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2020

BASELINE ASSESSMENT

TO IMPLEMENT THE
COMMUNITY MOBILIZATION
INITIATIVES TO END
TUBERCULOSIS (COMMIT)
PROJECT



Disclaimer:

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LIST OF ACRONYMS

ACF	Active Case Finding
AIDS	Acquired Immune Deficiency Syndrome
COMMIT	Community Mobilization Initiatives to End Tuberculosis
CATA	Cambodia Anti-Tuberculosis Association
CENAT	National Centre for Tuberculosis and Leprosy
CHC	Cambodian Health Committee
CSDG	Cambodia Sustainable Development Goals
DOT	Directly Observed Treatment
HC	Health Centre
HIV	Human Immunodeficiency Virus
HSD	Health and Social Development
MDG	Millennium Development Goals
MIS	Manager for Management Information System
MoH	Ministry of Health
NGO	Non-Governmental Organization
NTP	National Tuberculosis Program
OD	Operational District
PHD	Provincial Health Department
PLHIV	People Living with HIV
PSG	Peer Support Group
RH	Referral Hospital
TB	Tuberculosis
TB IC	Tuberculosis Infection Control
TPT	Tuberculosis Preventive Treatment
USAID	United States Agency for International Development
VHSG	Village Health Support Group
WHO	World Health Organization

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EXECUTIVE SUMMARY

Introduction

Cambodia commits to ending the Tuberculosis epidemics, which is counting as a priority among other communicable diseases by 2030. Currently, community-driven approaches have been an inherent component in addressing tuberculosis (there are limitations in community involvement to improve tuberculosis diagnosis, Community TB) epidemic in Cambodia. Community Mobilization Initiatives to End Tuberculosis (COMMIT) seeks to undertake a multi-sectoral approach using locally generated solutions to improve TB case finding, TB prevention, linkage to diagnosis and treatment support, and enhance community engagements in Cambodia. The shortage of data and information in selected project sites under the COMMIT are widely recognized. Therefore, an assessment is imperative in identifying gaps to implement COMMIT effectively. We conducted a baseline assessment to explore the availability and functionality of health facilities and services related to TB, human resources and capacity, and the linkages between different health services.

Objectives

- ▶ Review key actors and assess the existing TB services, availability, and functionality of TB diagnostic services in the selected ODs
- ▶ Review existing key actors and assess the allocation of human resources, and functionality of linkages, referrals at the ODs, referral hospitals (RH), and health centers (HC) in the selected ODs
- ▶ Conduct formative assessment among private and community in selected interventions within COMMIT

Methods

A mixed-method was employed for this baseline assessment using assessment tools: Desk review, Inventory checklist, mapping, focus group discussion, and key informant interviews. A total of 30 HCs was randomly selected among 10 RH in 10 ODs in the COMMIT sites. In each of the selected ODs, several key stakeholders were selected for the interview, including health policymakers and laboratory staff at the national and subnational level, members of the community (village chief, commune council, and village health support groups), non-governmental organizations and implementing partners, and the private sectors (health and non-health).

Well-trained and experienced enumerators conducted the collection of data under the direction of technical leads. Data from the inventory list and formative were analyzed and described. The consultative workshops were conducted to validate the consistency and confirm the data's accuracy among the assessment team and NTP.

The Baseline Assessment was classified into three components: Health Facility Assessment, Community Assessment and Private Sector Assessment.

1. Health Facility Assessment is divided into three parts:

- **Clinical Assessment**, to assess the situation and needs at the clinical site using Checklist 1
- **Laboratory Assessment**, to assess the situation and needs inside the laboratory using Checklist 2
- **Cross-Cutting Assessment**, to assess the knowledge, attitude, and practices of healthcare staff in the selected sites (10 RHs and 30 HCs) using Interview Guide 1-2 (HCs) and Interview Guide 3-4 (RHs)

2. Community Assessment, using Focus group discussions (Latent TB infection (LTBI) and TPT/ peer network); (FGD1 & FGD2)

3. Private Sector Assessment included Key informant interview and desk review (Law and workplace policy) using Interview Guide 5.

The assessment was done in a Joint Team made by CENAT, COMMIT Team and USAID Team. Furthermore, the Assessment Sites were conducted in 10 Referral Hospitals and 30 selected health centers (3 health centers in each district).

At Health Facility Assessment, the assessment team conducted meetings and interviewing the following people:

- Chief of Operational Health District
- Chief of Referral Hospital
- Chief of District Technical Bureau
- TB District Supervisor
- Chief of TB Ward in Hospital
- Chief of Health Center
- Chief of TB at Health Center
- OPD Physician at Referral Hospital
- Lab Technician
- Chief of Admin, Logistic and HR

While at the Community Assessment and Private Sector Assessment, in addition to the conduct of mapping using ODK application, the assessment team also organized the meetings and interviewed the following people:

- Private Company Owner (Garment Factory & Brick Factory)
- Private Clinics & Pharmacies
- Commune Councils
- Villages Chiefs
- Village Health Support Groups
- TB affected communities (TB survivors)
- Ministry of Labor and Vocational Training
- Ministry of Planning

Results

Biosafety, equipment, supply and maintenance, quality, and data management in laboratory environments found that most health facilities have followed the National TB Laboratory Manual. Most staff used gloves and surgical face masks during operations in the laboratory. However, two facilities, although autoclaves are available, sterilization does not waste disposal properly. In addition to biosafety issues, it stills a challenge to improve the workplace environment's quality in the laboratory.

Summary of the results of laboratory and clinical are as follows:

Laboratory	Policy	<ul style="list-style-type: none"> o Cambodia has switched to the use of Xpert MTB/RIF Ultra in March 2020 o The urinary LF LAM test to diagnose TB in PLHIV has not been adopted yet in Cambodia
	Lab infrastructure & biosafety	<ul style="list-style-type: none"> o The National TB Laboratory Manual, which includes guidance for biosafety procedures, was available in all but one facility o In line with WHO recommendations, none of the visited labs had a BSC, which is adequate for performing microscopy and Xpert testing; ventilation was found adequate in all but one facility o Many laboratories had a problem with insufficient temperature control in the laboratory working area and sputum storage area; a dedicated specimen storage fridge was available at only three labs
	Equipment, supply & maintenance	<ul style="list-style-type: none"> o No reagent stock out was reported for the past 12 months, including microscopy and Xpert consumables, which is in line with JPR observations at the national level, except one lab reported a stock out of glucose strips o Microscopes and GeneXpert were reportedly functioning and maintained at the time of the visit o There is still no Cepheid authorized service provider in the country; maintenance and repair are managed by CENAT
	Quality	<ul style="list-style-type: none"> o Staff is aware of sample requirements for each of the TB laboratory tests; during sample collection, patients are instructed in all sites on collecting sputum o 9 out of 10 laboratories have laboratory TB manuals, which include SOPs for all TB diagnostic methods o The laboratory staff has raised concern about the quality of smears received from peripheral sites; also, the JPR had observed challenges with sputum specimens, which were frequently recorded as saliva. o PT panels (part of knowledge assurance) for Xpert MTB/RIF is only available at 6 of 64 labs at the national level
	Data Management Laboratory	<ul style="list-style-type: none"> o All sites have and use standardized laboratory registers, request forms, and result reporting forms were available o Computers were available at all laboratories and were used for CamLIS, the available laboratory information system from MoH. A diagnostic connectivity system was not available in the GeneXpert laboratory (Suong RH). o Also, at some sites, staff used their private phones for work-related communication; for example, when installed, facility internet is slow
	Workforce & Training Laboratory	<ul style="list-style-type: none"> o In only 2/10 facilities (Sa Ang RH and Stung Trang RH), all laboratory staffs were trained on the TB guidelines. In the remaining facilities, either not all staff were trained, or staff reported they did not receive training at all o Additional training needs to be included in safely collecting, labeling, packing, and transporting specimens, as well as the correct filling of registers and request forms o OD lab supervisors indicated that sufficient staff for GX operation would be made available if needed

	Specimen Transport	<p>Only two laboratories (Suong and Stung Trang) reported that they refer specimen for Xpert testing. Other laboratories said they did not know whether specimens were referred for Xpert since there is no request from clinicians inside the lab. Of concern was that some labs reported that specimens were directly referred from health centers for Xpert testing and bypass local laboratories</p> <ul style="list-style-type: none"> o In the two labs that refer specimen, self-made triple packaging was used, stock-outs of required material was not reported
Clinical	Data Management Clinics	<ul style="list-style-type: none"> o None of the sites had an NTP-approved TPT register or the close contact register; only a few had a presumptive TB register. Challenges were observed with the incorrect filling of registers o 9/10 facilities have been installed MIS and had received all devices needed for the TB MIS to function, including training and technical support
	Workforce & Training Clinics	<ul style="list-style-type: none"> o Most clinical staff at the assessed facilities have been recently trained on the TB guidelines, but not all clinical staff at each site received training o At less than half of the sites, staff had received recent training on safely collecting, labeling, packing, and transporting specimens o When checking the registers, which patients have been tested with Xpert, it was observed that records were either not available or incomplete, suggesting further training need on the correct filling of registers and request forms
	X-ray	<ul style="list-style-type: none"> o Six facilities have an X-ray machine on-site (5 are functional); the remaining facilities referred patients for X-rays when needed. Digital X-ray was available at four sites o Only half of the staffs in assessed facilities reported they were trained on using X-ray, the respective national algorithm and guidelines were available at only half of the x-ray departments o No interruption of services was reported, including X-ray consumables accept the interruption of the old machines
	Diagnostic algorithm (assessed at clinics)	<ul style="list-style-type: none"> o The majority of clinical staffs have been recently trained on the TB guidelines, incl diagnostic algorithms & the use of Xpert in diagnosis, but not all clinical staff at each site received training o Concerningly, printouts of TB guidelines and algorithms were not available at nine of ten clinical sites o Despite the training, some interviewed staff were not confident in naming the eligibility groups for Xpert testing according to the national guidelines

For human resources allocation, staff management was available at 14 to 75 staff referral hospitals per site, and eight staff members are available at the health center. The number of staff included floating and contracting staff. RH workload at OPD and IPD was 21 to 40 per day on average and divided into 3 to 4 shifts. However, there is still a need to improve management skills, staff capacity, and staff allocation.

Generally, the available staff at RH are limited in response to TB cases finding a diagnosis, treatment, follow-up, and prevention. About 70% to 80% of them answered that practice and managing the cases were complicated. On the other hand, at the HC, most of the staff know the only microscopy, and some of them can describe GeneXpert, X-ray, and culture. Besides, data quality control and technical sputum collection also issue considerably to improve. For the staff's attitude to provide the clients' service, the provider generally did not greet the patients unless the patients did it first. In practice, most of the staff complained about their workload of additional tasks affected by their daily work performance.

Most of the staff never receive TB-IC training; thus, no continuously training and nor annual examination. We found the TB infectious control is not correctly used even though the ICC was created for all RH and HC. One of those issues related to waste disposal is still a big problem with no proper sorting, interim storage, and final disposal. All incinerators were broken, and a placenta pit is available in all RH in Kandal province. All medical waste is contracted to bring to a red cross incinerator in Phnom Penh and Kandal brings it out to others ODs Khsach Kandal in Lveaem and Leu Dek to Kean Svay. In most environmental practices, the places are crowded, with no windows where the building has only the entrance and the other side room used for other services. Most staff use their Personal Protection Equipment (PPE), staff wearing only the face mask to protect COVID-19; however, the N95 mask is not available in stock.

For the health and non-health private sectors, results show that GPS mapping of both sectors where GPS spotted TB services evident were available at different health private sectors. The second indicated a high-risk working place predicted TB burden. Finally, total spotted sites were done with 326 sites of health and non-health private sectors. The proportion of GPS spotting results in different private health sectors by ODs selected sites. Of a total of 276, the majority mapping from consultation cabinet, nursing care room, and pharmacy of (109), (63), and (54), respectively.

From the TB-affected community's views, we learned that collaboration from different stakeholders needs to be better enforced and strengthened to fight TB and the financial support to maintain the community support and keep it functioning. TB services such as drugs, training, and other campaigns to end TB, eliminating misperception about TB and mitigating all forms of discrimination toward TB patients and TB survivors should be included. In contributing to the success of ending TB, the basic knowledge of TB, including communication skills, should be given to relevant community-level leaders, such as Commune council (CC), Village leaders and VHGS, and religious leaders for them to communicate with and educate their people about TB in their community effectively.

Conclusions and recommendations

In conclusion, there is a limited GeneXpert network in nine RHs within COMMIT project sites. It needs to expand, increasing availability and accessibility to rapid molecular TB and RR TB testing. These will support the efficiency, quality, and availability of the TB diagnostic network in Cambodia and support the COMMIT project's implementation.

The number of staff and the utilization at each health facility seems not to affect the service delivery. Human resources management is contributed issue related to the gaps at some services such as the TB ward and TB laboratory. Knowledge gaps among clinic and laboratory staff and radiographers have been observed on topics such as the diagnostic algorithm, including eligibility groups for Xpert MTB/RIF, and the use of CXR in the diagnosis of TB. Pieces of training, refresher training, and continued education on all aspects of the National TB Guidelines and other identified key topics are essential for all staff in the current and expanded future diagnostic network.

The supervisors should be more active and more knowledgeable than people who work on the ground. TB IC and TB DM need both supply and capacity building support as the COMMIT coverage area is significantly underserved. If we depend on government and user fees' budget allocation, we could not solve all these findings. Recording and reporting is the ongoing improvement process; both TB MIS and all recording registers may affect the work if internal and external control is not in line as it needs the daily job done.

The current specimen referral system will require expansion and strengthening to ensure that all sites send a specimen from all eligible patients and that referred specimen does not bypass the local laboratories, as it was observed in some facilities during this assessment. This will require training and resources, including dedicated referral registers and bikes/cars or taxis.

Building the capacity of district TB focal persons to provide supportive supervision to health facilities and the other comprehensive TB program support was instrumental in improving the TB IC situation of health facilities. Considerable gaps in implementing the recommended TB IC practices at the health facility level can be narrowed. There is a need to further strengthen infection prevention/TB IC committees to plan and implement TB IC activities' hierarchy and reduce TB transmission among patients and health staff.

Besides these, there is a need to improve the existing community-based support network's quality by including TB survivors or their families as members in the support network. That would also include improving communication/link between health facilities and the community due to some participants complaining that they received the result of their specimen test very late. As evident, primarily sputum collection: we have also noted that some smears are not good quality. This should also be more closely supervised.

The general perspective has recognized the incidence rate and mortality rate of tuberculosis (TB) have been significantly reduced around the globe in the last 15-year period (2000 to 2015) of the Millennium Development Goals (MDG) of the United Nations (WHO, 2015). Based on enormous achievements, the Sustainable Development Goals (SDG) has agreed that TB should be eliminated within 15 years between 2016 and 2030 (Assembly, 2015; Kyu et al., 2018). Under the progress of CSDG-3 by 2030, Cambodia commits to ending the epidemics diseases that tuberculosis was counted the most priority as among other communication diseases apart from AIDS (Planning, 2019). In light of the limitations of the current case-finding strategies and the global urgency to improve tuberculosis (TB) case-detection, a renewed interest in active case finding (ACF) has risen in Cambodia (Lorent et al., 2014).

Community-driven approaches have been an inherent component in addressing the Tuberculosis (TB) epidemic in Cambodia. Community Mobilization Initiatives to End Tuberculosis (COMMIT) seeks to undertake a multi-sectoral approach using locally generated solutions to improve TB case finding, TB prevention, linkage to diagnosis and treatment support, and enhance community engagements in Cambodia (Teo et al., 2020). COMMIT will build the understanding of project sites, linkages, and referrals about TB screening, diagnosis, and treatment. The initial data and information in year one will inform the project implementation and establish the baseline parameters to measure the project's progress over five years. The baseline data will also establish an effective partnership management plan, engage key stakeholders at the national, sub-national, and community levels to garner support for this project's implementation. The duration of the project is five years, from October 2019 to October 2024.

The shortage of data and information in selected project sites under the COMMIT project are widely recognized. Therefore, an assessment is imperative in identifying gaps to implement COMMIT effectively. We will conduct a baseline assessment to explore the availability and functionality of health facilities and services related to TB, human resources and capacity, and the linkages between different health services.

1.1 Overall objective

To explore the availability and functionality of health facilities and services related to TB, human resources and capacity, and the linkages between different health services.

1.2 Specific objectives

- 1.2.1 Review key actors and assess the existing TB services, availability, and functionality of TB diagnostic services in the selected ODs
- 1.2.2 Review existing key actors and assess the allocation of human resources, and functionality of linkages, referrals at the ODs, RH, and HC in the selected ODs
- 1.2.3 Conduct formative assessment of selected interventions within COMMIT

2.1. Research design

A mixed-method was employed for this baseline assessment using assessment tools: desk review, inventory checklist, mapping, focus group discussion, and key informant interviews. A total of 30 HCs was randomly selected among 10 RH in 10 ODs in the COMMIT sites. In each of the selected ODs, some key stakeholders were selected for the interview, including policymakers, health, and laboratory staff at the national and subnational level, members of the community (village chief, commune council, and village health support groups), non-governmental organizations and implementing partners, and the private sectors (health and non-health). Assessment timeline was took place between July-August 2020.

2.2 Data collection tools

The questionnaire tools were adapted from the previous assessment (Joint Program Review) and responded to the project's baseline; it consists of six components as followings:

- a) Laboratory-checklist 1.1 assessed with RH-laboratory services
- b) Clinical-checklist 1.2 assessed with RH-clinical and lab services
- c) For Questionnaire 1 & 2 assessed to understand knowledge, attitude, and practices among health staffs at RHs and HCs.
- d) Interview Guide 1-2 (HCs) and Interview Guide 3-4 (RHs) assessed with TB-IC and TB-DM
- e) FGD guide conducted at 30 health centers to assess the feasibility of establishing a peer support network and understand the barriers and facilitators to access and accept TPT or the former Isoniazid preventive therapy.
- f) Interview Guide 5 was conducted among key stakeholders from the relevant ministries, organizations, representatives from the public and private sector at the national and sub-national levels. For the overview data processing, see Annex1: Overview of key activities by settings.

2.3 Data collection team and training

Well-trained and experienced enumerators performed data collection under the direction of technical leads. Each lead also acted as a field coordinator. Data collection was facilitated by thorough collaboration with relevant authorities at different ODs under the coordination of CENAT.

The training was conducted by CENAT, COMMIT and USAID. It focused on the assessment tools, fieldwork plan, and communication. A series of consultative meetings were also held with the project team and sub-groups to finalize and validate the tools.

2.4 Data handling and analysis

The information and data analysis plan was developed in consultation with the project steering committee and the sub-technical working group. The analysis plan aimed to respond to the main objectives of the assessments.

2.5 Consultation meeting and validation workshop of research findings

Protocol development was written with clear explanation guidance overall the research process. Under the supervision of valuable teams, tools were also critically developed and finalized among the teams based on COMMIT project intervention. Two stages of this assessment's initial results were presented among the team, first preliminary findings at 5 ODs and preliminary finding all 10 ODs. Finally, the team's two-day workshop to present the preliminary findings was organized at CENAT and KHANA. All teams who participated in field data collection were invited to the meeting.

2.6 Report writing

Under the Project Steering Committee's leadership, KHANA Center for Population Health Research, as Technical Lead, developed the report outlines and initial report in consultation with the assessment team. The preliminary finding was presented and consulted with the assessment team for further inputs and refinement. The final draft report was also consulted and worked with the USAID- Short-term Technical Assistant.



3

RESULTS

3.1 Referral clinic and lab services

It aims to assess the existing TB services, availability, and functionality of TB diagnostic services in the selected ODs by observing laboratory and clinical practice. The following tables show the results of available diagnostic services on-site and clinical services on-site according to evidence-based at 10 ODs. The details are explained in the below part of the tables.

Table 1. Available diagnostic services on site.

