and self-care education, and the surgical and rehabilitation capacity available in the DF hospitals.

In terms of the leprosy programme indicators, the proportion of females affected and the proportion of patients developing additional disabilities during multidrug therapy (MDT) are both performing well relative to their targets, suggesting successful programme impact in these areas. The Grade-2 disability (G2D) proportion among newly diagnosed cases fluctuated above and below the Year-3 target of 12% during the programme period, indicating a need for sustained efforts in early detection; however, the most recent annual data are encouraging, with G2D at 8.43% in 2024 and 6.99% in 2025. Nevertheless, latest data as of the first quarter of 2026 shows that G2D is 10%, exactly at the target of 10% for 2026. During 2022-25, the child proportion has remained slightly above the target of 8% for 2024. Given this and that the 2026-target is 6%, it is of importance to continue strategies to reduce transmission in the community, as the child case rate is an indicator of ongoing transmission.

The participatory end-mission workshop and debriefing was conducted involving all partners (including the National Leprosy Programme and the NGOs active on leprosy), producing a proactive and useful discussion, after which the preliminary recommendations were accepted.

Nine recommendations were proposed for TB and **five** for Leprosy.

The DF project in Bangladesh is not only an example of technically sound implementation of TB & Leprosy prevention, diagnosis and treatment activities, but also an excellent model of NTP/NGO collaboration, as well as an ideal setting for training and implementation of operational research activities. In particular, the PTLTD project is of paramount importance, not only as it is the first demonstration ever that programmatic PTLTD management can be conducted in a quality manner also in a resource-limited settings, but also that spirometry can be used at the peripheral level. This may be the paradigm shift towards a better diagnostic approach to cough and respiratory diseases beyond TB. The performances of the Near point-of-care nucleic acid amplification tests (NPOC-NAATs, Pluslife MiniDock MTB test) presently undergoing pilot evaluation will be of scientific interest, particularly on children, on whom evidence is scarce.

Furthermore, the active search for PTLTD cases at the household level, conducted within the TB-REACH project, has a beneficial effect also on TB and Leprosy diagnosis, further enhancing the importance of coordinating efforts.

There was agreement among partners in supporting and further strengthening the DF project in Bangladesh, both for the priority/relevance that TB and Leprosy have in the Country and because of the quality services provided. Partners agreed on the importance of keeping the size and structure of the present intervention, strengthening some aspects (e.g., implementing at least 2 mobile computer-aided detection system (CAD)-based mobile digital radiology units with related staff if funding allows). Furthermore, partners agreed to continue advocacy as to show that having approached the

TB Elimination threshold for Leprosy (as defined by WHO, e.g. >1 case per 10,000 pop.) does not mean to have resolved the problem, given that over 3500 cases per year are still diagnosed in Bangladesh.

Part A: Tuberculosis (Prof. GB Migliori, Prof. M. Rahaman)

1. Introduction

This final evaluation of the 2022-2026 support to the National TB Programme (NTP) in Bangladesh is aimed to allow the Damien Foundation (DF) and the Directorate General for Development Cooperation and Humanitarian Aid (DGD), to successfully complete the planned activities and plan the future (2027-2031) support programme in the best possible way.

This final review is designed to identify strengths and weaknesses as to allow implementers to focus on best practices and implement strategic and/or operational corrections if/when and where eventually needed with emphasis on the programme's sustainability.

Furthermore, it is designed to provide added-value in terms of inclusiveness, human resource development and participation of staff, partners and local stakeholders at all levels.

The DF five-year programme has a **specific objective:**

“Early case finding, correct management of TB (including MDR-TB) and leprosy and preventive therapy for latent TB infection in the project area is ensured by 2026, maintaining preventive and protective measures for COVID-19. Technical expertise in multi-drug resistant /rifampicin-resistant tuberculosis (MDR/RR TB) management is developed among the service providers throughout the country”

and **5 expected results** have been defined:

- **Result 1:** Management of leprosy will be improved through earlier diagnosis and more effective prevention of disabilities despite the increasing rarity of the disease.
- **Result 2:** Management of TB will be improved through increased collaboration with NTP and community involvement.
- **Result 3:** Efficient TB case detection and management organisation in the newly industrialised DF districts will reduce TB transmission among factory workers (mostly women).
- **Result 4:** DF support to the National TB Control Program in capacity building and effective management of MDR/DR-TB patients throughout the country is ensured.
- **Result 5:** Operational research aligned with the health program objectives and research gaps is continued in collaboration with national and international institutes/organizations.

The technical proposal for the review will focus, as per Terms of Reference (ToR), on **results 1,2,3,4 and 5.**

The evaluation of the programme considers, as per ToR, the following Development Assistance Committee of the Economic Cooperation and Development (OECD/DAC) criteria:

- **Effectiveness:** achievement of the expected results to achieve the specific objective of the programme.
- **Alignment and ownership**
- **Relevance, efficiency, sustainability and impact**
- **Transversal objectives (gender, environment and human rights)**
- **Main lesson learned**

Furthermore, the principle of *continuing training* guided the different steps of the consultancy. The evaluation has been designed to help the different programme partners to improve the implementation strategy of continuing training and ensuring its sustainability (see details below).

2. Scope

The **goal** of the *final evaluation* is to assess the implementation progress and achievement of the results, identify strengths, weaknesses, probable bottlenecks, and propose corrective measures.

The *final evaluation* was organised, as per ToR, starting from identification of Strengths, Weaknesses, Opportunities and Threats (SWOT analysis) in order **a)** to formulate concrete recommendations to improve or adapt the interventions in order to reach the Programme's objectives and plan the 2027-2031 activities and **b)** to identify the workforces to make this possible. To do this, the 4 Objectives listed under the ToR will be pursued, taking into account the impact that the Global Fund (GF) Principal Recipient (PR)'s decision of stopping the DF activities in Rajshahi and Faridpur regions had on the project and related indicators.

When analysing the outcomes to estimate if the expected results and targets will be achieved by the end of the Programme, effectiveness, impact, alignment, ownership, and transversal objectives (e.g. gender, environment, and human rights issues) were taken into consideration.

The evaluation, as per ToR, targets the staff implementing the programme (from DF, government and private sector) and the direct beneficiaries (e.g., people affected by the disease), at all levels, including the community one.

Beyond/complementing the ToR, the final evaluation, without any additional cost for the Contractor, has also provided technical support to ongoing operational research activities under the broader DF programme in Bangladesh, contributing to:

- Strengthening the local team's capacity on Post-Tuberculosis Lung Disease (PTLD) assessment and management, an area of growing relevance for the programme's operational research agenda (Result 5), building on findings already disseminated in two peer-reviewed publications.
- Supporting the analysis of data from the Bangladesh NPOC project, contributing to the early stages of a manuscript currently in preparation.
- Supporting the Bangladesh component of an international multi-country operational research initiative (NIH End-User study), including validation of data collection across its three pillars (online survey across 137 countries/territories; patient interviews at 26 sites in

19 countries; healthcare worker interviews planned across 11 countries), which has already resulted in one publication and one submitted manuscript.

3. Methodology

The *final review* has been preceded by pre-mission calls with core stakeholders (14 April, 8 and 12 May 2026, see timeline below).

The *review* used a combination of different methodologies including the following:

- **epi and document review**
- **questionnaire and in-person interviews**
- **field visits and**
- **a participatory and didactical workshop.**

The methodology used included the following steps:

- 1) *Desk analysis and document review* of the core reports/publications and programmes including epidemiological data and the TB prevalence survey report (2015-2016) as well as national guidelines and DF policy documents (updated as available in the NTP website, see below).
- 2) *Questionnaire-based interview* of key stakeholders including TB programme managers, DF and government health staff, community-affected populations and patients-village doctors and TB clubs- and private practitioners among others. The questionnaire, proposed to stakeholders 3 weeks before the mission as per ToR, was then approved and finalised 2 weeks prior the mission as to allow local consultants to collect them. The questionnaires were preliminarily analysed during the mission.
- 3) *Visit to Upazila health facilities* at district level *and DF hospitals* for TB/MDR-TB as per ToR, taking into account logistical and feasibility issues which may be present during the mission. The visits were guided by a pre-defined check-list, and staff and patients were additionally interviewed on site (questions based on the check-list). The check-list was proposed to the stakeholders before the mission, and used with a few adaptations also for the Leprosy component. The primary data available at the clinic/Upazila level (and in hospitals) were examined during the visit (e.g., treatment cards and registers, as well as direct observation of team members at work).
- 4) *Analysis of the data collected through questionnaires and check-lists* (qualitative, quantitative, as well as by result, and people category).
- 5) *Analysis of the existing programme indicators based on monitoring and evaluation documents*. This specific analysis has been conducted in the Dhaka DF office during the mission. Consolidated records produced by DF and used for internal monitoring, as well as reports to national authorities, and reports to donors have been used for this analysis.
- 6) *Participatory end-mission workshop*, which worked also as debriefing on the main results of this final evaluation. The workshop also had a didactical value as the Consultant presented the rationale beyond the programmatic approach to PTLTD management to the staff present at the event and a feasible publication plan for the main research findings. This event was planned with DF staff and conducted in Dhaka on the last day of the mission.

