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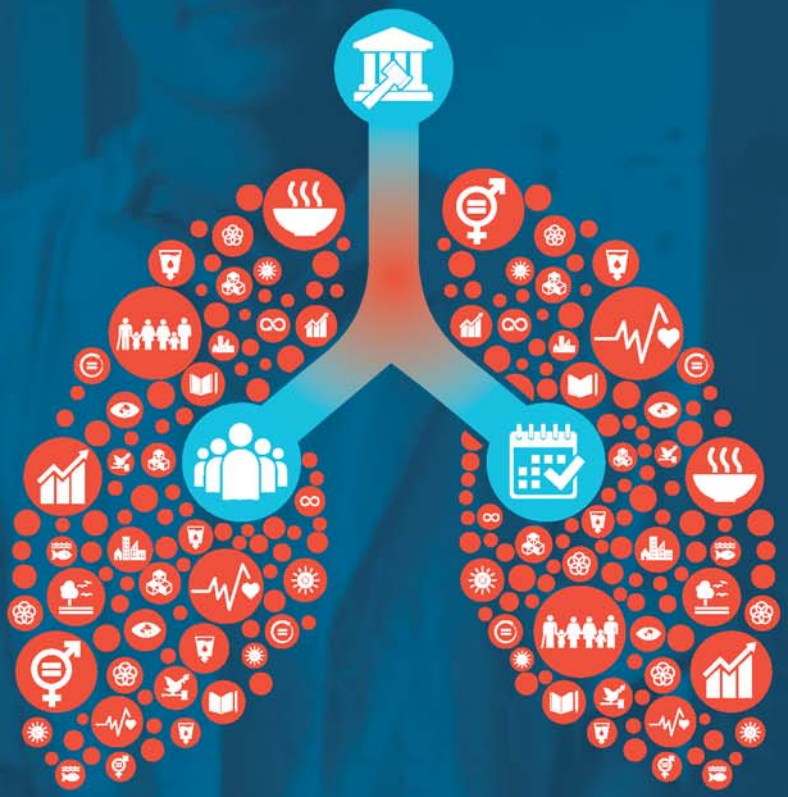

REGIONAL STRATEGIC PLAN
TOWARDS ENDING TB
IN THE WHO SOUTH-EAST ASIA REGION
2021–2025

REGIONAL STRATEGIC PLAN TOWARDS ENDING TB IN THE WHO SOUTH-EAST ASIA REGION 2021–2025

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Regional strategic plan towards ending TB in the WHO South-East Asia Region: 2021–2025

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ABBREVIATIONS AND ACRONYMS

ACF	active case-finding
CFR	case fatality ratio
CI	confidence interval
COVID-19	coronavirus disease-2019
CXR	chest X-ray
DALY	disability-adjusted life years
DPR Korea	Democratic People's Republic of Korea
DR-TB	drug-resistant TB
DST	drug susceptibility test
DS-TB	drug-sensitive TB
EPTB	extrapulmonary TB
GDF	Global Drug Facility
GDP	gross domestic product
GPW13	WHO Thirteenth Global Programme of Work
HHC	household contact
HIV	human immunodeficiency virus
IEC	information, education and communication
IMCI	Integrated Management of Childhood Illness
IPC	infection prevention and control
LTBI	latent TB infection
MCH/RMNCAH	Maternal and Child Health and Reproductive, Maternal, Neonatal, Childhood and Adolescent Health

MDR-TB	multidrug-resistant TB
MDR-TB/RR-TB	multidrug-resistant TB/rifampicin-resistant TB
MoH	Ministry of Health
MoU	memorandum of understanding
mWRD	molecular WHO-recommended diagnostics
NGO	nongovernmental organization
NSP	national strategic plan
NTP	national TB programme
OOP	out of pocket
PLHIV	people living with HIV
PPM	public–private mix
PTB	pulmonary tuberculosis
SDGs	Sustainable Development Goals
SEA	South-East Asia
TB	tuberculosis
TPT	tuberculosis preventive treatment
UHC	universal health coverage
UNHLM-TB	United Nations High-Level Meeting on TB
WHO	World Health Organization

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We acknowledge the role of the staff of the TB unit of the WHO Regional Office for South-East Asia in bringing out this publication under the overall guidance of Dr Suman Rijal, Director for Communicable Diseases at the Regional Office.

FOREWORD

The WHO South-East Asia Region is at a critical juncture in its quest to end TB by 2030. In 2019 an estimated 10 million people globally fell ill with TB, including around 4.4 million people in the Region. Despite comprising more than a quarter of the world's population, in 2019 the Region accounted for more than a third of the nearly half a million people globally who developed multi-drug or rifampicin-resistant TB. Of the estimated 1.4 million global TB deaths in 2019, nearly half occurred in the South-East Asia Region.

Since 2017 "Accelerate efforts to end TB by 2030" has been one of the Region's eight Flagship Priorities. All countries are committed to achieving the targets identified in the UN Political Declaration on the Fight against TB and continue to implement the WHO End TB Strategy. The total budget for TB programmes in the Region in 2020 was US$ 1254 million, with 43% from domestic sources – a significant achievement. Since 2015 the Region has increased treatment coverage by more than 30% and raised case notification from 2.6 million to 3.6 million.

Despite progress, the Region has missed the 2020 End TB milestones of a 35% decline in TB deaths, a 20% reduction in TB incidence rates as compared to 2015 baselines, and zero catastrophic costs among TB-affected families. Amid the COVID-19 crisis, TB case notifications have declined by 20–40% in high-burden countries. Outreach activities for increased case finding, preventive treatment and psycho-social support have been significantly disrupted. Globally, an additional 0.2–0.4 million deaths are anticipated as a result of disruptions in 2020, of which the Region may account for nearly half.

This new Regional Strategic Plan towards ending TB in the WHO South-East Asia Region 2021-2025 will help reinvigorate the response. The Plan has been developed in consultation with a wide range of stakeholders, including national TB programme managers, partners, donors and community representatives. It incorporates diverse expectations, highlighting the need for all countries of the Region to take an integrated, multi-disciplinary approach towards ending TB, bringing communities to the fore. The Plan underscores the critical need for countries of the Region to provide social protection and increased coverage of nutrition supplementation for all TB affected families, and to increase the provision of TB preventive treatment to eligible high-risk groups.

The Plan focuses not only on what can be done within TB programmes, but also health systems and beyond. It has five objectives: first, achieving universal access to high-quality, rights-based TB prevention and care services without stigma and discrimination for everyone, focusing on marginalized

and vulnerable people; second, securing high-level political commitment with adequate human and financial resources; third, enhancing multisectoral coordination and accountability for ending TB; fourth, reducing human suffering and the socioeconomic burden of TB, and; fifth, strengthening people-oriented research and innovation for improved service delivery. The Plan calls for a three-fold increase of investments in TB programmes over the next three years.

There is not a moment to lose. In all countries of the Region, national TB strategies must be revamped, for which this Regional Strategic Plan – and the cost-effective strategies contained herein – must be duly utilized. Through the collective action of all TB stakeholders, I am certain that together we can catch up and reclaim the advantage against TB, accelerating progress towards the End TB milestones, and a fairer, healthier and more sustainable Region and world for all.

Dr Poonam Khetrapal Singh
Regional Director
WHO South-East Asia Region

EXECUTIVE SUMMARY

Background

In 2019, an estimated 9.96 million people fell ill with tuberculosis (TB) worldwide. The largest number of new TB cases occurred in the World Health Organization (WHO) South-East Asia (SEA) Region, which accounted for 44% of such cases. The SEA Region also accounted for nearly 50% of global deaths due to TB in the same year. In addition, the Region has the largest proportion of persons with multidrug-resistant/rifampicin-resistant (MDR-/RR)-TB (37% of the global burden).

Of the new cases emerging in the Region, close to 23% were attributable to undernutrition. Other major contributors were HIV infection, alcohol use disorders, smoking and diabetes mellitus. Undernutrition is a major risk factor in almost all countries; HIV is a major risk factor in Myanmar and Thailand; alcohol use disorder in India and Thailand; tobacco smoking in Bangladesh, Indonesia, Nepal, Thailand and Timor-Leste; and diabetes mellitus in Bangladesh, Bhutan and Maldives.

While TB has been a public health emergency in the SEA Region for decades, the COVID-19 pandemic has eroded progress, diverted critical resources and aggravated the conditions in which TB flourishes. The gaps in case notifications were further exacerbated during the COVID-19 pandemic. Preliminary data released by WHO show that high-burden countries may have seen a decline in TB case notification of as much as 25–40% in 2020 in the SEA Region. The main drivers of the additional "missing" cases were COVID-19-related movement and travel restrictions, overburdened health systems and limited presentation in health settings by patients due to fear to acquiring COVID-19 infection. Worldwide, in the group of 10 high-burden countries with the largest reported shortfalls compared with 2019, the overall shortfall was 28%. WHO estimates that these COVID-19-related disruptions in access to TB care could cause an additional half a million deaths due to TB globally.

High-level global and regional events that reaffirmed commitments towards ending TB

The **Delhi Call for Action 2017** had the highest government representation from Member States of the Region. It brought together health ministers to garner political commitment for efforts to "bend the curve" and achieve the 2030 targets.

In the same year, the **Moscow Declaration to End TB,** adopted in a global ministerial conference attended by 114 country delegations, called for an increase in multisectoral action and enhanced accountability for the global TB response through sustainable financing; pursuit of science, research and development; and establishment of a multisectoral accountability framework towards ending TB by 2030.

The **Delhi End TB Summit 2018** brought together Member States of the Region to track progress towards the End TB 2030 targets. The Summit led to the issuance of a Statement of Action.

The **UN General Assembly High-Level Meeting** "United to End Tuberculosis: an urgent global response to a global epidemic" committed to greater efforts and investments towards the Sustainable Development Goals (SDGs) and elimination targets of 2030. The Political Declaration of the UN High-Level Meeting (UNHLM) included four new global targets:

- Treat 40 million people for TB disease in the 5-year period 2018–2022.
- Reach at least 30 million people with tuberculosis preventive treatment (TPT) to treat TB infection in the 5-year period 2018–2022.
- Mobilize at least US$ 13 billion annually for universal access to TB diagnosis, treatment and care by 2022.
- Mobilize at least US$ 2 billion annually for TB research.

Review of national strategic plan targets against the UNHLM commitments

A review was carried out in September 2020 of the core plans within the national strategic plans (NSPs) for TB of the 11 Member States of the WHO SEA Region to analyse the strengths and gaps in these NSPs. The aims and objectives of and interventions from the plans were compared with country-level priorities derived from national data profiles for 2019 and national epidemiological reviews, the End TB milestones for 2020 and 2025, UNHLM-TB-derived, country-specific treatment targets for drug-sensitive (DS)- and drug-resistant (DR)-TB and TB prevention, from national budget data and trends in TB control efforts.

Among the Member States, the planned treatment targets are clustered close to the expectations. Of importance here is that three of the four highest-burden countries (India, Indonesia, Myanmar) target treatment levels more than the expectations. If the plans are implemented and the stated targets achieved, the Region as a whole will exceed the regional UNHLM targets for TB treatment.

Eight of the 11 countries reported the total number of treatments for MDR-TB that they plan to provide in 2022. If the plans are implemented and the stated targets achieved, the Region as a whole will be slightly below the regional UNHLM targets for TB treatment.

Seven countries have provided some quantification of the number of courses of TPT planned for 2022 in their NSPs. Six countries – Bangladesh, India, Indonesia, Myanmar, Nepal and Timor-Leste – have provided TPT coverage targets for adult contacts; these targets ranged from 49% to 98% of the expected coverage. If the plans are implemented and the stated targets achieved, the Region as a whole will be significantly below the regional UNHLM targets for TPT. This is mainly because the expected number of adults to be treated is several times higher than that for children.

Overview of the Regional Strategic Plan

This Regional Strategic Plan (RSP) towards Ending TB in the WHO SEA Region 2021–2025 is in line with the global targets enshrined in the End TB Strategy, which calls upon Member States for an 80% reduction in the TB incidence rate by 2030 (compared with the 2015 baseline); 90% reduction in TB deaths by 2030 (compared with 2015); and 100% TB-affected families protected from facing catastrophic costs due to the disease from 2020 onwards.

The RSP identifies that broadly, there are three categories of barriers that need to be addressed to achieve the End TB targets: (i) health-care system barriers, which relate to the availability, quality of services and people's trust; (ii) sociocultural barriers, inclusive of stigma and discrimination that get compounded by lack of awareness; and (iii) financial barriers, which include direct and indirect costs for the patient. In the immediate future, countries should also plan to overcome the additional service disruption challenges posed by restriction of movement during the COVID-19 pandemic. Countries will need to come up with catch-up plans to diagnose and treat missed cases, as well as restore community outreach activities. Countries should undertake care-cascade analysis to identify country-specific barriers with a specific focus on COVID-19-related impact for immediate needs.

Modelling exercises undertaken by the Regional Office in collaboration with international partners emphasize the need for a comprehensive set of interventions to be implemented to achieve the End TB targets. Based on the challenges faced in the Region and the modelling outputs, this Regional Strategic Plan, in alignment with the Global End TB Strategy, has five objectives.

Objectives of the Plan

1. Ensure universal access to high-quality, rights-based TB prevention and care services without stigma and discrimination for everyone, focusing on marginalized and vulnerable people.
2. Ensure high-level political commitment, adequate human and financial resources, and integrated services for TB.
3. Ensure mechanisms for multisectoral coordination and accountability for ending TB.
4. Reduce human suffering and the socioeconomic burden of TB by providing social protection and poverty alleviation measures.
5. Promote people-oriented research and innovation for improved service delivery through the development and roll-out of new tools and innovative digital technologies.

Under each objective, certain priority interventions are required that must be implemented to reach the coverage and outcome targets being proposed in this RSP. However, not all actions required to accomplish the objectives can be undertaken by NTPs alone. The Plan therefore sets out roles for the health and non-health sectors and moves beyond a biomedical approach towards ending TB. Therefore, the priorities set out are divided into three categories – those to be undertaken within TB

programmes, those to be undertaken beyond TB programmes but within the health sector, and those that need to be undertaken beyond the health sector. For activities that are beyond TB programmes, national programme managers and community stakeholders will need to advocate continually across all sectors and stakeholders.

While political commitment, community engagement, human rights, gender and equity are discussed under specific sections, all these themes are cross-cutting across all objectives and fundamental to achieving all objectives of this Plan.

Some of the key strategic interventions, beyond the biomedical targets and approaches that are covered in this Plan, include the following:

1. Provide person-centred, rights-based ethical health services. The essential step in the process is to organize services that are close to people's residence, preferably community based, and sensitive to their needs, especially those living and working in conditions that increase the risk of exposure, infection and disease. Protect patients' right to information and confidentiality.

2. Strengthen partnerships with all care providers while providing high-level stewardship, including those in the public sector outside the programme, the private sector and not-for-profit private sector such as nongovernmental organizations (NGOs). The policy and regulatory environment should be conducive to partnerships and high-level care, and are established by the respective ministries of health in the country. This includes the structural arrangements of the partnership and ensuring an equal platform for quality service provision in the public and private sectors.

3. Engage in a multidisease elimination framework based on a public health approach, with a focus on equity, gender and human rights, and sustainability. Covering different diseases together will also help in integration of services, according due priority based on progress, and efficient distribution of resources. Countries that have an established multidisease oversight committee can monitor collective progress towards various disease targets and optimize the use of human and financial resources, specifically for cross-cutting areas.

4. For universal health coverage (UHC), put in place an essential set of health-care interventions, including TB diagnosis and treatment, and consider a national strategy for achieving UHC to reduce the TB incidence rate.

5. Ensure access to nutrition programmes as undernutrition is a key driver of the TB epidemic in the Region. Strengthen linkages between nutrition and social protection programmes and the TB programme for the delivery of nutrition packages to patients with TB, with a particular focus on children and women.

6. Provide context-specific social protection. Social protection measures can address those suffering from TB as well as individuals and communities at risk, and can be divided into TB-specific measures, TB-inclusive measures and TB-sensitive measures.

Investments for ending TB are among the most cost-effective interventions for communicable diseases. On an average, an individual in the middle of their productive years who receives effective TB treatment resulting in cure extends their life by an additional 20 years as compared to those patients who do not receive treatment. This contributes to their ability to look after the family and remain productive members of society. According to the Copenhagen Consensus, every dollar invested in averting TB deaths returns on an average US$ 43 dollars in economic benefits.

The annual budget of NTPs of the Region has seen a significant increase from US$ 578 million in 2015 to US$ 1254 million in 2020. However, the funding gap for NTPs has increased from US$ 98 million in 2015 to US$ 414 million in 2020. This also needs to be seen in light of the fact that even the current requirements expressed by NTPs in the budgets may not be enough to reach the End TB targets.

Restrictions related to the COVID-19 pandemic are expected to impact progress towards ending TB in several ways. In addition to direct impacts such as underdetection of all forms of TB cases, reduced coverage of TPT and disruption in treatment, there will be indirect impacts because of socioeconomic causes such as loss of wages leading to higher proportions of catastrophic costs and undernutrition. This will increase the number of vulnerable people and hence TB incidence.

This Plan estimates the funding needs at US$ 14.5 billion over a period of 5 years between 2021 and 2025 to avert nearly 4.5 million new cases and prevent more than a million TB deaths during the period. The investments will also avoid the loss of more than 31 million disability-adjusted life years (DALYs) that in turn would contribute to the socioeconomic development of Member States. Some of these costs may need to be frontloaded, depending on the COVID-19 impact on individual countries in terms of decline in case notification, TPT coverage and the socioeconomic impact. Countries also need to make provisions for funding to TB-affected communities and civil society to facilitate community-led monitoring, participation and engagement in governance, law and policy reform in addition to the usual functions of service delivery.

PREAMBLE

Worldwide, tuberculosis (TB) is the leading infectious disease killer. A quarter of the world's population is infected with Mycobacterium tuberculosis. Globally, in 2019, an estimated 10 million people became ill with TB and 1.4 million people died (including 208 000 people with HIV coinfection) *(1)*. With close to half a million people developing drug-resistant TB annually, TB is a major contributor to antimicrobial resistance.

The WHO End TB Strategy, which aims to end the global TB epidemic by 2030, sets milestones for 2020 and 2025, and targets for 2030 *(2)*. Goal 3 of the United Nations (UN) Sustainable Development Goals (SDGs) also targets an end to the TB epidemic by 2030. Correspondingly, TB targets are reflected in the results-based framework of WHO's Thirteenth Global Programme of Work (GPW 13) *(3)*.

Member States of the World Health Organization (WHO) and the UN committed to ending the TB epidemic through adoption of WHO's End TB Strategy and the UN SDGs in 2014 and 2015, respectively *(4)*. In 2017, the first-ever WHO Global Ministerial Conference on TB resulted in the signing of the Moscow Declaration to End TB, which aims to ensure a multisectoral response to TB *(5)*. A Political Declaration was also signed by heads of states in September 2018 at the first-ever UN High-Level Meeting on TB (UNHLM-TB) *(6)*. Through this Declaration, heads of states reconfirmed their pledge to ending TB and achieving the corresponding SDG and End TB Strategy targets. They also endorsed the setting of additional global targets concerning the mobilization of resources for TB prevention, care and research, and the number of people to be treated for TB infection and disease.

Almost half of the deaths worldwide caused by TB in 2019 occurred in the WHO South-East Asia (SEA) Region, home to around a quarter of the global population *(1)*. Maintaining robust progress in this Region is therefore essential if the global goal of ending the TB epidemic is to be realized. Substantial gains have been made in the Region, but the threat to health worldwide posed by the coronavirus disease 2019 (COVID-19) pandemic includes not only the direct effects of the pandemic but also the potential eclipsing of the focus on the global TB emergency *(7,8)*. The COVID-19 pandemic has had a variable impact to date in the Region, but in many countries, there has been targeted diversion and repurposing of TB services, health-care workers and diagnostic equipment *(9)*. The combined effects of COVID-19, containment measures and fragmentation of TB services have led to delays in diagnosis or non-diagnosis and disruption in treatment, resulting in increased morbidity, mortality, transmission and drug resistance. Case notifications have dropped significantly (by at least 20%) and progress in scaling up TB preventive therapy (TPT) has been upended.