Diagnostic services	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong	Sen Sok
TB smear microscopy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Xpert MTB/RIF (*)	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
MTB culture (liquid or solid)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
DST (FL- and/or SL)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LPA (FL and/or SL)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Urinary LAM	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Rapid HIV	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CD4 count	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Blood glucose	YES (spectro & rapid)	YES (rapid)	YES (spectro & rapid)	YES (rapid)	YES (spectro & rapid)	YES (spectro & rapid)	YES (spectro)	YES (spectro & rapid)	YES (spectro)	YES (spectro & rapid)
HbA1c	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO
Other tests, please specify	Hb, Lipid panel, LFT, Malaria	none	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria	Hg, Lipid panel, LFT, Malaria
X-ray machine	YES	NO	YES	NO	YES	NO	YES	YES	YES	NO
	(digital & analogue)		(digital X-ray)		(analogue)		(digital & analogue)	(analog)	(digital & analogue)	

(LFT = liver function test, Hg= hemogram)

(*) Cambodia switched to Xpert MTB/RIF Ultra in March 2020

Table 2. Available clinical services on site

Clinical services	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka	Lvea Em	Leuk Dek	Sa Ang	Pochen tong	Sen Sok
Kong	Lvea Em	Leuk Dek	Sa Ang	Pochen tong	Sen Sok	YES	YES	YES	YES	YES
CPA1	NO	YES	YES	YES	NO	YES	YES	YES	YES	YES
CPA2	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO
Diabetes service	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
OI/ART clinics	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
Hospital DOT & Ambulatory DOT	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
C-DOTS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
drug-susceptible TB treatment	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES

Table 3. Laboratory workload per site

Laboratory workload	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochen tong	Sen Sok
Number of patients investigated with smear microscopy for diagnosis of TB in Q1-Q3 2019 by month	Average: 52 per month	Average: 116 per month	Average: 66 per month	Average: 46 per month	Average: 16 per month	Average: 66 per month	Average: 26 per month	Average: 155 per month	Average: 21 per month	Average: 6 per month
Number of diagnostic smears conducted in Q1-Q3 2019 by month	Average: 155 per month	Average: 347 per month	Average: 198 per month	Average: 138 per month	Average: 48 per month	Average: 197 per month	Average: 83 per month	Average: 465 per month	Average: 54 per month	Average: 18 per month
Number of patients investigated with smear microscopy for follow-up of TB treatment in Q1-Q3 2019 by month	Average: 4 per month	Average: 8 per month	Average: 6 per month	Average: 3 per month	Average: 5 per month	Average: 6 per month	Average: 3 per month	Average: 22 per month	Average: 15 per month	Average: 2 per month
Number of smears conducted for treatment follow-up in Q1-Q3 2019 by month	Average: 4 per month	Average: 8 per month	Average: 6 per month	Average: 3 per month	Average: 5 per month	Average: 6 per month	Average: 3 per month	Average: 22 per month	Average: 15 per month	Average: 2 per month
Number of patients investigated with Xpert MTB/RIF in Q1-Q3 2019 by month	Average: 29 per month	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Xpert MTB/RIF tests conducted in Q1-Q3 2019 by month, including unsuccessful tests 2	Average: 30 per month	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4. Clinical workload per site

Clinical workload	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka kong	Lvea Em	Leuk Dek	Sa Ang	Pochen tong	Sen Sok
Number of notified DS TB patients (bacteriologically confirmed, PTB & EPTB) in Q1-Q3 2019 by month (TB Treatment Books)										
Number of patients confirmed PTB & EPTB in Q1	1=PTB BK+ 0=EPTB BK+/-	5=PTB BK+ 0=EPTB BK+/-	5=PTB BK+ 0=EPTB BK+/-	NO	NO	4=PTB BK+ 0=EPTB BK+/-	0=PTB BK+ 0=EPTB BK+/-	2=PTB BK+ 0=EPTB BK+/-	17=PTB BK+ 0=EPTB BK+/-	1=PTB BK+ 0=EPTB BK+/-
Number of patients confirmed PTB & EPTB in Q2	2=PTB BK+ 0=EPTB BK+/-	6=PTB BK+ 0=EPTB BK+/-	1=PTB BK+ 0=EPTB BK+/-	NO	NO	2=PTB BK+ 0=EPTB BK+/-	2 (PTB BK+ 0=EPTB BK+/-	2=PTB BK+ 0=EPTB BK+/-	14=PTB BK+ 0=EPTB BK+/-	6=PTB BK+ 0=EPTB BK+/-
Number of patients confirmed PTB & EPTB in Q3	0=PTB BK+/- 0=EPTB BK+/-	4=PTB BK+ 0=EPTB BK+/-	2=PTB BK+ 0=EPTB BK+/-	NO	NO	2=PTB BK+ 0=EPTB BK+/-	2=PTB BK+ 0=EPTB BK+/-	6=PTB BK+ 0=EPTB BK+/-	33=PTB BK+ 0=EPTB BK+/-	1=PTB BK+ 0=EPTB BK+/-
Number of notified DS TB patients (clinically diagnosed, PTB & EPTB) in Q1-Q3 2019 by month										
Number of patients notified with DS TB in Q1	0=PTB 0=EPTB	0=PTB 0=EPTB	11=PTB 0=EPTB	NO	NO	2=PTB 0=EPTB	9=PTB 1=EPTB	8=PTB 10=EPTB	2=PTB 0=EPTB	2=PTB 2=EPTB
Number of patients notified with DS TB in Q2	0=(PTB 0=EPTB	0=PTB 0=EPTB	29=PTB 0=EPTB	NO	NO	0=PTB 1=EPTB	3=PTB 0=EPTB	2=PTB 2=EPTB	0=(PTB 5=EPTB	1=PTB 0=EPTB
Number of patients notified with DS TB in Q3	4=PTB 0=PTB	3=PTB 0=EPTB	4=PTB 0=EPTB	NO	NO	3=PTB 0=EPTB	5=PTB 0=EPTB	10=PTB 7=EPTB	7=PTB 1=EPTB	4=PTB 1=EPTB

(See Annex: TB Cases Notified in 10 Referral Hospitals: Q1-Q3 2019)

3.1.1 Biosafety

- The National TB Laboratory Manual, which includes guidance for biosafety procedures, was available in all but one facility. During the assessment visits, it could not be observed if the biosafety measures have been followed. Staff in all laboratories were equipped with used gloves and surgical face masks at the visit time.
- Two facilities had autoclaves, which the laboratory used for sterilization but no waste disposal. All facilities used a self-made incinerator for waste disposal on-site; whether or not these met international standards for health facility incinerators could not be assessed during the visits.
- Eight laboratories were equipped with adequate washbasins and soap for handwashing; however, in two laboratories, staff used the basin in the smear preparation area or a basin outside the laboratory.
- It was observed that two facilities had no fridge at all, while five facilities stored the specimen in the reagent fridge, which is not an adequate procedure.

- According to respective WHO recommendations, none of the visited labs had a BSC, which is adequate for performing Microscopy and Xpert testing if adequate room ventilation can be ensured. It was observed that ventilation inside 9 of 10 laboratories was sufficient using fans and natural ventilation. However, in one laboratory (Pochentong RH), the ventilation was insufficient because AC was turned on with closed windows with a small extractor fan.
- Many laboratories had problems with temperature control in the laboratory working area and sputum storage area, i.e., three laboratories had an air conditioner; in one of which the AC was not functioning well though, The remaining laboratories had no AC installed, and the room temperature could be as high as 34C.
- All labs had sufficient space for GeneXpert installation, reagent storage. Lockable rooms and secure windows were found in all facilities. (see Annex2: Infrastructure and biosafety laboratory)

3.1.2 Equipment, supply & maintenance

- No reagent stock out was reported for the past 12 months, including microscopy and Xpert consumables, which is in line with JPR observations at the national level. Only one lab reported a stock out of glucose strips.
- Microscopes and GeneXpert were reportedly functioning and maintained at the time of the visit. The staff reported, there were no previous instrument breakdowns in the past.
- There is currently no Local Service Provider (LSP) agreement for GeneXpert instruments. MEDICOM provided maintenance and repair before; however, the company suspended these services due to insufficient revenue generated from this activity. CENAT had been intensely involved in the provision of managing service, maintenance, and repair for all sites. During the JPR in 2019, the budget for these activities was the main limitation; furthermore, there are time constraints given the limited number of staff at CENAT and long travel distances to sites. The situation has not changed since the on-site service and maintenance and repair and replacement will be challenging, especially if additional instruments will be installed, as envisioned in this project.
- Proficiency testing (PT) panels, essential for Xpert EQA, are only provided to 6 of 64 labs. New-lot testing of cartridges was also not yet national policy (JPR and current assessment). (see Annex3: Equipment, supply & maintenance laboratory)

3.1.3 Quality

- The assessment found that staff is aware of sample requirements for each of the TB laboratory tests; during sample collection, patients are instructed in all sites on collecting sputum. Some laboratories complained about the quality of smears they received from health centers, which affects slide reading quality.
- The JPR noted that many samples registered in the laboratories were described as saliva, which is not the optimal specimen for diagnosing TB. Partly, this might be a consequence of specimens from ACF activities and due to the different case characteristics (i.e., early disease state or not infected with TB at all). However, smear collection quality needs to be closely monitored and to be included in quarterly supervision visits.
- 9 out of 10 laboratories have laboratory TB manuals, which include SOPs for all TB diagnostic methods.

- Additional questions on quality were accidentally removed from the questionnaire and, therefore, not further assessed. The additional removed questions are not changed because though quarterly supervision from provincial and national levels and many aspects of lab quality control have been addressed, some questions were removed. However, we will consider the removed questionnaire should be included in the next assessment.

3.1.4 Data Management Laboratory

- It was observed that standardized laboratory registers, request forms, and result reporting forms were available and used at all sites. All laboratories collected, analyzed, and reported routine statistical lab testing data.
- Computers were available at all laboratories and were used for CamLIS, the available laboratory system from MoH, a web-based tool that enables decision-makers to monitor TB treatment status by integrating data across critical aspects of TB control. Data to be entered into the system (TB-MIS) includes information on TB cases, DS-TB and MDR-TB, medicines, laboratory testing, diagnosis, treatment, and outcomes.
- However, this assessment also showed that a diagnostic connectivity system was not available in the laboratories, i.e., the GeneXpert in Suong RH.
- It was observed that some sites use their phones for work-related communication; for example, when installed, the facility internet is slow. (see Annex4: Data Management Laboratory)

3.1.5 Data Management Clinics

- None of the sites had an NTP-approved TPT register or the close contact register.
- A TB-MIS has been installed at all facilities (RHs); the TB-MIS services are available at all health facilities excepted HCs to extend service in the future. All but one facility had received all devices needed for the TB MIS to function (computer, router, internet), had received training, and were continuously receiving technical support from the NTP. (see Annex5: Data Management MIS Clinical)

3.1.6 Workforce & Training Laboratory

- In only two facilities (Sa Ang RH and Stung Trang RH), all laboratory staff was trained on the TB guidelines. In the remaining facilities, either not all staff were trained, or staff reported they did not receive training at all.
- Additional training needs were identified on the topic of safely collecting, labeling, packing, and transporting specimens for laboratory staff: only two facilities reported to have received training recently, for other facilities, either not all staff was trained, the training was held a long time ago, or none of the staff was trained.
- In six facilities, lab staff was recently trained on the correct filling of request forms and registers. In the same six facilities, training is available to keep lab staff up to date with newer lab technologies and guideline changes.

- From communication with the OD lab supervisor, they have ensured that sufficient staff would be made available to operate GeneXpert instruments once they would be installed. (See Annex6: Workforce laboratory)

3.1.7 Workforce & Training Clinics

- The majority of clinical staff at the assessed facilities have been recently trained on the TB guidelines, but not all clinical staff at each site received training.
- Four facilities reported that all staff had received recent training on safely collecting, labeling, packing, and transporting specimens. In other facilities, either not all staff was trained, the training was held a long time ago, or none of the staff was trained. Only three facilities, clinical staff were recently trained on the correct filling of request forms and registers. Not all staff have been trained, only selected staff.

(see Annex7: Workforce & training clinical)

3.1.8 Specimen Transport

- Only two laboratories (Suong and Stung Trang) reported that they refer specimens for Xpert testing. Other laboratories said they did not know whether specimens were referred for Xpert since there is no request from clinicians inside the lab. Others reported that specimens were directly referred from health centers for Xpert testing and are bypassing local laboratories.
- In the two laboratories, which refer specimens for Xpert testing directly, SOPs for specimen collection, labeling, packaging, and transportation was available. The other facilities had the TB lab manual only, which includes guidance on specimen collection and referral. Self-made triple packaging was used.
- The specimens referred to were not shared and coordinated with disease programs. The lab at Sung also referred specimens to the National Institute of Public Health (NIPH) for CD4 count and a different transport mechanism.
- The lab at Suong reported that specimens were referred for culture at Kampong Cham provincial lab through either taxi (car) or moto-taxi. For the lab at Stung Trang, specimens were referred to Kampong Cham provincial lab for culture and Xpert MTB/RIF testing. The referrals were done through taxi (car) or moto-taxi. None of the sites had any RR TB patients in 2019; therefore, no specimens were sent for SL-DST.
- Labs did not experience any stockout of materials for triple packaging or facing any challenges with proper packaging or cold chain.
- Result collections were done either through the direct collection or phone call or messenger or telegram. No challenges were reported in returning results for both labs.
- All labs receive slides for microscopy from other facilities without a laboratory. Suong laboratory received specimens for Xpert testing and reported no challenges with the quality of packing material or any other referral-procedure-related aspects. The microscopy slide referral system, including smear quality, packing, labeling, and communication, was not evaluated during this assessment.

3.1.9 X-ray

- Six facilities have an X-ray machine on-site; other facilities referred the patient if an X-ray was needed. One facility had a digital X-ray, two facilities had only an analog X-ray, and three facilities had both digital X-rays

and analog. Among the six facilities with an X-ray machine, five were functional: Suong Referral hospital did not repair the broken (analog) machine because it is too old.

- At only half of the facilities, the staff reported using the X-ray to diagnose TB according to the national algorithm. However, it was not possible to observe how X-ray has been used instead.
- In only half of the facilities, staff reported they had received training on the use of X-rays. National algorithms and guidelines were available at only half of the facilities.
- Except for one facility supported by an NGO, x-ray supplies are provided through the MoH.
- For the supply mechanism for X-ray consumables, most facilities reported to have sufficient supplies for one year; they have never faced any shortage of supplies. Leuk Dek and Sa Ang referral hospitals said that there is sometimes a low stock of films, which did not lead to service interruptions. For example, the supply comes from different sources, such as CMS/NTP, MoH, private, and other international NGOs.
- There was no interruption of services in the past 12 months, but staff from some sites reported that the machines are ancient and do not function well. The x-ray machine did not have regular maintenance (digital x-ray, no supportive maintenance). Three facilities (Leuk Dek, Sa Ang, and Pochentong) pay for service and maintenance themselves. (see Annex8: X-ray clinical)

3.1.10 Diagnostic algorithm (assessed at clinics)

- The majority of clinical staff at the assessed facilities have been recently trained on the TB guidelines, including diagnostic algorithms and Xpert in diagnosis. Printouts of TB guidelines and algorithms were not available at nine sites.
- Despite the training, some interviewed staff were not confident in naming the eligibility groups for Xpert testing according to the national guidelines, i.e., only staff of four facilities called “adults and children at risk for DR TB” as eligible groups for Xpert testing. When checking the respective registers, which patients have been tested with Xpert, it was observed that records were either not available or incomplete; the application of the diagnostic algorithm could, therefore, not be assessed.
- Staff knew that specimens from smear-positive patients were supposed to be sent for RR testing to a GX site in only four facilities.
- None of the sites had any RR TB patients in 2019. Implementing the algorithm concerning SL-DST for RR TB patients could not be assessed in practice; staff knew that a specimen from RR TB patients should be sent for SL-DST. (see Annex9: diagnostic algorithm clinical)

3.2 Allocation of human resources and functionality of linkages health facilities.

Following the cross-cutting results raised by the health facilitators at ten referral hospitals (RH) and 30 health

centers, it was assessed to understand the human resources capacity at the health facility before and after training and capacity building of health providers.

Figure 1 shows the proportion of staff in each referral hospital is available. A minimum of 14 to a maximum of 75 included contracted staff, where the staff available at the health center is on average only eight staff per health center. Health staff allocation and health services in serving the population in need are limited (Penh). Therefore, each site's professional health seems to be overloaded work as RH: OPD =21 and IPD=40 per day and HC: OPD =20 per day on average. Staff management remains a source of issues that have happened everywhere in Cambodia; managing staff is the real solution to manage all the facilities. The proportion of staff allocated in each health facility seems to be ok to manage the services. However, all finding issues generally raised by the management team were always related to its number and capacity.

Figure 1. Staff management and workload

Staff*		Workload**	
RH	HC	RH	HC
14 to 75	8 (average)	OPD=21/day	
IPD=40/day	OPD=20/day		

* Number of staff included floating and contracting staff.

** Workload at RH OPD =21 and IPD=40 per day average and usually divided into 3-4 shifts (small number shifts and a large number 4 changes)

Table 5 shows the knowledge, attitude, and practices of the health staff who reacted to clients. It was observed and asking a question, or sometimes the interviewer pretended to be a patient who came to receive the services and recorded through cross-cutting data collection. From general observation and questions during the assessment, we noted that the staff did not greet the patients unless they first did. History taking only part and not sincerely asking for passed and family history. Physical is partly examined and not focused on where the cause should be. The conclusion or diagnosis was very rare to inform the patient before they got the drugs and side effects. The medical staff or pharmacists did not give drug interactions. Counseling and advice were rarely given and very short if taken.

Knowledge of TB cases finding diagnosis, treatment, follow-up, and prevention measures were around 70% to 80% answered by the interview. Still, the explanation for practical and manage the cases was mainly stuck to end their response. The recording and reporting were still the main challenges during the assessment, and inconsistency between record, report, and TBIMS also needs to be solved.

Table 5: The knowledge, attitude, and practice of health staffs at 10 RHs by using Interview Questionnaire-1

Key theme	Health providers raised during interviewing
Attitude	
Reaction of service	<ul style="list-style-type: none"> The provider generally did not greet the patients unless the patients did it first. They started with chief complaints asking without detailing questions to get more information from the clients or request more information on disease history and family history.
Behavior of service	<ul style="list-style-type: none"> Usually, the doctor did a physical exam (all of them take only part) after nurses took vital signs and did not ask each other or confirm what they did.
Information to clients	<ul style="list-style-type: none"> They gave the treatment duration and followed up or asked to come back after finishing the treatment they provided. Usually, they did not tell the clients and the pharmacist's drug information without side effects and drug interaction information.
Knowledge	
General knowledge	<ul style="list-style-type: none"> All of them gave the right definition of TB as the infectious disease caused by mycobacterium tuberculosis Classifications of TB refer to PTB as BK (+) and BK (-), and EPTB. Most of them were referred to as lymph node TB, meningitis, and pleuritic TB. Main symptoms refer to signs or symptom as a cough for more than two weeks, sweating at night, weight loss, fever, and enlargement of lymph nodes TB is curable 100%
TB preventive therapy (TPT) and infection control	<ul style="list-style-type: none"> Primarily transmitted through droplets during coughing or sneezing Keep physical distancing more than 1.5m, using mask or Kroma to cover Generally, they know well category 1 of TB treatment, and a few know category 2 with confusing To prevent TB disease for whom, live with patient BK (+) and HIV patient and DM patient It is crucial to be aligned with the end of the TB strategy by 2030 TPT eligible to those who live in close contact with TB BK (+), no clinical sign of TB, no symptom of TB
Diagnosis	<ul style="list-style-type: none"> Mainly response to do smear microscopy exam, Gene x-pert and some of them can describe doing culture and chest X-ray
Follow-up	<ul style="list-style-type: none"> They know that it is the need for three consecutive smears controlling for PTB BK (+) (C2, C5, C6) and confusing if C2 is still (+) and not much for BK(-) till they complete six months course Through DOT watcher or HC staff and call by phone if missing F/U

Treatment includes side effects	<ul style="list-style-type: none"> • PTB BK (+) did smear checkup for three times negative (C2, C5, C6), and some added that it is also needed to complete the treatment for six months • The patient received six months course treatment completed for BK (-) or BK (+) without smear controlling • Most of them were confusing this with cured or completed • Three regimens (6H, 3RH,3 HP) with confusing how to take and the follow-up are needed. (Three regimens are included in the LTBI SOP. Luckily, we have received the 5000 doses from CHAI. At the current, it was out of stock that agreed that the 3HP would be available in Q2 2021)
Workload of staff	<ul style="list-style-type: none"> • Additional tasks were affected to their work daily
Knowledge of childhood TB	<ul style="list-style-type: none"> • All of them never train on the new guideline
Knowledge of data quality and data quality issues	<ul style="list-style-type: none"> • In the register book (TB treatment book, suspected case recording book), the records still had a big mistake in most health facilities. • Tools used to manage data such as TB MIS, register book, patient TB treatment card still need to strengthen • Training: a few get trained, and most of them were assigned to do • Data managing: Some time they did with some missing information or cannot entry • Additional support: Call for help from OD TB supervisor or CENAT staff by telegram • Sources of support: Instructed through telegram communication • Data verification tools applied before generating into the report: Usually, they did the comparison with register & patient card before entry and some time without comparing • Feedback: usually Not consistent with register • Follow the comment from the OD TB supervisor or CENAT staff • Training/refresher on TB MIS recording and reporting is needed

Table 6 shows the knowledge and attitude of health staff at 30 health centers. From observation, the perspective and understanding of health staff performance across the health center are acceptable. However, the recording and reporting and other management teams' tasks were still the main challenges during the assessment and inconsistency.

Table 6. The knowledge, attitude, and practices of health staff at 30 HCs by using Interview Questionnaire-2

Key theme	Health providers raised during interviewing
Describe on TB	<ul style="list-style-type: none"> A disease caused by Mycobacterium Tuberculosis (tuberculosis Bacillary, Bacille de Koch). It is an infectious disease caused by the transmission of infected air during coughing, sneezing of TB patients, and breathing by the close contact
Classifications of TB	<ul style="list-style-type: none"> Two kinds of classifications TB mentioned (BK- and BK+) without details of PTB and EPTB
Describe the main TB	<ul style="list-style-type: none"> Two-week cough; rapid weight loss; thinness; sweat at night; fever; tiredness; lump node near the ear(s)
TB diagnostic tools are used to screen TB	<ul style="list-style-type: none"> Most of them know only Microscopy, and some can describe GeneXpert, X-ray, and culture
TB transmission	<ul style="list-style-type: none"> By coughing or sneezing from a patient with BK+ transmitted when breathing. Public spitting without control
TB prevention	<ul style="list-style-type: none"> Wearing face masks or Krama while staying close with TB patient; moving away from other people when coughing if known as TB; TB vaccination BCG or receive the TPT; accept treatment and prevention methods
TB curable	<ul style="list-style-type: none"> TB is 100% curable if the patients follow the instructions
TB can be treated	<ul style="list-style-type: none"> It can be treated between 6 months to 12 months. There are three formulas: a) 6 months, b) 8 months, c) regularly medicine within six months and follow by prescription from a doctor
To follow up schedule for TB patient with BK+ and BK-	<ul style="list-style-type: none"> Follow up check the sputum in the second month, the fifth month, and the sixth month and weigh the bodyweight of the patient and ask the adherence to medication
Way to follow up with the patient	<ul style="list-style-type: none"> Every two months weighing body weight; reach out to the patient house; advice; follow up their medication; keep close contact with village health volunteer by phone call
Criteria of cure	<ul style="list-style-type: none"> the second month, the fifth month, and sixth-month sputum examination (negative)
Criteria for completed treatment	<ul style="list-style-type: none"> Sputum examination and medication with body weighing. Medication 6 months and weighing
Criteria of Successful treatment	<ul style="list-style-type: none"> Completed treatment to follow up medication until complete Dose BK+, BK- and EP included together. Besides that, it needs to follow-up all occasion second month, fifth month, and sixth month
TB Preventive Therapy (TPT)	<ul style="list-style-type: none"> TPT provided to those who live close with BK+ patient without TB signs or symptoms
Perception TPT required	<ul style="list-style-type: none"> TPT important to end the TB stop spread the TB will be a mechanism to ending TB in the year 2030
People eligible for TPT	<ul style="list-style-type: none"> Tuberculosis patients' people are living with HIV and AIDS, especially children. Besides that, a family member of TB patients and neighbors also eligible for TPT

The treatment regimen for TPT	<ul style="list-style-type: none"> • Three regimens recommended for TPT: 3RH, 3HP, and 6H but most of them cannot give the details of each regimen
Additional tasks assign by management	<ul style="list-style-type: none"> • Additional tasks were assigned to provide health education, drugs management, and general consultation
Additional tasks usually assigned by management come in the appropriate time	<ul style="list-style-type: none"> • They said that they are pretty busy, but most are manageable
Any additional task often assigned	<ul style="list-style-type: none"> • Almost daily
Additional tasks challenge to core tasks	<ul style="list-style-type: none"> • Some affected to reporting and recording issue

3.2.1 Measurement of TB Infection Control (TB IC) practice at Health Centre.

It aims to measure the feasibility of TB IC practices and FAST strategy through key informant interviews with health center staff.