The final sections of the report include 7) *SWOT& Gap analysis* and 8) *Recommendations*.

To simplify the report's reading, steps 2 and 4 above have been combined in a single section discussing the qualitative and quantitative results derived from the interviews.

The report and related annexes were prepared as per ToR according to the timeline included below.

Description	Start Date	End Date
Data assessment and relevant document reading are done remotely and assessment tools are developed and comments by stakeholders are captured (2 working days)	05/05/2026	6/05/2026
Preparatory calls pre-mission (1 working day in total)	12/04/2026	12/05/2026
National consultant(s) collect questionnaires and the necessary data (10 days)	10/05/2026	20/05/2026
Field mission in Bangladesh (9 days, 8 days in the country)	13/15/2026	21/05/2026
Debriefing session to stakeholders (3 days after the mission end)	Within 3 working days after the mission end, to be agreed	
First draft report writing and submission from remote	22/05/2026	27/05/2026
Feed-back received from partners	05/06/2026	05/06/2026
Final report finalised from remote.	08/06/2026	08/06/2026

All acronyms have been defined when they first appeared in the text.

4. Main findings

The findings are described into 7 main sections, and complemented by Annexes as needed:

- *Desk analysis and document review*
- *Results deriving from the interviews*
- *Visit to Upazila health facilities at district level and DF hospitals for TB/MDR-TB*
- *Analysis of the programme indicators*
- *Participatory end-mission workshop*
- *SWOT & Gap analysis*
- *Recommendations*
- *Conclusions*

- *Main lessons learned*

4.1 Desk analysis and document review

The following documents have been reviewed and commented (*Annex 1*- zipped file: Desk Review files):

1. Joint Monitoring Mission (JMM) Bangladesh TB Report (9th) _2022
2. DF Five-year plan 2022-2026 for DGD
3. StopTB Partnership and USAID. Governance of TB Programmes: third assessment of practices in 21 countries, 2024
4. DF Bangladesh Annual Report 2017, 2018, 2022 and 2023
5. Drug Resistance Survey (DRS) 2021
6. Bangladesh TB Prevalence Survey 2015-16
7. DF Web link <https://www.damienfoundation-bd.com/> (last access 25 May 2026)
8. NTP Web link [National Tuberculosis Control Programme – An Official Website of National Tuberculosis Control Program of Bangladesh \(ntp.gov.bd\)](https://www.ntp.gov.bd/) (last access 25 May 2026)
9. DF Bangladesh overview on DGD results, PDF document
10. Damien Foundation publications
11. Mid Term Review, Bangladesh, 2024

The specific comments are summarised below:

1. JMM Bangladesh TB Report (9th), 2022

The 9th Bangladesh TB Programme Joint Monitoring Mission (TB-JMM) was carried out from October 16 – 30, 2022. The main objective of this JMM was to evaluate progress that has been made so far in the TB response in Bangladesh, identify gaps and challenges and propose achievable solutions to address those challenges so as to achieve the NTP's overall goal of ending TB as a public health threat by 2030 in line with the targets of the End TB strategy and the Sustainable Development Goals (SDGs).

Through discussions and by consensus, the review team then formulated recommendations for each of the **8 thematic areas** (*Health system and TB; Financing TB response; laboratory network, multidrug-resistance (MDR)/ active TB drug safety monitoring and management of adverse events (ADSM); Public-private mix (PPM); children/adolescents; comorbidities; TB prevention*) intended

to help the country to ensure gains that have been made in the TB response are sustained and programmatic bottlenecks are overcome.

In 2021 TB remained a major public health problem in Bangladesh. It was estimated that 375,000 people (95% CI 273,000-493,000), including 37,500 children under the age of 14, developed TB in the country and 42,000 people (95% CI 28,000-60,000) died of the disease. Even though TB notifications have been on the right trajectory, the country remained off course and is unlikely to achieve the 2030 End TB and SDG TB targets for both TB incidence and mortality. The country may also be off course to achieve the third target of ensuring no person suffers health related catastrophic costs on account of TB.

As per JMM 2022 TB Report, the estimated incidence of TB has not changed for more than two decades, and the country was not on track to achieve the SDG targets of reducing TB incidence and mortality by 80% and 90% by 2030 compared with the 2015 baseline. To illustrate, for Bangladesh to reach the SDG targets in the coming 8 years, the country should need to bring down the number of people developing TB in a year from the estimated 375,000 (currently in 2022) to less than 70,000 and the number of people who die of TB in a year from the current 42,000 to 6,000 or less. This will require a high level of political commitment with mobilization of resources, including financial and human resources, commensurate with the size of the public health problem, to upscale the TB response. An approach like what was recently witnessed with the COVID-19 response or what has been done with other health programmes such as the programme to reduce deaths from diarrheal diseases in children is needed to address TB morbidity and mortality in Bangladesh.

In the 2022 TB JMM, it was noted that in all thematic areas reviewed, good progress was made in virtually all these areas except a few. Thus, reasonable efforts have been made to find people with TB which has led to an increase in the number of TB notifications on a year-by-year basis since 2012 except in 2020 when there was a dip in notification because of the COVID-19 pandemic. In 2022, it appeared that TB notifications could not reach the 2021 level or continue the trajectory that has been in place since 2012, most probably because of rapid changes in the stewardship of the TB response that appear to have affected TB service provision and the unavailability of various diagnostic products including Xpert cartridges. Treatment outcomes for both drug susceptible and drug-resistant TB are among the best in the world. The laboratory network has expanded with increasing use of rapid molecular diagnostic tests and there is an expanding use of private health care providers. There were however several areas of the TB response that were lagging. These included under diagnosis and notification of TB in children, inadequate attention paid to drivers of TB such as undernutrition, diabetes and smoking and inadequate screening and testing of populations that have a high burden of TB (vulnerable and high-risk populations). Screening programmes appeared not to be reaching high proportion of targeted populations and use insensitive

tools such as symptom screening with a focus on cough of equal or greater than two weeks. The overall effect of these inadequacies was to delay or miss the diagnosis of TB which facilitates TB transmission, and which may explain the flat TB incidence despite a year-by-year increase in TB notification. These challenges were compounded by inadequate implementation of measures to prevent TB including TB infection transmission prevention in health care settings and the use of TB preventive therapy.

2. DF Five-year plan 2022-2026 for DGD

This document was the basis for the development of the technical proposal for the review and for the design of the present report. From the data presented and discussed in Bangladesh with the stakeholders, the DGD funding is by far the most important, as the contribution for the global fund accounts for about 10% of the whole DF funding in Bangladesh, being also lower than that provided by TB-REACH.

3. StopTB Partnership and USAID. Governance of TB Programmes: third assessment of practices in 21 countries, 2024.

This document is a very recently published national assessment of 21 countries, *unrelated to Bangladesh DGD project performance*. However, as it contains relevant data related to Bangladesh, and the possibility to compare different aspects from different countries, it is useful for this evaluation.

The assessment of the governance of TB responses relates to four main themes: *transparency; inclusiveness; legal framework; and process efficiency and effectiveness of national TB responses* in the 21 countries (including Bangladesh). The assessment enables the individual countries to understand their status on each of the 20 governance benchmarks, prioritize activities and track their progress. Each benchmark consists of one or more components, with a maximum cumulative score of 4. A score of zero signifies that meaningful action has yet to be initiated, a score of 4 indicates achievement of the benchmark, while a score of less than 4 signifies intermediate progress. The theme index is a percentage derived by aggregating the scores on all the benchmarks in that theme and dividing by 20.

In terms of *transparency* Bangladesh yielded 4 for the working NSP website, 0 for case-notification data in the website, 1 for the availability of the latest TB technical guidelines in the website, 3 for

availability of the National Strategic Plan (NSP) and related budget in the website and 4 for the external programme review (see document 5). The theme index/score was 60%.

In terms of *inclusiveness*, Bangladesh score reached 2 for social contracting with government funds (NGOs/Private Sector), 3.5 for inclusion of key populations in the NSP, 3 for inclusion of civil society/TB survivors and 4 for communities and sub-national entities and 1.9 for gender inclusiveness. The theme index/score was 72%.

The *legal framework of Bangladesh* yielded 4 for mandatory TB notifications, 3 for drug-resistant (DR-)TB drugs available in the essential list of medicines and for free, 1 for social protection, 1.6 for law/policy on human rights, and 3 for the policy framework to reduce stigma. The theme index/score was 63%.