Ending the TB epidemic will require an expansion of the scope and reach of interventions for TB prevention, care and control *(10)*. This requires the institution of systems and policies to promote an enabling environment, ensuring shared responsibilities within the health system and beyond; and an

aggressive pursuit of research and innovation to promote the development and use of new tools for TB prevention and care. A comprehensive approach that includes scaling up successful initiatives, empowering community leadership, harnessing digital tools, and implementing easily accessible cash transfers and nutrition support will be critical to success. While continuing to address COVID-19-related challenges, countries will need to rapidly and urgently deploy supplementary measures to address the large numbers of missed cases, poor treatment outcomes and, potentially, a higher TB burden. Urgent, targeted and agile responses have the potential to mitigate and reverse the impact of the COVID-19 pandemic on TB in the Region *(9)*.

This Regional Strategic Plan towards Ending TB in the WHO SEA Region 2021–2025 describes the future directions and focus of work towards TB elimination. It aims to support Member States in reducing mortality from and incidence of TB, in line with the global targets as set in World Health Assembly resolution WHA67.1 *(11)*. The resolution guides countries in addressing persisting and emerging epidemiological and demographic challenges and advancing universal health coverage, along with ensuring robust health and social protection systems. The Plan builds on and expands the existing Regional Strategic Plan towards Ending TB in the WHO SEA Region 2016–2020 and the Global End TB Strategy 2014 *(10,12)*. The milestones and targets for the End TB Strategy are set for 2020, 2025, 2030 and 2035. The milestones for the End TB Strategy for 2030, the target year for the SDGs, are *(2)*:

- 80% reduction in TB incidence rate (compared with 2015)
- 90% reduction in TB deaths (compared with 2015)
- 100% TB-affected families protected from facing catastrophic costs due to the disease.

The End TB Strategy is articulated across three pillars *(2)*. These are as follows:

1. Integrated, patient-centred care and prevention

A. Early diagnosis of TB, including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups

B. Treatment of all people with TB, including drug-resistant (DR) TB, and patient support

C. Collaborative TB–HIV activities and management of comorbidities

D. Preventive treatment of persons at high risk, and vaccination against TB.

2. Bold policies and supportive systems

A. Political commitment with adequate resources for TB care and prevention

B. Engagement of communities, civil society organizations, and public and private care providers

C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality medicines and their rational use, and infection control

D. Social protection, poverty alleviation and actions on the other determinants of TB.

3. Intensified research and innovation

A. Discovery, development and rapid uptake of new tools, interventions and strategies

B. Research to optimize implementation and impact and promote innovation.

While the main responsibility for leading the work on ending TB in a country lies with national TB programmes (NTPs), it is increasingly being realized that NTPs alone will never be able to achieve this ambitious target. The End TB Strategy calls for engagement of all partners, including civil society, in this herculean task. It also calls for collaboration with other ministries and sectors to move towards universal health coverage and social protection for all patients, and to address the social and economic determinants of TB. Accordingly, this Regional Strategic Plan towards Ending TB in the Region 2021–2025 clearly articulates priority interventions in three realms – within TB programmes, within the health system and beyond the health system. It analyses the challenges, bottlenecks and opportunities, and focuses on implementation considerations in the Region. Therefore, the objectives and interventions articulated here are not just meant for NTPs, but the broader health system and an "all-of-government and -society" response that is crucial to an effective and high-coverage response. This Plan can be used as a reference document not just by NTPs but also by officers in concerned ministries, partners in the country and communities to identify complementary activities that are not being addressed, plug the gaps and exercise synergies towards ending TB.

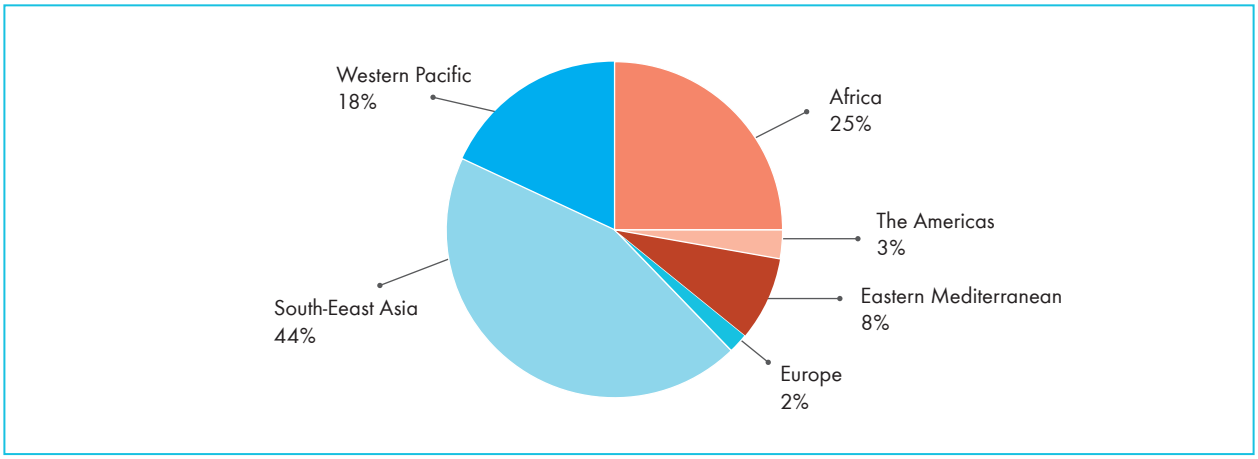
The Plan has been developed in a consultative manner, with input from community organizations, NTPs, partners and patients.

CHAPTER 1:
Introduction

1.1 Global and regional burden of TB

In 2019, an estimated 9.96 million people fell ill with tuberculosis (TB) worldwide *(1)*. This included 5.6 million men, 3.2 million women and 1.2 million children. The largest number of new TB cases occurred in the World Health Organization (WHO) South-East Asia (SEA) Region,[a] which accounted for 44% of new cases, followed by the WHO African Region, with 25% and the WHO Western Pacific Region, with 18% of new cases (Fig. 1.1).

Fig. 1.1: Distribution of TB cases in various WHO regions in 2019 (total estimated incidence = 9.96 million)



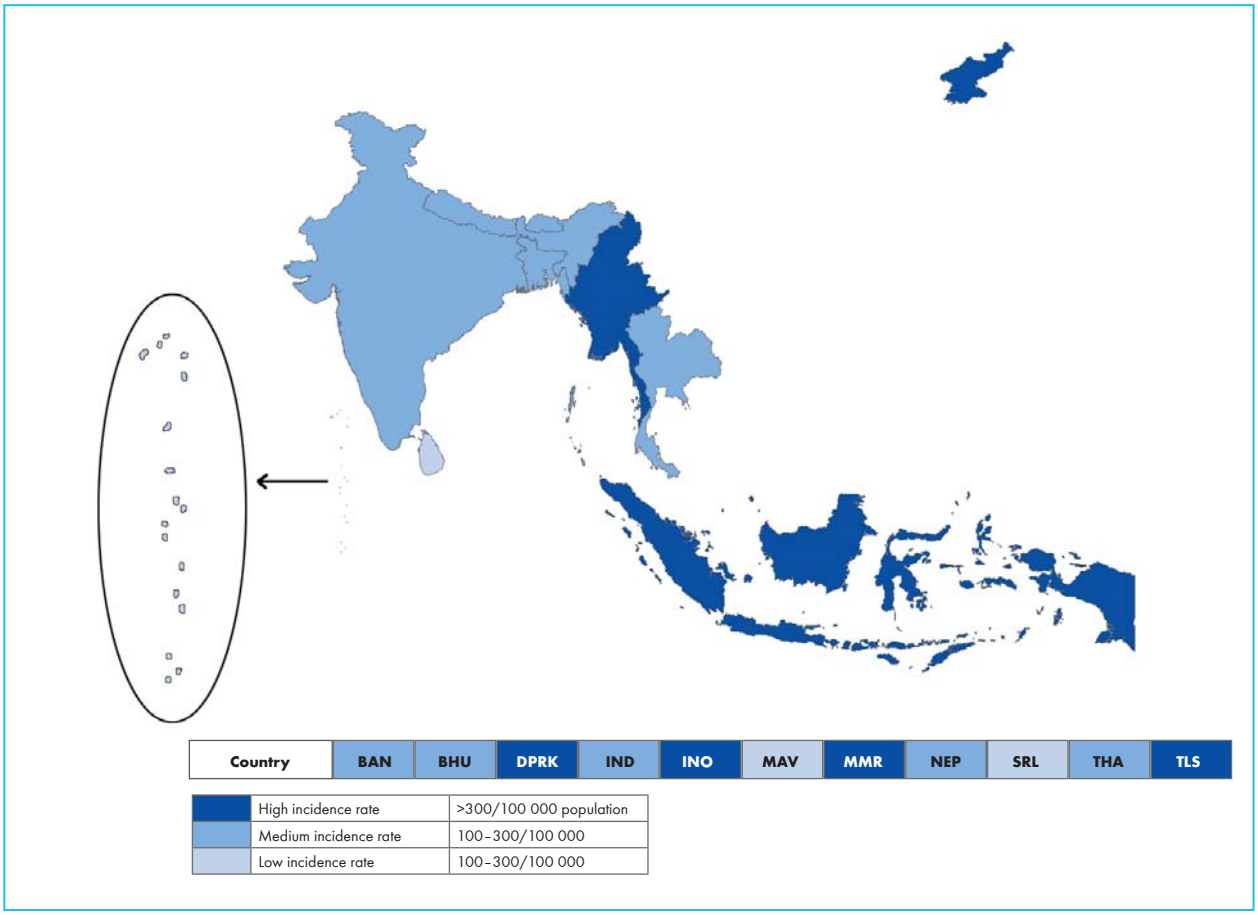
Source: Global TB report, 2020 (1)

In 2019, globally, 87% of new TB cases occurred in 30 high-TB burden countries. Six countries of the WHO SEA Region are among the 30 high-TB burden countries in the world. These are Bangladesh, Democratic People's Republic of Korea (DPR Korea), India, Indonesia, Myanmar and Thailand. Nepal replaces Thailand in the list of countries with a high burden of multidrug-resistant (MDR) TB, while India, Indonesia, Myanmar and Thailand also figure in the list of countries with a high-TB–HIV coinfection burden. Three countries in the Region (Bangladesh, India, Indonesia) contributed nearly 90% of the 4.34 million TB cases in 2019.

[a] The WHO South-East Asia comprises 11 countries: Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste.

The severity of national TB epidemics, in terms of the annual incidence of TB cases relative to the population size (the incidence rate), ranged from 36 persons per 100 000 population in Maldives to 513 persons per 100 000 population in DPR Korea, with the regional average being 217 persons per 100 000 population (Fig. 1.2).

Fig. 1.2: Estimated TB incidence rate in countries of the WHO South-East Asia Region in 2019



Source: Global TB report, 2020 (1)

National TB prevalence surveys have been conducted recently in six countries of the Region – Bangladesh, DPR Korea, Indonesia, Myanmar, Nepal and Thailand. Currently, a large-scale national-level survey is under way in India. All surveys conducted so far indicate that the prevalence of TB is higher among males. Prevalence surveys conducted in countries such as Bangladesh and Indonesia report that nearly half of the TB patients did not seek any care because they had mild or no symptoms *(13)*. A national prevalence survey in Nepal (2018–2019) showed that more than 70% of TB cases had no reported symptoms but had an abnormal chest X-ray *(14)*. The survey of 2017–2018 in Myanmar showed a prevalence of more than 1% in the oldest age group of 65+ years – seven times higher than that in younger adults. Not only was the prevalence rate high, but 50% or more TB patients were also aged 50 years or older *(15)*.

Worldwide, TB is one of the top 10 causes of death and the leading cause from a single infectious agent (even more than HIV). A total of 1.4 million people died from TB in 2019 (including 208 000 people with HIV coinfection) *(1)*. More than 45% of these deaths occurred in the WHO SEA Region. Within the SEA Region, nearly 91% of the deaths occurred in the three high-burden countries (Bangladesh, India and Indonesia).

1.1.1. Burden of HIV infection among TB patients

Globally, in 2019, an estimated 8.2% (range 7.0–9.5%) of the incident TB cases were HIV positive. In the SEA Region, 2.7% (range 2.1–3.4%) of the incident TB cases were HIV positive in the same year, declining from 4.8% in 2015. The mortality rates (deaths per 100 000 population) among both HIV-negative and HIV-positive persons in the Region showed a declining trend between 2000 and 2019 *(1)*.

Within the SEA Region, the estimated HIV positivity rate among incident TB cases in 2019 ranged from 0% in Maldives to 10% in Thailand. Most of the countries in the Region have seen a decline in HIV positivity among new cases *(1)*.

1.1.2. Burden of multidrug-resistant TB/rifampicin-resistant TB

Globally, in 2019, an estimated 465 000 persons had MDR-TB/rifampicin-resistant TB (RR-TB). Of the six WHO regions, the SEA Region has the largest proportion of persons with MDR-/RR-TB (37% of the global burden). The prevalence of MDR-/RR-TB among new TB patients was 2.5% (95% confidence interval [CI]: 1.9–3.3%) and among previously treated TB patients, it was 14% (95% CI: 7.7–21%) *(1)*.

The distribution of MDR-TB cases in various countries of the WHO SEA Region shows that the largest number of MDR-/RR-TB cases are in India (72%), followed by Indonesia (14%) and Myanmar (6%) *(1)*.

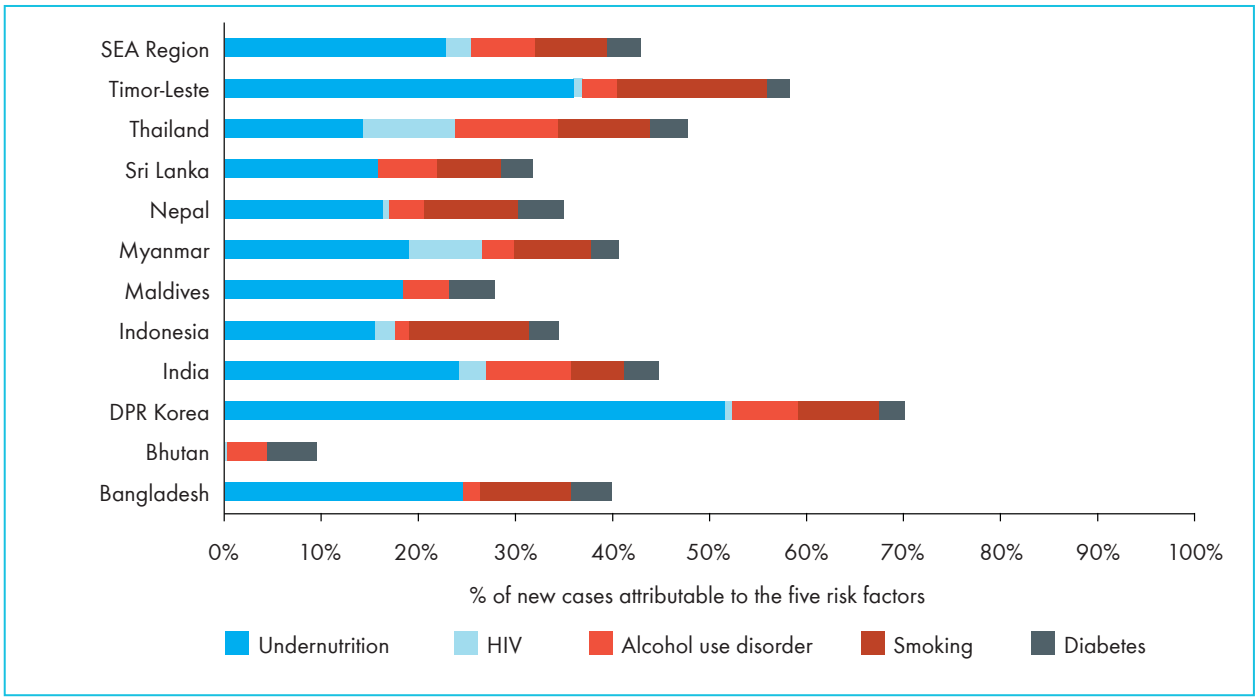
1.1.3. New cases attributable to various risk factors and vulnerabilities in the WHO SEA Region

In 2019, in the Region, of the new cases, 989 000 (22.8%) were attributable to undernutrition, 113 000 (2.6%) to HIV infection, 282 000 (6.5%) to alcohol use disorders, 325 000 (7.5%) to smoking and 153 000 (3.5%) to diabetes mellitus. Undernutrition is a major risk factor in almost all countries; HIV is a major risk factor in Myanmar and Thailand, alcohol use disorder in India and Thailand, tobacco smoking in Bangladesh, Indonesia, Nepal, Thailand and Timor-Leste, and diabetes mellitus in Bangladesh, Bhutan and Maldives (Fig. 1.3) *(1)*.

More than half the annual incidence of TB, of over a million new cases in India, are estimated to be attributable to undernutrition *(16,17)* and modelling suggests that reducing adult undernutrition could reduce new cases by over 70% in vulnerable states *(17)*. Subnational analyses have shown that up to two thirds of incident cases of TB in 15–19 year-olds in India were attributable to undernutrition *(11)*. It

is notable that the prevalence of undernutrition is particularly high in the SEA Region with over 20% of adults over the age of 18 being reported as underweight. This has implications not just for those who transition from TB infection to disease but also outcomes of TB treatment.

Fig. 1.3: Percentage of new cases attributable to various risk factors in the WHO SEA Region, 2019

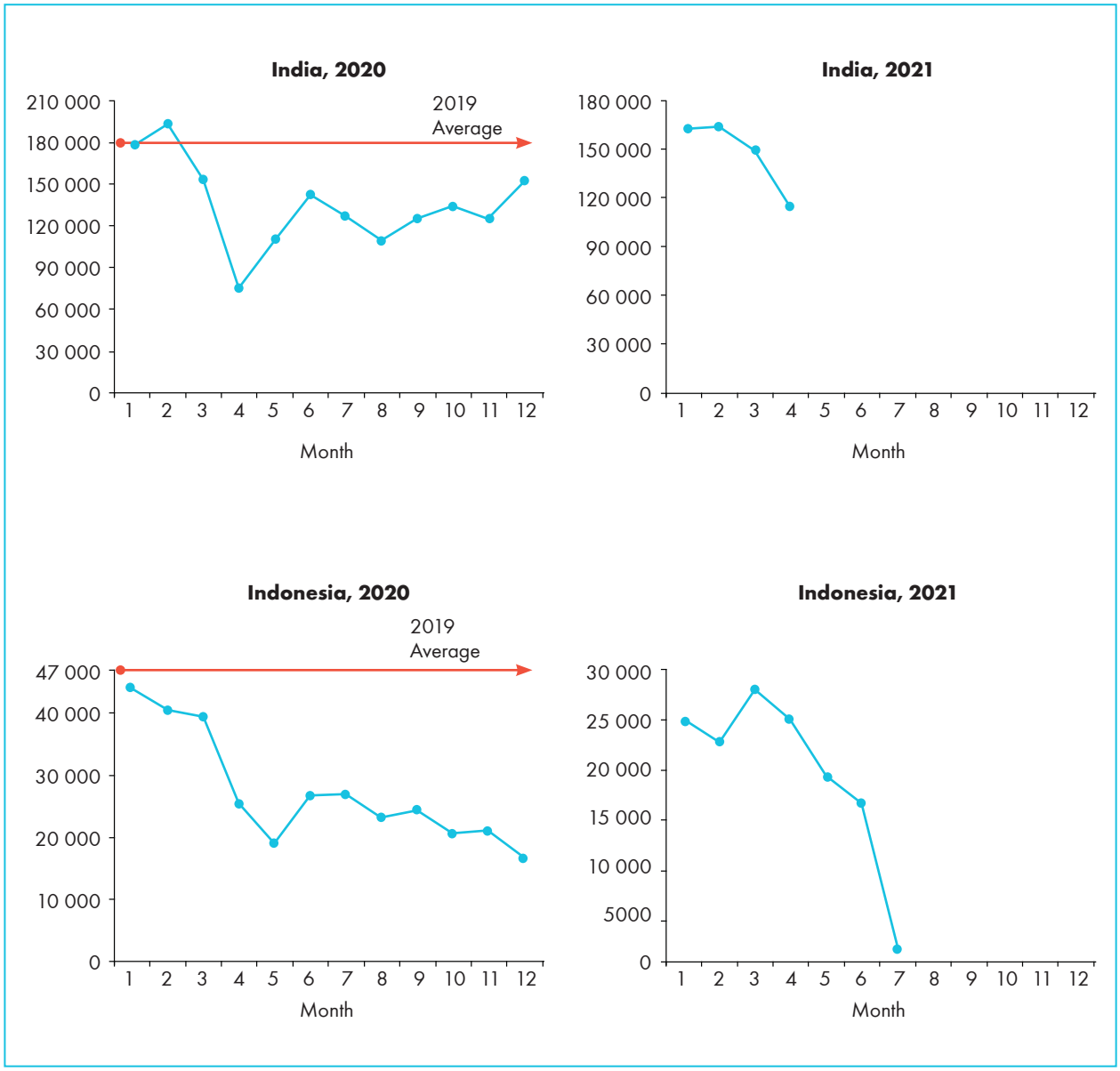


Source: Global TB report, 2020 (1)