Table 7 shows the HC's assessment which is related to TB infectious control (TB IC). The ICC has not yet been created and not mentioned in the MPA guideline 2018 (MoH). Regarding the meeting moment, only a few items need to spend on purchasing some cleaning materials and a few things from the IC. Waste management is a relevant issue as all incinerators are no standard, and the standard was all broken. The placenta pit is available in almost all health facilities and functions, except a few, gave the patient's family a baby to bring home to bury. Triage at HCs is recommended by MoH but not practical as soon as separate the infectious patients or speed up the resuscitation for referral cases. Cough triage was not familiar with HCs staff. Environmental measures are used natural and mixed ventilation and never assess airflow direction, except using the fans to help the airflow passing from provider to clients. Ceiling fans are always used in most health facilities with or without help from windows and door opening. PPE during these periods is still available in all health facilities with a surgical face mask for health providers, and a few facilities gave to clients with a cough but never had N95 mask or respirator.

Table 7. Measuring TB Infection Control practice at HC level by using Interview Guide-1

Key theme	Health providers raised during interviewing
Managerial	
Composition of the team	<ul style="list-style-type: none"> At HC level, MoH not yet introduced to create the committee. So only a few of HCs assign staff to be responsible person for general hygiene and waste management
Meeting frequency	<ul style="list-style-type: none"> Did not have a separate meeting, and they are integrated into a monthly staff meeting and take part to talk a few points without in-depth discussion and specific to TB IC
Functioning	<ul style="list-style-type: none"> Reflected that it is not functioning at all
Minute of meeting	<ul style="list-style-type: none"> Partly mentioned for purchasing waste bins, plastic bags, alcohol/soaps placing with waste storage and transporting to the incinerator
Facility IC plan in place	<ul style="list-style-type: none"> A few have Never integrated budgeting. However, the budget for TB-IC having lumpsum fix grant and user fees. Never have staff training on IC Only a few staff at some HCs received training by PHD or MoH more than two years ago No professional education in IC No coordination between TB and other departments
IC assessment done	<ul style="list-style-type: none"> Mainly in July with QI assessment No plan renovation/relocation to optimize implementation of IC controls at the facility No improvements have been completed within the last year
Training on IC	<ul style="list-style-type: none"> Never trained on MoH IPC guideline, TB IC, or Lab IC at all except some standard precautions some of them ever took
Health education on IC ensured for HCWs, patients, and visitors	<ul style="list-style-type: none"> Did with group and TV spot, but during the assessment did not see No evidence of activity For materials for Information, Education, and Communication (IEC) are available only a few hand washing posters and COVID-19 stick on the wall. However, cough etiquette and flipchart/ other posters were not seen.
HF dispose of the infectious waste	<ul style="list-style-type: none"> Never sterile the samples; they burned or seal with an inappropriate measure Infectious was burned with regular waste with different kind of incinerators follow their availability incinerator Placenta pit used in almost all HCs with 2 HCs have no pit and relatives bring it home to bury and some medicine bottles and sharp use to seal

Recommended controls practice	<ul style="list-style-type: none"> • No early separated patients with cough from other patients • No separated suspected patient or diagnosed TB patient from each other • No IEC regarding cough etiquette on site • One a week in average turn-around time for lab investigations • No separate ward for TB or infectious with NCD
Package of prevention for HCWs	<ul style="list-style-type: none"> • No periodic and or symptomatic TB screening of staff
Environmental	Natural and/or mechanical ventilation in place, especially in waiting areas, examination room, sputum collection room, and patient wards
ventilation	<ul style="list-style-type: none"> • Mixed ventilation using stand/wall or mostly ceiling fans with standard windows were open widely or semi-close without changing according to natural airflow
Outdoor waiting areas or open space	<ul style="list-style-type: none"> • sometimes very crowding and always quiet in the evening time • Use low walls that facilitate the movement of fresh air are standard for HC • No roof of the structure should have sufficient overhang to protect occupants from sun and rain
UVGI	<ul style="list-style-type: none"> • Ultraviolet Germicidal Irradiation never had at HC
Personal Protection Equipment	Most of the staff wore surgical face masks during the COVID-19 situation providing by HC.
	<ul style="list-style-type: none"> • Never had N 95 mask even in reserve in stock in cases needed • Never, fit testing and/or fit check for respirators • No, surgical face masks/handkerchiefs for coughing patients • No, annual Examinations • Not continuous Education

3.2.2 Measurement of TB Infection Control (TB IC) at Referral Hospital.

Table 8 shows all RHs said they all created the infection control committee, but only five have the recent supported letter (3 did not found the letter and two since a long time ago as the members were changed and did not update the letter). The meeting was also integrated with staff meetings like HCs, and a few mentioned above, except one RH, had a separate one (Leuk Dek RH). This did not reflect that it is a function and, as already stated in the minute, very few IC points in general, not TB IC. As planned to put a few lines of purchasing materials instead of activities needed for improvement and no costing. Those plans always used the fixed lump sum grant from the H-EQIP fund to allow in the instruction. However, the assessment has not separated tools, as mentioned earlier. It was integrated with H-EQIP tools (NEQMT), and training never plans by facilities as they relied on PHD and CENAT plan. Also, health education was stated yes by interviewees but not in observation and roles play. Specifically, waste disposal is still a big issue as they are never sterilized the sample before final disposal; they burn or seal with an inappropriate measure. Incinerators used to burn infectious waste with regular waste with different kinds of incinerators following their incinerator availability (Locally made in Kampong Cham). Kandal is sent to other RHs nearby where the CISIM incinerator takes place, and Phnom Penh sent to the red cross incinerator as instructed by the municipal governments.

The placenta buried in the pit at all RHs and 2 RHs in Phnom Penh has no pit as they are sent to red cross incinerators. No systematic screening was seen and practiced. Natural and mixed always applied in all those RHs without assessment and management. The waiting area is still in ample open space, except in Phnom Penh, closed and semi-closed with no sound ventilation system. UVGI never had. PPE is at HCs level staff use surgical face mask provided by HF. Some additional personal purchasing and N 95 and respirators never had, if needed, and fitting tests never perform. Staff examination never serves except what they need for.

Table 8. Measuring TB Infection Control practice at the RH level by using Interview Guide-2

Key theme	Health providers raised during interviewing
Managerial	
Composition of the team	o At the RH level, all RHs have created the infection control committee, three among them did not see the letter, and 2 RHs were created a very long time ago
Meeting frequency	o It did not have a separate meeting, and they are integrated into a monthly staff meeting and take a small part to talk a few points without in-depth discussion and specific to TB IC. Only one RH has a separate minute and just have one meeting recently
Functioning	o It reflected that it is not functioning well at all, except the one has a separate minute that seems very committed
Minute of meeting	o Partly mentioned in the minute for purchasing waste bins, plastic bags for kind of bins and alcohol/soaps placed with waste storage and transporting to the incinerator. Except for the one where has separate minute committed to continuing the train other staff

Facility IC plan in place	<ul style="list-style-type: none"> • a few activities line integrated with AOP • Never budgeting • Is the budget available for TB-IC? Yes, as they have fix lump sum grant and user fees • Never have staff training on IC • One or two staff from all RHs get trained by PHD or MoH more than two years ago. This training did not show any ability to spread their knowledge to other staff as the practices presented very poor • Not at all, except Leuk Dek RH just started in May 2020 • No, coordination between TB and other departments or DM o With three questions of QI tools usually performed by the PHD QI team and third party, they are selected for top or shallow scores
IC assessment done	<ul style="list-style-type: none"> • Mainly in July 2020 with QI assessment from PHD QI team • No, plan (renovation and/or re-location) to optimize implementation of IC controls at the facility • Cannot measuring related to any improvements been completed within the last year
Training on IC	<ul style="list-style-type: none"> • MoH IPC guideline: Some get trained by MoH as ToT, but the very low background and seems cannot continue to share their knowledge with others • Never train on TB IC • Some RH were trained on standard precautions • Never trained on Lab IC
Health education on IC ensured for HCWs, patients, and visitors	<ul style="list-style-type: none"> • Performance: They said that they did with a group of patients and a TV spot, but during the assessment, we did not see any • No evidence of activity • Materials available for IEC: Only a few handwashing posters and COVID-19 stick on the wall, and cough etiquette and flipchart/ other posters were not seen anywhere we gone • Need to provide examples of materials
HF dispose of the infectious waste	<ul style="list-style-type: none"> • Sterile the sample before final disposal: Never sterile the samples; they burned or seal with an inappropriate measure • Use incinerator: infectious was burned with regular waste. Different kinds of incinerators follow their availability incinerator (Locally made in Kampong Cham) Kandal sent to other RHs nearby, and Phnom Penh sent to the red cross incinerator. • Seal: The placenta through in the pit at all RHs and 2 RHs in Phnom Penh have not to pit as they are sent to red cross incinerators.

Recommended controls practice	<ul style="list-style-type: none"> • No systematic screening of all patients with cough • No patients with cough separated early from other patients • No separated of suspected or diagnosed TB patients from other patients • Is the flow of TB suspects/patients in the facility a risk for transmission? Yes (not arrange, so they can go everywhere as they want) • No IEC regarding cough etiquette on site • Average turn-around time for lab investigations about one week • Separate ward for TB or infectious with NCD: Yes, with mostly no patient and S'Ang, they admitted to the general medicine ward
Package of prevention for HCWs	<ul style="list-style-type: none"> • No Periodic and or symptomatic TB screening of staff • Not yet have preventive treatment offered
Environmental	<ul style="list-style-type: none"> • Natural and mechanical ventilation in place, especially in waiting areas, examination room, sputum collection room, and patient wards:
ventilation	<ul style="list-style-type: none"> • Provide a sketch of windows, doors, fans, and cross ventilation • Mixed ventilation using stand/wall or mostly ceiling fans with standard windows was open widely or semi-close without changing according to natural airflow. In Phnom Penh, the place is very crowded, and there are no windows as the building has only the entrance and the other side is the room used for other services.
Outdoor waiting areas or open space	<ul style="list-style-type: none"> • An outdoor waiting area was large enough to seat patients without arranging to space, sometimes very crowded and quiet in the evening in 8 RHs, except in 2 RHs in Phnom Penh. • Using low walls that facilitate the movement of fresh air is standard for RH. No • The roof of the structure should have sufficient overhang to protect occupants from sun and rain: No
UVGI	<ul style="list-style-type: none"> • UVGI is never had at all RHs
Personal Protection Equipment	<ul style="list-style-type: none"> • Staff almost always use surgical face mask during this COVID-19 situation providing by HC and some additional from personal purchase in a few HC (2 HCs) • Never had N 95 mask even in reserve in stock in case needed • Fit testing and/or fit check for respirators: Never • No surgical face masks/handkerchiefs for coughing patients
Staff	<ul style="list-style-type: none"> • Annual Examinations: No • Continuing Education: No

3.3 To conduct a formative assessment of selected interventions within COMMIT

This section first showing the assess feasibility of implementing TB-DM bi-directional screening and case management at health facilities through key informant interviews among health staff at the Referral Hospital level and Health Centre level. Second, the focus group discussions were conducted to understand the feasibility of establishing peer supporting and barriers to access the TPT. Finally, geographic information mapping of private sectors and their different perspectives related to Law and workplace policy in the critical informant interview also showed at the end of the report. Results were explained as followings:

3.3.1 TB-DM bi-directional screening

3.3.1.1 The implement TB-DM bi-directional screening at Health Center

Table 9 shows the observation staff performance their routine consultation at OPD integrated with TB and DM screening. If there is no patient while we arrive at the facility, do the Roleplay on consultation activities (Staff was played as a provider and the interviewer acted as the patient). The result showed most of them never greet the patients unless they greet them before they did back as assessors act like a patient during the assessment. Moreover, a few OPD staff took part in actual history related to disease history and family history. There is always a chief complaint asking, but not deep to the main chief of the complaint as patients usually give 2 or 3 reasons to seek the services. Most HCs staff never touch patients. Only a few did some part of this and during the assessor, act as the patients. The para-clinical request did not see unless the staff referred to RH or did the blood glucose test as they had a glucometer. HC's Staff only told the patients the duration of treatment and back to follow up, and a few said the diagnosis was at HC level; they use the term of health problem. Only a few words of counseling or provided advice and sometimes none. The workload is constantly complained about by staff as the average number of HC consultations is only 20 per day and eight staff available at each HC, so it means that only 2-3 OPD per staff per day at the HC level. They never catch DM suspect as in the HC1 report had no case and no referral.

Knowledge of staff regarding DM is only the definition of it with an unclear cut-off point of blood glucose level between FBG and RBS and Hb A1c. Haft of signs and symptoms can be described by staff without knowing the starting signs and complication signs. So, it affected the decision to suspect and diagnose as they need to refer. Only one HC trained in Steung Trang OD did, and the bi-directional screening is still pending for the baseline, and some did after the project started. Training needed as all staff related was confusing to manage and record and report the cases. Data also required to improve as the system was not available for DM, and coordination was required to handle the cross-referral internally and externally.

Table 9. TB-DM bi-directional screening and case management at HC by using Interview Guide-3

Key theme	Health providers raised during interviewing
Observation	<ul style="list-style-type: none"> The staff does their routine consultation for OPD integrated with TB and DM screening. If there is no patient while we arrive at the facility, do roleplay on the practice of consultation activities. (Staff is the provider, and the interviewer acts like the patient)
History Taking	<ul style="list-style-type: none"> A few of OPD staff taking part in actual history related to the disease history and never for family history
Ask the patient's chief complaint	<ul style="list-style-type: none"> Always ask, but not deep to the principal chief of the complaint as patients typically give 2 or 3 reasons to come to seek the services
Physical examination	<ul style="list-style-type: none"> Most HCs staff never touch the patients, and a few did some part as well as when they act as assessor did role play as the patients
Para-clinical request	<ul style="list-style-type: none"> Most of HC's staff did not request unless they did the referral to RH or they did the blood glucose test themselves
Diagnosis or conclusion	<ul style="list-style-type: none"> Staff only tell the patients the duration of treatment and back to follow, up and a few tell the diagnosis as at HC level, they use the term of health problem
Counseling or advice	<ul style="list-style-type: none"> a few words and sometimes none
Summary of the disease and treatment with the side effect of drugs	<ul style="list-style-type: none"> pharmacist or drug distributor tool on how to take drugs without giving drug side effect and interaction
Workload	The average number of consultations by HC is 20 per day, and eight staff at each HC (1-2 OPD staff per HC)
How many suspected DM at OPD per year	<ul style="list-style-type: none"> None
Number of referral cases (OPD and DM)	<ul style="list-style-type: none"> None (OPD have the referral cases but not report in HC1)
Knowledge	
What is diabetes?	<ul style="list-style-type: none"> The definition was given to increase the blood glucose level, but they did not have a clear cut-off between FBG and RBG. (only one RH is obvious)
What is the sign and symptom of diabetes?	<ul style="list-style-type: none"> They can describe only around 50% of the signs and symptoms, but not much on complication signs * Frequent urination * Excessive thirst and hunger * Feeling tired/ fatigue * Blurred vision * Weight loss * Skin infections * A slow-healing wound * Tingling or numbness on hands/feet

Diagnose DM	<ul style="list-style-type: none"> Based on signs/symptoms and blood glucose level, this might get wrong as they did not know the exact cut-off point for FBG and RBG, and Hb A1c. Among them, only one RH have the same amount of point
How to manage the cases and refer the patients?	<ul style="list-style-type: none"> 4 RHs have many cases manage differently by starting to diet and physical exercises, and if unmanageable, they will begin with one oral drug and then two combined after and generally started with one week or ten days
How to follow up on the case?	<ul style="list-style-type: none"> Follow up two weeks for the first visit and every month afterward. Start with blood glucose and then liver and renal function with additional triglyceride and cholesterol. (This project does not provide care to the patient. We only screen TB patients for DM and referred TB-DM patients to the nearest DM clinic for care and management. Furthermore, the DM patient was also screened for TB and diagnosed TB-DM referred to TB clinic for management)
How often do you make an appointment with the patient?	<ul style="list-style-type: none"> Every 15 days or one month
Do you screen for TB for every DM?	<ul style="list-style-type: none"> No
Do you need TB/DM training for staff?	<ul style="list-style-type: none"> Yes, in general, 2 for TB staff and 2 for OPD staff
Quality data	
How you record for DM? where?	<ul style="list-style-type: none"> Daily records in the OPD register
How do you report DM?	<ul style="list-style-type: none"> In which report format? HC1
In which system do you report for DM?	<ul style="list-style-type: none"> No
Is there any data quality control? Or check for accuracy?	<ul style="list-style-type: none"> Never

3.3.1.2 The implement TB-DM bi-directional screening at Referral Hospital

Table 10 shows the staff's observation did their routine consultation at OPD to do integrated TB-DM screening. If there is no patient during the assessor's arrival, the facility will do the role-play on consultation activities. (Staff is the provider, and the interviewer acts like the patient).

None of them did the greeting to patients seen during observation. They always started chief complaint asking and then history taking, but four among 10 of OPD staff took part in actual disease and personal history, and none of them took family history. Six among ten staff took some part of the physical exam, and the other four only asked patients questions instead of a physical exam. All of them did ask to do the blood glucose test if DM was suspected. They did not give a clear conclusion or diagnosis to patients as they showed only the treatment duration and when they should come back for follow-up.

Counseling and advice only among ten give clear guidance on foods, living behavior change, and but not on treatment. Summary of the disease and treatment with details time and the number of drugs taking and side effects of drugs provided by pharmacists or drug distributors told them how to take drugs without giving drug side effects and interaction information.

The management team always complained about the workload because RH's average number of consultations is around 20 per day and 11 IPD discharges per day (staff at OPD busy with OPD was varied from 4 to 6). The number of suspected DM cases at OPD per year was: 2 RH has no data, four have few cases gone from 3-40 cases, and 4 have 125-523 cases without any referral cases and never screen for TB among those DM patients. No referral case has been seen in the HO2 report.

Knowledge of DM: The definition was given to increase the blood glucose level, but they did not have a clear cut-off point between FBG and RBS level (only one RH is obvious). They can describe only around 50% of the signs and symptoms, but not much on complications. If they suspected a DM case, they asked for signs/symptoms and the blood glucose level, which might get wrong as they did not know the exact cut-off point for FBG and RBS, and Hb A1c.

They do different case management, and referral 4 RHs have many cases managed by starting to do diet and physical exercises. If not manageable, they will begin with one oral drug and then two combined after and generally started with one week or ten days' treatment. 2 weeks follow up for the first appointment and every month afterward. Start with blood glucose and then liver and renal function testing with additional triglyceride and cholesterol. The next appointment will be every 15 days or one month follow the payment and the patient's situation.

Never do TB screening among DM and need training for TB and OPD staff for TB and DM. No standard system yet to record DM. They did differently in the OPD register and never consistently compared the OPD register and HC2 report due to no control from anyone.



Table 10. TB-DM bi-directional screening and case management at RH by using Interview Guide-4

Key theme	Health providers raised during interviewing
Observation	<ul style="list-style-type: none"> Most staff do their routine consultation for OPD integrated with TB and DM screening. If there is no patient during, we arrive at the facility to do the role-play on consultation activities. (Staff is the provider, and the interviewer are acted as the patient in this role play)
Greeting	<ul style="list-style-type: none"> None of them did
Ask the patient's chief complaint	<ul style="list-style-type: none"> All of them asked with no focus
History Taking	<ul style="list-style-type: none"> Four among 10 of OPD staff taking part in actual disease and personal history and none for family history
Physical examination	<ul style="list-style-type: none"> Six among ten staff took some part of the physical exam, and the other four only asked questions to patients instead of exam
Para-clinical request	<ul style="list-style-type: none"> All of them did ask to do the blood glucose test
Diagnosis or conclusion	<ul style="list-style-type: none"> They did not give a clear conclusion to patients as they offered only the duration of treatment and come back to follow up
Counseling or advice	<ul style="list-style-type: none"> Only one among ten give clear advice on foods, living behavior change and but not on treatment
Summary of the disease and treatment with details time, number, and side effect of drugs	<ul style="list-style-type: none"> Pharmacist or drug distributor told how to take drugs without giving drug side effect and interaction
Workload	<ul style="list-style-type: none"> The average number of consultations by RH is around 20 per day and 11 IPD discharge per day (staff at OPD varied from 4 to 6)
How many suspected DM at OPD per year	<ul style="list-style-type: none"> How many suspected DM at OPD per year: 2 RH have no data, 4 have few cases 3-40, and 4 have 125-523 cases without any referral cases
Number of referral cases (OPD and DM)	<ul style="list-style-type: none"> Number of referral cases (OPD and DM): None (OPD have the referral cases but not report in HO2)
Knowledge	
What is diabetes?	<ul style="list-style-type: none"> The definition was given as an increase in the blood glucose level, but they did not have a clear cut-off point between FBG and RBG. (only one RH is obvious)

What is the sign and symptom of diabetes?	<ul style="list-style-type: none"> • They can describe only around 50% of the signs and symptoms, but not much on complication signs: <ul style="list-style-type: none"> * Frequent urination * Excessive thirst and hunger * Feeling tired/ fatigue * Blurred vision * Weight loss * Skin infections * Slow healing wound * Tingling or numbness on hands/feet
Suspect and diagnose for DM	<ul style="list-style-type: none"> • Based on signs/symptoms and blood glucose level, this might get wrong as they did not know the exact cut off point for FBG and RBG and Hb A1c. Among them, only one RH have a precise amount of point
How do you manage the cases? Or where you refer the patients?	<ul style="list-style-type: none"> • 4 RHs have many cases manage differently by starting to diet and physical exercises, and if unmanageable, they will begin with one oral drug and then two combined after and generally started with one week or ten days
How do you follow up on the case?	<ul style="list-style-type: none"> • Two weeks after the first visit and every month afterward. Start with blood glucose and then liver and renal function with additional triglyceride and cholesterol
How often do you make an appointment with the patient?	<ul style="list-style-type: none"> • Every 15 days or one month
Do you screen for TB for every DM?	<ul style="list-style-type: none"> • No
Do you need TB/DM training for staff?	<ul style="list-style-type: none"> • Yes, in general, 2 for TB staff and 2 for OPD staff
Quality data	
How you record for DM? where?	<ul style="list-style-type: none"> • Daily records in the OPD register
How do you report DM?	<ul style="list-style-type: none"> • Show the figure the same HC1
In which system do you report for DM?	<ul style="list-style-type: none"> • No
Is there any data quality control? Or check for accuracy?	<ul style="list-style-type: none"> • Never

3.3.2 Focus Group Discussion (Latent TB infection (LTBI) and TPT/peer network)

There were two different focus group discussions across thirty health centers in three provinces. The first focus group discussion was mainly assessed to the feasibility of establishing a peer support group network consisting of TB survivors and recently diagnosed people living with TB. The second focus group discussion was assessed to understand the knowledge and awareness of latent TB infection and understand the barriers and facilitators to access and accept TPT that potential recipients of TPT will be conducted. The results two FGDs show as follows:

3.3.2.1 Feasibility of establishing a peer support group

According to the FGD 1 with all participants identified in this study across all the provinces, most participants have received basic knowledge about TB and the understanding of TB symptoms, transmission, and prevention methods where to get TB services. Through the discussion, table 11 shows the different answers of general knowledge on TB raised by key participants in the community during focus group discussion.