In terms of *process efficiency and effectiveness*, Bangladesh scores were 2 for the approval process, 2.5 for the NTP manager empowerment, 3.8 for NTP capacity, 1.3 of NTP ability to rapidly adapt/adopt international policies and 2 for the NTP capacity to absorb funds. The theme index/score was 58%.

Overall Bangladesh achieved 4 of the 20 benchmarks, being for each of the 4 areas in a position from 4th out of 21 countries (area 2) and 11th of 21 (area 4).

The documents underlined areas for improvement.

4. Annual DF Reports 2017, 2018, 2022 and 2023

The previous 2017 and 2017 DF reports were also reviewed.

The 2022 Annual Report described, into details, the achievement highlights in Bangladesh as follows:

- New TB Patient Detected and treated 36,416
- Treatment success rate TB: 93%
- Health Education delivered to 4,327,751 people
- TB Preventive Therapy (TPT) offered to 25,658 people
- HIV Screening test performed on 12,232 TB patients

The comprehensive information provided in this report was of primary importance in conducting the analysis of the programme indicators (section 4.4 below).

The 2023 Annual Report was consulted in the DF Office in Bangladesh during the mission. Both the numbers and the overall results determining the indicators have improved, as reported below.

The only indicator not formally met is the proportion of TB in children, which has increased progressively but is still below the threshold set. As shown below, the preliminary 2024 results (first 3 quarters, covering up to September 2024) have been made available for the majority of indicators, confirming the robust programmatic implementation of DF-lead activities in Bangladesh (more details in section 4.4).

5. Drug Resistance Survey (DRS) 2018-2019

Among the 2356 smear-positive patients enrolled during the survey, 63 patients belonging to under-treatment (Cat. 1 and Cat. 2 non-converters) were excluded, and thus the final number of eligible patients were 2293 who were sputum smear positive as per inclusion criteria.

Mycobacterium tuberculosis was not identified in 31 patients among those eligible by GeneXpert and/or culture of sputum samples. Among those 31 patients (including 14 non-tubercular mycobacteria [NTM]: 6 new, 8 previously treated), 15 were from new and 16 from previously treated.

Among 2262 patients retained for final analysis, 2105 (93%) patients belonged to new and 157 (7%) to previously treated category; 33 (1.46%) with Rif resistance, 10 (0.44%) with Rif indeterminate and 2219 (98.09%) with Rifampicin susceptible in GeneXpert. Prevalence of NTM was 0.59% among enrolled (2356) sputum smear positive patients.

The prevalence of Rifampicin-resistant TB (RR-TB) among new and previously treated TB patients was calculated using logistic regression. Multivariate Imputation by Chained Equations (MICE) accounting for gender, age, treatment history and division were included in imputed data set where *the prevalence rate of RR among previously treated TB patients were 11.4% (95%CI= 7.2-17.5), which was higher as compared to the rate among new TB patients (0.7%; 95%CI= 0.4-1.2).* However, *no extensively drug-resistant (XDR) TB was isolated during the survey.* Risk factors for RR/MDR-TB identified in this survey included treatment history, locality, sex and being in the age group (35 – 45 yrs). Additionally, BCG vaccination, wealth index, malnutrition and smoking were also associated with higher proportion of RR/MDR-TB. Diabetes mellitus and HIV had no significant association with drug resistant TB. The prevalence of HIV among smear positive TB cases was 0.18% and all HIV positive cases were new cases.

The document concludes that *the prevalence of MDR/RR-TB detected in both new (0.7%) and previously treated (12.2%) patients remained low, even much lower than the previous survey in 2010-2011 (1.4% and 28.5% respectively).* Although the RR-TB prevalence rate is low compared to other countries, the high TB prevalence in the community will reflect a high MDR-TB burden. The

findings in this study showed that the TB control programme is running effectively in Bangladesh, with high success rates in both DS-and DR-TB cases (here with increased success rates bordering 80% after the shorter regimens were introduced), so that no major concerns on future increase of drug-resistance can be expected so far.

6. Bangladesh TB Prevalence Survey 2015-16

This is an important document. Among the 108,834 individuals eligible for the survey, 98,710 (90.7%) participated, the proportion being 10.7% higher than that estimate to calculate the sample size. 55.1% of participants were females.

The prevalence of bacteriologically confirmed Pulmonary TB cases (PTB) above 15 years of age was estimated to be 287 per 100,000 population. Adjusting for all ages and TB forms, the overall prevalence become 260 per 100,000 pop., the estimated incidence being 221 per 100,000 pop. The prevalence was higher among males (than females), in urban areas (than in rural) and in the population older than 65 years. The prevalence to notification rate was 2.8:1. Among TB cases, only 40.6% were detected by sputum smear, while 95% was detected by Xpert (done to all samples, while in the previous survey was done only on sputum positive cases).

In 2014 WHO estimated the TB prevalence at 404 and the incidence at 227 per 100,000 pop., the detected values being both lower.

It is recommended that NTP focuses more on active case-finding and older population groups, while strengthening community screening to ensure early diagnosis and effective treatment to impact transmission. As >50% of the TB cases detected were smear negative, there is need to expand the use of Xpert and culture for bacteriological confirmation of chest radiography as part of the screening procedures for asymptomatic TB patients.

7. DF Web link <https://www.damienfoundation-bd.com/>

The link provides useful information on the DF's activities in Bangladesh and the reports 2017, 2018 and 2022. Scientific activities are also reported.

8. NTP Web link [National Tuberculosis Control Programme – An Official Website of National Tuberculosis Control Program of Bangladesh \(ntp.gov.bd\)](https://ntp.gov.bd/)

The link to the NTP Bangladesh, mentioned in the document 1 above, provides important information to inform *the final review*.

9. Damien Foundation Publications

The publications revised included the IJTLD one on case-finding, the publications on Leprosy, the 2 publications on PTLT (IJTLD CRD and IJID) and the 2 publications (1 submitted) to the ERJ.

All together, they testify the outstanding scientific work conducted in Bangladesh.

10. Mid Term Review, Bangladesh, 2024

The document summarises the status of implementation of the project in 2024 (Mid-Term) and related indicators and recommendations. It represented the basis to develop the present report.

4.2 Results deriving from the interviews

The interviews were conducted using the agreed-upon questionnaire shown in [Annex 2a](#).

Overall, the survey results strongly underline the important role played by the DF-supported TB & Leprosy project in Bangladesh as perceived by staff, stakeholders and patients.

The vast majority of 44 persons who underwent the survey via the agreed-upon questionnaire, agreed on the importance, impact and quality of the DF project in Bangladesh, with an average agreement score of 94.13%.

The detailed analysis of the survey is available in [Annex 2b](#).

4.3 Visit to Upazila health facilities at district level and DF hospitals for TB/MDR- TB and Leprosy

The following hospitals were visited (see [Annex 3](#), Mission agenda):

-

The agreed-upon checklist ([Annex 4](#)) was used.

The individual checklists for the TB & Leprosy Clinic in Tangail and Netrakona Sadar are included ([4a-4b](#)). Upazilla Health Complex (UHC)Madhupur Tangail

- Jalchatra Hospital
- Kendua Upazilla Health Complex. Netrakona
- Mymensingh Hospital
- Leprosy-TB Centre, SK Hospital, Mymensingh

Both Jalchatra and Mymensingh hospitals visited were extremely well kept and managed. We appreciated the laboratory, providing shoes and other orthopedic devices for leprosy patients, and the in-patient departments where quality treatment is provided for DS- and DR-TB, as well as for leprosy patients and the laboratories. In particular the laboratory in the Mymensingh Hospital is high level, providing also culture and DST for first-line drugs and fluoroquinolones in locally-produced solid media. The MGIT equipment will allow, when implemented (2026), to add liquid DST, and further completing the laboratory network capacity in the region. The newly available MiniDock technology further enhances the diagnostic capacity in the DF-managed areas, particularly as far as the diagnosis in children is concerned.

Importantly, given the relative under-occupancy of TB beds for MDR-TB due to the increased implementation of shorter regimens (and also the BPaL(M) one), these hospitals are the perfect location to implement Post-TB Lung Disease (PTLD) activities planned under the TB-REACH project. Furthermore, the potentiality of Jalchatra hospital to host residential trainings (e.g., Bangladesh-adapted version(s) of existing TB international courses) was discussed (see recommendations).

Case-finding, case-management, prevention, as well as monitoring and evaluation are done with high quality, with outstanding results in terms of treatment success for TB and completion rates for TBI.

The data reported centrally corresponds with what available in the facility-specific registers.

The scientific results achieved are outstanding.

Overall, the end-project assessment exceeded the expectations, considering also the abrupt loss of Global fund support suffered in 2024 without a convincing explanation (see 2024 report).