1.1.4. COVID-19 pandemic and its impact on the SEA Region

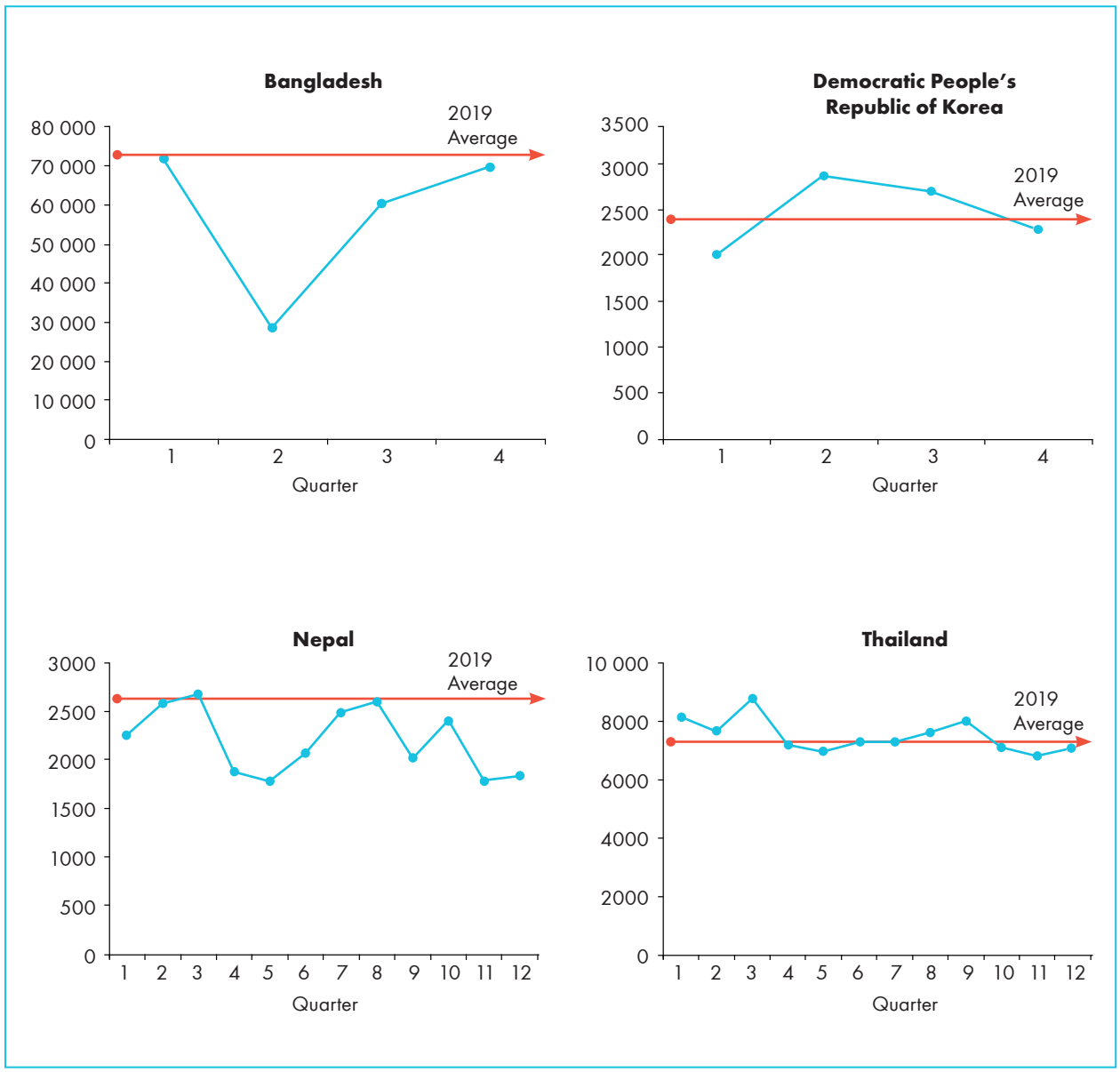
Gaps in case notification were further exacerbated during the COVID-19 pandemic. Preliminary data released by WHO show that high-burden countries such as India and Indonesia may see a decline in case notification of as much as 25% and 40%, respectively, in 2020 (Fig. 1.4a and b). The main driver of missing cases was due to COVID-19-related movement and travel restrictions, overburdened health systems and limited presentation in health settings by patients due to fear to acquiring COVID-19 infection *(18)*.

Fig. 1.4a: New and relapse TB cases per month in 2020 and 2021 for the two highest TB-burden countries in the Region, India and Indonesia



Source: https://www.who.int/teams/global-tuberculosis-programme/data (2020 and 2021 data are provisional, as reported to WHO by August 2021 and subject to change)

Fig. 1.4b: New and relapse TB cases per quarter or month, 2020 for other countries in the Region



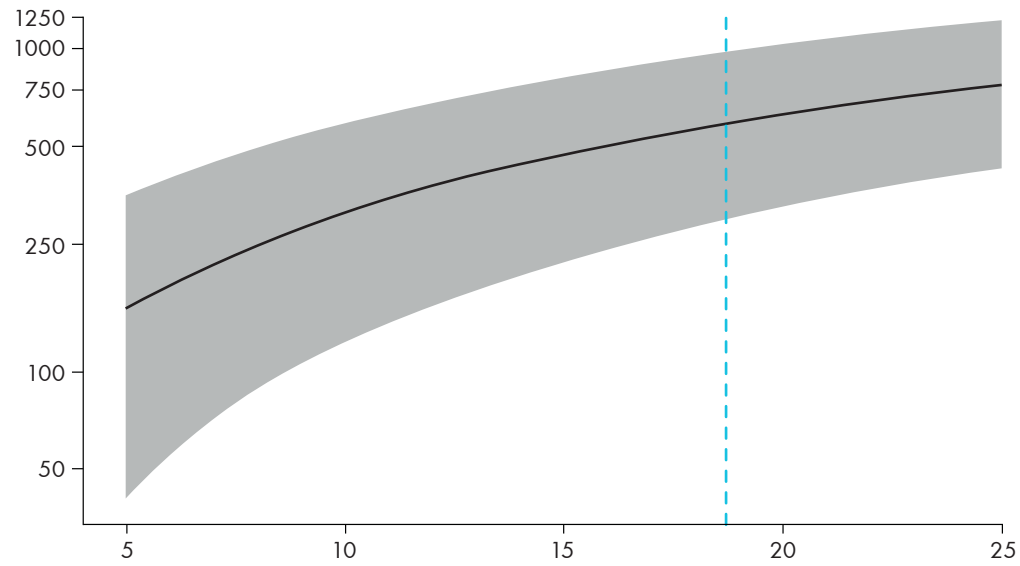
Source: https://www.who.int/teams/global-tuberculosis-programme/data (2020 and 2021 data are provisional, as reported to WHO by August 2021 and subject to change)

It is anticipated that this drop in case notifications will lead to a sharp increase in prevalence followed by rise in incidence of TB cases, which will not come back to the current trend levels even in 5 years from now if urgent measures are not taken to treat missing TB cases. The gap in case-finding and treatment disruptions may cause an additional 0.25 million deaths due to disruptions in 2020 alone (extrapolated for the SEA Region from global modelling) *(1)*. This is further discussed in Chapter 4.

The impact of COVID-19 on TB epidemiology. This is not only because of the increasing gaps between incidence and case-finding, but is also compounded by the heightened vulnerability of marginalized groups. This is due to increased poverty and undernutrition that increase the risk of acquiring TB and progression from infection to disease, and increased barriers experienced by people affected by TB to access the services they need.

Impact on TB mortality. Provisional data compiled by WHO from 84 countries indicate that an estimated 1.4 million fewer people received care for TB in 2020 than in 2019. In the group of 10 high-burden countries with the largest reported shortfalls compared with 2019, the overall shortfall was 28%. WHO estimates that these COVID-19-related disruptions in access to TB care could cause an additional half a million TB deaths (Fig. 1.5).

Fig. 1.5: Estimated excess TB mortality globally due to shortfall in case detection in 2020



Source: https://www.who.int/teams/global-tuberculosis-programme/data

While TB has been a public health emergency in the SEA Region for decades, the simultaneous waves of COVID-19 have eroded progress, diverted critical resources and increased the conditions in which TB flourishes. At the same time, COVID-19 has created several opportunities and led to innovations in health service delivery, which can be leveraged effectively by TB programmes. These include e- and m-health, scale up of molecular testing platforms, increased awareness of infection control, and an increased acceptance and use of face masks.

CHAPTER 2:

Progress since the Regional Strategic Plan 2016–2020

2.1 Increased political commitment towards ending TB

2.1.1. Major World Health Assembly and Regional Committee resolutions on TB

Resolution WHA67.1 (2014), in which the World Health Assembly adopted the global strategy and targets for TB prevention, care and control after 2015, known as the "End TB Strategy" *(11)*

Resolution SEA/RC68/13 (2015), in which the Regional Committee adopted the End TB Strategy for implementation in the WHO SEA Region *(19)*

Resolution SEA/RC72/9 (2019), in which the Regional Committee adopted the Regional Action Plan on the programmatic management of latent TB infection[b] and the Global strategy for TB research and innovation *(20)*

Resolution WHA73.3 (2020), in which the World Health Assembly adopted the Global strategy for tuberculosis research and innovation.

2.1.2. High-level global and regional events that reaffirmed commitments towards ending TB

The **Delhi Call for Action 2017** *(21)* had the highest government representation from Member States of the Region. It brought together health ministers to garner political commitment for efforts to "bend the curve" and achieve the 2030 targets.

In the same year, the **Moscow Declaration to End TB** *(5)*, adopted in a global ministerial conference attended by 114 country delegations, called for an increase in multisectoral action and enhanced accountability for the global TB response through sustainable financing; pursuit of science, research and development; and establishment of a multisectoral accountability framework towards ending TB by 2030 *(2)*.

[b] "Latent TB infection" is also referred to as "TB infection".

The **Delhi End TB Summit 2018** *(22)* brought together Member States of the Region to track progress towards the End TB 2030 targets. Member States stressed on their intent to reach out to 2 million missing TB cases and 150 000 cases with MDR-TB by 2020 and implement a response that is demonstrably adequate for ending TB. The Summit led to the issuance of a Statement of Action.

Key components of Delhi End TB Summit statement of Action

- LEAD implementation of the national TB responses in countries by an empowered national initiative that reports to the highest levels of government in Member States
- INCREASE budgetary and human resource allocations by governments as well as by their global, domestic and other partners so as to ensure that national TB plans are fully funded
- ENABLE the best possible care to each and every person, including migrants, the aged and other high-risk and vulnerable populations, living with any form of TB (through newer strategies)
- SUPPLEMENT medical care for TB with social and financial protection in a holistic manner

The **UN General Assembly High-Level Meeting** "United to End Tuberculosis: an urgent global response to a global epidemic" *(6)* committed to greater efforts and investments towards the Sustainable Development Goals (SDGs) and elimination targets of 2030. The Political Declaration of the UN High-Level Meeting (UNHLM) included four new global targets:

Global targets included under the Political Declaration of the UN High-Level Meeting

- Treat 40 million people for TB disease in the 5-year period 2018–2022
- Reach at least 30 million people with tuberculosis preventive treatment (TPT) to treat TB infection in the 5-year period 2018–2022
- Mobilize at least US$ 13 billion annually for universal access to TB diagnosis, treatment and care by 2022
- Mobilize at least US$ 2 billion annually for TB research

Examples of increased political commitment to End TB

India

While inaugurating the Delhi End-TB Summit in March 2018, the Prime Minister launched the TB-free India Campaign to eradicate TB from India by 2025, five years ahead of a globally set deadline. Accordingly, the National TB Programme (NTP) in India has developed and begun implementing a National Strategic Plan for TB Elimination in a mission mode for ending the epidemic by 2025.

Indonesia

The President of Indonesia convened a high-level meeting in Jakarta in July 2020 to accelerate elimination of TB in the country by utilizing the country's COVID-19 tracking protocols. During the meeting, the President issued three specific mandates: (a) aggressive tracking to find TB cases, mirroring contact-tracing protocols for COVID-19; (b) continuing TB services, including diagnosis and treatment, and making available stocks of medicines; (c) institution of a cross-ministerial and cross-sectoral approach to TB awareness, prevention, diagnosis and treatment.

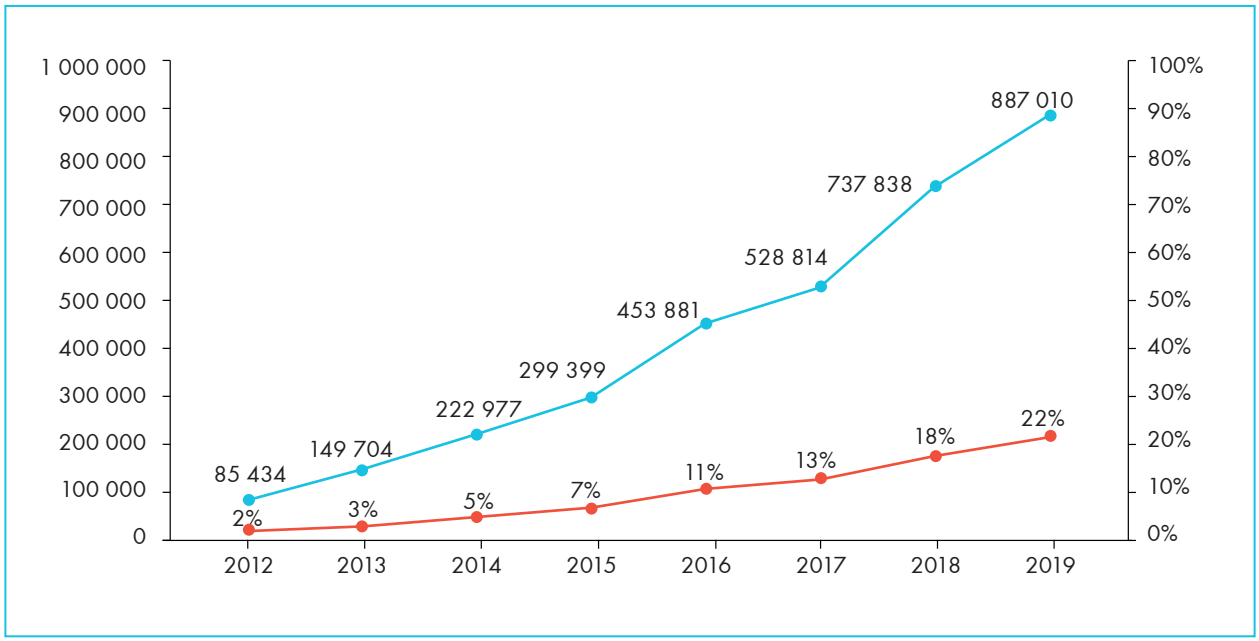
2.2. TB programme performance

2.2.1. Case notification rates

In 2019, TB notification rates in the Region were 78% of the estimated incidence (which is above the global average).

- In 2019, the percentage of TB cases notified in countries of the SEA Region varied from 46% to 82%, while the overall percentage of incident cases notified in the Region increased from 54% in 2015 to 78% in 2019 *(1)*. When compared to 2015, the percentage of TB cases notified has increased in all countries of the SEA Region except in DPR Korea (14% decrease) and Sri Lanka (7% decrease). The increase in TB notification was highest in Thailand (29%) followed by Indonesia (28%), India (23%) and Bangladesh (21%). A significant scale up of private sector engagement has been noted in recent years in SEA Region Member States resulting in a nearly 10-fold increase in private notifications over a span of seven years. Relative to estimated incidence, private for-profit provider notifications are highest in India (26%), followed by Bangladesh (22%) (Fig. 2.1).

Fig. 2.1: Private provider notifications –¬ number and percentage of incidence, total of Bangladesh , India, Indonesia, and Myanmar



Tuberculosis public–private mix) learning network (23)

It is to be noted that the preliminary data released by WHO show that high-burden countries in the SEA Region may see a decline ranging from 25% to 40% in 2020 due to COVID-19-related restrictions and the exposed gaps in the health system because of challenges imposed by the COVID-19 response *(24)*. This may mean undoing of some progress made so far.

2.2.2. TB treatment success rates

The overall treatment success rate in the Region varied from 84% among new TB patients and those with relapse to 52% among MDR-/RR-TB patients. At the individual country level, the treatment success rate among new and relapse TB patients varied from 64% in Maldives to 95% in Bhutan; among previously treated (excluding relapse) cases it varied from 65% in Thailand to 97% in Timor-Leste; among HIV-positive TB patients from 53% in Sri Lanka to 100% in Maldives; and among MDR/RR-TB patients from 45% in Indonesia to 98% in Bhutan *(1)*.

2.3 Progress against the indicators established in the Regional Strategic Plan 2016–2020

The progress against the 10 priority performance indicators for monitoring implementation of the End TB Strategy at the regional level is given in Table 2.1 *(1,12)*.

Till 2019, there was good progress in TB treatment coverage, TB treatment success rate among new cases, use of molecular WHO-recommended diagnostics (mWRDs), improved coverage of TPT, and HIV testing of TB patients. However, there was suboptimal progress in improving the TB treatment success rate among HIV-positive TB patients and among MDR/RR-TB cases, reducing catastrophic costs due to TB, contact investigation coverage, treatment coverage of TB patients with new drugs and in reducing the case fatality ratio (CFR).

Table 2.1: Performance against the 10 priority performance indicators for monitoring implementation of the End TB Strategy in the SEA Region 2016–2021

Indicator	Baseline (2015)	Progress (2019)	Target (2025)
1. TB treatment coverage	54%	78%	≥90%
2. TB treatment success rate			
a. New and relapse	79% (2014)	84% (2018)	≥90%
b. HIV-positive TB	74% (2014)	74% (2018)	
c. MDR-/RR-TB	49% (2013)	52% (2017)	
3. Percentage of TB-affected households that experience catastrophic costs due to TB	No data	Data from only two countries*	0%
4. Percentage of new and relapse TB patients tested using a WHO-recommended rapid diagnostic test at the time of diagnosis	5%	21%	≥90%
5. Treatment coverage of latent TB infection	2%	33%	≥90%
a. Children aged <5 years who are household contacts	9%	32%	
b. People living with HIV (PLHIV) newly enrolled in HIV care			
6. Contact investigation coverage	No data	No data	≥90%
7. Drug-susceptibility testing (DST) coverage of TB patients	5%	65%	100%
a. New cases	57%	82%	
b. Previously treated cases			
8. Treatment coverage, new TB drugs	No data	No data	≥90%
9. Documentation of HIV status among TB patients	52%	68%	100%
10. Case fatality ratio (CFR)	17%	15%	≤5%

**Only two countries in the Region (Myanmar and Timor-Leste) have undertaken catastrophic cost surveys (25). In Myanmar and Timor-Leste, 60% and 80% of the households, respectively, experienced catastrophic costs. The results of these surveys cannot be extrapolated to all the countries in the Region. However, they suggest that TB, at least in certain settings, establishes a vicious cycle of poverty and disease. A small catastrophic cost study in Indonesia conducted in 2018 showed that 36% of TB-affected households experienced catastrophic cost incidence (26). For MDR-TB-affected households, the incidence was 83%. Nationally representative surveys are currently under way in Indonesia, Nepal and Thailand.*

Source: Global TB report, 2020 (1)

2.4. Regional progress against the 2020 End TB Strategy milestones

TB incidence rate has declined by 9%, from 238 per 100 000 population in 2015 to 217 per 100 000 population in 2019. The decline is highest in Myanmar (18%), followed by Maldives (14%), India (11%), Nepal (11%), Thailand (8%) and Indonesia (4%) *(1)*.