Table 11. General knowledge on TB, TB symptoms raised by participants by using FGD Guide-1

Key Theme	General knowledge raised in the discussion
Q1: How do you know someone is with TB or TB survivors in your community?	<p>There are additional participants about someone with TB: Cough for two weeks or more; weight loss; sticky bluish saliva; chest pain; fever; joint pain; cramp; sore throat; skin rash; sleeplessness; tiredness; loss of appetite; lump near the ear.</p> <p><i>"To me, I have noticed with coughing and high temperature or fever"</i> (LC, Phnom Penh)</p> <p><i>"I have last long coughing for a couple of weeks before came to visit health center"</i> (TB survivors, Kampong Cham)</p> <p><i>"I observed myself hot, coughing and tiredness, and I bought medicine but still not better. Once I was faint to the ground. Then I went to a medical checkup at CENAT in Phnom Penh, and now I am treatment in this health center"</i> (TB survivors, Kandal)</p>
Q2: How often do you contact people with TB or TB survivors in your community?	<p>Most participants used to have contact with TB patients before knowing themselves with TB infection.</p> <p><i>"I know because I used to contact with patient TB for a long time ago. After I have learned about TB then I suspected that I might infect TB then I tested and I found myself TB positive"</i> (CC with TB, Kandal)</p> <p><i>"To me, I never expected myself with TB before. I always doing exercise like swimming suddenly I have west pain, and I searched the physiological therapy treatment, but it cannot help, now I have TB, and I get soaked"</i> (TB survivors, Phnom Penh)</p> <p><i>"I looked after my mom when she was in the hospital, without notice that TB may be infected on someone close contact with the patient. After that I had a symptoms TB"</i> (TB survivors, Kampong Cham)</p>

Table 12 shows TB prevention methods raised by selected key important participants through FGDs. The participants raised TB prevention methods (including some misunderstanding) to avoid contracting and spreading TB. However, there has been no discrimination against TB patients.

Table 12. Perception of TB survivors raised by participants by using FGD Guide-1

Key theme	TB perception raised in the discussion
Q3: knowing those people with TB or TB Survivors or as one of the people with TB or TB Survivors, how do you feel over that condition?	There is no discrimination because most people understand TB and know that TB is a cured able disease and protects ourselves can avoid TB infection. However, they feel scared, worry about TB infection. The TB patients themselves also feel worried that other people will dislike or discriminate because themselves infected with TB.
	<i>"I did not have any feeling of discrimination besides that I have to visit them every time by wearing mask protection. Once, I told one couple to do an X-ray test, and I explained that TB is not a family's genetic disease, but it is an infected disease by the surrounding environment. Now in my village, we have only two persons work in the village"</i> (VHGS, Kandal)
	<i>"I feel like normal besides that, and I always encourage the patient to find the treatment"</i> (LC, Phnom Penh)
	<i>"I have to protect myself differently, and separate utilities use in the home. Nowadays, I am ok, but I should tell others to protect themselves abide by TB. Because taking TB medicine is not easy, there are many side effects"</i> (TB survivors, Kandal)
	<i>"I feel nervous in the beginning when I know my father has infected TB. My family must encourage him"</i> (Family member of TB survivors, Kampong Cham)
	<i>"My husband and my son have TB. So, in house, we must separate utilities use in house"</i> (SEED, Phnom Penh)

Table 13 shows the benefits established by peer support groups. Most of them have understood the group could share many advantages to make the information getting faster, shape TB's knowledge in the community, and push other TB services more effectively. However, some of them mentioned that implementing the existing group to work in the community more effectively would be a good choice.

Table 13. Benefits establish Peer Support Group raised by participants by using FGD Guide-1

Key theme	Benefits establish Peer Support Group in discussion
Q4: In responding to the above question, how would you think about establishing a Peer Support Group or Network for your respective community?	<p>Most participants think that creating the Peer Support Group would have many benefits: sharing information faster, knowledge people in the community, consultation services, and working more effectively with the health center. If the PSG is created, participants are volunteering to help their community, especially the former TB survivors, to be involved in the group.</p> <p><i>"It could help to encourage patient to take medicine and self-prevention and family"</i> (TB survivors, Kampong Cham)</p> <p><i>"I am a volunteer to be a peer supporting group"</i> (TB survivors, Kampong Cham)</p> <p><i>"I think it could help to respond to the TB services getting faster "</i> (CC, Kandal)</p> <p><i>"I did not focus on PSG before, but now I feel that it is important"</i> (TB survivors, Phnom Penh)</p>
Q5: How could the Peer Support Group's establishment in your respective community benefit?	<p><i>"It will be benefited for people in the community, and it is way to end all TB completely"</i> (Village leader, Kandal)</p> <p><i>"It should be a mechanism to set a program more actively; If we have PSG, then it will push TB services faster in the community"</i> (CC, Kandal)</p> <p><i>"It will have many benefits because we want to eliminate TB as fast as possible. To me, I worry that innocent people contact TB patients more and more. I want those innocents are preventable and to receive health checkups. Sometimes, I told them, but some are not interested; even the TB services are free of charge. So when they know are late"</i> (VHGs, Kandal)</p> <p><i>"There are many benefits, PSG can provide more knowledge people, spread TB information to people faster and easier to access TB services in the community"</i> (TB survivors, Kampong Cham)</p> <p><i>"I hope the group will provide consultation services for TB patients and point to the right place for treatment"</i> (Village leader, Phnom Penh)</p>
Q7: To what extent you expect from peer support?	<p><i>"I expect that the group would provide services better and informative on TB infected person early go to receive treatment faster and right time"</i> (TB survivors, Kampong Cham)</p> <p><i>"It could improve health for people in the community"</i> (CC, Kampong Cham)</p> <p><i>"Get enough news about TB and can stop spreading TB in our community"</i> (TB survivors, Kandal.)</p> <p><i>"My expectation, it will have awareness program for people in the community understand about TB., And the program must cooperate with others as partnership"</i> (Village leader, Phnom Penh)</p>

Table 14 shows the feasibility of establishing a peer support group in the community. Many respondents indicated that the role and function themselves should be involved in teamwork in programs. They are willing to join the PSG group when formed. However, some of them raised that financial support will be a crucial inspiration work moving on smoothly because it could support their travel expenses.

Table 14. Feasibility to establish Peer Support Group raised by participants by using FGD Guide-1

Key theme	Feasibility to establish Peer Support Group discussion
Q6: How would be your interest and roles If a peer support group established?	<p>Participants are challenging to identify roles and functions among themselves. Nevertheless, most of them are willing to join the PSG if it will be happening.</p> <p><i>“My role to volunteer to spread information about TB to protect the community without TB”</i> (TB survivors, Kampong Cham)</p> <p><i>“To me, If I will be selected in the group, I have to devote my time for help”</i> (TB survivors, Kandal)</p> <p><i>“Our role can support only the beginning, later NGO should stand on themself because the Authorities have many works to do”</i> (Village leader, Phnom Penh)</p> <p><i>“For the sake of this community, I have to support it if any request for help”</i> (CC, Kandal)</p>

As shown in Table 15, the FGDs indicated strengthening the supportive peer group; it needs to build good connections and support from the authorities, specifically villagers or community council members. For the community practitioners, they should receive adequate training on TB knowledge and provide travel support.

Table 15 Strengthened Peer Support Group raised by participants by using FGD Guide-1

Key theme	Strengthened Peer Support Group in discussion
Q8: From your perspective, how the Peer Supporting Group (PSG) can be strengthened?	<p>The opinions of participants shared to strengthen the supportive peer group:</p> <ul style="list-style-type: none"> -Build good connections, getting support from the commune council, a village leader in the community. -Provide a travel support team to perform tasks in the community and encourage them to others (incentives). <p><i>“Build strong support team to strengthen the health system in the community”</i> (VHGS, Kampong Cham)</p> <p><i>“To strengthen the connection with the village leader and volunteers work together”</i> (Village leader, Kampong Cham)</p> <p><i>“Provide more knowledge to the people in the community”</i> (TB survivors, Kandal)</p> <p><i>“To strengthen mean to support like financial support; to encourage because we do not have a way to approach the community besides that”</i> (SEED & CC and others, Kandal)</p> <p><i>“Team should have the logo on the t-shirt or head for a volunteer when approaching the community. Seven people who respond in 7 villages should select one person as a team leader. Here, KHANA has already cooperated with authorities”</i> (SEED, Phnom Penh)</p>

3.3.2.2 Understanding the barriers to access TPT

It was assessed to reach about the knowledge and awareness of latent TB infection and understand the barriers and facilitators to access and accept TPT faced by potential TPT recipients.

Table 16 shows the TB general knowledge and symptoms of people with TB+ in the focus group discussion. Most of the participants raised about TB symptoms: two-week cough; rapid loss of weight; loss of appetite; sweat and dry skin; tiredness; chest pain; fever; bubbly saliva; joint pain; sleeplessness; and skin rash. However, they did not have discrimination for the person with TB+ besides protecting and preventing themselves from infection.

Table 16. General Knowledge on TB raised by participants by using FGD Guide-2

Key theme	TB general knowledge in discussion
Q1: Do you know what happens if someone lives with or is in close contact with TB BK+ people?	From general perceptions, participants thought that if someone has close contact with a TB+ person, they will infect TB. Most participants raised TB symptoms like two-week cough, rapid weight loss; loss of appetite; sweat and dry skin; tiredness; chest pain, fever, bubbly saliva; joint pain; sleeplessness; skin rash.
	<i>"Living with close contact with TB+ person, it will be detected TB by breathing, spitting saliva and others"</i> (HC, Kampong Cham)
	<i>"TB infection, having close contact with TB patients. First, my father has TB, and I do not know before our family trees no one has TB in the family; finally, I have TB infected after diagnosed at the HC"</i> (TB survivors, Kandal)
	<i>"Close contacted with BK+ will be detected such as utilities(spoon, plate...) use in the same house"</i> (VGHS, Kandal)
	<i>"cough and weight losses. To me I have TB, and I was experienced cheating by one of the private clinics in PP"</i> (TB survivors, Kandal)
	<i>"First cough, loss weight, fever and chill, and sputum checked then I found TB positive"</i> (TB survivors, Phnom Penh)

Table 17 shows the TB prevention methods to avoid spreading TB. Most participants related different prevention methods: wear masks or covering mouths with krama when talking to people with TB; speaking from a distance to people with TB; avoiding standing directly in front of other people for people with TB; avoiding smoking and drinking for people with TB, and avoiding public spitting.

Table 17 Prevention methods on TB raised by participants by using FGD Guide-2

Key theme	TB prevention methods in discussion
Q4: Do you know in what way could we prevent TB infection in TB patients?	<p>Wearing masks or covering mouths with krama when talking to people with TB; speaking at a distance to people with TB; avoiding standing directly in front of other people for people with TB; avoiding smoking and drinking for people with TB; avoiding public spitting; regular medication for people with TB.</p> <p><i>"Self-prevention and family prevention by not to close contact with TB patient and to encourage the patient to do medical check and receive the TPT"</i> (TB Survivors, Kampong Cham)</p>
	<p><i>"TB germ can infect from different sources of environment, so prevention is necessary"</i> (HC staff, Kandal)</p>
	<p><i>"Early treatment; follow the instruction of doctor; keep hygiene; keep disposal properly will not infect others."</i> (SEED, Phnom Penh)</p>

Table 18 shows the TB patients on the barrier to access TPT receiving; most participants shared their opinion that access to TPT in each health facility needs family support, social support, and patient efficacy joint together.

Table 18. The barrier to access TPT on TB raised by participants by using FGD Guide-2

Key theme	The barrier to access TPT in discussion
Q5: Do you know the support mechanism to facilitate the TB-infected person to access TPT?	<p>The participant partially discusses how to support a mechanism to facilitate the TB-infected person to access TPT. Some of them stated as follow:</p> <p><i>"Encourage TB infected person to visit HC make an initial diagnosis on how telling them of advantages and disadvantages about TB treatment if they are eligible must receive TPT"</i> (HC, Kampong Cham)</p> <p><i>"We have to persuade the patient to visit Health center, especially diabetes patient"</i> (HC, Phnom Penh)</p> <p><i>"To create activities in the community to advocate them to understand and encourage TB patient to receive treatment"</i> (CC, Phnom Penh)</p> <p><i>"We approached someone house who suspected TB infected and we convinced them to receive TPT for themselves and community whole"</i> (SEED, Phnom Penh)</p>
Q6: What would you think if you are TB infected and be introduced to use TPT? Furthermore, What if you know that someone is TB infected? How would you make them accept TPT service?	<p>Family support is a key to motivate TB infected person to receive TPT</p> <p><i>"Reach out to the patient home for screening and advise them about the advantage and disadvantage of TB infected conditions"</i> (VHSG, Kampong Cham)</p> <p><i>"Refill medicine before it end"</i> (HC, Kandal)</p> <p><i>"Provide training to key population (local authorities) about basic TB knowledge"</i> (HC, Phnom Penh)</p> <p><i>"To invite village members to receive TPT is not easy because the level of knowledge of villagers have limited to understand about TB effects"</i> (HC, Kandal)</p>

3.3.3 Private Sector

In summary, law and workplace policy are essential to strengthen TB program to joint together work with different stakeholders:

Ministry of Planning/Department of ID-Poor Identification:

- ID-Poor card/equity cards are given to all the poor, including the poor people living with HIV and TB
- Ministry of Planning/Department of ID-Poor Identification is happy to include the criteria of TB into the ID-poor registration process
- NGOs and the networks of people living with TB and affected TB are welcome to join the discussion with the Department of planning and the local authority for the ID-Poor registration process, including assessment
- In collaboration with UNAIDS, UNDP, Ministry of Planning/Department of ID-Poor Identification to further introduce the On-Demand ID-Poor Registration to all Departments of Planning & Concerned Local Authorities, including NGOs and affected communities, to ensure the early access to ID-poor registration by the poor people without waiting for the circle arrangement.

Ministry of Labor and Vocational Training:

- Each workplace owns the existing HIV/AIDS Workplace – no needs to have a separate TB workplace policy – but incorporate TB into this existing workplace policy, and Ministry will enforce this addition
- Required technical training and capacity building on TB from CENAT and the project to staffs and the workplace under the management of the ministry
- Willing to have MoU between the ministry and CENAT and the project for enforcing the implementation of the TB workplace policy
- TB will be integrated and mainstreamed to all training sessions and workshops organized by the ministry – thus, TA needs from CENAT, and the project is in needs

Private Sectors – Health and Non-Health:

- Willing to collaborate with CENAT and the project in referral TB cases to state-owned health facilities
- The required orientation of the updated TB awareness and how they can involve in TB response
- Welcome active case findings inside the workplace and provide support to the employees in seeking health cares, including TB testing, diagnosis, and treatment

Followings are GPS mapping of health and non-health sectors TB services covered at 10 ODs. It also spotted places where TB services are available at private health and identified the non-health sector were suspected of high-risk TB. The total spotted sites were done within 326 sites at health and non-health private sectors. Key informants' interview using interview guide-5 also interviewed the private Health sector and non-health private sector to understand their TB services perception.

3.3.3.1 GPS mapping at the private health sector

Table 19 shows the proportion of GPS spotting results in different private health sectors by ODs selected sites. Of a total of 276, the majority mapping from consultation cabinet, nursing care room, and pharmacy of (109), (63), and (54), respectively. However, the number of private health sectors was (0) inaccessible because there is no permission, as seen in the following number.

Table 19. GPS mapping at the private health sector

10 ODs	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka kong	Lvea Em	Leuk Dek	Sa Ang	Por Senchey	Sen Sok	Total
Pharmacy	9	3	3	1	7	4	0	5	4	18	54
Sub-pharmacy (Depot de pharmacies)	1	0	2	2	0	3	0	1	3	8	20
Nursing Care Room	3	7	9	3	6	13	3	9	3	7	63
Consultation Cabinet	16	13	6	2	13	10	3	11	17	18	109
Medical Laboratory	1	1	0	0	1	1	1	1	0	2	8
Clinic	5	0	0	0	2	2	0	3	0	6	18
Polyclinic	0	0	0	0	0	0	0	1	0	1	2
Private Hospital	0	0	0	0	1	0	0	0	0	1	2
Total	35	24	20	8	30	33	7	31	27	61	276

3.3.3.2 GPS Mapping at non-health private sector

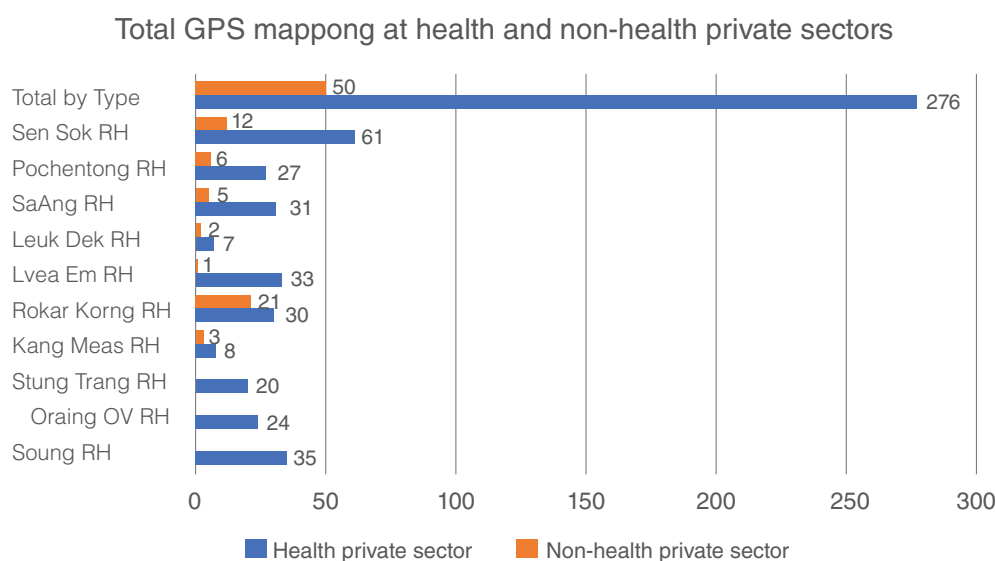
Table 20 shows the map at non-health private sectors considered as a TB high burden workplace. Of the total, 50 non-health private sectors were spotted at the 10 ODs. Among those, most from the brick kiln (22) and garment factories (10). However, there are underestimated actual numbers due to permission from the owner to collect data. For example, number (0) at ODs' mean number of workplaces could not be accessed because there are no supporting letters and a lack of relevant documents (list of private health facilities) for some ODs. Moreover, there are difficulties in traveling in some villages with bad road conditions. Furthermore, some owners were not available during the fieldwork, so they could not be interviewed.

Table 20. GPS mapping at non-health private sector

10 ODs	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka kong	Lvea Em	Leuk Dek	Sa Ang	Por Senchey	Sen Sok	Total
Brick kiln	0	0	0	1	21	0	0	0	0	0	22
Café	0	0	0	2	0	1	0	2	2	1	8
Garment Factory	0	0	0	0	0	0	2	3	2	3	10
Urban Settlement	0	0	0	0	0	0	0	0	1	3	4
Rehabilitation Center	0	0	0	0	0	0	0	0	1	1	2
Ungrouped Non-health Private Sectors	0	0	0	0	0	0	0	0	0	4	4
Total	0	0	0	3	21	1	2	5	6	12	50

Figure 2 shows the total GPS mapping at the health and non-health private sector among 10 ODs selected sites. As already mentioned, a total of 326 sites were chosen for study among those private health sectors (276) and non-health private sectors (50).

Figure 2. Total of GPS mapping health and non-health private sectors at 10 ODs



3.3.3.3 The perception of private health sector related to TB services by using Interview Guide-5

This assessment aims to know where the private health providers usually referred the patients to receive third-party services. Most private health providers understood TB and always advised people suspected of TB to go to health facilities nearby, such as HC, RH, Provincial Hospital, and CENAT. However, some private health providers also referred TB suspected persons to the private lab. Related to sputum collection and test, most responded “No” because they already referred to other health facilities as mentioned HC, RH, or other hospitals. About willingness to join the TB program, most of the respondents are interested in a joint TB program, while few still considered it.

3.3.3.4 Perception of non-health private sector related to TB services by using Interview Guide-5

To understand how the non-health private sector has received information on TB services. More than half of non-health private sectors did not receive the TB of 7/12 person replied “no.” Moreover, 5 out of 12 people had received information TB through TV, radio, Facebook, or people talking. Generally, TB workplace policy was not available that almost they answered “no,” where only one person replied “yes” but it was referred to face mask-wearing to protect Covid-19. For TB screening and health check-ups, most of them replied “no” because they were advised staff to be clean before entering the workplace. However, they never saw their staff having TB, and if anyone has it, they will refer to nearby health facilities because there is no doctor or nurse available in the workplace.

4

CONCLUSIONS AND RECOMMENDATIONS

4.1 Observations clinical and laboratory

In line with NTP targets and JPR 2019 recommendations, the envisioned expansion of the GeneXpert network in Cambodia (i.e., nine additional RHs) would help increase availability and accessibility to rapid molecular TB and RR TB testing.

After the above-presented baseline assessment observations, the following recommendations are made. These will support efficiency, quality, and availability of the TB diagnostic network in Cambodia and support the implementation of the COMMIT project:

4.1.1 Testing services: policy and implementation

- The urinary LAM has not been adopted and is not implemented in Cambodia. It should be considered to include its introduction in high TB/HIV burden areas.
- While blood glucose was available at all facilities, two facilities did not have an instrument for rapid glucose. It would be beneficial for patient consultations' efficiency if all locations had a rapid glucometer on site.
- HbA1c was only available at one site; other sites should be considered for equipping them with HbA1c testing, which is recommended to be measured every six months according to the National Type-2 Diabetes guidelines Cambodia (2015). (We need to reconsider the proposal of introducing HbA1c in the 10 LON ODs. Our effort is to do the bidirectional screening and refer the DM cases to the RH/the Diabetic clinic (available for follow-up).

4.1.2 Workforce and Training

- While many health care workers were found to be knowledgeable on the national diagnostic algorithm, not all clinical health care workers were confident about eligible groups for Xpert testing, which should be addressed in a refresher training. A training gap was also noticed among the lab staff concerning recent TB guidelines and an update on new TB diagnostics tools, which should be provided as soon as possible.
- The training for both lab and clinic staff should include a refresher training on safely collecting, labeling, packaging, handling, and transporting TB specimens as the assessment revealed a training gap at most sites.
- Similarly, the lab staff of six- and clinic staff of seven facilities requires training on the correct filling of registers and request forms. Staff reported to either have not been trained recently and/or weaknesses in clinical register filling were observed during this assessment.