Additional details on the methodology of the field visit, of the survey results, specific findings (analysis of patients who died, LTFU, detection by gender, treatment delay) and persons met are summarised in [Annex 2b](#) (TB Consultant's report).

4.4 Analysis of the programme indicators

The indicators are reported below as per DF proposal and specific comments are provided for each indicator.

All Strengths, Weaknesses, Opportunities and Threats are reported in the SWOT analysis below, from which gaps are derived and recommendations based-upon.

Tables and figures are reported in [Annex 5](#).

Outcome: early case finding, correct management of TB (including MDR-TB) and leprosy and preventive therapy for (latent) TB infection in the project area is ensured by 2026 maintaining preventive and protective measures for COVID-19. Technical expertise in MDR/RR-TB management is developed among the service providers throughout the country.

Result 1: Management of leprosy will be improved through earlier diagnosis and more effective prevention of disabilities despite the increasing rarity of the disease.

Outcome Indicator 1: additional disabilities during leprosy treatment

Indicator 1 description:

Additional disabilities during leprosy treatment: People with disabilities have an increased risk of developing new disabilities despite treatment with multidrug therapy (MDT) and disability prevention services. The disability prevention services through the correct management of leprosy reactions and neuritis and the proper counselling of people with insensitive extremities are considered as effective if not more than 5% of people develop new disabilities during MDT.

Baseline: Average 5% of leprosy patients developed new disabilities during leprosy treatment (MDT)

Target Year 3 – 31/12/2024: Average disabilities during leprosy multidrug treatment (MDT) in DF Bangladesh will remain <5%.

Target Year 5 – 31/12/2026: Average disabilities during leprosy multidrug treatment (MDT) in DF Bangladesh will remain <5%.

Comments: as the indicator is formulated, it is Leprosy-specific.

For further action: see below and the Leprosy-specific section of the report.

Outcome indicator 2: Delay in diagnosis

Indicator 2 description:

Delay in diagnosis: patients with TB spread the disease through sneezing, coughing, talking etc.

Delay in diagnosis of TB leads to increased mortality, continued transmission of TB in the community and decreased productivity resulting in increased poverty. Early detection and prompt initiation of treatment cuts the chain of transmission, facilitates quick recovery and timely return to work. This indicator measures the duration from onset of disease symptoms to initiation of treatment.

Baseline: Average delay in diagnosis was 1.59 month but there were upazilas with higher duration (4 – 6 months).

Target Year 3 – 31/12/2024: Average delay in diagnosis remains < 2 months in all upazilas

Target Year 5 – 31/12/2026: Average delay in diagnosis remains < 2 months in all upazilas

Comments: The evidence from M&E documents (*Figure 1-Annex 5*) is that the average diagnosis delay in 2022 in all the areas managed by DF was lower than 2 months (1.54 in males; 1.78 in females and 1.61 total).

In 2023, 2024 and 2025 the diagnosis delay showed similar result with a further decreasing trend of 1.46, 1.43 and 1.37 respectively).

There are no reasons to think that the Year 5 targets will not be reached as they have been reached already in 2022 and at the mid-term evaluation.

For further action: The indicator's evolution shows a progressive reduction of the diagnosis delay overall, and within men and females. The difference between men and women delay is minor and not significant, showing that women have access to diagnosis and care. Focus on this should be maintained over time. The way to further decrease diagnosis delay and boost screening and active case-finding is to implement mobile CXR units, potentiating what is presently done at the outreach level (see conclusions and recommendations).

Result 2: Management of TB will be improved through increased collaboration with NTP and community involvement which includes partnership and engagement of all, leaving no one behind. As such, engagement of all including community will lead to early detection with increase in the number of TB cases (all forms), increase in treatment success and increase in child TB cases (emphasis on contact checking and screening using available sensitive tools.

Indicator 1: TB case notification rate

Indicator description:

TB case notification rate: trends over time in case notification usually indicate changes in programme coverage and capacity to detect TB cases. An upward trend in case notification rates can reflect an improvement in programme performance or in some cases, an impact of HIV/AIDS epidemic. The case notification rate provides data for programme planning and M&E purposes, and it is to guide these activities.

Baseline: TB case notification rate (All forms) in DF area: 82/100,000 pop.

Target Year 3 – 31/12/2024: With partnerships and engagement of all stakeholders along with use of more sensitive diagnostic tools TB case notification rate (All forms) expected 95/100,000 pop

Target Year 5 – 31/12/2026: With continued partnerships and engagement of all stakeholders along with use of more sensitive diagnostic tools TB case notification rate (All forms) expected 110/100,000 pop.

Comments: The evidence from M&E documents (*Figure 2 Annex 5*) is that in 2022 in DF regions the notifications exceeded the indicator (95 per 100,000 for year 3) being 121 per 100,000 population. The notification rate, which was 103 per 100,000 in 2019, lowered to 82 because of COVID-19, promptly recovering to 109 per 100,000 in 2021. In 2021 it has further increased to 121 and in 2023 to 135 per 100,000 population. In 2024 and in 2025 it is even higher (156 and 185 respectively per 100,000 pop). The trend in TB case notifications is summarised in *Figure 3 (Annex 5)*, showing, in absolute numbers and percentage, the total number including retreatment cases and cases not confirmed bacteriologically (sputum smear negative and extrapulmonary). The decline in absolute numbers observed in 2024 is due to the lower number of districts assigned to DF in this year. The increase in 2025 shows the progress in case-finding which testifies the excellent work done.

All seems to indicate that the indicator will be met for year 5 as planned. In the same Annex, in *Figure 4*, the trend of new sputum smear positive/bacteriologically confirmed patients per 100,000 population is presented per DF Region.

For further action: As mentioned above, the present results exceed expectations as a result of an integrated approach (health education, correct management of diagnostic tests and algorithms, outreach activities) within an increased trust of the population for the (TB) health services in the areas served. A further step to increase case-finding would be implementing the mobile CXR units, as discussed above, in the recommendations and conclusions.

Indicator 2: Treatment success rate of TB cases.

Indicator description:

Treatment success rate of TB cases: treatment aims at curing patients, saving their lives, reducing the transmission and ultimately bringing them back to normal life (productivity, contributing to the sustained development). As cases are detected in early stage of the disease with less complication and as community is involved in provision of treatment so, adherence to treatment (=success) is expected to improve.

Baseline: Treatment success rate of TB cases (all forms) has been 91%

Target Year 3 – 31/12/2024: Treatment success rate of TB cases (all forms) is expected to be maintained at above 90%

Target Year 5 – 31/12/2026: Treatment success rate of TB cases (all forms) is expected to be maintained at above 90%

Comments: The evidence from M&E documents ([Annex 5, Figure 5](#)) is that treatment success remained above 90% since 2012, being 94% in new cases and 93% in all cases in 2022. A further increase has been in 2023 and 2024 (94%), and 2025 (95%).

Considering historical data, it is very likely the indicator will be met as planned. The outcomes reached are outstanding, and verified (see also [Annex 2b](#)).

For further action: The treatment success rate is very high and remains historically very high as a combined results of the quality health education performed, the attention to directly observed therapy (DOT)/patient's adherence, and the proactive search for the patients not reporting. Piloting video observed therapy (VOT) might further enhance adherence (and aDSM, management of adverse events), see recommendations.

Indicator 3: proportion of child TB cases

Indicator description:

Proportion of child TB cases: children get TB from adults and diagnosis of TB in children is difficult. WHO estimates (Global TB report 2020; *note: still 12% in the 2023 the Global WHO report*) that among incident cases in 2019, 12% were children. Child TB detection has been far below the estimates, possible due to the lack in capacity in NTPs in child TB diagnosis.

Baseline: Proportion of child TB cases among total has been 6%

Target Year 3 – 31/12/2024: Proportion of child TB cases among total is expected to increase to 7%

Target Year 5 – 31/12/2026: Proportion of child TB cases among total is expected to increase to 8%

Comments: The evidence from M&E documents ([Annex 5- Figure 6](#)) is that an increase in the proportion of cases among children was observed from 2008 to 2020, where 7% was reached. The influence of COVID-19 lowered then the proportion to 5% in 2021 and 2022. However, in spite of the stable 5% rate, in 2022 136 more children were detected than in 2021, and the proportion has increased to 6%.

Overall, the proportion of children has increased, although being at 5% in the first 3 quarters of 2024 we need to see how the last quarter 2024 will confirm the 2023 progress. There was a decrease of the proportion children/TB patient diagnosed in 2025 (4%). To note also that in the DF areas the proportion of children was higher in 2023 and 2024 and the same in 2025 when compared to the corresponding one in the whole Bangladesh, reported to be at the level of 4% (2023 data).

For further action: Although we found an increasing trend in the number of children diagnosed and higher than the nationally reported proportion in Bangladesh, the proportion is still below the target.