TB mortality has declined with an 11% reduction in the estimated number of TB deaths, from 710 000 deaths in 2015 to 633 000 deaths in 2019. The decline is highest in Bangladesh (42%) followed by Myanmar (38%) and Thailand (24%) *(1)*.

Catastrophic costs have been conducted in a limited (two completed, two ongoing) number of countries in the Region *(27)*. Myanmar was one of the earliest to undertake such a survey in 2016. Over 60% of TB-affected households experienced catastrophic costs due to TB in Myanmar. Patients with drug-sensitive (DS)-TB faced an average cost of US$ 649 whereas those with MDR-TB faced an average cost of US$ 2492. The Timor-Leste survey found that over 80% of families of TB patients faced catastrophic costs *(25)*. Interim results from the Thailand survey in 2021 suggest that 20% of families face catastrophic costs, that is, 11% people with DS-TB and up to 30% in those with MDR-TB. Indonesia is currently undertaking a survey and the results are expected by the end of 2021.

2.5. Funding status

The funding status of the NTP budgets in the SEA Region in 2015 and 2019 is given in Table 2.2. The annual funding required by NTPs of the Region has seen a significant increase from US$ 578 million in 2015 to US$ 1254 million in 2020. The funding available for NTPs has increased from US$ 480 million in 2015 to US$ 840 million in 2020. Domestic funding for NTPs has more than tripled, from US$ 168 million in 2015 to US$ 539 million in 2020. International funding for the NTPs has slightly decreased from US$ 312 million in 2015 to US$ 301 million in 2020. The funding gap for NTPs has increased from US$ 98 million in 2015 to US$ 414 million in 2020 *(1)*.

Overall, it can be said that while the total funding in absolute terms has increased, it has not been commensurate with the needs of expanding the services and introduction of new tools and technologies.

Table 2.2: Funding requirement for and availability of national TB budgets in the SEA Region in 2015 and 2020

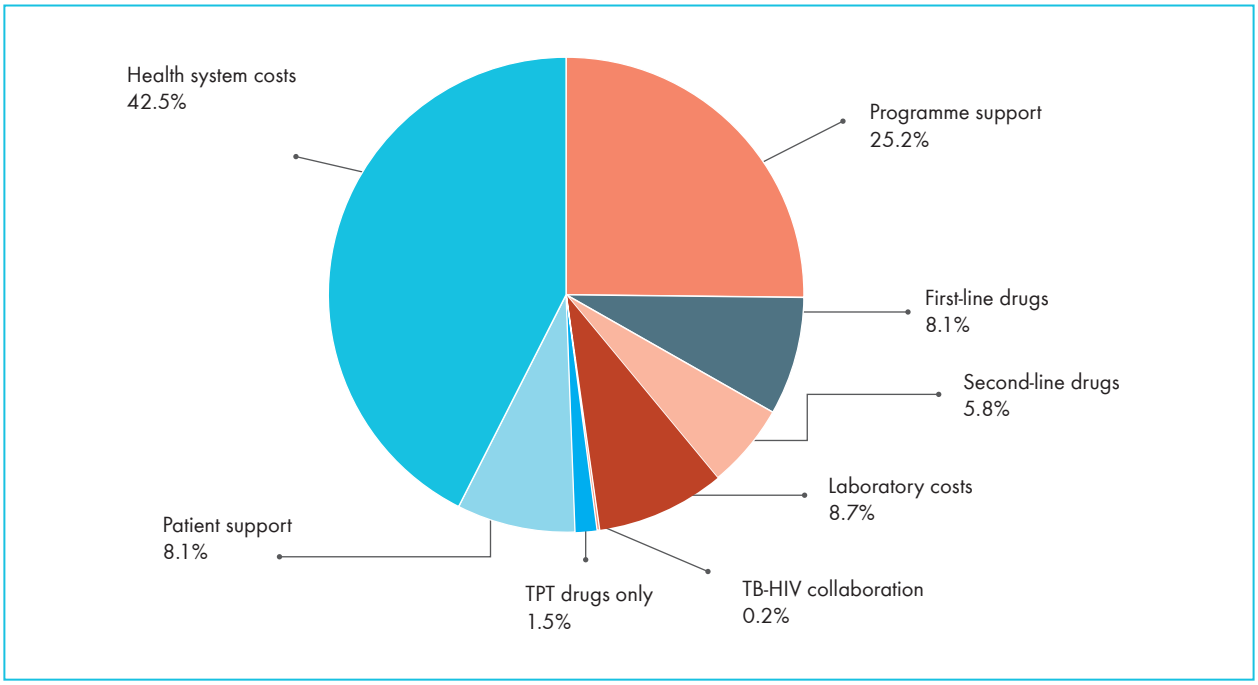
(US$ millions)	2015	2020
National TB budget	578	1254
Domestic funding (%)	168 (29)	539 (43)
International funding (%)	312 (54)	301 (24)
Unfunded (%)	98 (17)	414 (33)

Source: Global TB report, 2020 (1)

Of the US$ 414 million funding gap reported by NTPs (see Table 2.2), a funding gap of US$ 323 million (77%) was reported by Indonesia, US$ 36 million (9%) each by Bangladesh and Myanmar, US$ 26 million (6%) by DPR Korea and US$ 8 million (2%) by Nepal. The major funding gaps were 44% for programme support (including HIV), 41% for laboratories, 8% for TB drugs (first line, second line and TPT) and 7% for patient support.

Table 2.2 includes only the NTP budget and does not include the funding (that is available and incurred by the health system) for ambulatory and inpatient TB treatment services. This additional health system cost is estimated at ~US$ 620 million at the SEA regional level for the year 2020. Therefore, a total of ~US$ 1491 million is likely available for TB services for the year 2020. A break-up of the US$ 1491 million funding availability is 2020 is given in Fig. 2.2. A major part of the TB control budget in the Region comprises 43% health system costs in providing ambulatory and inpatient TB treatment services, 25% for programme support, 15% for anti-TB drugs (for first line, second line and TPT), 9% for laboratory-related expenses, and 8% for patient support.

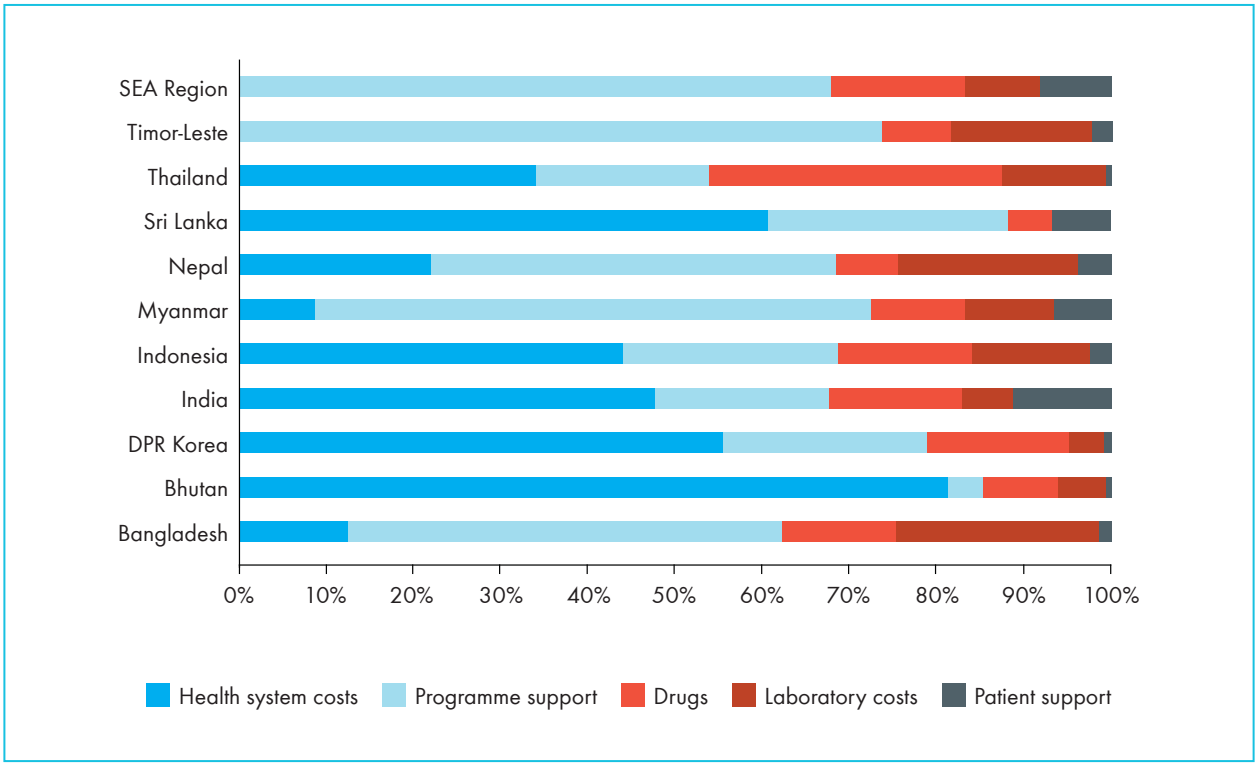
Fig. 2.2: Budget required for implementing various TB interventions by NTPs in the SEA Region, 2020 *(1)*



Tuberculosis public–private mix) learning network (23)

The country-wise funding requirements under various budget heads in the SEA Region, 2020 are given in Fig. 2.3. The health system costs range from 9% in Myanmar to 81% in Bhutan. The NTP programme support costs range from 4% in Bhutan to 64% in Myanmar, anti-TB drug costs from 5% in Sri Lanka to 34% in Thailand, laboratory costs from 4% in DPR Korea to 23% in Bangladesh and patient support costs from 0% in Bhutan and Sri Lanka to 11% in India.

Fig. 2.3: Country-wise* funding requirement for various components of the NTPs in the SEA Region, 2020



Tuberculosis public–private mix) learning network (23)

2.6. Progress on the key challenges identified in the Regional Strategic Plan 2016–2020

Several challenges were identified in the previous Regional Strategic Plan 2016–2020. The progress on five key challenges is mentioned below.

1. Overreliance on donor funding: there has been a threefold increase in domestic funding from US$ 168 million to US$ 559 million (Table 2.2).

2. Persistent weaknesses in the health systems: several high-level meetings were held with Member States, which made commitments to allocate resources for ending TB. The Ministerial Meeting in 2017 unanimously adopted the "Delhi Call for Action", thereby committing to set up a high-level committee, increasing budgetary allocation and human resources, enabling innovations, ensuring patient-centred care, community engagement and social protection. The same was reaffirmed at the Delhi End-TB Summit in 2018.

3. Insufficient co-management of comorbidities due to noncommunicable diseases and TB: there has been good progress in TB–HIV co-management but progress in tackling comorbidities such as tobacco use, diabetes mellitus and malnutrition has been slow.

4. Insufficient regulatory systems and mechanisms: TB has been made a notifiable disease in some countries. There has been limited progress in regulation against irrational use of diagnostics and drugs.

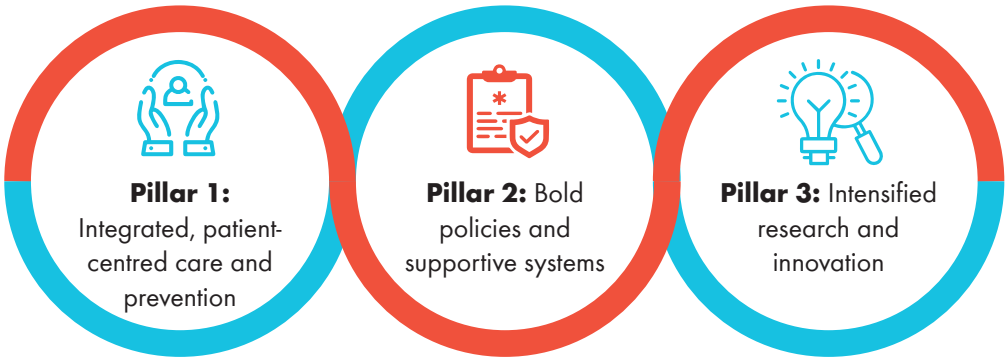
5. Insufficient long-term strategies to address the underlying determinants: several countries have begun adopting a multisectoral accountability framework for TB.

CHAPTER 3:

Analysis of country national strategic plans and potential to reach the 2025 End TB milestones

A review of the core plans within the national strategic plans (NSPs) for TB of the 11 Member States of the WHO SEA Region was carried out in September 2020 to analyse the strengths and gaps in these NSPs. The aims and objectives of and interventions from the plans were compared with country-level priorities derived from national data profiles for 2019 and national epidemiological reviews, the End TB milestones for 2020 and 2025, UNHLM-TB-derived, country-specific treatment targets for DS- and DR-TB and TB prevention, from national budget data, and trends in TB control efforts.

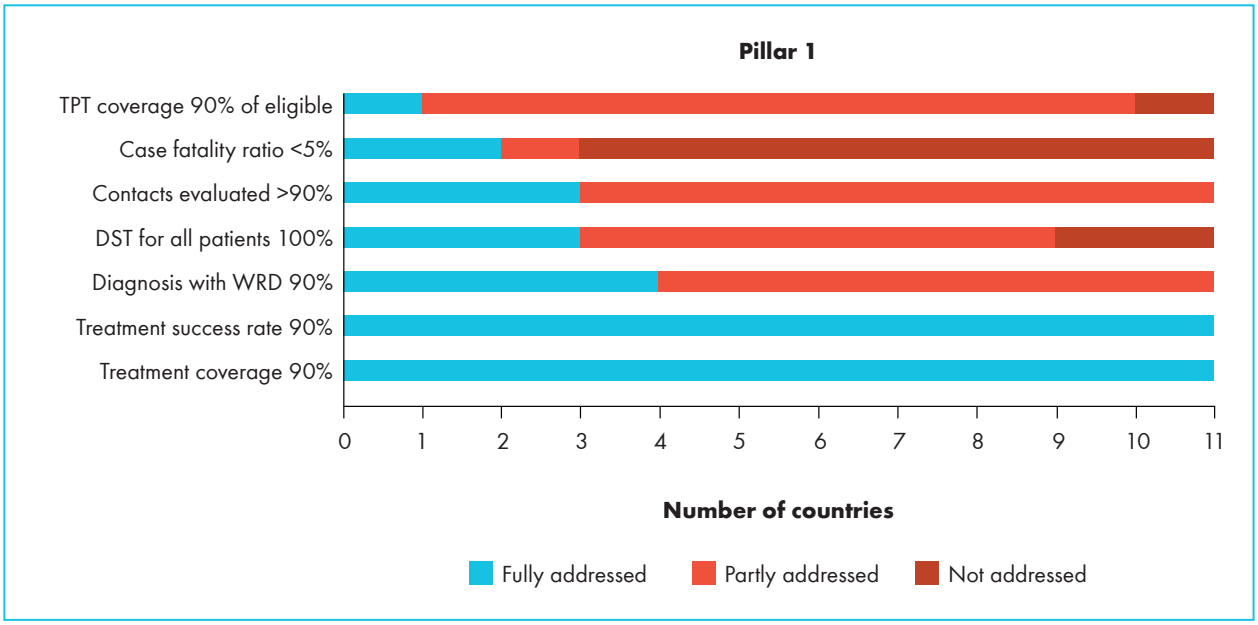
3.1. Assessment of NSPs against the three pillars of the End TB Strategy



3.1.1. Pillar 1: Integrated, patient-centred care and prevention

The components appear to be well addressed in so far as basic TB diagnosis and treatment are targeted across all countries.

Fig. 3.1: Targets for Pillar 1 in the NSPs of SEAR countries



Source: review of available national strategic plans from Member States
DST: drug-sensitivity testing; WRD: WHO-recommended diagnostics

Active case-finding (ACF) or systematic screening for TB is addressed in all NSPs. However, incorporating the newer elements of diagnosis and treatment in the NSPs, as measured by the intention to diagnose more than 90% of cases with an mWRD or the introduction of new drugs and regimens, is still slow.

SEA Region countries generally aim to increase their use of the newer drugs for treating DR-TB. At least three countries – Bangladesh, Bhutan and Maldives – aim for DST in all bacteriologically confirmed cases by 2025.

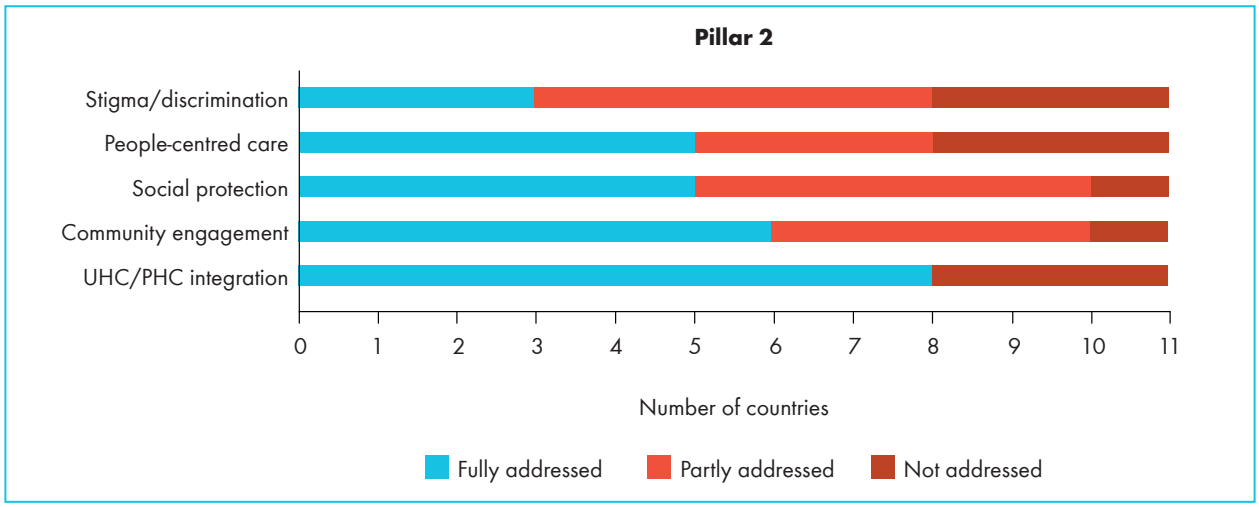
Infection prevention and control (IPC) is covered in the plans of all countries. Most countries have policies on IPC, and plans to implement them more thoroughly and widely, e.g. Bangladesh, India, Indonesia and Thailand. Timor-Leste will develop its guidelines, while Bhutan plans to work with the infection control department to develop plans for TB infection control. DPR Korea focuses on educating other parts of the health sector on infection control, and on implementing IPC focused on MDR-TB activities.

3.1.2. Pillar 2: Bold policies and supportive systems

Most countries address universal health coverage (UHC) in one way or another, as well as UHC's relationship to the primary health care (PHC) system. India's NSP, for example, specifically mentions that UHC is to be achieved through the public PHC system. Bangladesh's NSP has an intervention that sees UHC as part of a human rights-based approach, with specific activities for strengthening the community system, TB survivors and engagement of civil society.

Social protection includes specific support to patients such as literacy support, community-based support, social benefits, differentiated care for those with comorbidities, assessment of post-treatment disability and service provision to go with it, use of technologies to provide early bedside diagnosis where needed, and ensuring that patients in the private sector can access all the support available in the public sector. The NSPs of Bhutan, DPR Korea, India, Indonesia and Timor-Leste particularly appear to be patient focused. The lack of data on catastrophic expenditure for many countries is also a cause for concern. This was set in 2014 with 2020 as the target year *(27)*.