- All training should also be conducted for all sites in the network, including those that are referred to specimens in the future. (Training and refreshers training should be an on-going process all through the project period, which will allow updating the staff with new knowledge).
- Especially for facilities that currently refer or will be referring specimens and slides in the future, the training should also emphasize sample quality aspects, including preparing slides.
- Support all staff on technical knowledge, printouts of algorithms, and TB guidelines to be provided to almost all sites (9/10) where they were not found during this assessment.
- The assessment showed that sufficient lab staff is currently available; where needed, additional staff for Xpert testing will be provided by the facility. The new and newly allocated staff should be included in the training; depending on the level of experience, they might need more comprehensive TB lab training, including training on SOPs and biosafety and general computer knowledge, which was found to be sufficiently covered for existing lab staff.

4.1.3 Laboratory infrastructure & biosafety

- Sites used self-made incinerators for waste disposal; as the appropriateness and technicalities of those were beyond this assessment's scope, it is recommended to CENAT to review this situation and adjust where needed to ensure waste disposal is in line with international standards.
- A specimen storage fridge needs to be considered for all referring specimens. It cannot be ensured that specimens reach the GX laboratory within three days, where they would be either tested immediately or stored in the cold chain. Samples for Xpert MTB/RIF testing can be stored up to 35C for a maximum of 3 days; after that, storage conditions require 2-8C for max. Additional seven days. Suppose it cannot be ensured that every sample is tested within three days of collection. In that case, laboratories need to be equipped with a fridge dedicated to specimens only (not shared with reagents).
- While current procedures of performing microscopy and Xpert testing on the open bench (i.e., no BSCs) are in line with previous WHO recommendations, the conditions of having appropriate ventilation were not met in one laboratory and needed to be addressed urgently.
- The installation of ACs inside the laboratory could help avoid technical problems with the GeneXpert instrument or testing if the room temperature frequently exceeds 30C. However, every laboratory needs to be ensured that this does not disrupt natural or mechanical ventilation (for example, when the staff closes windows and doors when switching on the AC while there are no other means of ventilation). Furthermore, the ongoing COVID-19 pandemic and a potential additional risk to laboratory staff need to be considered when designing safe working spaces where sample processing is conducted on the open bench. The current national policies for laboratories handling respiratory specimens during the COVID-19 pandemic need to be reviewed and considered.
- Suppose the manufacturer's recommendation for Xpert cartridge storage cannot be ensured (requirements for storage 2-28C, cartridge stability is 2-45C for up to 6 weeks). In that case, it is recommended to consider the installation of an AC or a reagent fridge where required.

- Two labs were found to have no hand washbasins, which is essential for staff safety, and their installation should be considered.

4.1.4 Equipment and maintenance

- For the future implementation of GeneXpert, the following aspects should be considered to ensure the quality of testing and uninterrupted services: All new testing equipment should be covered with a service maintenance contract. Given that the local service provider, MEDICOM, dropped out of business last year, it should be reviewed and enquired with Cepheid if an alternative company can function as a local service provider in Cambodia. It needs to be checked if CENAT currently has sufficient staff and funding to continuously cover technical support and maintenance tasks for sites and routine supervision visits. If not, the required means for CENAT to support and supervise should be made available.
- The support to CENAT should also cover PT panels for Xpert and new lot-to-lot testing procedures.

4.1.5 Data management

- Following JPR recommendations, diagnostic connectivity and real-time digital data system for Xpert will be beneficial for monitoring and analyzing expected results and standard indicators of quality (such as error rate) for detecting equipment breakdowns early, stock management, and returning products to the requester automatically. This should be linked/ integrated into the existing TB-MIS and LIS systems that are already installed in Cambodia. It should be assessed by a specialist to what extent the current data systems can provide these functionalities.
- Furthermore, it is strongly recommended to ensure a budget for dedicated supervision staff to analyze and interpret the data and initiate corrective actions routinely; otherwise, the digital data system will have no impact.
- Result-return to the requester can be managed through SMS/WhatsApp/e-mail as is the current practice; however, the lab staff should not use their private phones to ensure data security, patient confidentiality, etc. not require lab staff to pay for work-related communication.
- All sites need to be supplied with the NTP-approved presumptive TB register where it was missing, the TPT register, and the close contact register; on-site training (refer to workforce and training recommendations) should also include the correct filling of those two registers for clinical staff.

4.1.6 X-ray

- The availability of high-quality chest X-rays at assessed sites needs to be improved by expanding sites with a digital X-ray machine and a refresher training of staff on the use of X-rays for TB according to the national diagnostic algorithm.
- Service and maintenance were not routinely conducted at sites with an X-ray instrument and needed to be introduced to ensure quality testing and staff safety.

4.1.7 Specimen transport

The specimen referral system requires re-organization, i.e.

- All specimens that need to be sent to any external laboratory should always be sent to the lab on-site and not initiated from the clinic separately. The on-site lab should be in charge of registering, packing, labeling the specimen and handing it to the respective transport organizer. Test results from external labs should also be first returned to the on-site laboratory, then referred to the clinic that requested the test. The on-site lab needs to keep a separate register for all specimens sent and results received, including dates to monitor specimen referral performance. Ensure that specimen referral monitoring and evaluation is an element of routine M&E.
- The specimen referral from health facilities to Xpert sites must be enforced or newly established once the new GeneXpert instruments have been installed. All sites should receive further or up-date training on safely collecting, labeling, packaging, handling, and transporting TB specimens. This should also include RH's that were visited during his assessment: given that most lab staff have not sent specimens in the past because current practices have bypassed the local labs, it is advised to provide refresher training for all.
- This assessment observed that only specimens for RR TB testing are sent for Xpert testing; however, the national algorithm lists more groups eligible for Xpert testing (PLHIV, elderly, diabetic patients, and all children with presumptive TB). The revised specimen referral needs to ensure that all eligible patient groups are sent for Xpert testing, which can be achieved through respective training.

4.2. Knowledge, attitude, and practice among health staff at RH and HC

- The number of staff and the utilization at each health facility seems not to affect the service delivery. Still, human resources management is the main clue of all issues related to the gaps at some services such as the TB ward and TB laboratory. They cannot generate RH's income and are neglected by the management team to assign the staff during the gap.
- Staff's attitude toward clients must change, which can improve to build good interaction between providers and users and later on improve the utilization rate.
- Knowledge is needed to improve for specific staff in a particular work location. It seems older people may get retired more than younger getting assigned to replace, and the supervisors should be more active and more knowledgeable than people who work on the ground.
- TB IC and TB DM need both supply and capacity building support as the COMMIT coverage area is significantly underserved. If we depend on government and user fees' budget allocation, we could not solve all these findings.
- Recording and reporting is the ongoing improvement process; both TB MIS and all recording registers may affect the work if internal and external control is not in line as it needs the daily job done.

- Staff Check-up has never been done, and during this assessment, one of HC's staff got active TB. This should advocate MoH and kick start from any HF in our project coverage area.
- PPE is available only surgical face masks, and none of those HF have a respirator, and this critically affect health provider, especially for TB patients, caretaking.
- UVGI is never introduced as a supplementary measure in TB IC control and needs TA.
- Continuing education is essential for all health personnel, and only one RH just started to introduce. Building capacity among the RH core team is essential as none of them are strong to share knowledge related to TB, TBIC, TB-DM, and MDR TB.
- Lastly, all OD TB supervisors should have regular capacity building up to update their knowledge following CENAT's new strategy, guideline, SOP, and especially coaching skill and thinking of developing coaching package materials, including all necessary tools for practices.
- Training and refreshers training should be an on-going process all through the project period, which will allow updating the staff with new knowledge.

4.3. Community setting

4.3.1 Health and non-health sector

- IEC materials to be placed at their workplace.
- An employer can provide any kind of support to employees when they face health issues.
- Promote Personal hygiene and sanitation.
- Advise wearing masks and handwashing to prevent TB and Covid-19.
- Advise and refer them to health facilities for screening and/or health check-ups.

Other challenges

- Many workplaces could not be accessed because there are no supporting letters (Correction and Rehabilitation Center, Garment Factory).
- Lack of relevant documents (list of private health facilities) for some OD.
- There are difficulties in traveling in some villages (lousy road conditions).
- Some owners of the non-health private sector were absent during fieldwork, so they could not be interviewed.

4.3.2 Community focus group discussion (FGD)

From Focus group discussion (FGDs) among all relevant stakeholders, the assessment would provide critical recommendations as below:

- From general views, we learned that collaboration from different stakeholders needs to be better enforced and strengthened to fight TB and the financial support to maintain the community support and keep it functioning.

- TB services such as drugs, training, and other campaigns to end TB, eliminating misperception about TB and mitigating all forms of discrimination toward TB patients and TB survivors should be included.
- In contributing to the success of ending TB, the basic knowledge of TB, including communication skills, should be given to relevant community-level leaders, such as Commune council (CC), Village leaders and VHGS, and religious leaders for them to communicate with and educate their people about TB in their community effectively.
- Consider maintaining and strengthening, and improving the quality of the existing community-based support network by including TB survivors or their families as members in the support network to work better. That would also include improving communication/link between health facilities and the community. Some participants complained that they received the result of their specimen test very late.

Limitation:

There was time constraint while many tools questionnaire needs to interview with kinds of staff in different departments. Besides, some documents did not make available when requested; therefore, the research team consumed time to review the document while the chief of RH or HC was absent. Moreover, most staff's health is busy in the morning, and in the afternoon, there has no patient for the research team to observe. It should have a pre-arrangement of document concerned and appointment with the key staff to interview on time for a solution.

We should use this assessment information to develop the year two plan for the COMMIT project and improve the HF findings. Discuss with CENAT/PHD/OD to monitor and follow up the activities and evaluate the progress. For the private sector, we found that number of workplaces like garment factories could not access due to no supporting letter, specifically crowded places with a high risk of TB. Some owners were absent during fieldwork, so they could not be interviewed. Besides that, difficulties are traveling to distant villages due to bad road conditions. Other effects of findings that should be take considering on tools questionnaire were removed during the assessment. Tools after finalization should not change or removed unless having an agreement among the internal team. Therefore, questionnaire tools, research team, and selected participants interviewing should be manageable to avoid the complexity and bias results.



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6. ANNEXES

Annex1: Overview of key activities by settings

National and Subnational	Health facilities	Community
<p>Population, enumeration and Mapping exercises: To conduct a population enumeration and map and list all the key stakeholders at national, subnational, and community levels through consultations with CENAT, PHD, OD, and community leaders. This enumeration will also measure the network connectivity and smartphone utilization in the selected sites.</p> <p>Key informant interview and desk review/IDI 3: To gather information necessary to work with CENAT to advocate for the enactment of a law on the prevention and elimination of TB, a workplace policy for TB, expansion of HEF through key informant interviews with key stakeholders from the relevant ministries, organizations, representatives from the public and private sector at the national and sub-national level</p> <p>Desk review: To assess the feasibility of implementing On Impact K+ in the selected sites</p>	<p>Checklist 1: To make an inventory of the TB diagnostic tools and services at all public health facilities in the selected sites</p> <p>Checklist 2: To assess the staff and resource allocation</p> <p>Checklist 3: To make an inventory of the logistics and resources for</p> <p>TB-DM bi-directional screening</p> <p>IDI 1: To assess the feasibility to introduce TB-IC practices and</p> <p>FAST strategy into the hospital triage system in all RH through</p> <p>key informant interviews with hospital staff at RH</p> <p>IDI 2: To assess the feasibility to implement TB-DM bi-directional screening and case management at health facilities through key informant interviews with hospital staff at RH</p> <p>Pre-/post evaluation surveys: To conduct pre- and post-training evaluation surveys to assess the knowledge, attitude, and</p> <p>practices of healthcare staff in the selected sites.</p>	<p>FGD 1: To assess the feasibility to establish a peer support network comprising of TB survivors and recently diagnosed people living with TB</p> <p>FGD 2: To assess the knowledge and awareness of latent TB infection and understand the barriers and facilitators to access and accept TPT faced by potential recipients of TPT will be conducted</p>

Annex2: Infrastructure and biosafety laboratory

Infrastructure & biosafety	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochen tong RH	Sen Sok
Does the TB laboratory have adequate ventilation for the procedures being performed?	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES
Is there uninterrupted availability of general utilities? (water, electricity)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Source of power (none, generator, solar, grid, other)?	EDC & Hosp. gene.	EDC + Hosp. gene.	EDC +Hosp. gene.	EDC	EDC + Hosp. gene.	EDC + Hosp. gene.	EDC, hosp. gen does not work	EDC + Hosp. gene.	EDC + Hosp. gene.	EDC
Is a TB laboratory handbook available (includes biosafety guidelines and SOPs)?	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO
Are certified biosafety cabinets (BSC) available and functioning?	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Is there guidance for collecting, storing, and disposing of waste implemented according to national standards?	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES
Does the laboratory have access to autoclaves or incinerators?	Self-made incinerators	Self-made incinerators	Self-made incinerators	Self-made incinerators	YES (*)	Self-made incinerators	Self-made incinerators	Self-made incinerators	Self-made incinerators	YES (*)
Does the laboratory have a refrigerator for storing sputum specimens?	NO	YES	YES, but with reagent storage	YES	YES, but with reagent storage	NO	NO, only small fridge for reagent store)	NO, only small fridge for reagent store)	YES	YES, but with reagent storage
Does the laboratory have enough hand washbasins with soap dispensers?	YES	YES	YES	YES	NO (basin missing)	YES	YES	NO (basin missing)	YES	YES
Does the laboratory have enough space to install GeneXpert?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Does the laboratory have a lockable room and secure windows?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Does the laboratory have a means of controlling temperature between 2-30°C, e.g., air circulation, air conditio	YES, AC	YES, air circulation but no AC	YES, air circulation but no AC	YES, air circulation but no AC	YES, AC but does not work well	YES, air circulation but no AC	YES, air circulation but no AC	YES, air circulation but no AC	YES, AC	YES, AC
Does the laboratory have sufficient storage space for all Xpert consumables in a temperature-controlled environment (2-30°C)?	YES	YES, but no temperature control in store	YES, but no temperature control in store	YES, but no temperature control in store	YES	YES, but no temperature control in store	YES, but no temperature control in store	YES, but no temperature control in store	YES	YES

(*) autoclave for sterilization; self-made incinerators for waste disposal

Annex3: Equipment supply, maintenance laboratory

Equipment supply, maintenance	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong RH	Sen Sok
Any TB reagents stock out during the past year	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Stockout reagent/strips for blood glucose	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Well-functioning microscope & regular maintenance	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Well-functioning GeneXpert instrument & regular maintenance	YES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Annex4: Data management laboratory

Data management	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong RH	Sen Sok
Are standardized lab registers available for all testing and used?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Are standardized result reporting forms available and used?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Are statistical data (e.g., number of tests, % positive etc.) collected, analyzed and reported regularly?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Is there an electronic system (e.g., TB-MIS, LIMS) in place?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Has a diagnostics connectivity solution been implemented in the laboratory?	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Are mobile phones present and in use by staff (indicates the presence of cellular signal)?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Are there computers of any type at use in the facility?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Is Internet access available at the facility? (Ethernet, WIFI, 4G, USB dongle, unknown)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Do laboratory staff have adequate computer skills to use GeneXpert and/or operate an electronic data management system?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Annex5: Data management and MIS clinical

Data management and MIS	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong	Sen Sok
NTP-approved presumptive TB register books	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES
NTP-approved TB treatment register books and it is available at sites Q1-Q3, 2019	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
NTP-approved TPT register books	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NTP-approved close contact register books	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Devices for TB-MIS available to support its function	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
Contact staff received training	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
Staff received technical support timely and effectively from NTP	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
If the, what requirement is to support its function data enter at HC through TB-MIS?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Annex6: Workforce laboratory

Laboratory workforce	Suong	Oraing Ov	Stung Trang RH	Kang Meas	Roka Kong	Lvea Em RH	Leuk Dek	Sa Ang	Pochentong	Sen Sok
Has laboratory staff received training on TB Guideline?	YES (3 staffs trained)	YES, (1 out of 3)	YES	Facility just recently started	YES (2 trained but 4 others not yet)	YES, 1 of 2	YES, (> 2 years ago & 1 new staff not trained)	YES	NO	NO
Are all laboratory staff trained in safely collecting, labeling, packaging, handling, and transporting TB specimens?	Yes (1 staff trained)	NO	YES	Facility just recently started	YES (2 and remaining 4)	NO	YES (more than 2 years ago)	YES (more than 3 years ago)	YES	NO
Has the laboratory staff been trained on the correct filling of request forms and registers?	YES	NO	YES	Facility just recently started	YES	YES	YES (more than 2 years)	YES	YES	NO
Is training available to keep laboratory staff updated with laboratory technologies and inform them about national policy or guideline changes?	YES	NO	YES	Facility just recently started	YES	NO	NO	NO	YES	NO

Annex7: Workforce & training clinical

Workforce	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong	Sen Sok
Has other clinical staff received training on TB Guideline?	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
Are all clinical staff trained in safely collecting, labeling, packaging, handling, and transporting TB specimens?	YES	NO ANSWER	NO	NO	NO	NO	YES	NO ANSWER	YES	YES
Has the clinical staff been trained on the correct filling of request forms and registers?	YES	NO ANSWER	NO	NO	NO	NO	YES	YES	NO	NO
Are pieces of training available to keep clinical staff up to date with laboratory technologies and inform about national policy or guideline changes?	YES	NO ANSWER	NO	NO	NO	NO	YES	NO ANSWER	YES	NO

***Answer NO: mean missing data or not answer

***Answer YES: mean not all staff but only contact person received train

Annex8: X-Ray clinical

X-Ray	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka Kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong	Sen Sok
Are there SOPs on the use of CXR for assisting in the diagnosis of TB?	YES	YES	NO	YES	NO	YES	YES	NO	NO	YES
Are the national diagnostic algorithms followed for CXR?	NO	NO	YES	NO	YES	NO	YES	YES	YES	NO
What training is available for performing and interpreting CXR? Are all CXR technicians trained?	YES	NO	NO	NO	YES	NO	YES	YES	YES	NO
Specify the type of X-ray machine (i.e., analog or digital)	2 X-ray machine (Analog or digital)	NO	one digital X-ray (SUMSUNG)	NO	Analog (from MoH 2015)	NO	Two Digitals (Fuji) and the old one is Analog	Analog	Ye Analog	NO

Source of the X-ray machine? Date (Year) of receiving	Analog received from MoH in 2000	NO	Digital X-ray received 2018 from NGOs (Nanum-international) and supplies from NGOs	NO	RH received from MoH 2015 (supplies and not enough RH purchase additional supplies)	NO	Two x-ray machines, through collaboration with the Private, were Analog purchased in 2015, and the new one is digital and purchased recently in 2020.	Received from MoH but do not know the date of receiving (INDIA)	Received from MoH since 2005, Toshiba	NO
Is there a supply mechanism for X-ray consumables?	The x-ray supplies from CMS/NTP are enough in the 12 months. They have never faced with a shortage of supplies	NO	Yes, it has enough supplies, and supplies are provided by Nanum-International (NGO), and currently, the NGO is continuing to provide support.	NO	The supplies from CMS, the staff mentioned that X-Ray did not have any supplies in the last 12 months	NO	Supporting by themselves (private)	Yes, I received film from MoH		
But buying liquid and extra film from market	Received the only film from MoH	NO								
Have you had X-ray consumable stock-out the past 12 months?	No stock out in the last 12 months	NO	So far, never had any problem with this digital machine	NO	Do not have a shortage of supplies for x-ray	NO	Supporting by themselves (private)	Not enough film for using in this referral Hospital	No stock-out	NO
Have you had any X-ray service interruptions in the past 12 months?										
à If YES, please specify the reason (e.g., consumable stock-out, machine breakdown, shortage of staff etc.)	No stock-out issues, but the machine itself is ancient and do not function well	NO	No service interruption with this digital	NO	No problems	NO	NO	No damage or interruption	No interruption	NO
Is the X-ray machine regularly maintained and repaired if needed?	The x-ray machine does not have regular maintenance (digital x-ray no maintenance supporting)	NO	YES	NO	YES	NO	Supporting by themselves (private)	Repair by RH, when damage	RH paid for maintenance	NO

Annex9: Diagnostic algorithm clinical

Diagnostic algorithm	Suong	Oraing Ov	Stung Trang	Kang Meas	Roka kong	Lvea Em	Leuk Dek	Sa Ang	Pochentong	Sen Sok
Did health care workers at the clinic receive training on TB Guidelines? (e.g., algorithm diagrams, brochures, training materials, customer handbook)?	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
Knowledge check Q: Were tests ordered according to the TB diagnostic algorithm, national policy, and patient factors?	YES	YES	YES	NO	YES	NO	YES	YES	YES	YES
Adults and children living with HIV/AIDS	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES
Adults and children at risk for DR TB	YES	YES	YES	YES	NO	YES	YES	Don't know	Don't know	YES
All adults with presumptive TB	NO	NO	NO	YES	NO	YES	NO	Don't know	Don't know	NO

All children with presumptive TB	NO	NO	YES	YES	YES	NO	NO	Don't know	Don't know	NO
Elderly Persons	YES	YES	YES	YES	NO	YES	YES	Don't know	Don't know	YES
DM Patient	NO	YES	NO	NO	NO	YES	YES	Don't know	YES	YES
Other groups (please specify)	NO	NO	NO	NO	Cancer patients	NO	NO	Don't know	Don't know	NO
Knowledge check Q: Were specimens from all sputum smear-positive patients sent for Xpert MTB/RIF testing (either on-site or by referral)?	YES	NO	YES	NO	YES	NO	NO	YES	NO	NO
Were specimens from all Xpert MTB RIF resistant TB patients sent for SL-DST (either on-site or by referral)?	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Annex10: TB Cases Notified in 10 Referral Hospitals: Q1-Q3 2019

	Soung	Oraing Ov	Stung Trang	Kang Meas	Rokar Korng	Lvea Em	Leuk Dek	Saang	Pochentong	Sen Sok	Total
Number of notified DS TB patients (bacteriologically confirmed PTB & EPTB) in Q1-Q3 2019 by month (TB Treatment Books)											
Number of patients confirmed PTB & EPTB in Q1	1	5	5	1	19	4	0	2	17	1	55
Number of patients confirmed PTB & EPTB in Q2	2	6	1	1	7	2	2	2	14	6	43
Number of patients confirmed PTB & EPTB in Q3	0	4	2	3	11	2	2	6	33	1	64
Number of notified DS TB patients (clinically diagnosed PTB & EPTB) in Q1-Q3 2019 by month											
Number of patients notified with DS TB in Q1	0	0	11	12	8	2	10	18	2	4	67
Number of patients notified with DS TB in Q2	0	0	29	12	13	1	3	4		1	68
Number of patients notified with DS TB in Q3	4	3	4	3	7	3	5	17	8	5	59

Annex11: TB case notified in 2019 across the 10 districts-TB MIS/CENAT

No	Province	OD (n=10)	# of Childhood TB Jan-Dec 2019	# of Childhood TB Jan-Sep 2019 (9Ms)	# of All Form TB (Jan-Dec 2019)	# of All Form TB Jan-Sep 2019
1	KDL	Muk Kampul	2	2	85	65
		Leuk Dek	4	2	74	55
		Lvea Em	11	9	72	57
		Sa Ang	19	15W	227	161
2	KCM	Kang Meas	0	0	52	34
		Stung Trang	84	66	159	121
3	TBM	Soung	1	0	39	26
		Oraing Ov	1	1	94	73
4	PNP	Por Sen Chey	1	0	195	140
		Sen Sok	7	6	169	132
TOTAL			130	101	1166	864

Annex12: TB case notified from Q1-Q3, Jan-Sept 2019 across 30 selected health centers

10 ODs	30 HCs	All form of case notification by HC Q1-Q3 2019
Muk Kampul	Prek Anchanh	24
	Roka Kong	11
	Sambour Meas	7
Leuk Dek	Ka Orm Samnor	4
	Kpoub A Teav	n/a*
	Prek Dach	7
Lvea Em	Teuk Khleang	15
	Peam Oknha Ong	3
	A Rey ksach	2
Sa Ang	Kraing Yov	6
	Prasath	1
	Prek Kuy	2
Kang Meas	Peam Chi Kang	14
	So Korng	13
	Sdao	1
Stueng Trang	Toul Sambo	8
	Prek Kak	7
	O Mlou	3
Soung	Vihea Loung	8
	Soung 1	8
	Soung 2	4
Oraing Ov	Dam Rel	8
	Toul Sophy	3
	Ampil Ta Pork	8
Por Sen Chey	Por Sen Chey	n/a
	Samaki	17
	Ov Lork	n/a
Sen Sok	Khmounh	19
	Teuk Thla	62
	Anlong Kngan	9

Note: TB case notified less than 3 cases are OD Kang Meas (Sdao=1), OD Sa Ang (Prasath=1) and OD Lvea Em (A Rey Ksach=2)

Annex13: Baseline assessment to implement the Community Mobilization Initiatives to End Tuberculosis (COMMIT) project

Checklist: Clinic

Instructions

This checklist is used to assess the situation and needs at the clinical site. Please answer questions using YES / NO / Don't know / Not applicable.