Nasogastric aspiration/gastric lavage was not performed in the health units visited (see report in the checklists, [Annex 4](#)). Specific training and an operational research project on this will be extremely useful, and relatively easy for DF to implement, in addition to the implementation of MiniDock-based diagnosis. The rapid analysis of the data derived from the MiniDock data will be of scientific and programmatic importance. Furthermore, availability of the proposed 2 CXR CAD mobile units will further boost the quality and quantity of diagnoses in children.

Result 3: Efficient organization of TB case detection and management in the newly industrialised DF districts will reduce TB transmission among factory workers (mostly women). Rapid and growing urbanization and industrialization resulted in internal migration from rural to industrialized areas. Bad living (shared accommodation in small rooms) and working (inadequate space with lack in adequate ventilation) conditions facilitate in TB transmission among co-workers and family members.

Indicator 1: Number of TB cases (women focus) registered from the DF industrial areas.

Indicator description:

Number of TB cases (women focus) registered from the DF industrial areas: most workers in these factories, with minimum health care services, are women (restricted access for others than workers). Increasing the number of TB cases detected amongst workers will indicate

increase in their access to TB services and thus impact in TB transmission amongst this population.

Baseline: A total of 871 TB cases were detected from about 200,000 workers in these industrial areas

Target Year 3 – 31/12/2024: With increased access to TB services by the target group, number of TB cases expected to increase to 1000 in year 3

Target Year 5 – 31/12/2026: With continued increased access to TB services by target group, number of TB cases expected to increase to 1200 in year 5

Comments: The evidence from M&E documents (*Annex 5, Figure 7*) is that 1278 TB patients were diagnosed in industrial areas in 2022 and 1078 in 2023, exceeding the indicator for year 3 (1000) (and also for year 5 in 2022) (1200).

The number of diagnoses in the first 3 quarters 2024 was 797 and 842 respectively in 2024 and 2025 due to reduction of catchment area from 13 to 5 districts; the number presently diagnosed is in line or slightly lower than that of the previous year (504). However, there was an increasing trend from 2024 to 2025. The expected results are likely to be reached, if we consider a corresponding reduction in the indicator due to the smaller catchment area.

For further action: Although the indicator was in principle met, the availability of an Xpert equipment devoted to the industrial areas might further boost the effectiveness of the intervention, particularly if the already mentioned mobile CXR units will be able to visit periodically this setting. Although health education and outreach activities can be (and will be) further boosted we presently observe a ‘plateau, possibly resulting from increased case-detection and appropriate treatment in the area, which contributed to cut the chain of transmission.

Indicator 2: TB treatment success among factory workers

Indicator description:

TB treatment success among factory workers: improving and sustaining high treatment success among factory workers will lead to improved health and decrease in poverty and hunger.

Baseline: TB Treatment success among factory workers is around 90%

Target Year 3 – 31/12/2024: TB Treatment success among factory workers >90% maintained

Target Year 5 – 31/12/2026: TB Treatment success among factory workers >90% maintained

Comments: The evidence from M&E documents (DF reporting) is that in both 2022 and 2023 the target was reached, with 93 and 97% respectively. The treatment success rate in 2024 and 2025 was 98% and 96% respectively, well above the planned targets.

For further action: As mentioned above, beyond continuing the effective intervention implemented so far, the additional effect of VOT could be explored.

Result 4: DF support to the National TB Control Programme in capacity building and effective management of MDR/DR-TB patients throughout the country is ensured, will lead to skill development in achieving the national goal together through partnership approach. DF has long experience in implementing DR programme while NTP started implementation and scaling up of DR-TB programme in other parts of the country about 10 years after DF and implementing partners there lacks in technical capacity for DR TB programme management.

Indicator 1: Proportion of MDR/RR-TB patients enrolled under all oral shorter treatment regimen (SOTR)

Indicator description:

Proportion of MDR/RR-TB patients enrolled under all oral shorter treatment regimen (SOTR): shorter duration of treatment along with replacement of injectable drugs by an oral one is expected to have a high treatment adherence (=success). Adoption of new technologies and new treatment regimen require capacity building of implementing agencies. Proportion of MDR/RR- TB patients enrolled on SOTR will indicate the capacity developed in NTP along with adoption of the WHO recommended new technologies.

Baseline: All oral shorter treatment regimen not started in 2020 though shorter treatment regimen with injectable drug was given to 872 DR-TB patients out of 973 enrolled.

Target Year 3 – 31/12/2024: 80% of all eligible MDR/RR-TB patients enrolled on SOTR

Target Year 5 – 31/12/2026: 90% of all eligible MDR/RR-TB patients enrolled on SOTR

Comments: The evidence from M&E documents is that SOTR were introduced by NTP in 2021; in 2022, 299 MDR-TB patients were prescribed SOTR, with a proportion of 89% in 2022, and 93% in 2023, 92% in 2024 and 97% both in 2025, well above threshold.

Data suggest that the planned targets for year 5 will be absolutely reached, taking also in account that the BPaL and BPaLM regimens have been implemented since 2024.

For further action: The indicators are brilliantly increasing and the scale-up of the BPAL(M) regimen will further improve them. A deeper analysis finalised to a specific publication is recommended.

Indicator 2: MDR-TB treatment success rate

Indicator description:

MDR-TB treatment success rate: the drugs used in the treatment of MDR-TB are highly toxic and require close monitoring along with timely management of side effects to ensure treatment adherence (=success). Failure in ensuring treatment adherence (irregularity) leads to acquired drug resistance along with failure of treatment, continued transmission and death of patients. Early diagnosis and effective treatment (success) of MDR-TB prevents disease transmission and reduce the MDR-TB burden.

Baseline: MDR-TB treatment success rate is 75%

Target Year 3 – 31/12/2024: MDR-TB treatment success rate >80%

Target Year 5 – 31/12/2026: MDR-TB treatment success rate >80%

Comments: The evidence from M&E documents is that SOTR were introduced by NTP in 2021 and BPAL and BPALM regimens in 2024.

In 2022 299 MDR-TB patients were prescribed SOTR.

The treatment success rate has increased from 75% in 2022 to the 80% target in 2023, 2024, and 2025 suggesting the indicator will be reached also in the future. The preliminary report for 2026 Q1 indicates a success of 88% among MDR-TB patients. To note that the rates achieved in DF-supported areas are higher than Bangladesh national figure (78%).

For further action: As above

Result 5: Operational research aligned with the health programme objectives and research gaps in collaboration with national and international institutes/organizations is continued.

DF operational research findings contributed to important policy recommendations by WHO and adoption by the NTPs e.g. engagement of village doctors, non-prolongation of intensive phase of treatment, shorter treatment regimen for MDR-TB.

Indicator 1: number of studies conducted

Indicator description:

Number of studies conducted: efforts at improving the programme performance starts from identification of the problem (low performance, weaknesses), critical analysis of the data, planning / designing the new approaches (operational researches) and their execution (conducting the research), aiming at finding better approaches (improved access and utilization, improved treatment adherence or reduced adverse outcomes, reduce programme costs etc.).

Baseline: One study funded by Leprosy Research Initiative study

Target Year 3 – 31/12/2024: At least one new study undertaken

Target Year 5 – 31/12/2026: At least one new study (additional) undertaken during this period

Comments: The results of operational research are outstanding. The evidence from M&E documents is that one large study has been implemented in the areas of Post-Tuberculosis Lung Disease (PTLD), supported by TB-REACH. The results show that, so far in Mymensingh and Tangail, 6968 patients have been screened, 2,553 with symptoms. Of them, 2,095 completed the assessment and 1,909 were diagnosed as PTLD (376 severe, 838 moderate and 695 mild). As of 14 May 2026, 397 complete pulmonary rehabilitation and 93 are undergoing it.

Two important articles have been published in 2026. In the first (IJTLD CRD - Chronic Respiratory Diseases), the initial results of the screening were described, while in the second paper (IJID) the outcome of rehabilitation of the first 200 patients completing it was analysed and discussed. This is the first ever large programmatic approach to PTLD management and rehabilitation worldwide. A third manuscript is under initial preparation, summarising the outcomes of the whole cohort when completing rehabilitation. An additional manuscript has been planned, pooling together data from at least 5 countries as to describe more comprehensively the outcome of these patients.

In the area of leprosy, one manuscript has been published in Tropical Medicine and Infectious Diseases, 2025 (<https://www.mdpi.com/2414-6366/10/10/274>)

Another operational research study has been published in the IJTLD in 2025 on outcomes of tuberculosis preventive treatment (TPT) and yield of outreach activities.