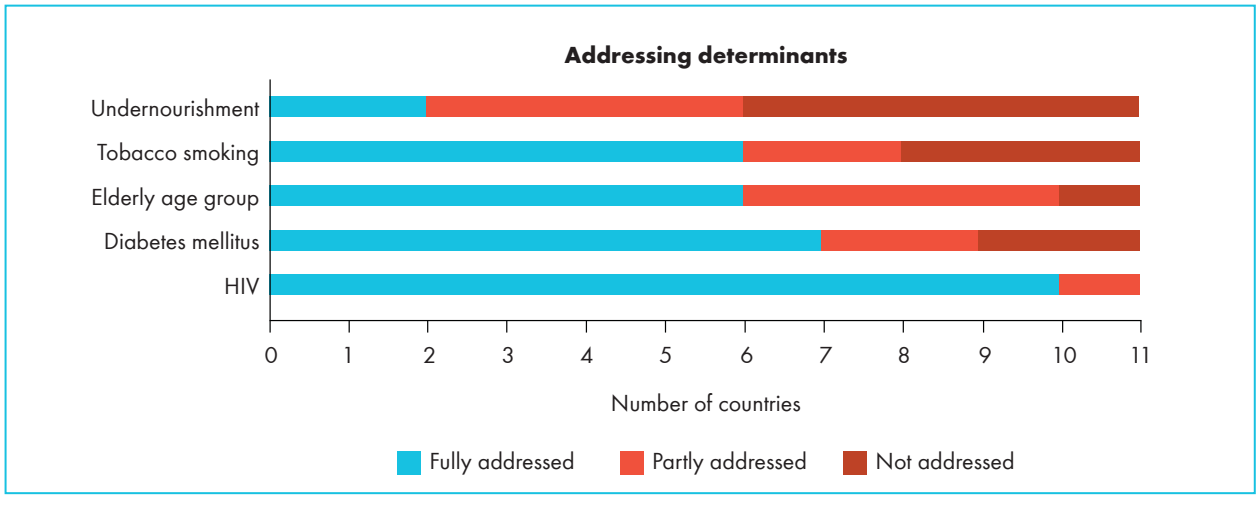
Fig. 3.2: Addressing components of Pillar 2 in the NSPs of SEAR countries



Source: review of available national strategic plans from Member States
UHC: universal health coverage; PHC: primary health care

Elements of the End TB Strategy appear to be less well addressed in NSPs than those of Pillar 1. Undernourishment, HIV, diabetes and smoking, in this order, are the four biggest known drivers of the TB pandemic globally *(1,28)*.

Fig. 3.3: Addressing the determinants of TB in the NSPs of countries of the SEA Region

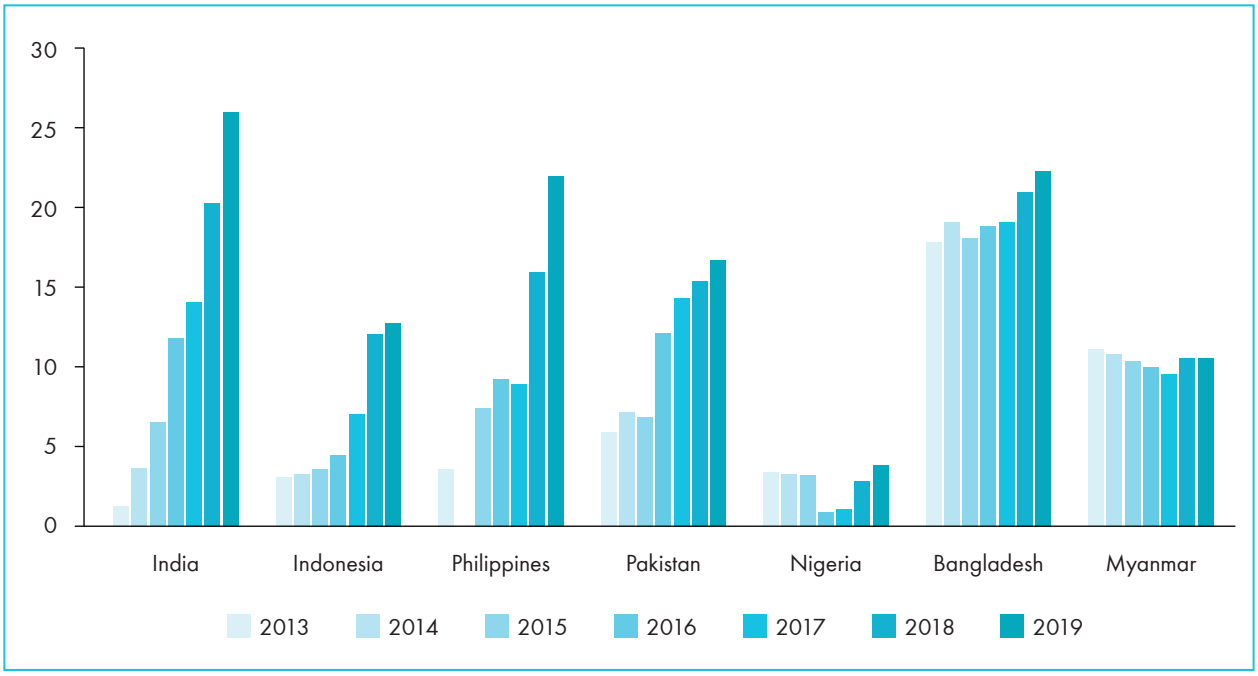


Source: review of available national strategic plans from Member States

Multisectoral accountability approaches are adequately addressed in only three NSPs. Community engagement is paid variable attention in countries and explained in detail in the NSPs of only six countries.

Effective TB control efforts require **engagement with the private sector** (public–private mix, PPM) in most countries of the Region, with the exception of Bhutan and DPR Korea, which have minimal or no private sectors. All the other countries are directing some activities at the private sector in the NSPs *(29)*. In recent years, a changing mindset towards the private sector has resulted in a significant scale up in private provider engagement led by strong nongovernmental organizations (NGOs) acting as intermediaries between providers and NTPs in Bangladesh, India and Myanmar. Indonesia engages private providers through professional organizations and through collaboration with social insurance schemes. Mandatory notification and strong data systems have been crucial for integrating private notifications into NTP data. Additional funding, PPM coordinators at the local level and contracting mechanisms have helped to further implement programmes engaging a variety of private providers (Fig. 3.4).

Fig. 3.4: Private for-profit TB notifications in 2019 as a percentage of estimated incidence



Source: TBPPM learning network (23)

The SEA Region has the highest regional rates of undernutrition among the WHO regions *(30)*. DPR Korea intends collaboration with the "nutrition programme" and the Integrated Management of Childhood Illness (IMCI), and makes a single mention of "nutrition supply" to patients with DS- and DR-TB. Through its Nikshay Poshan Yojana, India unequivocally intends to provide nutritional support to TB patients in both the public and private sectors. Myanmar's plan supports nutritional supplements for patients with both DR- and DS-TB. Indonesia and Bangladesh also have additional plans for wider nutritional support.

Tobacco smoking rates among males are among the world's highest in this Region; up to 76% in Indonesia, although women in all seven countries with available data smoke much less. Most countries are addressing the association of tobacco smoking and TB, although many fall short of including tobacco cessation in NTP activities *(31)*.

3.1.3. Pillar 3: Intensified research and innovation

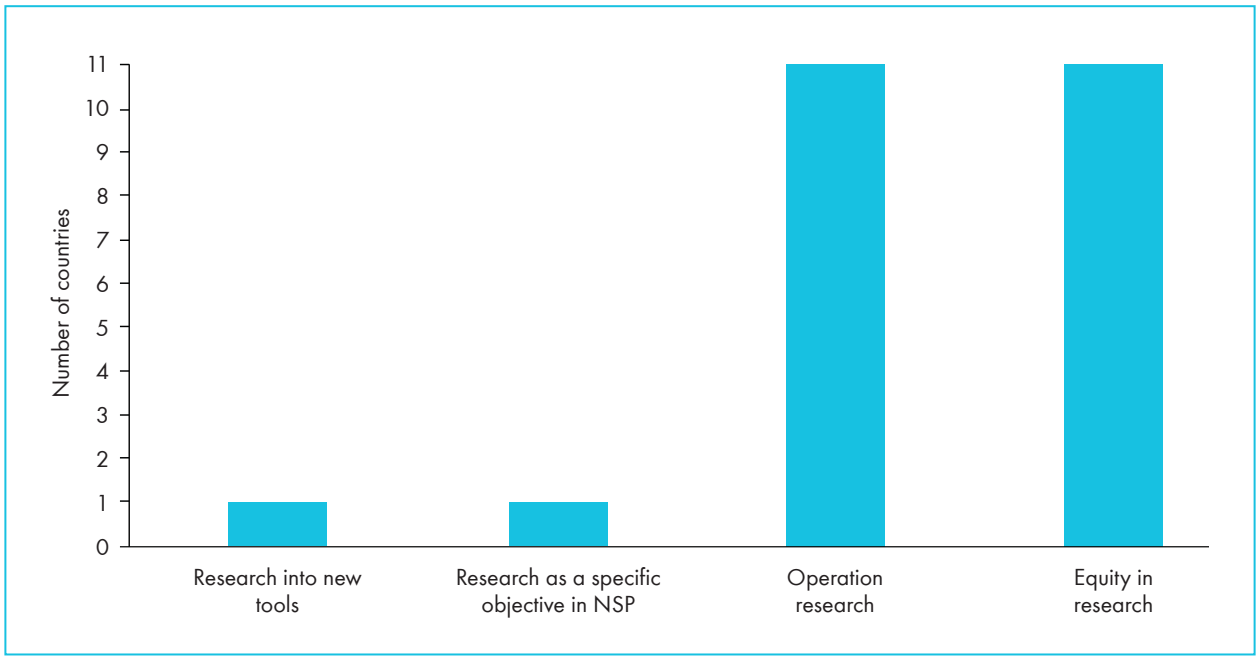
The aim of this pillar is to intensify research for the development of new tools, and their adoption and effective roll-out in countries. It also covers operational research aimed at answering programmatic questions raised by problems experienced by NTPs and others. The latter is particularly well addressed by countries, although research into new tools is mostly confined to a few countries.

While all NSPs refer to equity in the third Pillar of the End TB Strategy, and some have it explicitly in health sector strategies (but not in TB strategies), Nepal mentions it as a specific component of an objective.

3.2. Review of NSP targets against the UNHLM commitments

3.2.1. Treatment targets for drug-sensitive TB in adults and children

Fig. 3.5: Addressing Pillar 3-related components in the NSPs of SEAR countries



Source: review of available national strategic plans from Member States

Eight of the 11 countries reported the numbers expected to be treated in 2022, but only four countries have broken the numbers down into adults and children. The planned treatment targets are clustered close to the expectations. Of importance here is that three of the four highest-burden countries (India, Indonesia, Myanmar) target treatment levels more than the expectations.

If the plans are implemented and the stated targets achieved, the Region as a whole will exceed the regional UNHLM targets for TB treatment.

3.2.2. Treatment targets for drug-resistant TB in adults and children

Eight of the 11 countries reported the total number of treatments for MDR-TB that they plan to provide in 2022. What the countries plan to achieve, compared to what is expected, ranged from 37% to 205% of the apportioned targets.

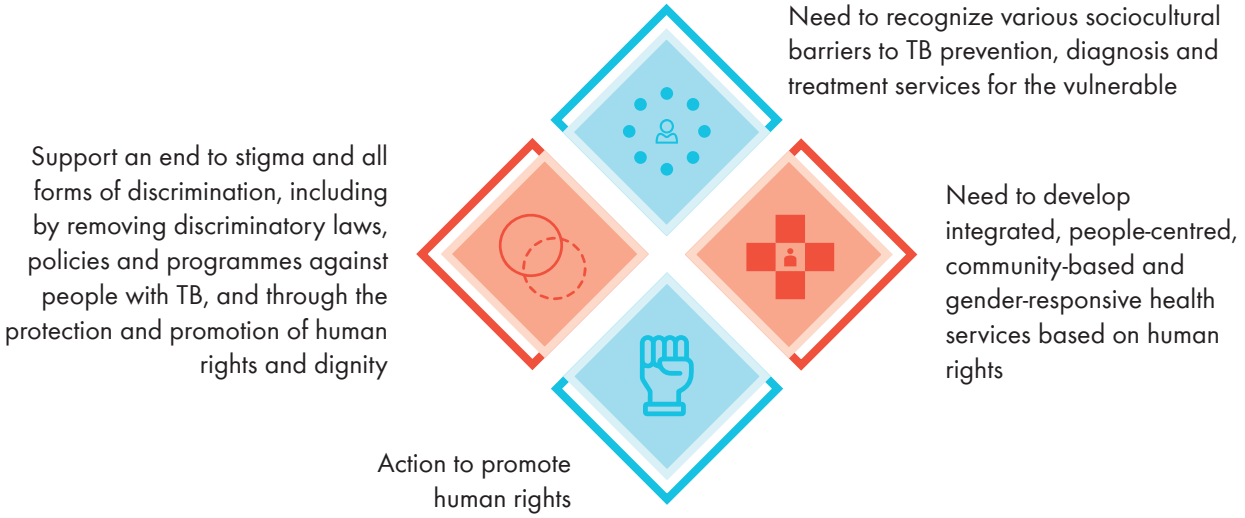
If the plans are implemented and the stated targets achieved, the Region as a whole will be slightly below the regional UNHLM targets for TB treatment.

3.2.3. Targets for coverage of TB preventive therapy

Seven countries have provided some quantification of the number of courses of TPT planned for 2022 in their NSPs. Six countries – Bangladesh, India, Indonesia, Myanmar, Nepal and Timor-Leste – have provided TPT coverage targets for adult contacts; these targets ranged from 49% to 98% of the expected coverage.

If the plans are implemented and the stated targets achieved, the Region as a whole will be significantly below the regional UNHLM targets for TPT. This is because the expected number of adults to be treated is several times higher than that for children; therefore, undershooting the target for adults is not compensated for by exceeding the target for children.

Commitments pertaining to equity and human rights included under the Political Declaration of the UNHLM on TB *(32)*



3.3. Funding status of NSPs

Country reports to WHO show wide funding gaps for the 2020 budgets in six of the 11 countries; these are likely to significantly jeopardize achievement of the targets. Three countries – India, Sri Lanka and Thailand – report no funding gap while six of the 10 countries that have provided information have gaps ranging from 24% in Bangladesh to 74% in Indonesia. The lack of ambitiousness demonstrated by some countries with regard to the coverage targets may, in part, stem from these large funding gaps, three of which are high-burden ones (estimated incidence >300/100 000).

These figures on funding availability were provided before the COVID-19 outbreak. The COVID-19 pandemic has hit TB diagnosis and case-finding hard in countries and is predicted to lead to an increase of 20% in deaths from TB within the next five years *(33)*. The greatest impact will be from reductions in timely diagnosis and treatment of new cases and could result from any prolonged period of COVID-19 suppression interventions. India's NSP contains a risk assessment of COVID-19's impact on TB control but does not feature COVID-19's impact on the TB budget, which is likely to be deleterious.

The 2016–2020 trend of domestic contributions in absolute amounts is on the downswing in six countries and is a cause for concern. Only Bangladesh, Indonesia and Thailand have increased their budget contributions in 2020. India's TB budget doubled between 2016 and 2017 and remained at similar levels thereafter. There has also been a considerable increase in Indonesia's budget allocation for TB activities between 2015 and 2019.

CHAPTER 4:

Overview of the Regional Strategic Plan 2021–2025

4.1. Overview

This Regional Strategic Plan towards Ending TB in the WHO SEA Region 2021–2025 is in line with the global targets enshrined in the End TB Strategy (Table 4.1), which calls upon Member States for an 80% reduction in the TB incidence rate by 2030 (compared with the 2015 baseline); 90% reduction in TB deaths by 2030 (compared with 2015); and 100% TB-affected families protected from facing catastrophic costs due to the disease from 2020 onwards.

Accordingly, the vision, goal and targets for the Plan are as follows:

Vision: A Region free of TB with zero deaths, disease and suffering due to TB

Goal: To end the TB epidemic in the Region by 2030 by adopting and adapting the vision, milestones and targets of the WHO End TB Strategy (Table 4.1)

Targets: Impact targets aligned with the SDG and End TB targets; coverage targets aligned with the UNHLM commitments (Table 4.2).

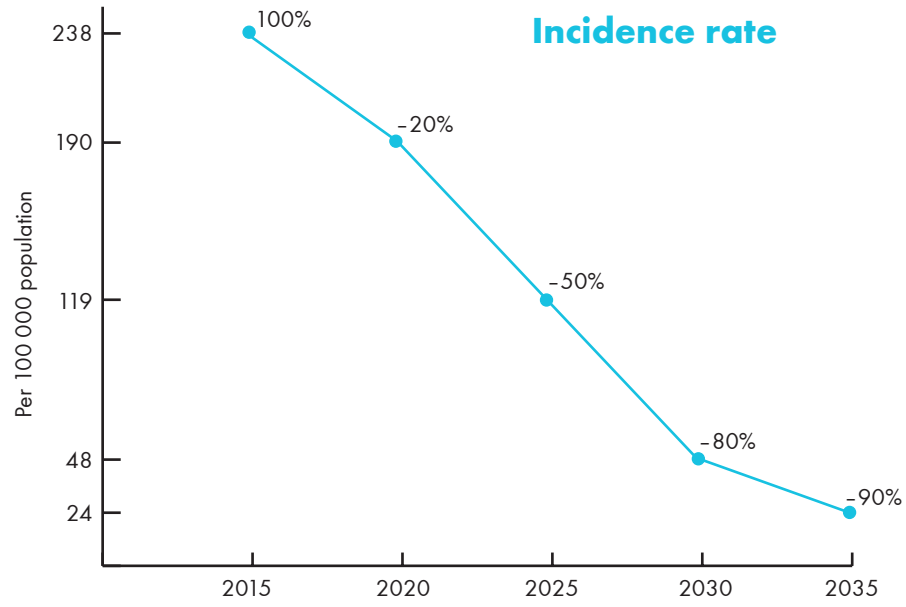
The Regional Strategic Plan is being drafted at a time when the COVID-19 pandemic is ongoing in the world and the Region. The complete impact of pandemic-related service disruption on TB incidence is not known yet but, given the decline in case notifications, is expected to make achievement of the End TB targets more difficult than ever before. The modelled impact of the pandemic and mitigation measures are discussed under the relevant sections.

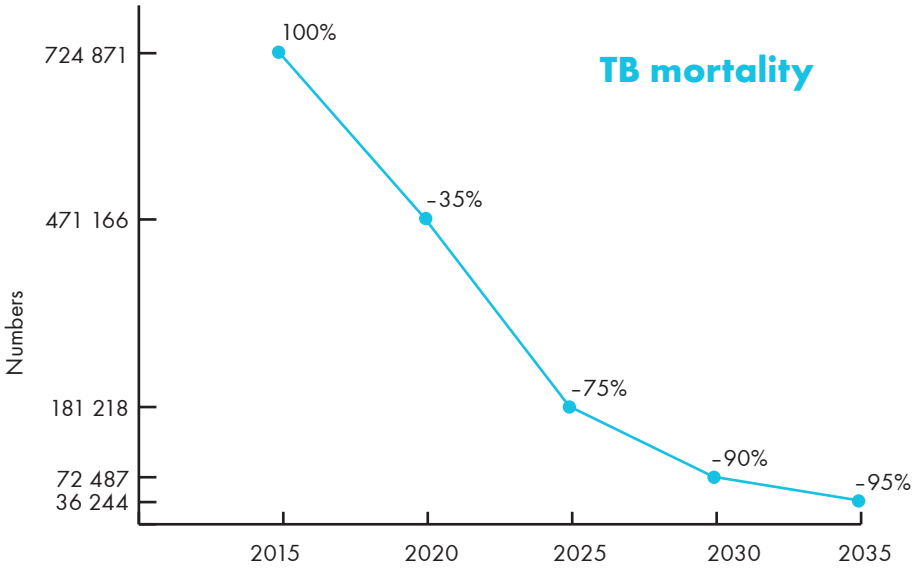
Table 4.1: Global targets as per the End TB Strategy

Indicators	Milestone		Targets	
	2020	2025	2030	2035
Reduction in number of TB deaths compared with 2015	35%	75%	**90%**	**95%**
Reduction in TB incidence rate compared with 2015	20% (<85/100 000)	50% (<55/100 000)	**80%** (<20/100 000)	**90%** (<10/100 000)
TB-affected families facing catastrophic costs due to TB (%)	0	0	**0**	**0**

**Coinciding with the SDG target of ending the disease*

Table 4.2: Impact targets for the SEA Region aligned with the End TB milestones and targets





ZERO catastrophic costs among TB-affected families by 2030

Source: Global TB Report 2020 for baseline figures. Milestones and targets are based on anticipated decline in alignment with End TB figures

Note: Percentages indicate the target decline

4.2. Key interventions to reach the desired targets

To determine the coverage levels and priority interventions required for reaching the desired targets of ending TB in the SEA Region, a modelling exercise was undertaken in close collaboration with Imperial Consulting. Epidemiological modelling for TB transmission dynamics, calibrated separately for the 11 countries of the Region, was used for this purpose. The modelling aimed to estimate the potential impact of accelerated interventions on TB incidence and mortality between now and 2030.