Questions concerning the X-ray machine would have to be answered by the respective department

Anticipated interview time (excl data collection time):

Facility	
Name of site being assessed	
Location of site (City/town, District, Province)	
Level of facility <i>Please specify: CPA1, CPA2 or CPA3</i>	
Persons interviewed (name & position)	
Person who conducted the interview	
Date of interview	

1. Clinical services	
	Answer (YES / NO / Don't know / NA)
Type of facility <i>Please specify: Health Centre (HC) or Referral Hospital (RH)</i>	
Type of DOT center (please select all that apply): Hospital DOT, Ambulatory DOT and C-DOT	
Drug susceptibility TB treatment offered on site	
Drug resistant TB treatment offered on site	
Community DOTS (community members, healthcare workers...) offered through this facility	
Chest x-ray machine on site	
Chest x-ray available by patient referral	

2. Clinical workload	
	Answer (numbers, or "not available")
Number of presumptive TB patients registered in Q1 2020 by month ¹ (presumptive TB book and X-pert record book at RH-OPD)	
Number of notified DS TB patients (bacteriologically confirmed, PTB & EPTB) in Q1 2020 by month ¹ (TB treatment book)	
Number of notified DS TB patients (clinically diagnosed, PTB & EPTB) in Q1 2020 by month ¹	
Number of notified RR/MDR TB patients in Q1 2020 by month ¹	
Number of patients investigated with CXR in Q1 2020 on site by month ¹	
Number of presumptive and/or TB patients referred for CXR in Q1 2020 by month ¹	

¹ Indicate the total number of presumptive TB cases in January, February, March 2020 separately, e.g. 120, 145, 112

3. Diagnostic algorithm	
	Answer (YES / NO / Don't know / NA)
Are health care workers at the clinic received training on TB guideline (e.g., algorithm diagrams, brochures, training materials, customer handbook)?	
Are tests ordered according to the TB diagnostic algorithm, national policy and patient factors?	
<i>Please check individually: which patient groups receive Xpert as initial diagnostic test?</i>	
Adults and children living with HIV/AIDS	
Adults and children at risk for DR TB	
All adults with presumptive TB	
All children with presumptive TB	
Elderly 55+	
Diabetes	
Other groups (please specify)	
Are specimens from all sputum smear positive patients sent for Xpert MTB/RIF testing (either on site or by referral)?	
Are specimens from all Xpert MTB RIF resistant TB patients sent for SL-DST (either on site or by referral)?	

4. X-ray	
	Answer (YES / NO / Don't know / NA)
Are there SOPs on the use of CXR for assisting in the diagnosis of TB?	
Are the national diagnostic algorithms followed for CXR?	
What training is available for performing and interpreting CXR? Are all CXR technicians trained?	

If there is an X-ray machine for chest x-ray is on site, please ask the following questions at the X-ray department directly.	Answer (YES / NO / Don't know / NA)
Specify type of X-ray machine (i.e. analog or digital)	
Source of X-ray machine? Year of receiving?	
Is there a supply mechanism for X-ray consumables?	
Have you had X-ray consumable stock-out the past 12 months?	
Have you had any X-ray service interruptions in the past 12 months? →If YES, please specify reason (e.g. consumable stock-out, machine breakdown, shortage of staff etc)	
Is the X-ray machine regularly maintained and repaired if needed?	

5. Data Management and TB-MIS

	Answer (YES / NO / Don't know / NA)
Are NTP-approved presumptive TB register books available and used and are entries up-to-date and complete?	
Are NTP-approved TB treatment register books available and used and are entries up-to-date and complete?	
Are NTP-approved TPT register books available and used and are entries up-to-date and complete?	
Are NTP-approved close contact register books available and used and are entries up-to-date and complete?	
Is TB-MIS current available and in use?	
Are devices for TB-MIS available to support its function? Please narrating (set up system: PC, internet access, router,)	
Are the staff of contact person were trained? What trainings?	
Are the staff receive technical support timely and effectively?	
If the data enter at HC through TB-MIS, what requirement is to support its function?	

6. Quality

	Answer (YES / NO / Don't know / NA)
Are the staff aware of the sample requirements for testing for each of the laboratory methods (smear, culture, LPA, Xpert MTB/RIF testing, etc.)?	
If specimens are collected at the clinic: are patients instructed in good sputum collection technique?	

7. Specimen Referral

	Answer (YES / NO / Don't know / NA)
Is there a sample transportation guideline known by all clinicians or staffs who collect specimens in this facility?	
Does the clinic refer specimen for (DR)TB testing to other, external labs directly, i.e. bypassing the local laboratory? → If YES, please continue with section 7.1. → If NO, please continue with section 8	
7.1 For clinics that are referring specimen to another external laboratory	
Are SOPs for specimen collection, labelling, packaging and transport referral available at site level and adhered to?	
Is triple packaging used for all local, national and international sample transportation? (sputum container, plastic container and ice box)	
Have you experienced any stockouts of the materials needed for triple packaging in the past year?	
Do you have any challenges with proper packaging materials or cold chain? If YES, please specify	

How do you receive results back? (e.g., by mail, email, SMS, etc.)						
Do you have any challenges with the results return? <i>If YES, please specify</i>						
Are specimen referral systems for TB testing shared and coordinated with other disease programs, e.g. HIV?						
	TB smear microscopy	Xpert MTB/RIF	LPA	Culture	Phenotypic DST	Other, please specify
For which tests do you refer specimens? (Tick all that apply)						
Name of the lab to which specimen are referred						
How many specimens did you refer in Q1 of 2020 by month? ²						
How are your TB specimens transported? (e.g. courier, HCW, patient etc.)						
How often are the specimens picked up?						

8. Workforce

Has the clinical staff receive training on TB guideline (including training on diagnostic algorithms and testing methods)?	
Has the clinical staff been trained on the Xpert Ultra algorithm and procedures?	
Are all clinical staff trained in the procedures for safely collecting, labelling, packaging, handling and transporting TB specimens?	
Has the clinical staff been trained on the correct filling of request forms and register?	
Are trainings available to keep clinical staff up-to-date with laboratory technologies and inform about national policy or guideline changes?	

² Indicate the total number of specimens sent in January, February, March 2020 separately, e.g. 115, 140, 110

Baseline assessment to implement the Community Mobilization Initiatives to End Tuberculosis (COMMIT) project in Cambodia

Checklist: Laboratory

Instructions

This checklist is used to assess the situation and needs inside the laboratory.

Please answer questions using YES / NO / Don't know / Not applicable.

Questions that aim to assess the site readiness for the installation of new rapid molecular tests (such as GeneXpert or others) are labelled with (*). If a site is not going to be assessed for their readiness, these questions can be skipped.

Anticipated interview time (excl data collection time): 45 minutes

Facility	
Name of site being assessed	
Location of site (City/town, District, Province)	
Level of facility <i>Please specify: CPA1, CPA2 or CPA3</i>	
Persons interviewed (name & position)	
Person who conducted the interview	
Date of interview	

1. Diagnostic services	
1.1 On-site diagnostic services provided by the laboratory	
	Answer (YES / NO / Don't know / NA)
TB smear microscopy	
Liquid culture	
Solid culture	
First line LPA	
Second line LPA	
First line DST	
Second line DST	
Xpert MTB/RIF	
Xpert HIV (qualitative and/or quantitative)	
Xpert other, please specify	
Urinary LAM	
Rapid HIV	
CD4 count	
Blood glucose	
HbA1c	
Other tests, please specify	

1.2 Diagnostic services available by referral (specimen or patient)	
	Answer (YES / NO / Don't know / NA)
TB smear microscopy	
Liquid culture	
Solid culture	
First line LPA	
Second line LPA	
First line phenotypic DST	
Second line phenotypic DST	
Xpert MTB/RIF	
Urinary LAM	
Rapid HIV	
CD4 count	
Blood glucose	
HbA1c	
Other tests, please specify	

2. Laboratory workload	
Extract the data from the laboratory register	Answer (numbers, or "not available")
Number of patients investigated with smear microscopy for diagnosis of TB in Q1 2020 by month ¹	
Number of diagnostic smears conducted in Q1 2020 by month	
Number of patients investigated with smear microscopy for follow-up of TB treatment in Q1 2020 by month ¹	
Number of smears conducted for treatment follow-up in Q1 2020 by month ²	
Number of patients investigated with Xpert MTB/RIF in Q1 2020 by month ³	
Number of Xpert MTB/RIF tests conducted in Q1 2020 by month, including unsuccessful tests ²	

3. Infrastructure & biosafety	
	Answer (YES / NO / Don't know / NA)
Does the TB laboratory have adequate ventilation for the procedures being performed?	
Is there an uninterrupted availability of general utilities:	
water?	
electricity?	
communication lines?	
Source of power (none, generator, solar, grid, other)? (*)	
Is a TB laboratory biosafety module available?	

¹ Indicate the total number of patients in January, February, March 2020 separately, e.g. 120, 145, 112

² Indicate the total number of tests in January, February, March 2020 separately

³ Indicate the total number of patients in January, February, March 2020 separately, regardless of reason for testing

Are certified biosafety cabinets (BSC) available and functioning?	
Is there guidelines for collecting, storing and disposing of waste implemented according to national standards?	
Does the laboratory have access to autoclaves or incinerators?	
Does the laboratory have refrigerator for storing sputum specimens?	
Does the laboratory have enough hand wash basins with soap dispensers?	
Does the laboratory have enough space to install GeneXpert? (*)	
Does the laboratory have a lockable room and secure windows? (*)	
Does the laboratory have a means of controlling temperature between 2-30°C e.g. air circulation, air condition? (*)	
What is the normal room temperature? (*)	
Does the laboratory have sufficient storage space for all Xpert consumables in temperature-controlled environment (2-30°C)? (*)	

4. Supplies, equipment & maintenance	
	Answer (YES / NO / Don't know / NA)
Is there a procurement system in place that ensures a continuous supply of reagents?	
Have there been any stock-outs of reagents during the past year, including TB smear microscopy and Xpert cartridges?	
Is the national maintenance plan (covers spare parts, storage and disposal, warranty extensions) available and implemented for all laboratory equipment? → If NO, please specify what is missing/not covered	
Is the national maintenance plan (covers spare parts, storage and disposal, warranty extensions) available and implemented for all laboratory equipment? → If NO, please specify what is missing/not covered	
If a microscope is available on site, is it functional?	
If a microscope is available on site, is it regularly maintained?	
In the past 12 months, have there been any breakdowns of microscopy equipment that led to suspension of TB smear microscopy services? → If YES, please specify date and duration ⁴	
If a GeneXpert instrument is available on site, is it functional?	
If a GeneXpert instrument is available on site, is it regularly maintained?	
If a GeneXpert instrument is available on site, when was the last date of X-pert check?	
In the past 12 months, have there been any breakdowns of GeneXpert equipment that led to suspension of Xpert testing services? → If YES, please specify date and duration ⁴	
If blood glucose and/or HbA1c measurements are available in the lab:	
Please specify the instruments used	
Have there been any stock-outs of reagents during the past year?	
Have there been any instrument breakdowns during the past year?	

⁴ For example: 3 weeks in December 2019

5. Diagnostic Data Management	
	Answer (YES / NO / Don't know / NA)
Are standardized lab registers available for all testing and used?	
Are standardized result reporting forms available and used?	
Are statistical data (e.g., number of tests, % positive etc.) collected, analyzed and reported regularly?	
Is there an electronic system (e.g., TB-MIS, LIMS) in place?	
Has a diagnostics connectivity solution been implemented in the laboratory?	
Are mobile phones present and in use by staff (indicates presence of cellular signal)?	
Are there computers of any type at use in the facility? If so, where?	
Is Internet access available at the facility? (Ethernet, WIFI, 4G, USB dongle, unknown)	
Do laboratory staff have adequate computer skills for using GeneXpert and/or operating an electronic data management system?	

6. Quality	
	Answer (YES / NO / Don't know / NA)
If specimen are collected at the lab: Are patients instructed in good sputum collection technique?	
Are specimen containers that are received by the lab correctly labelled and accompanying request forms completely and accurately filled?	
Do you have any problems with the quality of specimens that you receive? <i>If YES, please specify</i>	
Are the national guideline/modules available for all TB diagnostic methods performed in the laboratory?	
Does the laboratory have standardized internal quality control procedures in place for all tests?	
Does the supervisory laboratory routinely monitor and evaluate the quality indicators and performance measures?	
Does the laboratory participate in a national EQA program for each of the TB diagnostic tests used in the laboratory: Smear microscopy: blinded rechecking? Xpert MTB/RIF: panel testing?	
Does the laboratory receive regular supervisory visits from a higher-level laboratory? If yes, Are supervision reports available at the laboratory? When was the last visit?	

7. Specimen Referral						
						Answer (YES / NO / Don't know / NA)
Does this laboratory refer specimen for TB testing to another laboratory? → If YES, continue with section 7.1. → If NO, continue with section 7.2						
7.1 For facilities that are referring specimen to another laboratory						
Are guidelines for specimen collection, labelling, packaging and transport referral available at site level and adhered to?						
Is triple packaging used for all local, national and international specimen transportation?						
Have you experienced any stockouts of the materials needed for triple packaging in the past year?						
Do you have any challenges with proper packaging materials or cold chain? <i>If YES, please specify</i>						
How do you receive results back? (e.g., by mail, email, SMS, etc.)						
Do you have any challenges with the results return? <i>If YES, please specify</i>						
Are specimen referral systems for TB testing shared and coordinated with other disease programs, e.g. HIV?						
	TB smear microscopy	Xpert MTB/RIF	LPA	Culture	Phenotypic DST	Other, please specify
For which tests do you refer specimens? (Tick all that apply)						
Name of the lab to which specimen are referred						
How many specimens did you refer in Q1 of 2020 by month?						
How are your TB specimens transported? (e.g. courier, HCW, patient etc.)						
How often are the specimens picked up?						
7.2 For facilities that are receiving specimen from external facilities						
Does this laboratory receive specimen for TB testing from another facility (not on the same premises)? → IF NO, skip and continue in section 8						
						Answer (YES / NO / Don't know / NA)
Are guidelines in place and followed for receiving and/or rejecting specimens?						
Is triple packaging used for all local, national and international specimen transportation?						
Have you experienced any stockouts of the materials needed for triple packaging in the past year?						
Do you have any challenges with proper packaging materials or cold chain? <i>If YES, please specify</i>						
Do you have any problems with the quality of specimens that you receive? <i>If YES, please specify</i>						

Do you have a logbook, which records the number of specimens rejected, and the reason for the rejection?						
How do you send results back? (e.g., by mail, email, SMS, etc.)						
Do you have any challenges with the results return? <i>If YES, please specify</i>						
Are specimen referral systems for TB testing shared and coordinated with other disease programs, e.g. HIV?						
	TB smear microscopy	Xpert MTB/RIF	LPA	Culture	Phenotypic DST	Other, please specify
For which test do you receive specimens? (Tick all that apply)						
How many specimens did you receive in Q1 of 2020 by month? ⁵						
How many facilities refer their specimens to you?						
How often are the specimens delivered?						
By what means or modes of transportation do the specimens arrive? (e.g. courier, HCW, patient etc.)						

8. Workforce	
	Answer (YES / NO / Don't know / NA)
Have laboratory staff received pre-service or in-service training on TB laboratory practices?	
Are all laboratorians trained in the procedures for safely collecting, labelling, packaging, handling and transporting TB specimens?	
Has training on diagnostic algorithms and testing methods provided to laboratory staff?	
Have laboratory staff been trained on the correct filling of request forms and registers, as well as the compilation of statistical data?	
Are trainings available to keep laboratory staff up-to-date with laboratory technologies and inform about national policy or guideline changes?	
Are a sufficient number of qualified staff available for diagnostic testing and EQA activities of all testing methods currently conducted?	
Does the laboratory need additional personnel to implement GeneXpert? (*) → If YES, specify type of staff and number needed (*)	

5 Indicate the total number of specimens sent in January, February, March 2020 separately, e.g. 115, 140, 110

Interview guide 3: To be administered at the RHs.

To be administered at RH. To assess the feasibility to introduce TB-IC practices and FAST strategy into the hospital triage system in all RH through key informant interviews with hospital staff at RH.

Instruction: Interviewees have rights to suggest to not response to any questions which affect to your personal confidentiality and your sentiment.

- 1. Have you ever been trained on any course related to the infection control at health care facilities? Could you describe?

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- 2. As a health facility staffs, what type of health Acquired infection could be happened? In what way could you realize on that?

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3. Where has Infection control materials you are using currently been supplied from? Does the supply sufficient response to the demand or at what level does it response to the demand? What would you deal if it does not well respond to the demand?

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4. As a health facility staff, what does TB-IC and or FAST Strategy mean to you? Could you describe? (15mn)

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5. What parts of TB-IC and or FAST Strategy have you been practicing currently?

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6. What parts of TB-IC and or FAST Strategy are important for you to suggest to apply at your place? Why?

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7. If TB-IC and or FAST Strategy has been introduced to your workplace? What would you think to have in advance in order to apply it effectively?

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8. What challenges would you think it might happen if new strategy has been introduced into your current tasks? What would you deal with it?

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9. If there are any barriers interrupt your work operations, have you ever addressed in the Infection Control Committee (ICC) meeting and or other meeting? Have you satisfied the recommendation and action you have been advised?

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Interview guide 4: To be used at RH.

Activity: To assess the feasibility to implement TB-DM bi-directional screening and case management at health facilities through key informant interviews with hospital staff at RH

Attitude

1. Observe staff do their routine consultation for OPD integrated with TB and DM screening . If there is no patient during we arrive at the facility do the Role play on practice of consultation activities.(Staff is provider and interviewer is act like the patient)

Note all step of staff practice:

- Greeting
- Ask patient's chief complaint
- Physical examination
- Paraclinical request
- Diagnosis or conclusion
- Counseling or advices
- Summary the disease and treatment with details time number and side effect

Workload

1. Average number of OPD cases per year
2. How many suspected DM at OPD per year?
3. Number of referral cases (OPD and DM)

Knowledge

1. What is diabetes? Defenition
2. What is sign and symptom of diabetes?
 - Frequently urination.
 - Excessive thirsty and hungry.
 - Feeling tired/ fatigue.
 - Blurred vision.
 - Weigh loss.
 - Skin infections
 - Slow healing wound.
 - Tingling or numbness on hands/feet

3. If suspected for DM, how do you diagnose it?
4. How do you manage the cases? Or where you refer the patients?
5. How do you follow up the case?
6. How often do you make appointment with the patient?
7. Do you screen for TB for every DM?
8. If you see TB patient, do you screen for DM?
9. Do you need TB/DM training for staff?

Quality data

1. How you record for DM? where?
2. How you report DM? in which report format?
3. In which system do you report for DM?
4. Is there any data quality control? Or check for accuracy?

Interview guide 1: To be administered at the HCs.

To assess the feasibility to introduce TB-IC practices and FAST strategy into the Health Center triage system in all HC through key informant interviews with health center staff.

Instruction: Interviewees have rights to suggest to not response to any questions which affect to your personal confidentiality and your sentiment.

Managerial	Yes	No	Issues to be Assessed and Guide for Comments
1. Is there an IC team or responsible person in place?			<ul style="list-style-type: none"> • Composition of the team? • Meeting frequency? • Functioning? • Minute of meeting Comments:.....
2. Is there a Facility IC plan in place?			Provide copy of the plan, policies and standard procedures and/or describe. <ul style="list-style-type: none"> • Is the plan part of the facility plan? • Is the plan properly budgeted? • Is budget available for TB-IC? • Does IC plan include staff training on IC? • How many staff members have been trained in IC last year? • Is there continuous professional education in IC?

			<ul style="list-style-type: none"> • Is there coordination between TB and other departments? DM? • How are planned IC activities monitored and evaluated? Comments:.....
3. Has an IC assessment been done?			<ul style="list-style-type: none"> • When was the last IC assessment done? • Is there a plan (renovation and/or re-location) to optimize implementation of IC controls at the facility? • Have any improvements been completed within the last year? Comments:.....
4. Is there any training on IC?			<ul style="list-style-type: none"> • MoH IPC guideline • TB IC • Some standard precautions • Lab IC Comments:.....
5. Is health education on IC ensured for HCWs, patients, and visitors?			<ul style="list-style-type: none"> • How is it performed? • Any evidence of activity? • Are materials available for IEC • Provide examples of materials.