Very important is to underline, the exceptional involvement of the DF Office in Bangladesh in the NIH End-user study. The DF office is leading all the 3 pillars: a) online questionnaire (involving 137 countries/territories, so far with 1400 responses; of them, 48 from Bangladesh which is the 5th top contributor), interview to patients (involving >600 patients from 26 sites in 19 countries) and interview to frontline healthcare workers (validation for the whole project, involving 600 staff in 11 countries). One publication (ERJ, 2026) and 1 submitted article (ERJ) have been already produced (see documents reviewed for the original publications). The describe, respectively, the design of the entire study and the involvement of the different countries (well showing the role of Bangladesh,

which is represented by two members in the Steering Committee) and the priority research questions deriving from a Delphi exercise. The publication plan includes not less than 6 manuscripts, given the enormous amount of data collected. International experts declared that the results of the study will influence the design and management of clinical trials on new anti-TB drugs and regimens for the coming decade.

For further action: The PTLTD project, funded by TB-REACH, has allowed DF Bangladesh to develop a model to manage PTLTD in resource-limited settings in a programmatic perspective. The project, considering also its relevant publications, is now internationally known. Importantly, this project allowed to implement spirometry at the peripheral level, in collaboration with Lung Association in Bangladesh (BLF), which ensured the training on this specific aspect. This is the beginning of a potential paradigm shift in the management of cough and Chronic Respiratory diseases in Bangladesh. It is therefore of paramount importance that DF would be able to continue running the project, as to consolidate the results achieved, further contributing to the spirometry expansion in Bangladesh and, finally, developing a permanent training centre in Jalchatra Hospital, which (see the present and previous recommendations) has the possibility of hosting trainings. This initiative is fully synergic with the DGD priorities and objectives, and is highly strategic.

Indicator 2: Number of research papers published

Indicator description:

Number of research papers published: sharing research findings through publication in international journals allows sharing the new results/knowledge within the international scientific community. Evidences from different settings contribute to policy recommendations.

Baseline: No research paper published

Target Year 3 – 31/12/2024: At least one research paper published in the international journal

Target Year 5 – 31/12/2026: At least one (additional) research paper published in the international journal during this period.

Comments: All details have been provided above.

For further action: see above.

A summary of the indicators for 2022-2025 and, when available, 2026 (1 quarter) are shown in [Annex 5, Table 1 and Figures 8-9](#). The green dots indicate the indicators reached, and the yellow

dots those who are near to be reached. In particular, all indicators have been met (and often largely exceeded) except the proportion of children (which remains slightly below the target but the numbers are constantly increasing for TB, and slightly above targets for leprosy). The number of TB cases (women focus) registered from the DF industrial areas exceeded the targets until 2023. Since 2024 the numbers are lower as the TB coverage was limited to 5 districts. Making the necessary adjustments of the catchment population, the indicator can be considered fully reached. The comparison between the performances of DF-supported areas and the average national data are summarised in [Annex 5, Table 1](#).

4.5 Participatory end-mission workshop

The end-mission workshop was conducted in Dhaka on 10 May 2026, involving all DF staff, while the core stakeholders were met individually (NLP, WHO): it was not possible to meet the NTP manager, as a new one was nominated just a day before our return to the field mission, and his agenda was fully booked.

Prof. G.B. Migliori, as per technical proposal, concluded the workshop with a presentation on the rationale to continue the programmatic approach to PTLTD management and on the research plan for the coming years.

The main findings of the mission were presented and discussed and agreement was found on the preliminary recommendations.

4.6 SWOT& Gap analysis

The results of the agreed-up SWOT analysis are included below

SWOT ANALYSIS

	Strengths	Weaknesses
Internal Factors	• Trained staff • Motivated staff • Effective infrastructure and logistics • Access to drugs, whose ‘continuum’ is ensured by DF • EQA quality laboratory in a well connected network, connected with internationally renown institutions (ITM, Antwerp) • Availability of Xpert, Xpert XDR, Truenat and MiniDock • Effective referral of samples • Low number of HIV-coinfected individuals	• Rare episodes of stock-out of drugs, diagnostics (HIV tests) and cartridges (related to NTP distribution) • Tendency to staff reduction due to budget cuts • Important dependence on external donors’ funding • Limited availability and use of digital radiology to rule out TB before TPT • No mobile digital CAD CXR equipment to boost outreach activities • Resistance to use nasogastric lavage for paediatric diagnosis • Sub-optimal implementation of TPT outside children contacts of adult index cases and the few HIV-positive patients

	• Quality clinical and programmatic management of MDR-TB • Introduction of the BpaL(M) regimen • Effective model of outreach activities with community involvement • Outstanding research activities	
External Factors	Opportunities	Threats
	• New DGD funding cycle, which is the basis of DF budget in Bangladesh • New TB-REACH funding for the PTLD and MiniDock projects • MoU with academia for the PTLD project • New international collaborations for research on TB and Leprosy	• Rapid changes/increased senior staff turn-over at NTP level • Potential future changes at MoH and NTP level related to the new government

Gap analysis

As a result of the SWOT analysis the following **gaps** have been identified:

- 1) Although the outreach activities are brilliantly managed, with referral of an additional 50% of presumptive cases and diagnosis of 30% of TB patients, the absence of CAD-based mobile digital CXRs self-limits the effectiveness of screening and active case-finding. The possibility to run at least 2 mobile units will further boost the yield of both ACF and screening activities and will allow to implement radiological rule out of TB before initiating TPT. This gap persists as the mid-term recommendation to implement mobile digital Xray was not implemented
- 2) Although efforts in training, clinical attention and use of stool-test for TB has increased the diagnosis of TB in children, nasogastric lavage is not used by non-paediatricians, and resistance to its implementation exists among physicians including government ones. As the proportion of children remains low, increased access to rapid test in stools and the MiniDock will be essential to continue boosting the upward trend.
- 3) As per existing guidelines, the TPT cascade does not include presently neither the diagnosis of TBI nor the systematic exclusion of TB through CXR. Although correct in the present national context of Bangladesh, and in agreement with WHO guidelines, the implementation of a at least 1 pilot project implementing these elements (e.g., taking advantage of the new skin test like C-TB and mobile CXR units) will contribute to create capacity in Bangladesh in the context of operational research. The gap persists from the mid-term review.

5.Recommendations for the TB component

The 11 recommendations issued during the 2024 mid-term evaluation, and their responses are summarised below:

The gaps mentioned above allowed to formulate the following recommendations addressed to:

1. **DF and donors: *plan and procure 2 mobile CAD digital CXR (cost: aprox. 200,000 euros total).*** *The recommendation was not met, as no sufficient funding was made available. The Consultant and the partners agree that it is still valid.*
2. **Donors via DF: *to consider boosting outreach activities ACF with at least 2 additional TLCA per district, within the for X-ray-outreach package (as a minimum).*** *The recommendation was not met, as no sufficient funding was made available. The Consultant and the partners agree that it is still valid. There is a tendency to reduce the staff number, with the loss of operational areas and the reduction of funding, which can severely affect the effectiveness of the package offered (see below)*
3. **DF/NTP: *Where not done, ensuring HIV testing of TB patients in the Districts/sub-districts where this is recommended.*** *The recommendation was fully met. All TB patients are tested for HIV. This is contributing to maintain the alert high, in spite of the low number of cases detected.*
4. **DF/Donors: *Refreshing training on TB-IPC in the area of respirators for staff and ACH calculation in the health facilities.*** *The recommendation was not met for the lack of funding. The observations during the mission support the importance of keeping the recommendation (extending it to Donors) linked to Recommendation 5.*
5. **DF/NTP/GF/Donors: *consider running residential TB course taking advantage of the existing facility (Jalchatra Hospital) with a common “basket funding”, taking the advantage of creating capacity for PTLTD management and ACH measurements.*** *As above.*
6. **DF: *consider publishing relevant evidence on TPT completion, outreach activities and their contribution to case-finding, effectiveness and safety of SOTR for MDR-TB.*** *The recommendation was met, with a robust publication stream implemented beyond the topics mentioned above. This confirms the outstanding scientific capacities of the project*
7. **DF: *consider designing one or more pilot project for VOT.*** *The recommendation was not met, as no sufficient funding was made available. The Consultant and the partners agree that it is still valid.*
8. **DF and NTP: *intensify training on children TB diagnosis, with focus on nasogastric aspiration/gastric lavage and implementation of e.g. 2 pilot projects whose data can be used both to advocate for the methodology and for operational research. The 2 centres can be used as***

training centres for other staff. *The recommendation was not met, as no sufficient funding was made available for training. The Consultant and the partners agree that it is still valid. Future training should cover this area as well, including the potentialities of the new diagnostic tools (MiniDock).*

9. **DF, NTP: considering boosting ACF in the industrial setting by providing 1 Xpert machine and using 1 of the 2 CXR mobile units at regular intervals.** *The recommendation was not met, as no sufficient funding was made available. The Consultant and the partners agree that it is still valid under recommendations 1 and 2.*

10. **DF, NTP: continuing the monitoring of the proportion of bacteriologically confirmed cases vs the non-confirmed ones (sputum smear negative and extrapulmonary), periodically validating a sample of them during supervision visits.** *The recommendation was met. The number of bacteriologically confirmed vs not-confirmed appears in all boards in the DPTS corners and TB clinics (see photos).*

11. **DF: consider implementing at least 1 pilot project implementing TBI diagnosis (e.g., taking advantage of the new skin test like C-TB) and rule out of TB before TPT (e.g., taking advantage of mobile CXR units) in order to create capacity in Bangladesh in the context of operational research.**

The recommendation was not met, as no sufficient funding was made available. The Consultant and the partners agree that it is still valid, in order to develop capacity to manage TBI in the Country as per higher standards. This approach will allow expansion when the right time will come.