4.2.1. Interventions modelled

1. Engaging all care providers (applies only to countries where non-NTP providers play a sizeable role in managing TB patients): coordination between the NTP and (where applicable) non-NTP providers to ensure that all patients treated receive the same standard of care as required by the NTP. This intervention builds on, and extends, any such existing efforts in each country. For some countries of the Region with a large private sector, efforts will need to be directed towards engagement of the private sector, (public-private mix or PPM). PPM can take various forms and shapes in countries and include in its ambit private hospitals, general physician or specialist clinics, private laboratories and private pharmacies. In countries with a negligible private sector, other public sector agencies may also be key stakeholders in providing health services, highlighting the need for a stronger public–public mix. All these entities, under the stewardship of the national programme, can play a role in ensuring that appropriate standards of care are provided to all persons.

2. Diagnostics outreach and new technology: this includes increased availability of diagnostic centres through decentralization and engagement of new laboratories, over and above the existing centres; replacement of microscopy with rapid molecular tests, and increasing use of chest X-ray as screening tool.

3. Case-finding among household contacts: for every index TB case, at least n additional cases are found among contacts (where n is specified per country based on disease burden) to increase the number of patients initiated on treatment (refer to Annex 1 for assumptions for each country).

4. Reduce treatment-seeking delay: in every country, there is a pre-care-seeking delay before first contact with a health-care provider. Assume measures that reduce this delay by a certain percentage (specified per country in Annex 1). These could involve ACF in vulnerable populations, including asymptomatic persons, other contacts as well as demand-generation measures such as awareness generation, stigma and discrimination reduction, patient support, etc.

5. TPT based on current WHO guidelines adapted to the country context: this constitutes increased uptake of TPT among household contacts (HHCs) and people living with HIV (PLHIV), and other

high-risk and vulnerable groups listed in WHO guidelines, facilitated by the use of new, shorter, simpler regimens for preventive therapy. This is linked to case-finding activities among household contacts, mentioned at #3 above.

6. Preventing reactivation: TB prevention is extended to the general population to reduce the average rate of reactivation of LTBI by a certain percentage (specified per country). Such measures could involve intersectoral efforts such as addressing undernutrition, addressing other TB determinants, and/or risk-targeted preventive therapy.

7. Hypothetical mass prevention tools: in alignment with the End TB Strategy, assume that from 2025 onwards, either biomarker-guided mass preventive treatment or an incidence-reducing vaccine will be available.

The interventions modelled are applicable for all ongoing programmes. The model output builds on and is contingent upon implementation of all interventions as listed above.

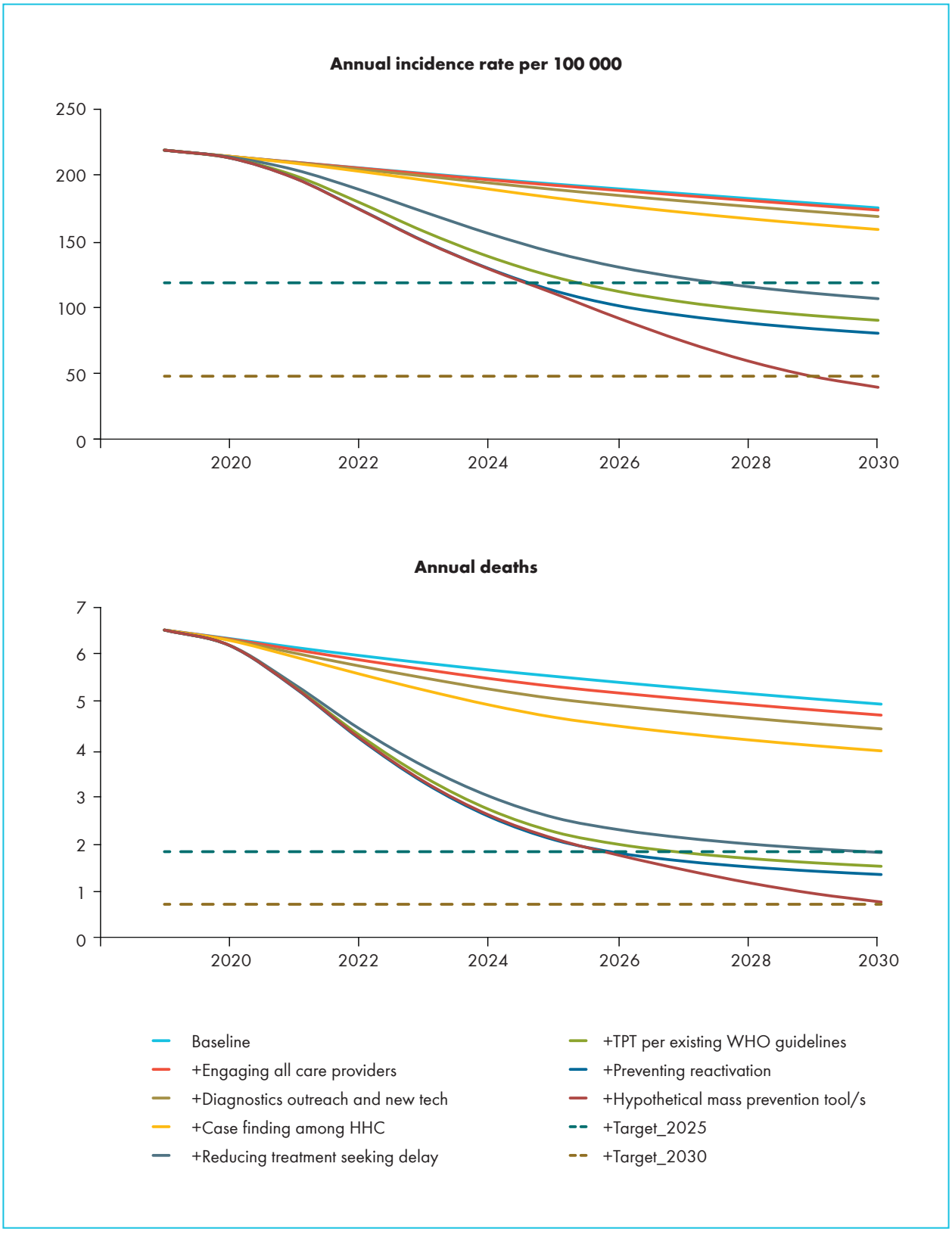
It needs to be emphasized here that, given the likely increase in TB prevalence in the community due to COVID-19-related service disruptions, the impact of accelerated case detection may increase the number of additional cases found and in planning outreach for missed patients during the pandemic.

Fig. 4.1 shows model projections for the incidence and mortality impacts of the interventions listed above at the regional level. The curves show the incremental effect of interventions. Therefore, each curve is inclusive of the impact of previous intervention/s. The combined interventions could reduce overall incidence and mortality in the Region by 83% and 89%, respectively, by 2030. However, on their own, these measures would not be sufficient to meet the 2025 milestones or 2030 targets on time, for either incidence or mortality reduction. A combination of all interventions that build on each other at high coverage is thus critical.

4.2.2 Overall messages

A combination of interventions, addressing every stage of the TB care cascade, will be necessary to meet the 2025, and subsequently 2030, targets for TB incidence and mortality in the Region. The modelled interventions build upon the existing interventions, considered as baseline. Therefore, this modelling is indicative of interventions that need focus, over and above the ongoing efforts by TB programmes. There are important synergies between interventions. For example, engaging all care providers offers some impact on TB mortality by itself, but also acts as an important enabler for other interventions: it allows contact-tracing, preventive therapy among HHCs and improved adherence support to reach a much wider group of patients.

Fig. 4.1: Model projections for the incidence and mortality impacts of interventions at the regional level



Interventions aimed at improving case notifications and treatment outcomes

- Interventions aimed at improving case notifications and treatment outcomes using currently available tools, such as the use of modern TB diagnostics, and newer technologies and treatment regimens, would have an important effect on TB incidence and mortality in all countries of the Region. They would form a critical foundation for meeting the End TB goals. It must also be mentioned here that it is difficult to attain the desired treatment success rates of 90% and above among the elderly population. Although the proportion of the elderly in the SEA Region as a whole is low, this may have an impact for some countries like Sri Lanka and Thailand, where the population in the elderly age group is higher than in other countries. The topic is specifically dealt in section 4.2.3.
- Some of the largest decreases are seen as a result of interventions to reduce "treatment-seeking delay" aimed at more proactive TB case detection than allowing symptomatic persons to self-present for care (not just ACF but also contact investigations and measures such as generating a demand for TB services). These measures address the large pool of patients with undetected TB who have not engaged with the health-care system, as is also evident in prevalence surveys across the Region (see Chapter 1).
- Risk assessment and differentiated care is required to maximize the chances of cure and treatment success. This includes, but is not limited to, advanced disease care and nutritional support for the undernourished, and new shortened TB treatment for eligible patients.
- Artificial intelligence (AI) and innovative digital technology could be used to enhance patient-centred treatment and monitoring, and case-finding.
- In the current scenario of the ongoing pandemic, bidirectional screening for COVID-19 and TB could be used.

Interventions aimed at prevention of TB disease

- At present, TPT offers the principal approach to prevention. WHO guidelines for eligible populations (PLHIV, HHCs of all ages and other risk groups) can bring about meaningful declines in incidence and mortality, in combination with the case-based interventions described above *(34)*.
- However, in order to meet the 2025 milestones and 2030 targets, there will ultimately be a need to extend TB prevention to the population at large: that is, to those at risk who are not in HIV care, who are not HIV coinfected, and who are not contacts of diagnosed TB cases. Such population-based measures will require new approaches to TB prevention, including addressing the determinants of TB such as malnutrition, and the roll-out of a new vaccine or biomarker-guided preventive therapy. An investigational TB vaccine candidate (M72/AS01E) has been found to be significantly protective against TB disease in a Phase IIb trial conducted in Kenya, South Africa and Zambia, in individuals with evidence of latent TB infection (LTBI) *(35)*. A WHO-preferred

product characteristics document for TB vaccines for improvement of treatment outcomes has also been developed *(36)*. However, it is difficult to model the impact of a potential vaccine in future.

- AI and innovative digital technology could be used to enhance person-centred evaluation and preventive treatment.

4.2.3. Addressing the varying needs of specific high-risk and vulnerable populations across the Region

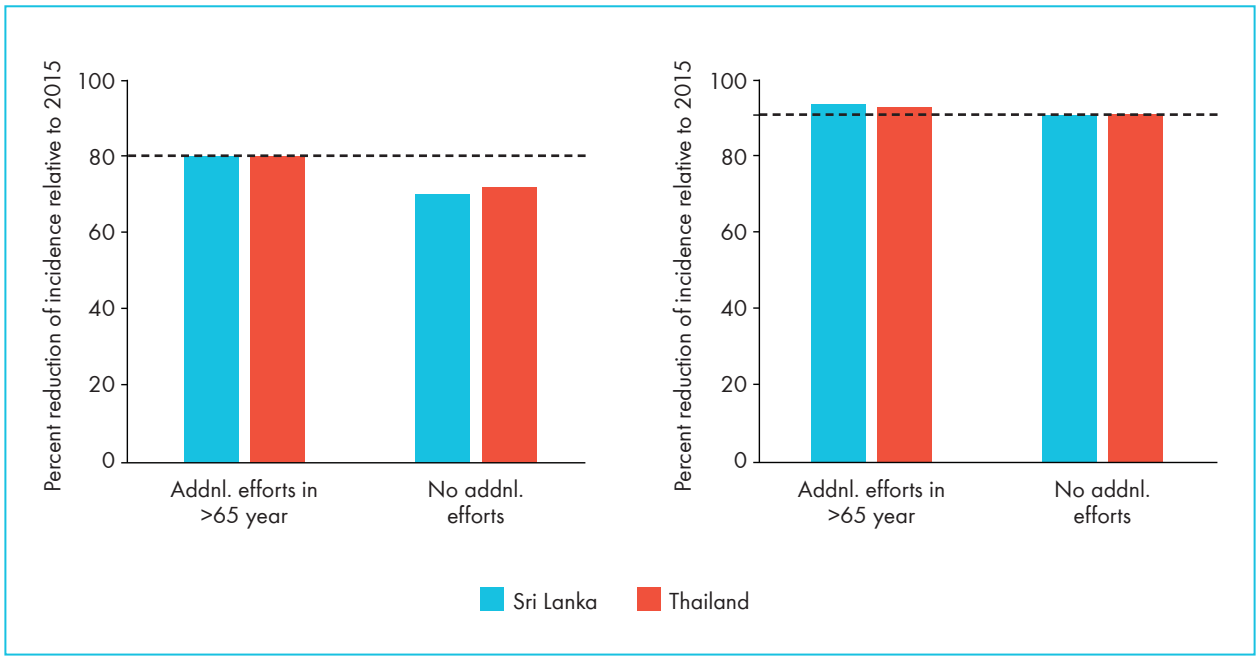
> *In the WHO SEA Region, while the overall proportion of all TB cases notified over the age of 65 years is just over 10%, nearly half of all notifications from this age group are from Sri Lanka and Thailand.*

While this modelling exercise addresses the need for priority interventions in general, country-specific heterogeneities may offer opportunities for focused efforts in specific risk groups. Global and regional case notification data highlight the significant TB burden among the elderly *(1)*. There is also a high prevalence of LTBI among the elderly: more than 60% of those aged 60–65 years in the WHO SEA Region, and more than 70% of those aged 75–80 years are estimated to be infected *(37)*. As an infectious disease, TB in the elderly age group is not just a problem of the old. Children with TB often have an identifiable source who is increasingly being found to be a grandparent *(38)*. Despite the high burden of TB in the elderly in low- and middle-income settings, the problem is not fully addressed *(39)*.

Therefore, in countries of the Region, additional case-finding and TB preventive efforts focused on this age group would play a key role in driving declines in overall incidence and mortality. Sri Lanka and Thailand are two countries where the elderly account for a disproportionate share of the TB burden. Fig. 4.2 compares the overall epidemiological impacts in Sri Lanka and Thailand under two scenarios: (i) the coverage levels as incorporated in Fig. 4.1; (ii) the same coverage levels but in the absence of additional case-finding or preventive activities in over-65 year olds. The figure illustrates the value of these measures, showing that – without these focused interventions in the elderly – it may be still possible to meet the 2030 mortality targets, but it would not be possible to meet the 2030 incidence targets. While this analysis focuses on Sri Lanka and Thailand as two examples, the results remain relevant for any other similar setting where there is a large elderly population.

Shown as examples are Sri Lanka and Thailand, countries of the Region where over-65-year-old people account for the largest proportion of overall, country-level TB incidence. The left-hand panel refers to incidence reductions by 2030, while the right-hand panel refers to mortality reductions by 2030. Within each panel, the two pairs of bars illustrate the difference between targeting interventions in the over-65s versus simply having the same coverage of interventions in this age group as for all other age groups. The horizontal, red dashed line shows the 2030 target.

Fig. 4.2. Importance of focused interventions in the elderly, in countries with a high burden of TB in the elderly (based on modelling)



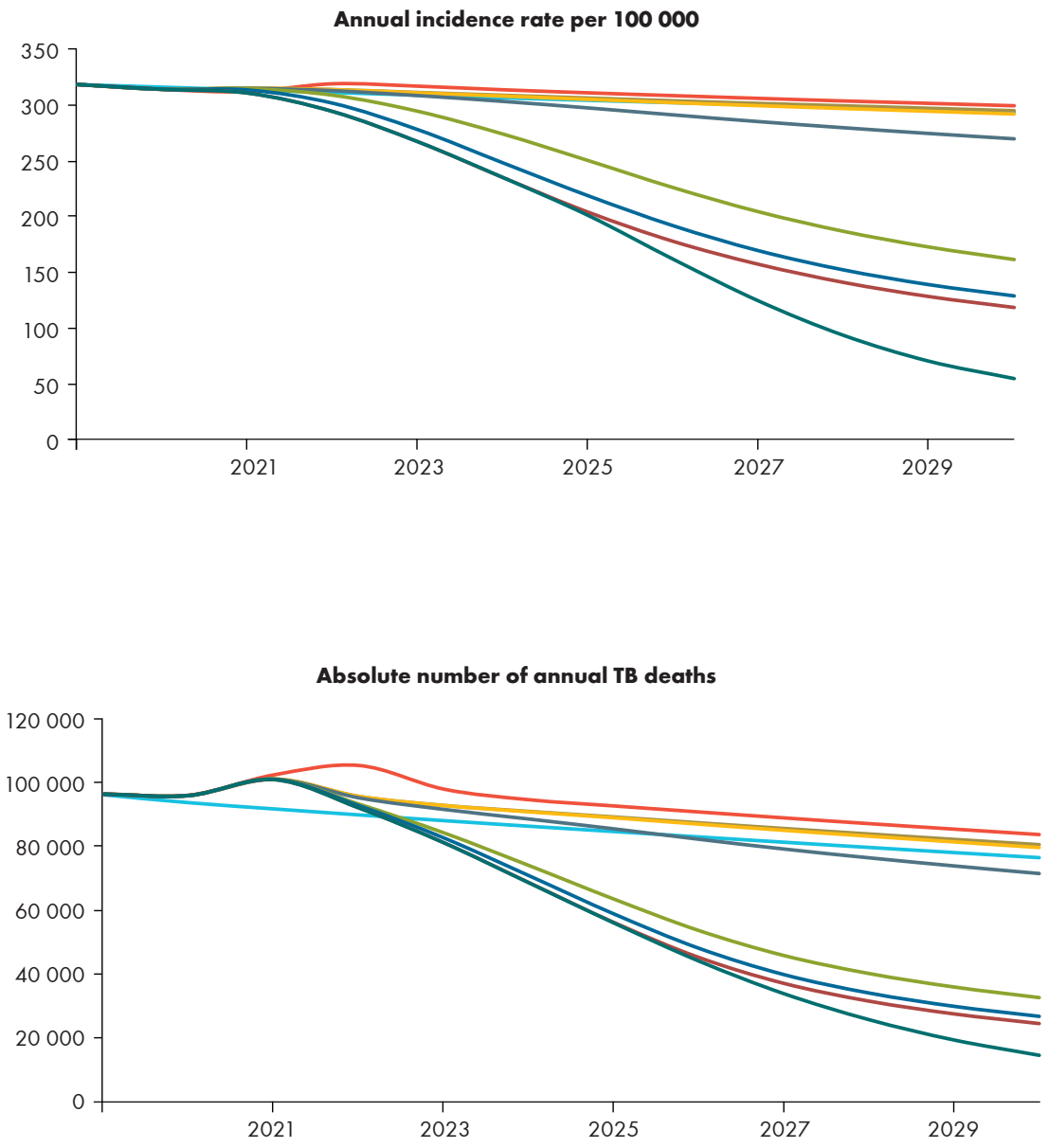
4.2.4. Addressing COVID-19-related disruptions

Disruptions arising from COVID-19 are known to be hindering the TB response across the Region, but their long-term impact needs careful monitoring in the years to come. Modelling results suggest that these disruptions would have a higher immediate impact on prevalence of TB due to lack of access to health services, thereby increasing the pool in the community. The disruptions in services are likely to have more important implications for meeting the mortality targets than the incidence targets.

As a sensitivity analysis to the effect of disruptions arising from COVID-19, Fig. 4.3 shows results in the illustrative example of Indonesia, adopting the same country-specific coverage rates of each intervention as in Fig. 4.1, but also here including temporary disruptions in TB diagnosis based on data available in the public domain till June 2021. The figure illustrates that the disruptions would cause short-term increases in TB prevalence and some increase in incidence. As shown in other analyses, these increases, if left unchecked, could also have a long-term adverse impact on TB incidence and mortality, even if TB services should return to normal *(7,40)*. However, the aggressive measures shown in Fig. 4.3 have the effect of counteracting these long-term adverse impacts, with the overall effect that COVID-19-related disruptions do not have a substantial effect on attainment of the 2025 and 2030 incidence targets. On the other hand, these results suggest that reaching the mortality targets (in both 2025 and 2030) could be delayed due to COVID-19 disruptions. These results arise from model-based

assumptions (e.g. for the duration and intensity of these disruptions), and there remains substantial uncertainty around the true long-term impact of disruptions: nonetheless, these results highlight the need for close monitoring of the TB epidemic, as NTPs gradually recover in the coming months.