			Comments:.....
6. How this HF dispose the infectious waste?			<ul style="list-style-type: none"> • Sterile the sample before final disposal • Use incinerator • Seal Comments:.....
Administrative	Yes	No	Issues to be Assessed
7. Which of the following recommended controls are practiced? <ul style="list-style-type: none"> • Triage, • Separation, • Cough etiquette, • Expedient service delivery (prompt services for “coughers”) • IPD 			<ul style="list-style-type: none"> • Is there systematic screening of all patients for cough? • Are patients with cough separated early from other patients? • Are suspected or diagnosed TB patients separated from other patients. • Is the flow of TB suspects / patients in the facility a risk for transmission? • Is there IEC regarding cough etiquette on site? How is it conducted? • What is the average turn-around time for lab investigations? • Separate ward for TB or infectious with NCD Comments:.....

8. Package of prevention for HCWs			<ul style="list-style-type: none"> • Periodic and or symptomatic TB screening of staff? • If periodic, how often? • If necessary, where is (preventive) treatment offered? Comments:.....
Environmental	Yes	No	Issue to be assessed
1. Natural and/or mechanical ventilation in place, especially in waiting areas, examination room, sputum collection room and patient wards			<ul style="list-style-type: none"> • What ventilation is in place? • Provide sketch of windows, doors, fans and cross ventilation • State of moving parts of windows? • Mixed ventilation using fans or exhausters? Comments:.....
2. Outdoor waiting areas or open space			<ul style="list-style-type: none"> • Are outdoor waiting areas large enough to seat patients without crowding. • Use low walls that facilitate movement of fresh air. • The roof of the structure should have sufficient overhang to protect occupants from sun and rain. Comments:.....

3. UVGI			<ul style="list-style-type: none"> • Sketch if available. • Functioning? Check with UVC meter • Last maintenance check? Log complete? • When were the lamps last replaced? Comments:.....
Personal Protection	Yes	No	Issue to be assessed:
1. Respirators available for staff			Which respirator model is used? <ul style="list-style-type: none"> • Surgical mask • N95 • Others specify.....
2. Fit testing and/or fit check for respirators			<ul style="list-style-type: none"> • Where is it performed? • How is it organized? • Frequency of fit test Comments:.....
3. Surgical masks/handkerchiefs for coughing patients			<ul style="list-style-type: none"> • Where is it performed? • How is it organized? Comments:.....
4. Staff <ul style="list-style-type: none"> • Annual Examinations • Continuing Education 			How is this done? Comments:.....

Note: Any additional point that consider to contribute more than what are cover in the table interviewer can write down here:

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Interview guide 2: To be used at HC.

Activities: To assess the feasibility to implement TB-DM bi-directional screening and case management at health facilities through key informant interviews with HC staff.

Attitude

1. Role play on practice of activities workload
1. Average number of OPD cases per year
2. How many suspected DM at OPD per year?
3. Number of referral cases (OPD and DM)

Knowledge

1. What is diabetes? When blood sugar level is too high
2. What is sign and symptom of diabetes?
 - Frequency urination.
 - Excessive thirsty and hungry.
 - Feeling tired/ fatigue.
 - Blurred vision.
 - Weigh loss.
 - Skin infections
 - Slow healing wound.
 - Tingling or numbness on hands/feet.
3. If suspected for DM, how will you diagnose it?
4. Can HC treat it?
5. How do you follow up the case?
6. IF diabetes confirmed, do you screen for TB?
7. If you see TB patient, do you screen for DM?
8. Do you need TB/DM training for staff?

Quality data

1. How you record for DM?
2. How you report DM?
3. Is there any data quality control?

FDG Guide-1: To assess the feasibility to establish a peer support group network comprising of TB survivors and recently diagnosed people living with TB.

INSTRUCTION: You have equal rights and chance to express and share your perception and knowledge in responding to the question.

Participant: People with TB, TB survivors, LC and VHSGs

Indicative questions

<i>No</i>	<i>Questions</i>	<i>Reflection</i>
1	How do you know someone is with TB or TB survivors in your community?	
2	How often do you contact to people with TB or TB survivors in your community?	
3	By knowing those people with TB or TB Survivors or as one of people with TB or TB Survors, how is your feeling over that condition?	
4	In responding to above question, How would you think about the establishment Peer Support Group or Network for your respective community?	
5	How could be the benefit of establishment of Peer Support Group in your respective community?	
6	How would be your interest and roles If a peer support group established?	
7	To what extent you expect from a peer support?	
8	From your point of views, how the PSG can be strengthened?	
9	What kind of resources that PSGs need to function its constituency?	

FGD Guide 2: To assess the knowledge and awareness of latent TB infection and understand the barriers and facilitators to access and accept TPT faced by potential recipients of TPT will be conducted.

1. Do you know what happen if someone live with and or in close contact with TB BK+ person?
2. How you know that someone is infected to TB?
3. Base on your knowledge, can you differentiate between TB Infected person and TB patient?
4. Do you know in what way could we prevent from TB infected to TB patient?
5. Do you know what should be support mechanism to facilitate the TB infected person to assess TPT?
6. What would you think if you are TB infected and be introduced to use TPT? And What if you know that someone is TB infected, how would you make them to accept TPT service?

Interview guide 5: National and Sub-national

Activity: To gather information necessary to work with CENAT to advocate for the enactment of a law on the prevention and elimination of TB, a workplace policy for TB, expansion of HEF, through key information interviews with key stakeholders from the relevant ministries, organizations, representatives from the public and private sector at the national and sub-national level.

Key informants: MP(Senator), MoH/PCA, NTP, NCHADS, MoP, MoLVT, MoJ, Mol, ILO, WHO, Labor Federation, HP+, FHI360, PSI, NSSC.

Indicative questions

No	Questions	Comments
1	Are there any policies or regulation address TB at workplace in country?	
2	In case, there is no specific, How do the existing laws and policies or regulation translate into equitable access to services for KPs?	
3	What legal remedies are available to people with TB at workplace when their rights are violated, including their right to free testing, treatment, confidentiality, privacy, etc.?	
4	Is there any protective mechanisms at workplace in relation stigma, discrimination and right abuse of people with TB? And what are key mechanism?	
5	What measures are in place to ensure that cases of TB-related discrimination and other human rights violations in the context of TB response are systematically recorded, documented, and addressed, and that remedies are made available?	
6	What kind of support is provided to TB patients during treatment (social accompaniment, financial motivation, food packages, HEF, etc.)	
7	Do individuals have a constitutional or statutory right to privacy and confidentially in their health status, including their TB status?	
8	Is there a policy for the non-consensual disclosure of a patient's TB status?	
9	How is it ensured that the non-consensual disclosure of TB status is performed in accordance with the law and human rights?	
10	What barriers do people with TB commonly faced in accessing social and other benefits? What measures are in place to eliminate these barriers?	

Questionnaire 1: To be used at RH.

Activity: To assess the knowledge, attitude, and practices of healthcare staff in the selected sites.

To assess the staff and resource allocation

- Staff-to-patient ratio
- Workload of staff
- Number of staffs per unit (e.g., lab, OPD, etc.)
- Resources (e.g., IT, stationery, electronics, etc.)

To assess human resource capacity

- TB knowledge (prevention including TPT and infection control, case-finding, diagnosis, notification, follow-up, care, treatment)
- Workload
- Childhood TB (only for RH staff refer Output 1.5.4)
- Data quality training (refer to Output 4.1)

Attitude:

Observation:

Remark for Interviewer: Question below are not use to verbally ask, but you can use to observe only.

- a. Reaction of service provider during contact with client:
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- b. Behavior of service provider during working of his/her core task:.....
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- c. Give clear instruction and Information to clients:.....
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Knowledge:

- 1- What is TB?
- 2- What classifications of TB, do you know?
- 3- What kind of main symptoms do you think people with TB have?
- 4- What kind of TB diagnostic tools are used to screen TB?
- 5- In what ways does TB transmit?
- 6- How do you prevent TB transmission?

- 7- Is TB curable?
- 8- How is TB treated?
- 9- What is the follow up schedule for TB patient with BK+ and BK-?
- 10-In what way do you use to follow up with patient?
- 11-What are the criteria of cure?
- 12-What are the criteria of completed treatment?
- 13-What are the criteria of Successful treatment?
- 14-What is TB Preventive Therapy (TPT)?
- 15-What do you think why TPT is required?
- 16-What kinds of people is considered as eligible for TPT?
- 17-What is the treatment regiment for TPT?
- 18-Beside TB, do you have other additional tasks assign by management? Please jump to other question after next.
- 19-Is the additional tasks usually assigned by management come in the appropriate time?
- 20-If yes, how often is the additional task assigned to you?
- 21-How is the additional tasks challenge to your core tasks?

Childhood TB:

23. Do you know that is there TB in children practice at your workplace?
24. Have you received any proper trainings on the new Childhood TB Guideline?
25. What key points from the guideline have you been applying?
26. Does the training you receive make confident in applying the new guideline?
27. If no, What would be your further suggestion in order to make you feel strong confident in applying the new guideline?

Data quality training (refer to Output 4.1):

28. How do you record day to day data/information?
29. What tools are you using to manage data?
30. Before applying the tools, have you received proper orientation or training?
31. Is the data tool friendly used to record, generate and report?
32. What challenges have you faced in managing data?
33. Have you received any additional support you face challenges using the tools?
34. What sources of support do you usual receive?
35. Is there any data verification tool applied before generating into report?
36. Is there any further feedback after data generating?
37. If yes, what are the usually feedback or comment?
38. If the comment negative, how would you improve it?
39. What would you suggest in order to record, manage and generate data with quality?

Questionnaire 2: To be used at HC.

Activity: To conduct assess on the knowledge, attitude, and practices of healthcare staff in the selected sites.

To assess the staff and resource allocation

- Staff-to-patient ratio
- Workload of staff
- Number of staffs per unit (e.g., lab, OPD, etc.)
- Resources (e.g., IT, stationery, electronics, etc.)

To assess human resource capacity

- TB knowledge (prevention including TPT and infection control, case-finding, diagnosis, notification, follow-up, care, treatment)
- Workload
- Childhood TB (only for RH staff refer Output 1.5.4)
- Data quality training (refer to Output 4.1)

Observation:

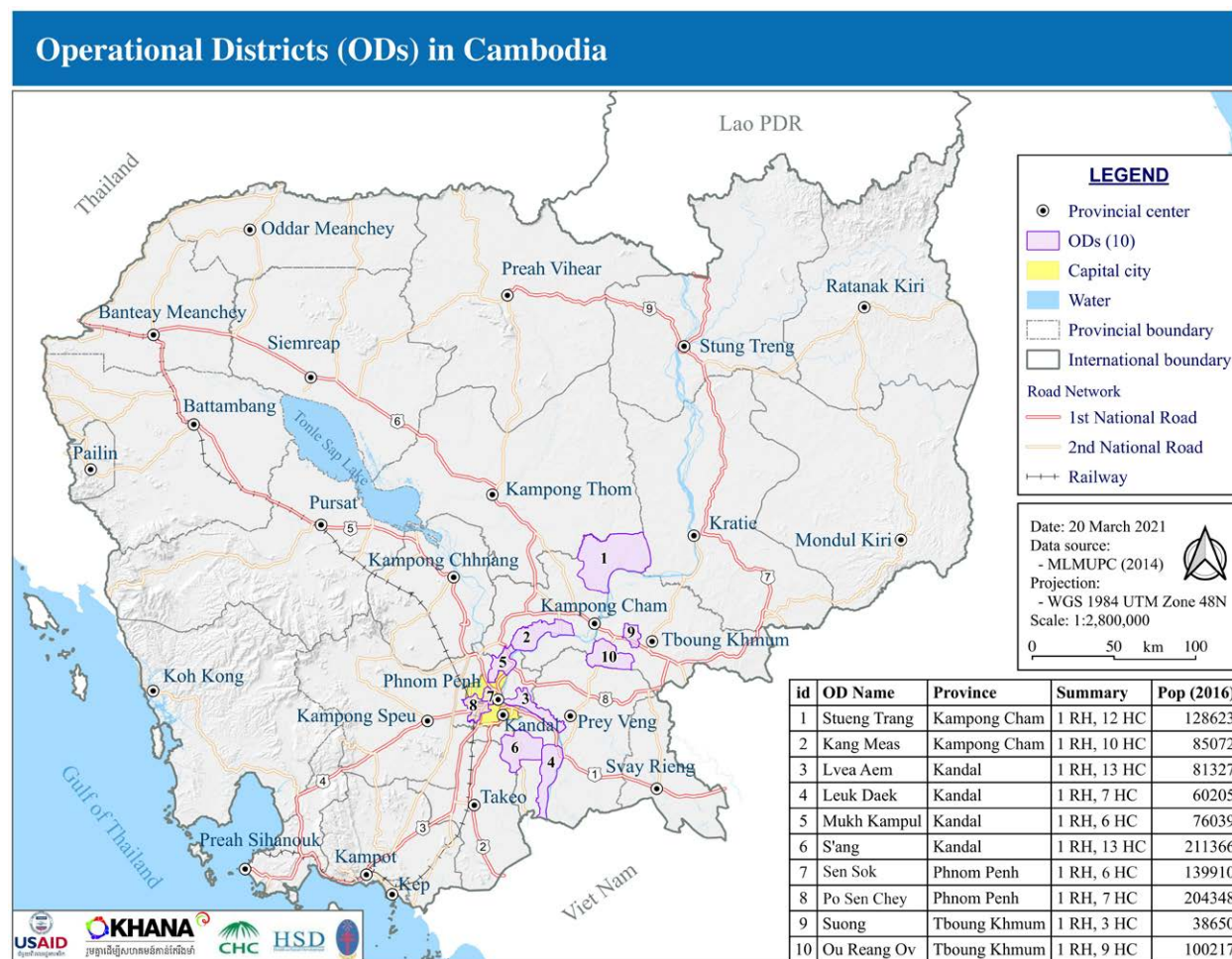
- a. Reaction of service provider during contact with client:
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.....
- b. Behavior of service provider during working of his/her core task:.....
.....
.....
- c. Give clear instruction and Information to clients:.....
.....
.....

Knowledge:

- 1- What is TB?
- 2- What classifications of TB, do you know?
- 3- What kind of main symptoms do you think people with TB have?
- 4- What kind of TB diagnostic tools are used to screen TB?
- 5- In what ways does TB transmit?
- 6- How do you prevent TB transmission?
- 7- Is TB curable?
- 8- How is TB treated?
- 9- What is the follow up schedule for TB patient with BK+ and BK-?
- 10-In what way do you use to follow up with patient?

- 11-What are the criteria of cure?
- 12-What are the criteria of completed treatment?
- 13-What are the criteria of Successful treatment?
- 14-What is TB Preventive Therapy (TPT)?
- 15-What do you think why TPT is required?
- 16-What kinds of people is considered as eligible for TPT?
- 17-What is the treatment regiment for TPT?
- 18-Beside TB, do you have other additional tasks assign by management? Please jump to other question after next.
- 19-Is the additional tasks usually assigned by management come in the appropriate time?
- 20-If yes, how often is the additional task assigned to you?
- 21-How is the additional tasks challenge to your core tasks?

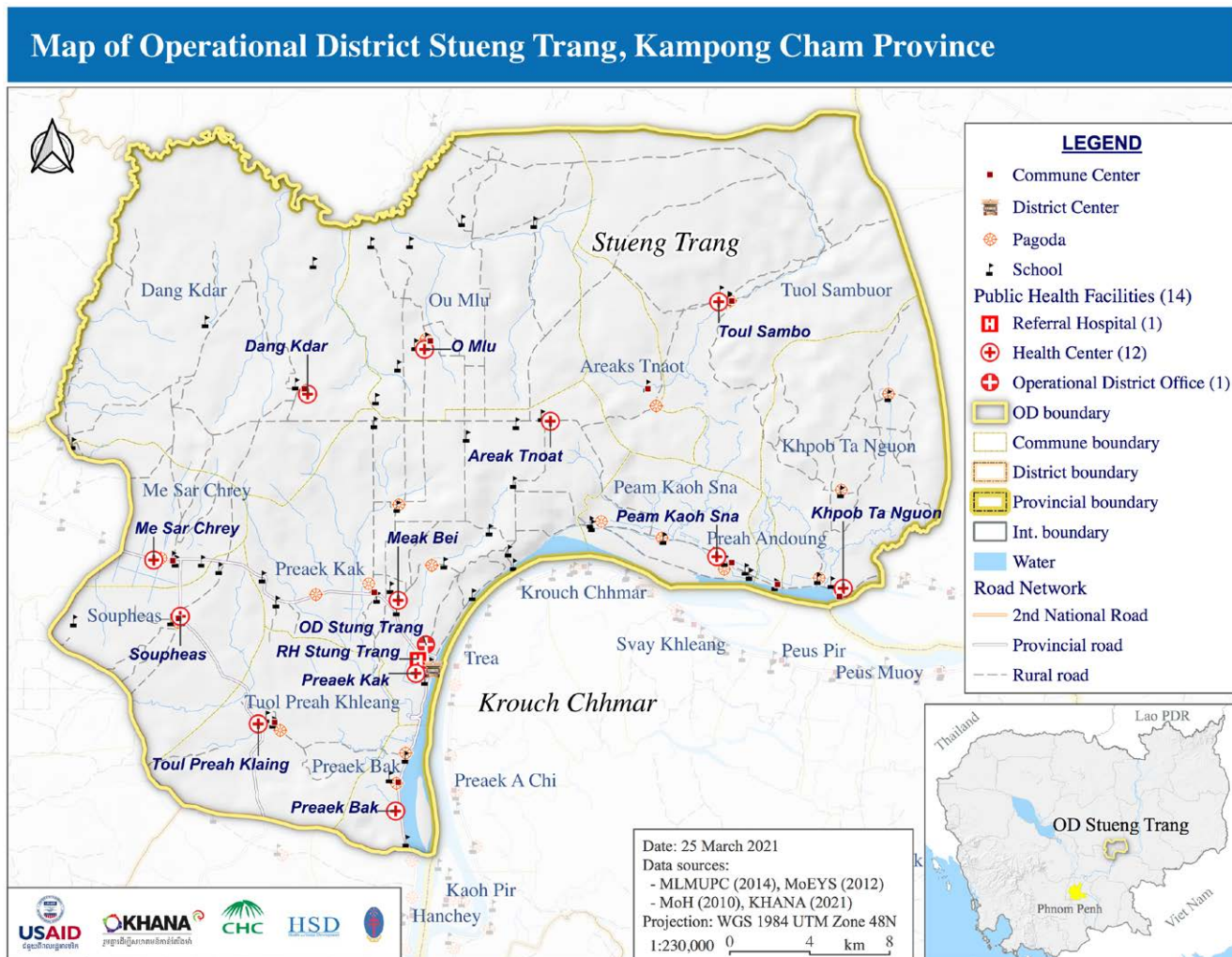
Annex14: Health Facilities presented by ODs