As per existing guidelines, the TPT cascade does not include presently neither the diagnosis of TBI nor the systematic exclusion of TB through CXR. Although correct in the present national context of Bangladesh, and in agreement with WHO guidelines, the future upgrade of TB activities will benefit from the availability of similar models.

The gaps mentioned above in the report allowed to formulate the following recommendations addressed to:

1. **DF/Donors: plan and procure 2 mobile CAD digital CXR (at least one; cost: aprox. 100,000 euros per unit) and 2 additional TLCA per district, within the Xray-outreach package (as a minimum).** *The timeframe for this project depends on the funding stream, and requires training on the use of the equipment. As the previous recommendation was not met, it is re-proposed if additional funding will be identified.*

2. **DF/Donors: Refreshing training on TB-IPC in the area of respirators for staff and ACH calculation in the health facilities as well as TB diagnosis in children.** This recommendation (IPC) can be implanted following procurement of 1 vaneometer per health unit, and the ACH calculation in health units can follow a pre-established calendar following training. Ideally, given the limited equipment necessary (vaneometer, basically), 1 health staff per unit can be trained on this. The paediatric diagnostic approach will benefit from boosting gastric lavage and the rationale use of the new MiniDock.
3. **DF/Donors: taking advantage of the existing facility (Jalchatra Hospital, which is able to host 20-25 trainees offering quality accommodation and training at low cost), establishing a permanent global training centre for the implementation of PTLD in resource-limited settings. The package can easily include transportation from/to Dhaka, residential training (which include spirometry, Quality of Life testing and rehabilitation implementation/evaluation) as well as full board accommodation.** The training centre can eventually host other trainings, as needed and feasible (e.g., Sondalo course or Bangladesh-specific trainings).
4. **DF/Donors: consider designing one or more pilot project for VOT.** It can be implemented rather easily, and may allow to optimise supervision cost-effectiveness
5. **DF/Donors: consider developing national capacity on quality TBI management by ruling in TBI through a diagnostic test and ruling out active TB through chest X ray via implementation of 1 or 2 pilot projects.**
6. **DF/Donors: initiating the shift from pilot to programmatic management of PTLD, keeping 2-3 sites implementing the complete package (e.g., including spirometry, 6MWT, Quality of Life testing, etc.).**
7. **DF: Ensure rapid analysis of children diagnosis results with MiniDock and rapid publication of the results.**
8. **NTP: ensure adequate supply of Xpert cartridges and 3HP regimens for TPT to allow all patients undergo rapid molecular diagnostics and short TPT regimen (considering the DF capacity to absorb and use them properly).**
9. **DF: update Education materials (area: Xpert, rapid methods, IPC/N95, TBI)**

6. Conclusions on the TB component

With reference to the important elements underlined in the ToR as guide for the report, some concluding remarks are summarised below:

Effectiveness: achievement of the expected results to achieve the specific objective of the programme.

The analysis of indicators performed on DF reports (see section 4.4, and **Table 1** comparing the indicators in DF-supported areas versus those for of the entire Bangladesh), validated by the observations done during the field visit (e.g., data reported by DF in aggregated format are consistent with what done in the peripheral units), shows that all indicators have been met with the single exception of the proportion of children among detected cases. To note that also the indicator on the number of TB cases in industrial areas has been virtually achieved if we proportionate the number of cases diagnosed to the reduced number of districts managed by DF.

The performances of DF appear to be in general higher than those of NTP when comparing the indicators (**Annex 5, Table 1**) except for the national case notifications. The national case notifications are higher than that detected in DF- supported areas as they include areas with extraordinary high estimated (and notified) incidence. To note that the notification rate trend in DF areas is on a constant increase, testifying a consistent improvement in case-finding.

The indicators from the DF-supported areas exceeded the national ones in the areas of gender balance, diagnosis delay and MDR-TB management/outcomes. In particular, some of the preliminary results of Q1 2026 are astonishing high, like the 88% success rate on MDR-TB cases.

The results of the PTLD project also exceed expectations. Beyond the average improvements achieved in lung function tests, 6MWT and quality of Life, the patients confirmed, (without any exception in the sample interviewed of about 20) to feel much better and to have re-gained the pre-treatment fitness.

Overall, the mission findings exceeded my/our expectations, although the mission was preceded by a careful desk review of the available documents and by several phone calls/TCs focused at providing me additional details. The specific situation of children requires further training and mid-term investment in DF-supported projects as well as in Bangladesh in general. Although more attention has been recently given to diagnosis of TB in children and new approaches are under implementation (e.g. stool testing, MiniDock), clinicians in the health units visited do not use nasogastric aspiration/gastric lavage, a technique which is easy to perform, with limited discomfort for patients, and which provides good results as demonstrated in different settings. My/our recommendation is to include this specific aspect in the coming trainings and encourage clinicians and non-medical staff to learn how to do it, as this is not necessarily a procedure that should be done by medical doctors. A properly planned pilot study (which will boost the present package of operational research project) will convince local clinicians and will definitively help improving diagnosis. Another additional advantage of investing into a package of (at least) 2 mobile CAD-

equipped mobile CXR devices plus 2 additional staff per District will, if or when funding will allow, to increase and peripheralize the access to CXR in children, who are contacts of index cases or who have signs and symptoms compatible with TB.

However, it should be noted that the overall proportion of children among diagnose cases is increasing in the DF-supported areas, and they are higher than those found in other areas of Bangladesh. To note also that in Tangail this proportion reached 8.6% in 2023 as a result of the increased attention on this issue within a concerted special effort done during this year. Funding constraints prevent to keep the same level of activities after 2024, as mentioned above.

The indicators planned for 2026 are very likely to be reached, probably possibly including children given the upward trend and the introduction of MiniDock.

Alignment and ownership

The activities conducted by DF staff in collaboration with NTP staff is aligned with WHO and National guidelines. Staff expressed high motivation and enthusiasm, as well as ownership. An interesting finding (see *Annex 5, Figure 10*) is that staff use data to take decision and manage activities, which is not always the case at peripheral level. The NTP and NLP staff interviewed (including the NLP manager) confirmed the importance of the collaboration with DF, and the willingness to achieve the same goal and objectives.

Relevance, efficiency, sustainability and impact

The TB-related activities are relevant, as TB is one of the top health priorities globally and in Bangladesh. They are relevant as they have impact, as they clear add on the performances NTP would provide without the DF-supported project.

The relevance of the DF project activities is testified by the relevant media exposure, with hundreds of contacts as the channel has 1.5 million followers (see https://youtu.be/YxE_70xzUzA?si=MmhoQHZ9QdnoG4cr).

The activities are efficiently performed, as clearly visible form the DF reports 2002 and 2023, the analysis of indicators and the observations done at field level.

Relevant to mention is the professionalism used to deliver counselling and health education as observed in all centres visited (*Annex 5-Figure 11*, see also *Annex 4b*).

Last but not least, an impressive amount of training courses was attended by DF staff (see the Table below).

Some examples of impact, exceeding expectations, deserves to be published in international peer-reviewed journals. The examples are the very high TPT completion rates (in the order of 97-98%), the additional gain in terms of presumptive cases (+50%) and diagnosed TB cases (+30%) resulting from DF-supported outreach activities; activities that cannot be supported with the present staff quantity available in the DF-supported areas. To note also that in the 2 areas which the Principal Recipient (PR) in agreement with the GF ‘removed’ from the DF’s package for unclear reasons, case-finding and indicators were improving, as it was observed in all other DF-supported projects.

Furthermore, the scientific publications on PTLTD and on the end user survey further testify the outstanding scientific capacity of DF in Bangladesh, as well as its innovation capacity (see PDF of the publications within the Desk review section).

In fact, the current Global fund cycle (GC7, 2024-2026) had a rearrangement of areas, and DF supported 8 districts (2 project area) were shifted under the principal recipient NGO of the Global Fund. Following this shift, all funds were suddenly stopped without any convincing argument and against the support officially provided by the CCM (Country Coordinating Mechanism).