Fig. 4.3. Sensitivity analysis on the effect of COVID-19 disruptions on TB activities, in the illustrative example of Indonesia [based on modelling]



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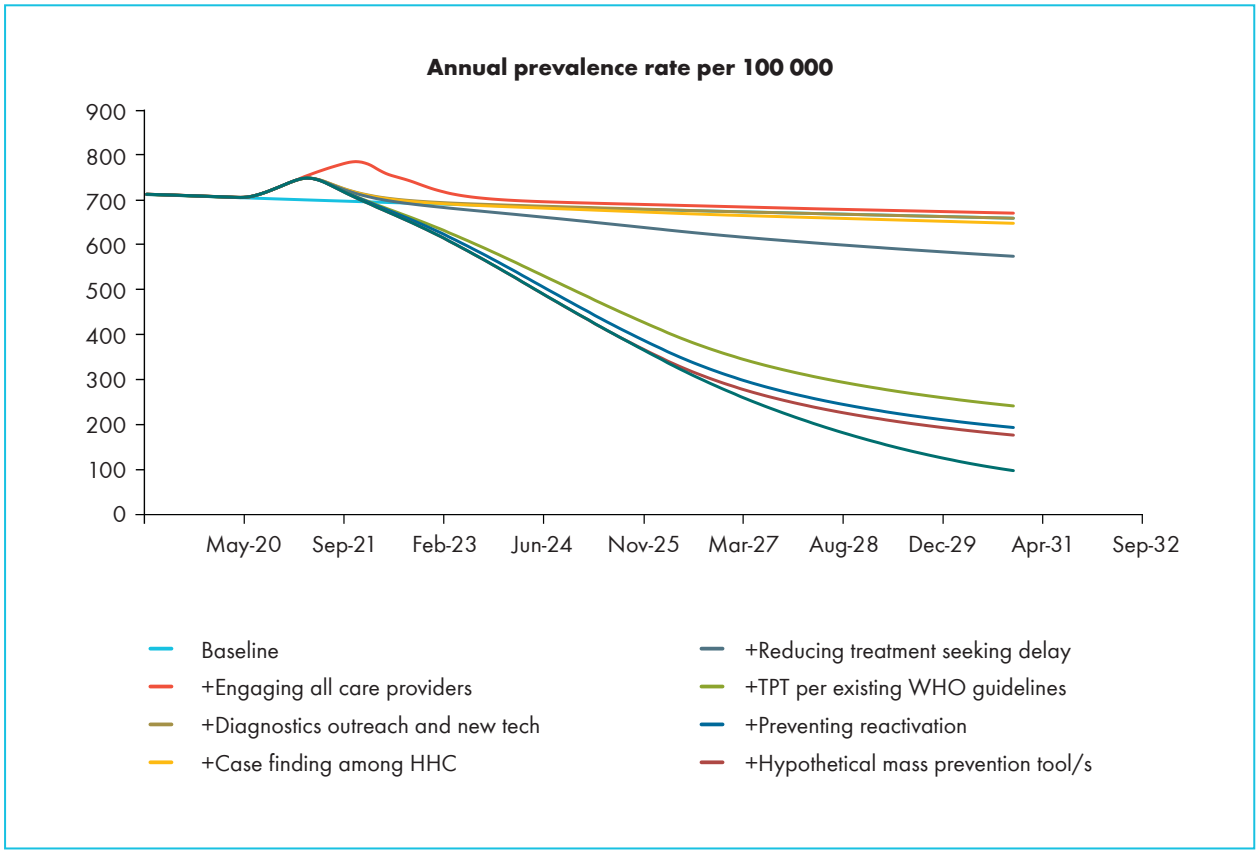


The figures above show model-based projections under the assumption that TB diagnosis, through existing routine TB services, is disrupted for a period of around 17 months between 2020 and 2021, owing to the COVID-19 response. Curves show incidence, mortality and prevalence projections assuming the same level of intervention coverage as incorporated in Fig. 4.1, illustrating that disruption has the effect of delaying achievement of the mortality targets, but not the incidence targets.

To summarize the findings of modelling and the challenges mentioned in earlier chapters, it is important that for achievement of the End TB strategy targets, barriers to access should be addressed. Broadly, there are three categories of barriers: (i) health-care system barriers, which relate to the availability, quality of services and people's trust; (ii) sociocultural barriers, inclusive of stigma and discrimination, which get compounded by lack of awareness; and (iii) financial barriers, which include direct and indirect costs for the patient. In the immediate future, countries should also plan to overcome the additional service disruption challenges posed by restriction of movement during the COVID-19 pandemic. Countries will need to come up with catch-up plans to diagnose and treat missed cases, as well as restore community outreach activities. Countries should undertake care-cascade analysis to identify country-specific barriers with a specific focus on COVID-19-related impact for immediate needs.

Based on the challenges faced in the Region and the modelling outputs, this Regional Strategic Plan, in alignment with the Global End TB Strategy, has five objectives.

4.3. Objectives of the Plan

Ensure universal access to high-quality, rights-based TB prevention and care services without stigma and discrimination for everyone, focusing on marginalized and vulnerable people.

Ensure high-level political commitment, adequate human and financial resources, and integrated services for TB.

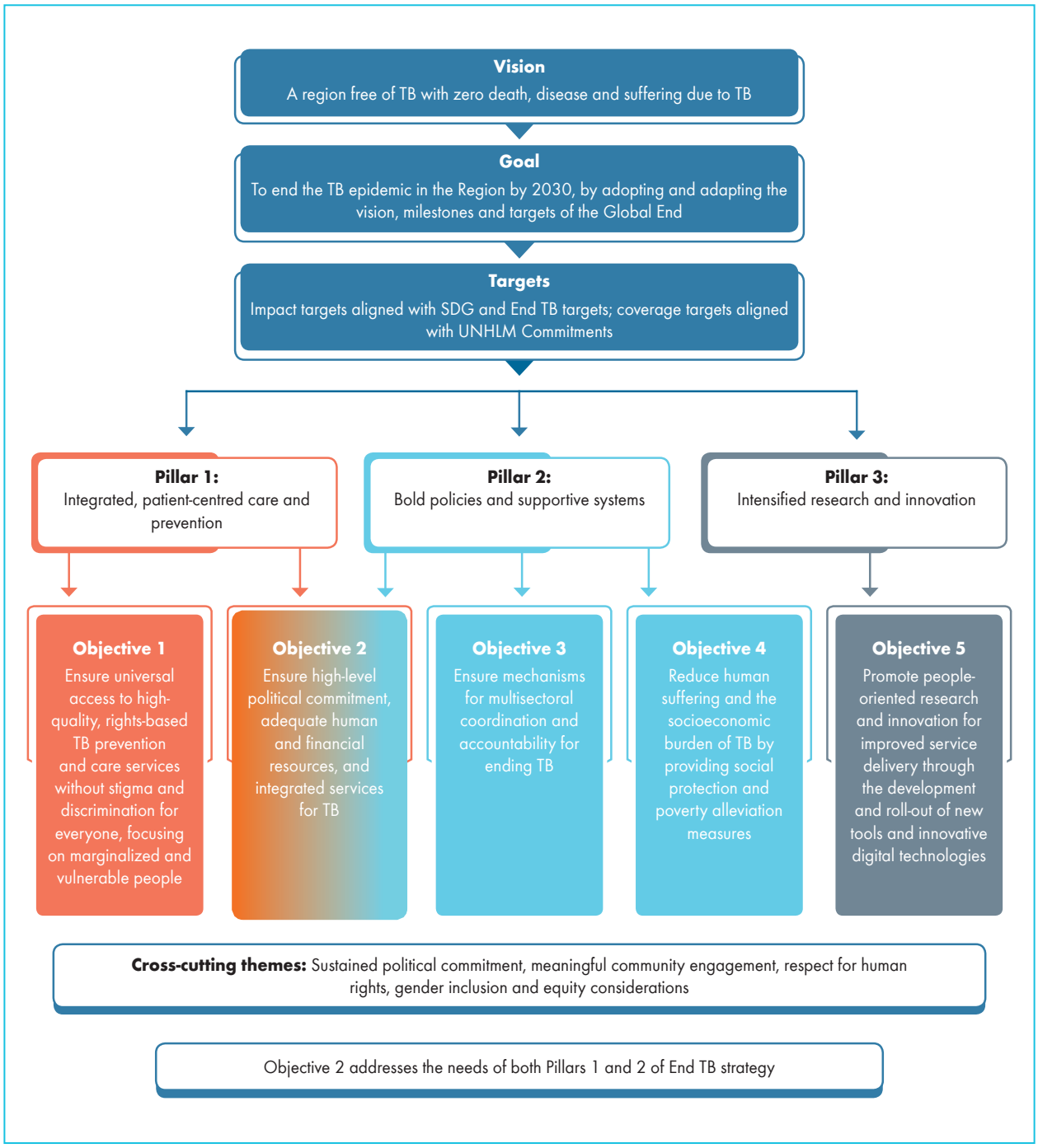
Ensure mechanisms for multisectoral coordination and accountability for ending TB.

Reduce human suffering and the socioeconomic burden of TB by providing social protection and poverty alleviation measures.

Promote people-oriented research and innovation for improved service delivery through the development and roll-out of new tools and innovative digital technologies.

The link between these objectives and the End TB Strategy pillars is explained in the flowchart in Fig. 4.4.

Fig. 4.4: Structure of the Regional Strategic Plan and its link with the three End TB Strategy pillars



CHAPTER 5:

Implementation priorities in the Regional Strategic Plan

This chapter discusses, under each objective, the priority actions that must be achieved to reach the coverage and outcome targets being proposed in this Plan, which, in turn, would lead to achievement of the End TB targets in the SEA Region. However, not all actions required to accomplish the objectives can be undertaken by NTPs alone. The Plan therefore sets out roles for the health and non-health sectors and moves beyond a biomedical approach towards ending TB. Therefore, the priorities set out are divided into three categories – those to be undertaken within TB programmes, those to be undertaken beyond TB programmes but within the health sector, and those that need to be undertaken beyond the health sector. For activities that are beyond TB programmes, programme managers and community stakeholders will need to advocate continually across all sectors and stakeholders.

While political commitment, community engagement, human rights, gender and equity are discussed under specific sections, all these themes are cross-cutting across all objectives and fundamental to achieving all the objectives of this Plan.

5.1 Objective 1:

Ensure universal access to high-quality, rights-based TB prevention and care services without stigma and discrimination for everyone, focusing on marginalized and vulnerable people.

Early identification of symptomatic persons, diagnosis of the disease and quick initiation on quality-assured treatment have been the cornerstone of TB strategies since the start of TB programmes. However, passive, facility-based case-finding alone is inadequate for assisting national programmes in reaching the End TB targets. Significant improvements in case detection and treatment are essential to reduce the global TB burden. This also means urgent action to catch up on missed cases due to service disruption caused by the COVID-19 pandemic.

Appropriate treatment of DS- and DR-TB should be available and accessible to all who need it. As part of patient-centred care, patients should receive educational, emotional and economic support to enable them to complete the diagnostic process and the full course of the required treatment. The delivery of screening, diagnosis and treatment services must uphold the principles of a human rights-based approach that includes respect for the ethical values of privacy, confidentiality and consent, and the promotion and pursuit of equity.

> *All persons have a right to at least a minimum standard of quality-assured core TB services as set out in the national guidelines, with social protection, regardless of where they seek care.*

TB infection control measures should be applied in all settings. The programmes, in coordination with all stakeholders, should strive to reach out to at least 90% of incident cases while achieving at least 90% treatment success among those put on treatment. Additionally, it is also important to initiate at least 90% of the eligible population on TPT.

For effective implementation of this objective and achievement of the desired targets, the entire care pathway – from the community level, onset of symptoms to diagnosis, treatment, declaration of cure and post-cure follow up – needs to be analysed and barriers addressed adequately. These could be individual or system based, and national and subnational TB programme managers must make a specific attempt to identify the barriers and decide on what concrete actions are needed to address these. These would need to be complemented with policy updates for adoption of the latest global recommendations on diagnostics, treatment and management, which may keep evolving with ongoing research and rapidly emerging evidence. TB care services need to be people-centric and community based, with a focus on those who are at risk of being left out and adapting to changing circumstances such as those of travel restrictions, health staff diversion and overstretched health systems, as during the COVID-19 pandemic. These efforts should be backed by sound knowledge of the local epidemiology and strong health information systems for monitoring progress.

The key implementation considerations for Objective 1 are given below:

Within TB programmes

Diagnostics form a crucial part of the cascade of care. Generally, the clinical symptoms or chest X-ray abnormalities are corroborated with laboratory findings in patients with TB to arrive at the diagnosis.

- **Improve diagnostic services** to detect TB among people reporting to health services with symptoms, as well as those in the community who may or may not be symptomatic.

  For improved outreach, estimate diagnostic service needs through assessment of the existing diagnostics network, including infrastructure for laboratories and radiography, diagnostic equipment and human resources required for the use of mWRDs like GeneXpert and TrueNat for all persons needing to be diagnosed for TB. This will also facilitate simultaneous testing for drug-susceptibility patterns. Introduce newer radiography techniques such as digital X-ray supplemented by computer-aided diagnosis, where possible. Diagnosis of extrapulmonary (EP) TB may require specimen collection at a higher care level than the usual location of TB services at the PHC level. Strengthen specimen referral mechanisms both for sputum and EP-TB samples between diagnostic facilities at remote locations and those outside the TB programme (e.g. maternal and child health services and the private sector), and the TB programme.

Plan for universal access to DST along with developing national capacity to perform quality-assured DST for first- and second-line drugs (fluoroquinolones and other Group A drugs). Till universal DST is achieved, prioritize tests to cover all persons at risk of DR-TB, HIV-associated TB and those who belong to vulnerable groups. Use of AI for chest X-ray specifically with portable chest X-ray units, and the use of mobile diagnostic units takes TB diagnosis to the patient's doorstep.

- **Improve case notification and monitor the quality of care** both in the public and private sectors with a focus on vulnerable and marginalized populations, including children and the elderly, and those from high-risk groups such as migrants, prisoners, sex workers, drug users, transgender persons, depending on the country context. All persons seeking care have a right to a defined package of core TB services with social protection, regardless of where they seek care. Focusing on early detection and treatment requires engaging primary care providers such as pharmacies, general practitioners (GPs), as well as high-volume hospitals. Adopt specific diagnostic algorithms, specifically for children, using sensitive tools such as mWRDs based on WHO recommendations *(41)*. To "catch up" on COVID-19-related substantial gaps in notification, programmes will need to take aggressive and immediate measures that include active case-finding, specifically among marginalized and vulnerable groups. Special focus is also required in geographical areas that specifically saw severe service disruptions.

  Improve case notification: undertake systematic screening of high-risk groups along with the usual facility-based diagnosis: active screening measures, specifically for those who may be asymptomatic initially, have been found to have the greatest impact on incidence as per the modelling studies for the SEA Region (see Chapter 4). Conduct systematic screening of close contacts of people with TB, PLHIV, prisoners and workers exposed to silica and organic textile dust, migrants and refugees, homeless persons and even the general population with high TB prevalence. If active TB is not found, consider preventive therapy for these populations. Based on the national or local TB epidemiology, identify other risk groups for possible systematic screening, depending on health system capacity, resource availability and the feasibility of reaching such groups.

  Deliver quality programme services to all notified TB patients with social protection, through care-cascade analysis: countries should make efforts towards improving the quality of care supported by social protection for TB patients, in addition to efforts for increasing the outreach of services. Services need to be person-centred and in alignment with international standards for TB care (ISTC) in both the public and private sectors *(42)*. One of the tools for reviewing the quality of services is care-cascade analysis. This involves charting out the various critical, sequential steps in prevention, diagnosis and treatment pathways, assessing initiation and retention in care, and those having a relapse-free cure across these steps *(43)*. The cascade helps analyse the barriers faced by patients at each stage of care and levels at which interventions need to be prioritized for maximum impact.

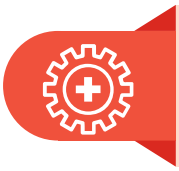
Monitoring treatment: as programmes strive to improve case notifications, there is a need to monitor TB treatment and quality of care. Monitoring patient convenience, acceptability and affordability of treatment delivery will help to monitor programme performance and indicate the remedial measures that need to be taken.

- **Improve treatment outcomes.** NTPs should aim to achieve a treatment success rate of at least 90% for all patients put on treatment. To accomplish this, support treatment adherence by providing patient and family counselling, identifying adverse events early during treatment, addressing social issues and using enablers as per the country context. Particularly in this Region, assessment of nutritional status and provision of nutritional support or therapy as required are essential.

Measures to provide an appropriate standard of care

Ensure a quick roll-out of newer, safer first- and second-line anti-TB drugs

Preferentially use oral regimens to improve adherence and thereby outcomes in the context of RR-/MDR-TB



Build stronger systems to ensure safety, monitoring and management of patients, including the establishment of adverse events monitoring and management systems (aDSM)

- **Address drug resistance among TB patients.** DR-TB and specifically RR-/MDR-TB are of major concern in the SEA Region. It is important to know the drug-susceptibility pattern of the TB bacillus before starting a person on TB treatment. Upfront diagnosis of TB or at least before the start of TB treatment by an mWRD that simultaneously detects resistance to key first-line and second-line drugs ensures that the person starts on the correct treatment from the very beginning. This not only helps to improve treatment outcomes, but also helps to build the confidence of patients in the system and ensures a human-rights based approach to quality care. WHO now recommends all oral shorter and longer regimens for treatment of RR-/MDR-TB and XDR-TB. These regimens are people-friendly, less toxic and are expected to further improve treatment outcomes.

- **Provide TPT.** Assess all household contacts (including children) of TB patients, PLHIV and country-specific risk/vulnerable groups, as per the prevalent WHO guidelines. Increase the demand for TPT through education of the community and health-care workers. Train and sensitize all categories of health personnel on the latest TPT guidelines.[c] Ensure the availability of adequate quantities of the requisite drugs, specifically rifapentine, which is used in the shorter regimen for TPT. Some countries may continue to use a rifampicin-containing shorter TPT regimen till rifapentine is fully available and affordable in all situations.

- **Follow a "know your epidemic" approach for accurate information on the TB and DR-TB burden,** which includes examination of the natural course of TB infection and disease, and the various determinants and consequences of TB. Analyse surveillance and population-level data (such as prevalence surveys or DR surveys), local-level data, as well as the personal, medical and social determinants of TB transmission, infection, progression to active disease, drug resistance and disease outcomes. Prevalence surveys will be important specifically for countries that have a relatively high TB burden and have not held such surveys for some time, such as Bangladesh, Indonesia and Thailand, as well as smaller countries such as Timor-Leste, which have a high estimated incidence but have not had a survey yet. This strategic information should be the basis for policy decisions, planning, monitoring and resource allocation. A fully digitalized TB surveillance system is essential for all countries in the Region, complemented with the capacity to use the data for action at both the national and subnational levels.

- **Mitigate the impact of COVID-19-related service disruption** through an all-sector approach that aims to create resilient systems.

Measures to mitigate the impact of COVID-19 related service disruption

Appropriate planning to reach out to the missing patients using person-centred approaches

Exploring new models for delivery of care

Innovative use of existing and new technologies

Finding opportunities for integration, including cross-referral, building on lessons learnt from the pandemic such as infection prevention and control, and plugging

[c] This intervention aims at treating TB infection in absence of active disease in risk groups (refer WHO Consolidated guidelines on tuberculosis: tuberculosis preventive treatment. Geneva: World Health Organization; 2020).

Within the health sector

- **Provide person-centred, rights-based ethical health services.** While this Plan is focused on ending TB in the Region, the services for TB care are integrated within the overall health-care delivery services. Hence, the quality of health services also determines the quality of TB services. The essential step in the process is to organize services that are close to people's residence, preferably community based, and sensitive to their needs, especially those living and working in conditions that increase the risk of exposure, infection and disease. Protect patients' right to information and confidentiality. Right to information is specifically important for those getting treated in private care, to generate a demand for appropriate care in all health facilities. Engage communities to raise awareness among people, reduce stigma and discrimination, and participate in delivering quality services (e.g. active case-finding and treatment supervision/ support in the community). Community engagement in designing policies, monitoring, reviewing programmes and for advocacy should be an important part of the process.