Online Interactive Map Using Google Maps



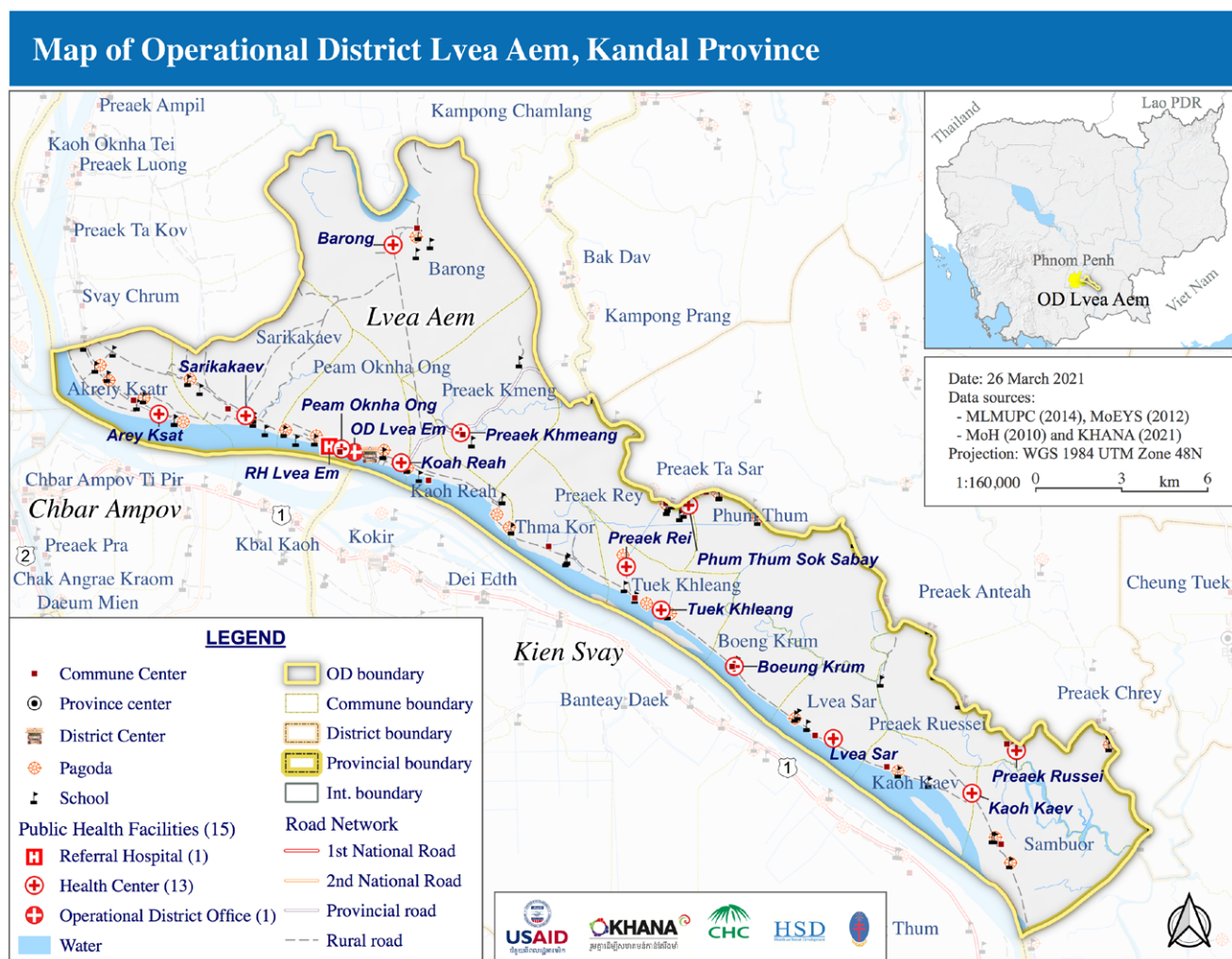
Map #1: OD Stueng Trang



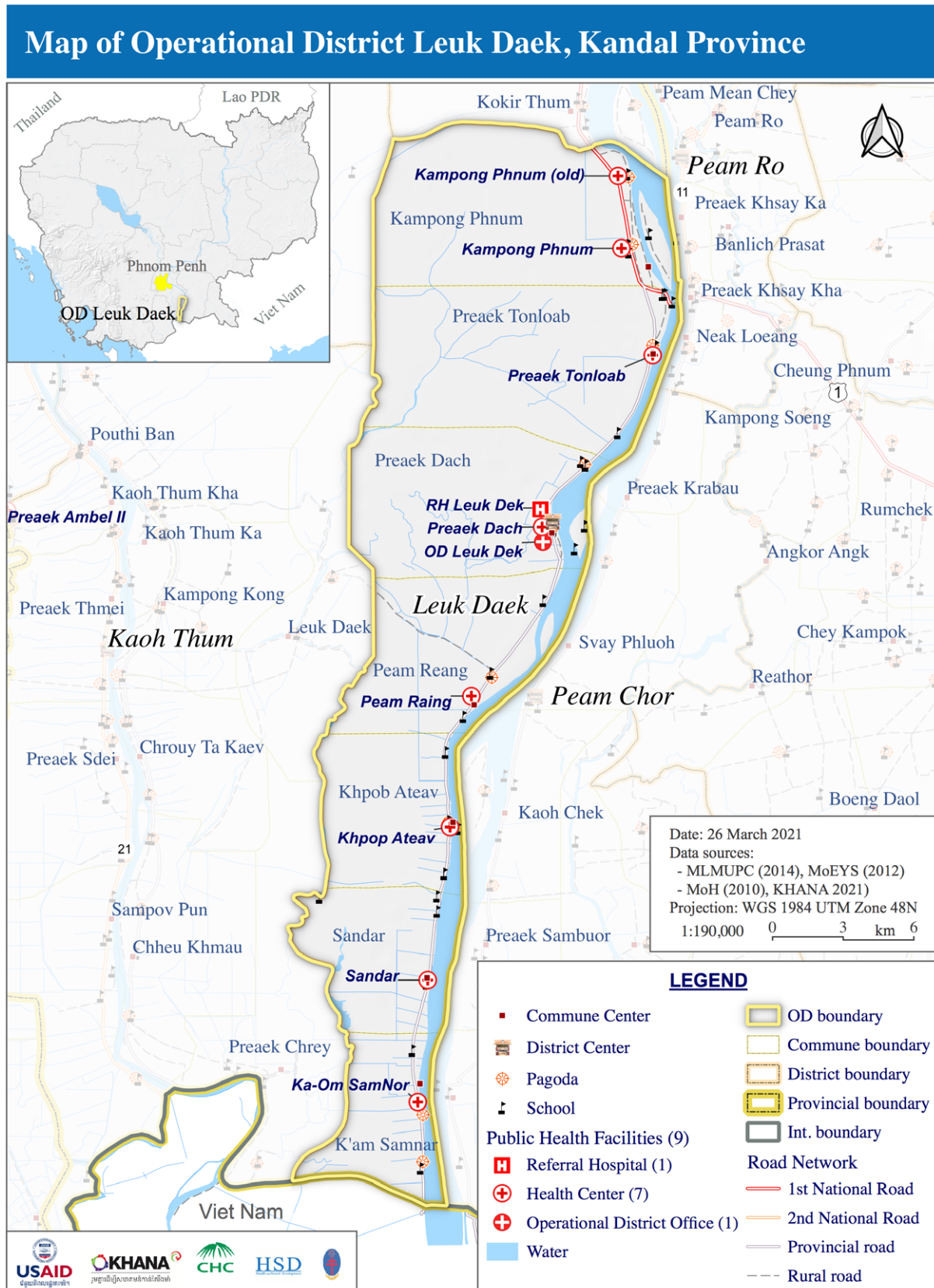
Map #2: OD Kang Meas



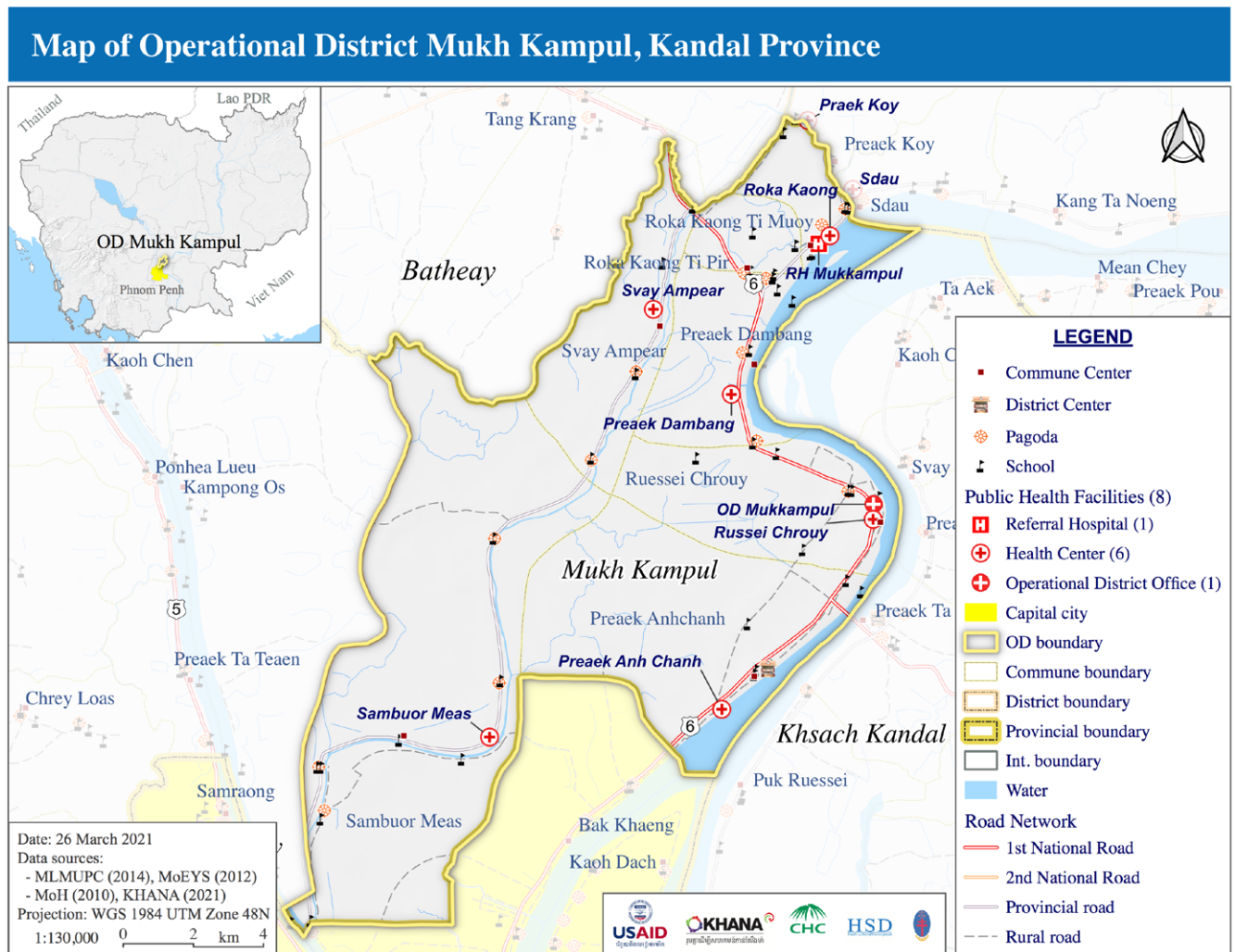
Map #3: OD Lvea Aem



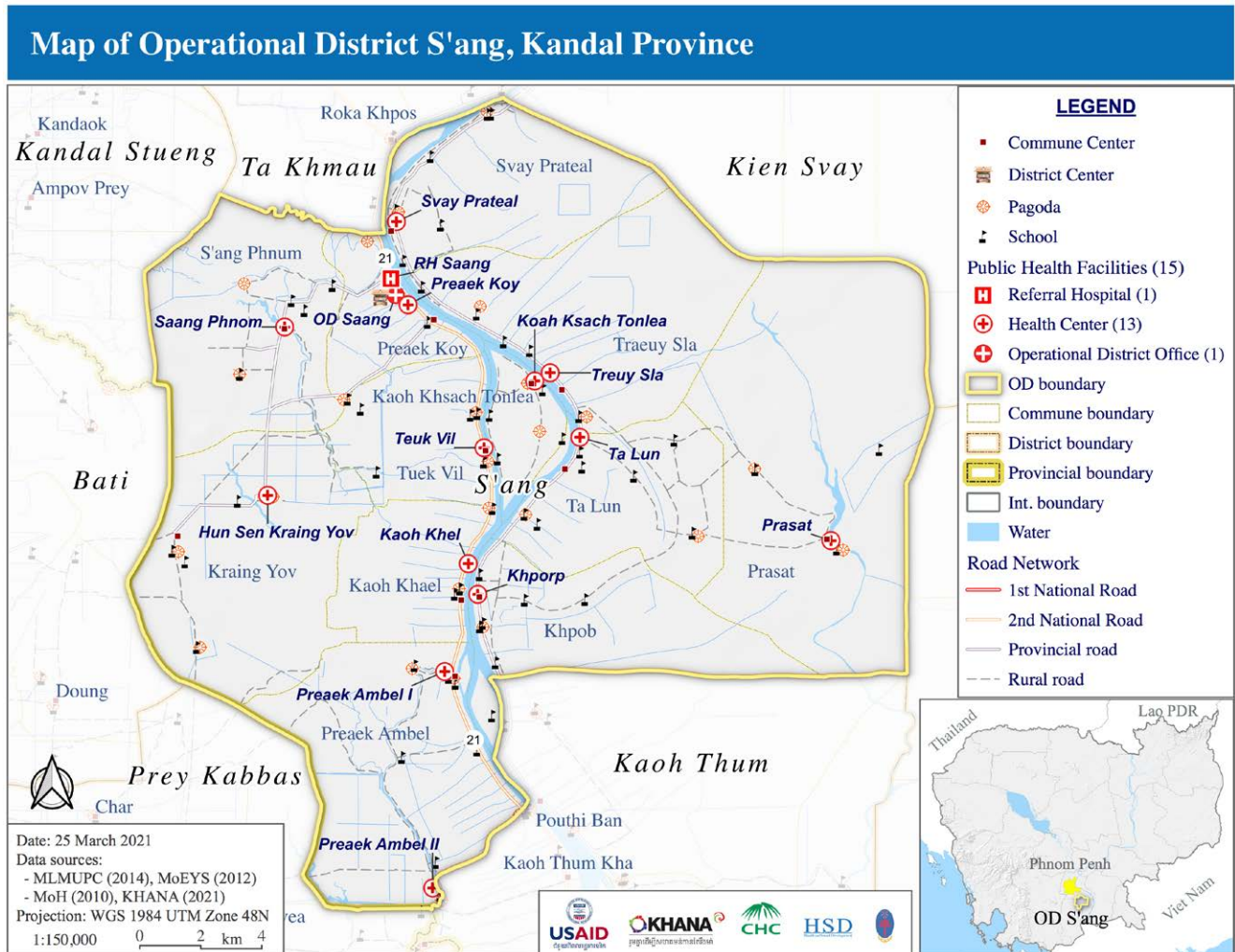
Map #4: OD Leuk Daek



Map #5: OD Mukh Kampul



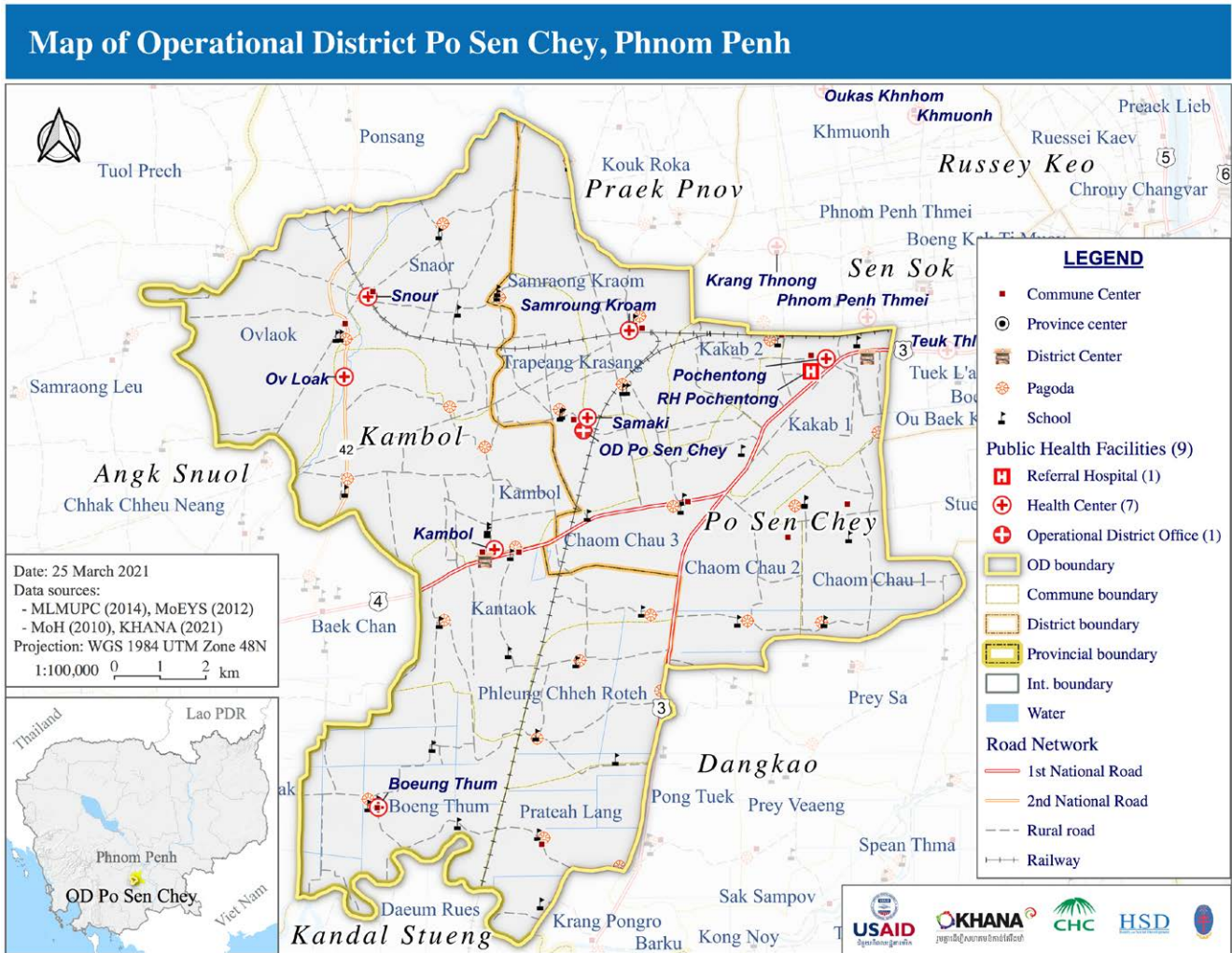
Map #6: OD S'ang



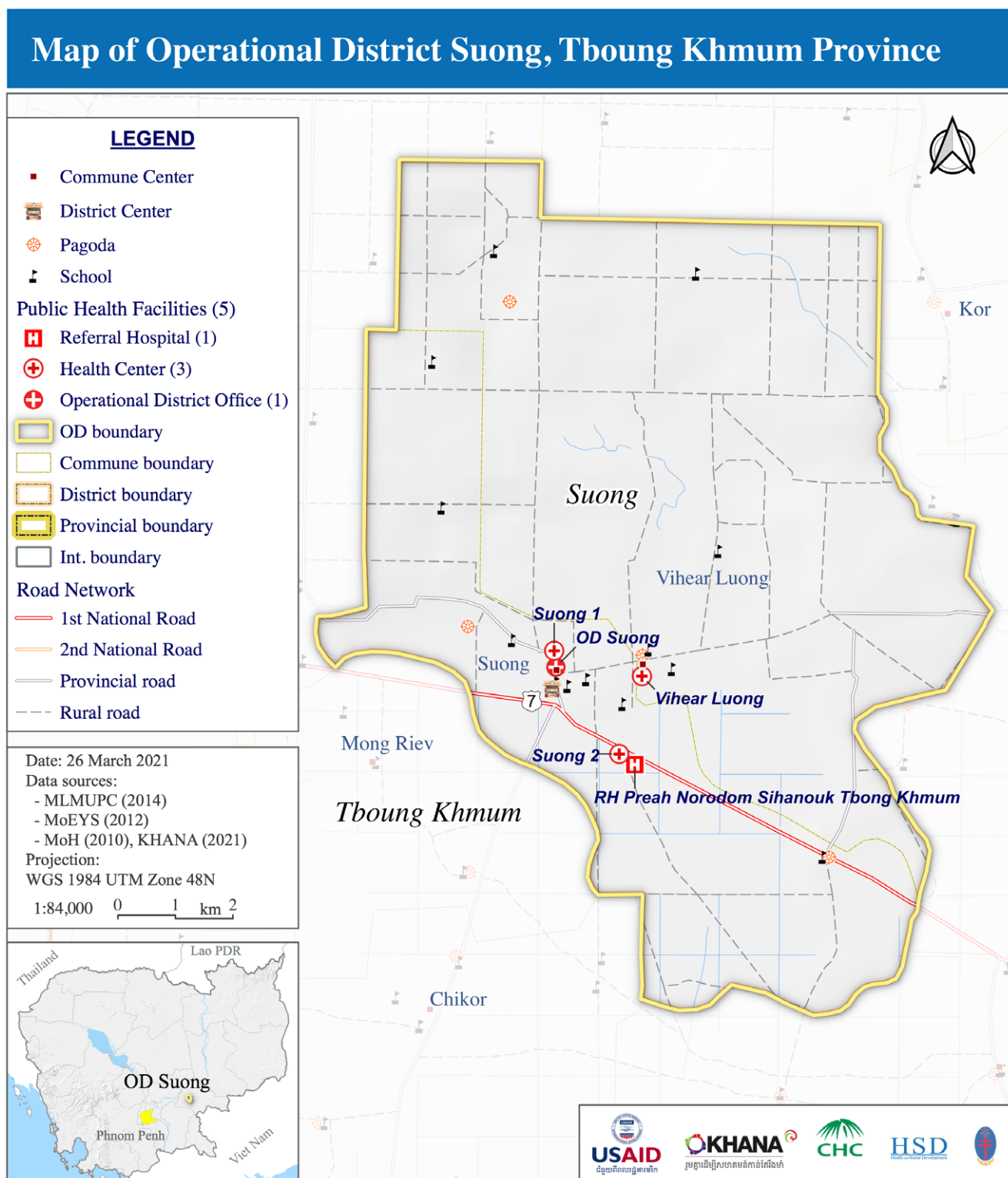
Map #7: OD Po Sen Chey



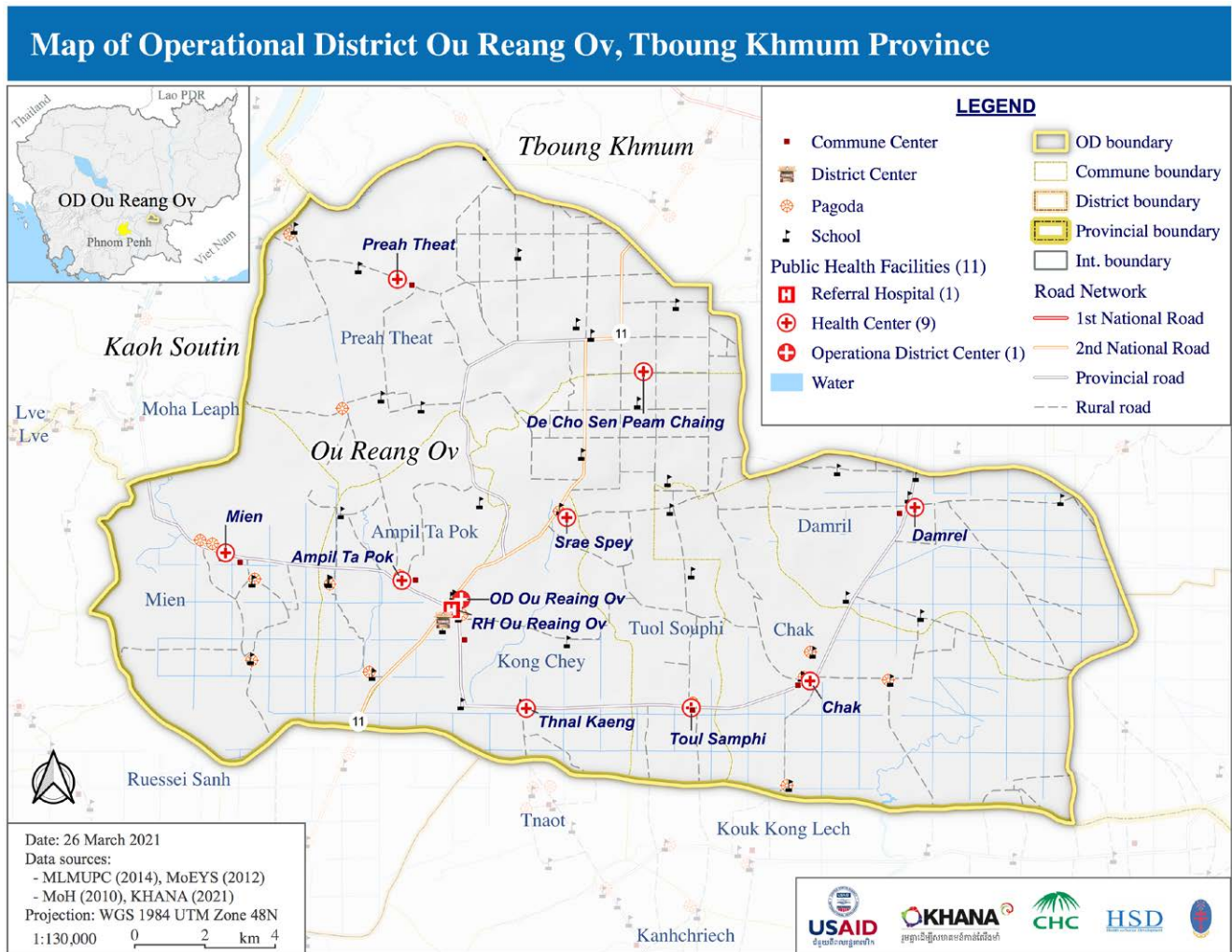
Map #8: OD Saen Sokh



Map #9: OD Suong



Map #10: OD Ou Reang OV





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