These 8 DF- managed districts showed a historical reliable trend in case notifications over decades with 12,715 and 13,902 patients treated in 2022 and 2023 respectively. These areas showed increasing trends in recent years, mainly, due to expansion of molecular diagnostics. The number of patients increased 12% between 2021 and 2022 and 9% between 2022 and 2023. We observed a practice of flat notification target-setting at subnational level by the Global Fund which is scientifically questionable. Furthermore, the treatment success of these areas was 92% in 2022 and 93% in 2023 in these 8 districts.

As said, the arguments motivating the stop in funding provided by the Global Fund were far to be convincing. This funding cut acts, in the Consultant’s opinion, against the interest of Bangladesh people and patients. This opinion was supported by several stakeholders, who preferred not to disclose officially their opinion.

Further comments on impact and sustainability will follow, see below.

Transversal objectives (gender, environment and human rights)

In terms of gender balance, although more males are detected than females with TB (which are around 40%), the difference found in diagnosis delay is between males and females is small and not

significant, this showing that progress was done and females have access to services. In terms of TB patients detected in 2022 they were 38%, in 2023 36%, and in 2024 35% (*Annex 5, see also Table 1 and Annex 2b*), with similar results achieved also in 2025.

In terms of DF staff, in 2023 the females were 31% for DGD-funded staff and 37% for the whole DF-covered staff. In 2026 the male to female ratio further lowered, being 1.8 :1: the out of a total of 402 staff, 258 (62%) are males and 144 (38%) are females. The country representative is also female.

DF is very careful towards human rights, and the mission's findings support this. We have seen, for example, practical sign of additional support to patients in need far beyond the established 'contractual' obligations. Examples are a patient with leprosy, cured, who is living hosted free-cost since >30 years in a little house within the Jalchatra Hospital. She was also recently supported for a surgical operation. Another example is the support given to a patient with MDR-TB, with cardiological complications, whose additional examinations to manage her cardiomyopathy were covered by DF.

We cannot say much directly linked to environmental aspects as the DF is not directly focused on climate changes. However, several initiatives have been implemented with environmental implications:

- the DF-supported sites are clean and well maintained;
- the waste is managed as per rules;
- initiatives have been taken to limit the plastic use in drugs and reagents storage;
- the use of cars has been rationalised, limiting their unnecessary use (e.g., outreach activities conducted using public transportation means);
- efforts are done at office level to limit unnecessary printing of documents with other similar environmental-sensitive behaviours.
- Furthermore, and important investment was done by DF by equipping in the hospitals managed with solar panels for a total of 90 kWp (Grid.Connected Solar PV System).

7.Main lessons learned on the TB component

The overall finding is that the DF's TB project (and, so far, I/we have seen although not on our ToR, this is true also per Leprosy activities) is brilliantly managed both at the Dhaka Office and peripheral level, in spite of the sudden cut in Global Fund funding (see below). Staff are motivated, competent and efficient. We met some senior staff, who after reaching retirement age, continue to

serve DF under different contractual arrangement to share their clinical experience with young generations of professionals. This is particularly relevant in the areas of leprosy, as diagnosis is difficult.

This is reflected by the outcomes and indicators ([see section 4.4](#)).

The patients interviewed were happy and grateful for the services provided ([Annex 2b](#)). More information on this is available in the Annexes, where the survey results confirm the statements above.

The non-DF staff interviewed during the mission confirmed the importance of the support given by DF to NTP, and the excellent collaboration ongoing at the different levels. This was confirmed also by the leprosy National manager (Dr. Afsana Alamgir Khan) and the WHO Office staff (Anupama Hazarika, Medical office Communicable Diseases, WHO Country Office, Bangladesh and team) met on 20 May 2026.

Considering the impact of the DF-supported project in Bangladesh, I think any effort should be done by donors and stakeholders to support it and further potentiate over time as:

1. It provides a ‘plus’ in terms of case finding (30 to 50% more cases) and treatment outcomes (particularly in the area of MDR-TB and where the PTLTD project operates), with direct impact of the TB epidemic in the regions served;
2. It represents a technical model of how to implement prevention, diagnosis and treatment of TB, which can be used as permanent training/refresher spot for the entire country; this is particularly relevant for PTLTD, use of new diagnostic methods (MiniDock) and peripheral implementation of spirometry.
3. It is also an excellent example of NGO-NTP collaboration, and, therefore, an example on MAF implementation, as testified by the survey results and other findings (e.g., the vast majority of the 44 persons interviewed agreed on the importance, impact and quality of the DF project in Bangladesh, with an average agreement score of 94.13%). Furthermore, consistent results were given interviewing a sample of patients ([see Annexes 2b and 4](#)).X
4. It allows to conduct scientific and operational research activities Bangladesh needs at different levels (advocacy, funding, training, etc.). The many publications produced and planned will further boost the impact of the DF project in different areas, including PTLTD, new diagnostics, end-user needs and expectation on new anti-TB regimens leprosy and expanded use of spirometry.
5. The DF-supported hospitals (e.g. Jalchatra and Mymensingh) allowed to run a pilot population-based project on programmatic implementation of Post-TB Lung Disease management (see TB-REACH funded project) and the basis for future training and scale-up

in Bangladesh. Furthermore, DF was pivotal in conducting innovative research on MiniDock and a global US National Institute of Health promoted study on end-users' needs and expectations for new anti-TB regimens.

6. Jalchatra Hospital can host, at low cost, residential courses. This potentiality should be further used, e.g. considering the organization of a skill-based international course in collaboration with NTP, WHO, stakeholders and donors, as successfully done before COVID-19 in Dhaka. Furthermore, it can also act as a permanent global training centre for PTLTD implementation.
7. Impact and relevance of the DF-project will continue if it will not be further downsized. Ideally it should be strengthened by implementing at least 2 mobile CXR units which will potentiate screening, active-case-finding and outreach activities, if funding allows.

Reducing funding to the project in the years to come will cause reduced impact and- at the end, both a missed opportunity (or damage) for Bangladesh (which is a priority country for TB as well as for Leprosy) and a loss of visibility for the donor(s).

Workshop/Training/orientation in 2024

Organized by Damien Foundation:

SI	Name of Training Course	Number of Participants	Staff Category	Organized by
1	Basic Training on TB & Leprosy (Short Course) for TLCA	91	Sr. TLCA-7 TLCA/ATLCA-35 FLS-49	Damien Foundation
2	Training of Trainers on Post-TB Lung Disease (PTLD)	18	Doctors, Physiotherapists	DF & BLF

Organized by other organizations and attend by DF staff:

SI	Name of Training Course	Number of Participants	Staff Category	Organized by
1	Training on Gene X-pert Testing	6	MT Lab	NTP
2	Training on Truenat Testing	5	MT Lab	NTP
3	Refreshers Training on LED Fluorescence Microscopy	1	MT Lab	NTP
4	Basic/Refreshers Training on Medical Technologist (Laboratory) on Microscopy and Rapid Molecular Diagnostic Tools (Gene X-pert/Truenat) for Tuberculosis	23	MT Lab	NTP
5	Orientation Training on Conducting mWRD EQA PT round in 2024	1	Lab Coordinator	NTP

6	Orientation On Updated Guidelines for Management of DR-TB Patients	5	MO/TLCO/Supervisor	NTP
7	Orientation on Sputum collection and Transportation from Peripheral laboratory to Gene X-pert Centres (NTRL/RTRL)	13	FLS	NTP
8	Basic Training on TB & DR TB	1	MO	NTP
9	TPT Training	18	Sr. TLCA/TLCA/FLS	NTP
10	Training on the eTB manager	13	M&EO/Sr.TLCA/TLCA	NTP
11	Basic Training on TB, TPT, TB-HIV and Covid-19	79	FLS	BRAC
12	Refresher Training on mWRD GeneXpert & Microscopy	2	MT Lab	BRAC

Workshop/Training/orientation in 2025

Organized by Damien Foundation:

Sl	Name of Training Course	Number of Participants	Staff Category	Organized by
1	Basic Training on TB and Leprosy	21	FLS – 21	Damien Foundation
2	Training on Post-TB lung Disease for Healthcare workers	45	PTLDO – 35, Nurse - 1, Physiotherapist - 2, MO – 2, FD – 2, PM - 2 M&E - 1	Damien Foundation
3	Digital Tool Proficiency Training for Data Management (PTLD)	29	PTLD – 25, M&E – 1, MO – 2, PM - 1	Damien Foundation

Organized by Others:

Sl	Name of Training Course	Number of Participants	Staff Category	Organized by
1	Training on mWRD (Truenat)	15	MT – 15	NTP
2	Training of DR-TB Regimen	1	MO - 1	NTP
3	Training on Spirometry	9	PTLDO - 4 MO – 2, FD – 1, PM - 2,	BLF