  Establish a coordination platform or network with representation from medical and legal experts to look at rights issues for those with TB. The platform should be a link between the community and NTP for rights-related issues such as access, stigma and discrimination. Include reporting on the work of the task force as an indicator in national reports. Communities should also be engaged in the monitoring process to improve the quality of care and treatment outcomes. This can help to protect rights, improve legal literacy and access to legal aid whenever rights are violated.

  Allocate sufficient resources in national plans for activities aimed at reducing stigma and discrimination, support community-led activities, implement social protection measures and job security regulations to make progress in this area. In addition, ensure strong community engagement at all levels and in all activities. These should be fully costed in national plans.

  TB affects the poorest and most vulnerable, and the provision of psychological and emotional support to TB patients and their families during and after treatment is non-negotiable and an essential input into treatment completion and adherence. Leverage or create cadres for social support and peer groups that can be oriented to provide this mental health and palliative care support.

  Community-led monitoring of human rights and other barriers to accessing services are critical not only from a patient's perspective but also form a critical part of accountability mechanisms that programmes need to embark on.

- **Strengthen partnership with all care providers while providing high-level stewardship,** including those in the public sector outside the programme, the private sector and not-for-profit private sector such as nongovernmental organizations (NGOs). The current level of private (and non-NTP public) sector engagement in all countries needs to be strengthened,

while for some countries, such as India, Indonesia, Myanmar and Nepal, this needs to be further enhanced. The control of TB in the SEA Region is complicated by the presence of a large, unorganized private sector where most patients first seek care. Following pilots in Mumbai and Patna (two major cities in India), a huge improvement in case detection was noted. Such models need to be scaled up not least because of the massive size of the private sector in these countries. Intermediary organizations have shown great impact in engaging primary care providers. Specific results include early finding of TB patients in pharmacies, rural and urban general practices, using digital systems, proactively engaging social health insurance systems to optimize payments, accreditation, claims processing, and interoperability of data systems.

Examples of intermediary organizations that engage private providers in the SEA Region include the following:

- India: JEET (PATH, CHAI, FIND), REACH, World Health Partners
- PSI in Myanmar
- Bangladesh: BRAC, ICDDR,B and IRD in Bangladesh).

The ministry of health (MoH) would provide stewardship in all cases. The policy and regulatory environment conducive for partnerships and high-level care are established by respective MoH in the country. This includes the partnership structural arrangements and ensuring equal platform for quality service in public and private sector.

- **Strengthen health information systems** through further adoption and wide use of innovative digital technology. All countries will benefit from case-based electronic recording and reporting systems, which also facilitate the addition of new variables to routine data collection efforts.

  Set up integrated and interoperable age- and sex-disaggregated recording and reporting systems that allow disaggregation of data on TB and HIV-associated TB so as to fulfil the needs of all administrative channels of various departments and improve interprogramme coordination and collaboration. Include private health-care providers in such systems, which implies streamlining data needs and making maximum use of digital systems and call centres.

  In all countries, for long-term purposes, develop or strengthen effective vital registration systems to ensure that each death due to TB is properly recorded.

- **Strengthen regulatory frameworks** through mandatory TB case notification and reporting of treatment outcomes by all care providers, and restrictions on irrational sale and use of anti-TB drugs. Ensure an uninterrupted supply of drugs that are either provided free or at an affordable cost and promote a safe working environment for health-care workers and patients. Adopt laws for

protection against stigma and discrimination. Countries should provide for any disability benefits and protect the employment of persons who develop TB during the course of their employment. All countries need to address stigma and discrimination in the national strategic plans complemented by funded annual implementation plans.

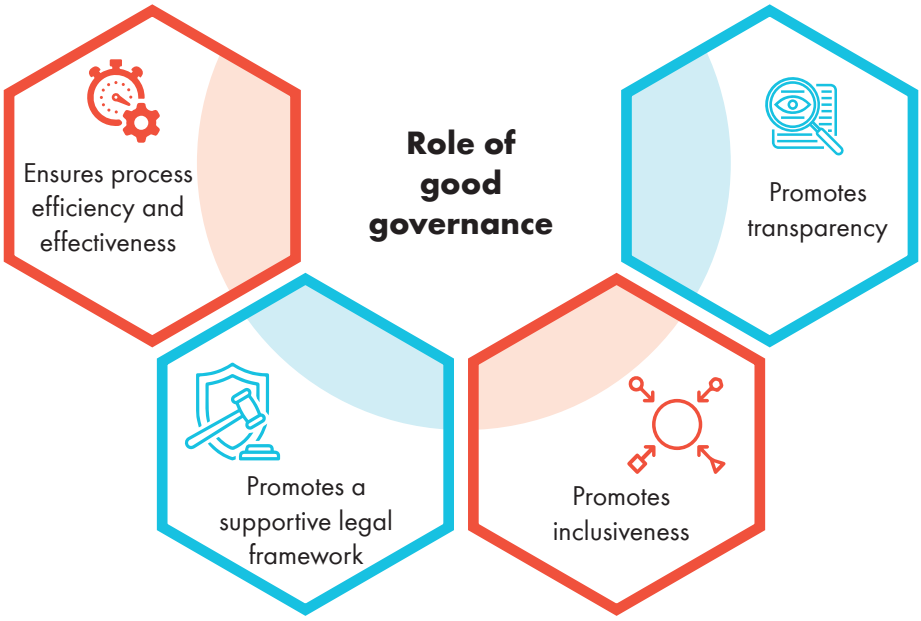
- **Strengthen integrated health service delivery** through provision of digital chest X-rays at peripheral health centres that would allow better screening of TB; connectivity between diagnostic centres and other peripheral health centres that would allow sputum and other specimen transportation; and logistics management for uninterrupted supply of all drugs, including those needed for TB patients.

Beyond the health sector

- **Strengthen intercountry collaboration for collective efforts to address cross-border issues through diplomacy and aligned foreign policies.** Develop a framework for intercountry collaboration with Member States, specifically those with adjoining borders. Engage with key stakeholders and agree on the mechanisms and tools for information exchange on migrating patients and a uniform protocol for management. Facilitate access to health services through community participation, NGOs and private care providers, who may be more easily accessed by migrants, specifically in areas of migrant hotspots. Link these NGOs and private providers with health-care facilities for reporting. In addition, provide workplace access to TB services in border areas where contractual labour is likely to be working, encourage access to health services and eliminate the fear of deportation on diagnosis.

- **Ensure governance and coordination to make quality services and care available on the ground.** It is important that TB programmes are supported by appropriate governance structures within and outside health systems so as to deliver quality TB services. This includes regulatory measures for smooth implementation of relevant policies, early adoption of innovation and technical advances, funding availability and coordination with other ministries and departments such as education, food and agriculture, defence and justice. These four elements enable free expression of views and healthy negotiations and, thus, can be a bedrock for effective and accountable partnerships. Additional analysis of governance structures in high-burden countries is also available in the Stop TB governance report released a few months ago, which includes and analysis of transparency, inclusiveness, efficiency and effectiveness, and legal frameworks *(44)*.

  The work that countries can do with other departments and ministries to improve programme performance is covered under Objective 4.



5.2 Objective 2:

Ensure high-level political commitment, adequate human and financial resources, and integrated services for TB.

Effective implementation of the End TB Strategy requires effective government stewardship, high-level political commitment and enhanced resources, both financial and human. Designing and operationalizing an effective country-specific response to end the TB epidemic should be founded on sound baseline assessments that include mapping the epidemic, preparedness of the health system and the TB programme, as well as the resources available for the work ahead. The human and financial resources required for implementation should be commensurate with the enhanced scope of core functions that are integrated effectively within the delivery of general health services. For effective implementation and achievement of desired results, mechanisms need to be in place for optimum use of the financial and human resources allocated to the TB programme. Effective utilization and achievement of results will strengthen the case for increased investments in TB programmes from both domestic and international sources.

This Regional Strategic Plan is expected to serve as a guidance for the NSPs that will be developed by countries during the Plan period. The NSPs guide national health authorities in managing and implementing appropriate TB care and prevention activities, building effective linkages with other programmes, and health and non-health sector partners.

The key implementation considerations to achieve Objective 2 are given below:

Within TB programmes

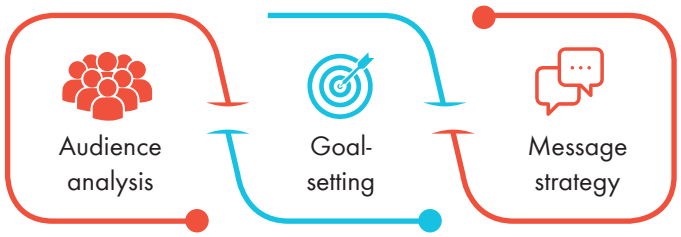
- **Develop an ambitious, costed NSP** that is in alignment with the national health strategy and, ideally, integrated with it. A well-resourced central NTP team within the Ministry of Health (MoH) with a TB-specific budget is a critical element of stewardship. Formulate a plan that is comprehensive, and incorporate budgeting, implementation, monitoring and evaluation, research and technical assistance. Set a clear course towards agreed TB targets and monitor progress. Base the targets on epidemiological data, where available. Countries may also choose to take modelling support to assess the likely impact of coverage. Take into account cross-cutting themes for possible integration with other programmes and hence introduce efficiencies.

  The "WHO TB planning and budgeting tool" and the "One Health Tool" help to estimate the cost and feasibility of strategic plans and have been further refined to allow detailed budgeting for TB prevention, diagnosis and treatment.

- **Engage in strategic communication** to promote the fight against TB and inform the MoH, stakeholders, policy-makers, civil society and private sector. Engage with the Ministry of Finance for higher budget allocation for TB programmes as well as advocate with subnational authorities for prioritization of TB. Strategic communication *(45)* identifies key concepts, including audience analysis, goal-setting and message strategy. For effective communication among the masses, use community mobilization to disseminate appropriate message(s) and encourage participation

among community members to generate a demand for quality-assured TB services and for conducting advocacy activities aimed at decision-makers and key stakeholders to influence policy, laws, regulations, programmes and funding.

Key concepts of strategic communication



Some key interventions that programmes may undertake are epi-analysis to assess the burden of the disease and its impact, specifically the socioeconomic impact; prepare an investment case based on the available literature as well as a cost–benefit analysis in the local context. In addition, engage in evidenced-based messaging for policy updates and changes required to strengthen efforts towards ending TB, and targeted communication to stimulate investment in TB by effectively engaging public and private donors, the scientific community, NTPs and civil society.

- **Optimize utilization of resource** by prioritizing maximum impact activities after care-cascade analysis, as also described under Objective 1. Country-specific modelling support will further help in identifying the most cost-efficient interventions in the country context. This can also be used for mobilizing more resources through domestic and international funding mechanisms.

Within the health sector

- **Engage in a multidisease elimination framework** based on a public health approach, equity, gender and human rights, and sustainability. An integrated, multidisease elimination approach will be useful for countries with a low incidence of TB (or other diseases), which aim for early achievement of the End TB targets. This would avoid the need for multiple committees that may have similar representation and for whom discussing different diseases at different times may not be a feasible option. Covering different diseases together will also help in integration of services, according due priority based on progress and efficient distribution of resources. Countries that have an established multidisease oversight committee can monitor collective progress towards various disease targets and optimize the use of human and financial resources specifically for cross-cutting areas.
- **Invest in primary health care (PHC) and health system strengthening.** TB services are inextricably linked with PHC services and health services in general. This has also been laid

bare by the recent COVID-19 pandemic where stressed PHC and health systems have impacted TB services. Therefore, strengthening systems will not only ensure quality TB services during normal times but also prevent disruption in situations of unforeseen emergencies and outbreaks needing diversion of resources.

Beyond the health sector

- **Establish and maintain political commitment at all levels.** Establish platforms at national and subnational levels to **engage parliamentarians/local leaders/mayors,** and other leaders. Civil society partners have been proactive and have formed advocacy groups and caucuses to advance the cause of TB in the Region as well as globally. Similar platforms at the regional level will be tapped by the WHO Regional Office for engagement in dialogue towards ending TB. The Regional Office will also map and strengthen these advocacy groups in the Region and support each Member State to form country-appropriate advocacy groups to fix accountability and demand better resources for the health system so that the TB targets can be achieved.

- Consider establishing **memoranda of understanding (MoUs) with other relevant ministries/departments** such as the ministries of social justice, railways, education, armed forces, labour, agriculture and others to synergize activities, support patients and improve the outreach of TB care services. Define in the MoU the roles and responsibilities towards ending TB and the mutual benefits that can be attained through appropriate management and support for all TB patients. Such MoUs will also help in establishing the "One Health" approach, as in the previous section.

  Further linkage with multisectoral accountability is detailed in the next objective.

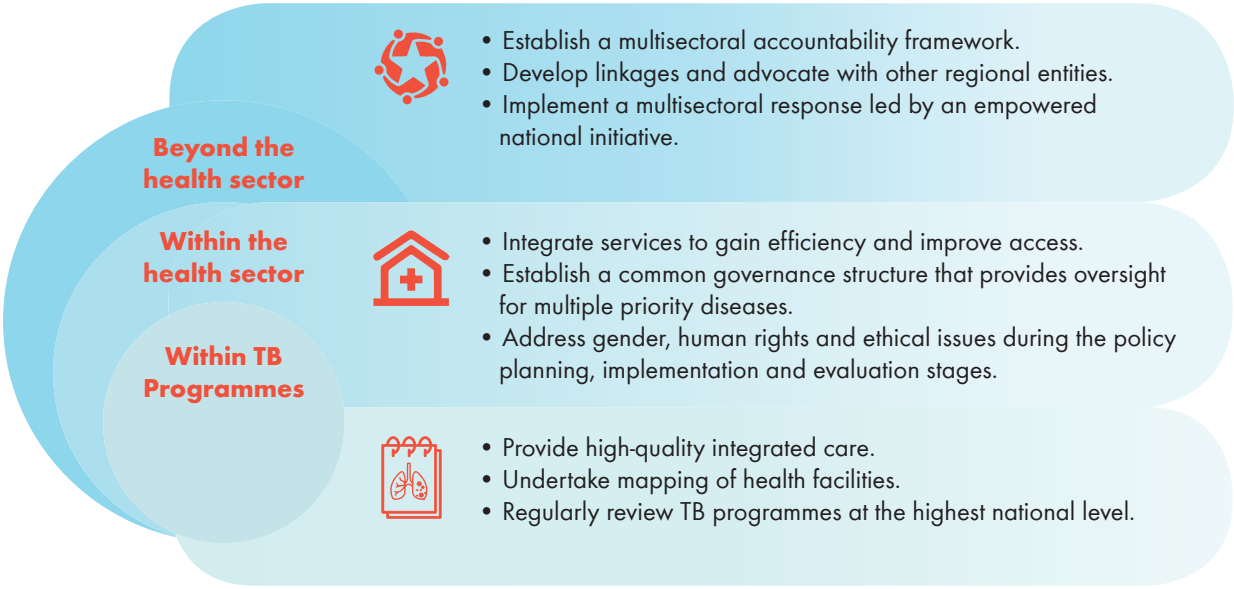
5.3 Objective 3:

Ensure mechanisms for multisectoral coordination and accountability for ending TB

In November 2017, the Moscow Declaration to End TB recognized the need for a multisectoral response to address all determinants of the TB epidemic and called upon all stakeholders and partners to support its implementation *(5)*.

> *The resolution of the UNHLM-TB in October 2018 reaffirmed that reducing the incidence of TB requires a comprehensive response that addresses the social and economic determinants of the epidemic through multisectoral engagement.*

The key implementation considerations to achieve Objective 3 are given below:



Within TB programmes

- **Provide high-quality integrated care** for all patients with TB, including diagnostics and treatment services across both the public and private sectors. Undertake mapping of health facilities under various ministries/departments/private sectors/NGO that can be engaged for the provision of TB care. Build the capacity of health-care workers as per national standards for TB care. Establish linkages with other sectors, health professionals, parliamentarians and advocate for the formation of a commission/committee at the highest level of national leadership, and bring on board all concerned ministries and sectoral leads for wider accountability and response. For countries that have already done the above, further strengthen and streamline processes and regularly review TB programmes at the highest national level.

Within the health sector

- **Integrate services to gain efficiency and increase access.** The basic premise for integration of health services is for people to receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system. Shortages of human resources are a matter of concern in countries of the Region. To gain efficiency, encourage the identification of diseases that are a priority for the country, based on the local burden and epidemiology. Establish a common governance structure that provides oversight for multiple priority diseases, access similar funding sources and identify areas for integration. These could

include health workforce development through training on the management of multiple diseases, establishing information systems for monitoring and evaluation, efficient procurement and supply management, financing and resource mobilization, laboratory strengthening and infrastructure upgrade, and community systems strengthening. The available funding through donors such as the Global Fund for multiple diseases and recently for the COVID-19 response could be used as an opportunity for integration.

In addition, address gender, human rights and ethical issues during the policy planning, implementation and evaluations stages. Health is a human right, along with access to high-quality care and social protection. Progress on these rights will help reduce the risk factors for TB infection and disease and enable far better outcomes for those affected. Applying a human rights-based approach means the pursuit of non-discrimination and equality, participation and inclusion, and accountability. In practical terms, this means that policies, services and practices should protect and promote individual human rights as well as address the underlying inequities of poor and marginalized communities that bear a greater burden of TB infection, disease, deaths and social impacts.

Beyond the health sector

- **Establish a multisectoral accountability framework (MAF-TB).** In the Political Declaration of the UNHLM-TB in September 2018, Member States committed to and called for the Director-General of WHO to finalize the MAF-TB and ensure its timely implementation

> *The Moscow Declaration of 2017 committed to establishing a multisectoral accountability framework (MAF) to strengthen accountability for the response to TB at the national, regional and global levels to contribute to faster progress towards achieving the End TB targets and milestones (46).*

in 2019. WHO finalized the MAF-TB, building on contributions from Member States and partners, including from civil society. It was released in May 2019 and endorsed by the World Health Assembly. Guiding and supporting Member States with their stakeholders for national adaptation and use of the MAF-TB from 2019, as requested by the Health Assembly and UN General Assembly, led to the development of a WHO MAF-TB baseline assessment checklist, including an annex developed with the WHO civil society taskforce. Completing this checklist is the first step towards the establishment of an MAF in the country. Countries that have already completed the baseline assessment as per the MAF-TB checklist should now work towards addressing the identified gaps and ensure a coordinated action with all sectors. Develop local and regional capacity to generate local evidence to make an investment case that feeds into strengthening commitment.

- At the regional level, **develop linkages and advocate with other regional entities** (including regional cooperation and professional, bilateral and multilateral organizations), academicians, intersectoral partners and initiatives, and engage with civil society partners and affected communities to further the TB response. Support and strengthen existing task forces and form a wider collaborative partnership. Provide strategic and technical support to countries to improve recording and reporting on TB targets. Mobilize resources and allocate funds from multilateral and bilateral funding agencies.

  The WHO Regional Office will support countries that have not yet formed empowered/high-level national committees for TB or wider health issues, and provide technical support to countries to prepare advocacy and communication materials.

- At the national level, **implement a multisectoral response led by an empowered national initiative** that reports to the highest levels of government. Institute regular/annual review meetings to access progress and prepare a status report for wider dissemination to all stakeholders using public platforms.

> *Empowered national initiative. Led by the highest possible level in the government, and preferably the head of State, such multidisciplinary and multistakeholder initiatives provide a platform for planning, resource mobilization and regular monitoring towards ending TB. Engagement of high-level political leaders also helps to resolve the challenges faced by the programme and ensure accountability by all those engaged in the efforts towards ending TB.*

5.4 Objective 4:

Reduce human suffering and the socioeconomic burden of TB by providing social protection and poverty alleviation measures.

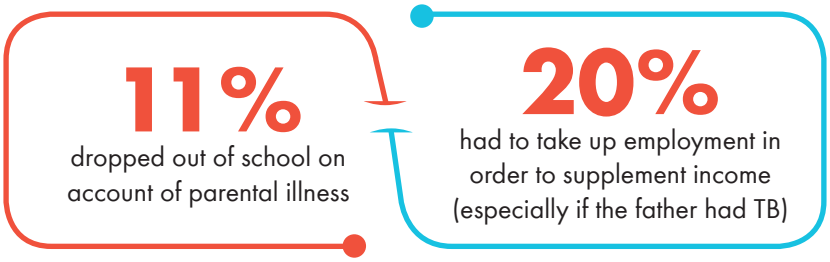
A systematic literature review of the financial burden of TB faced by patients and affected families showed an average burden of US$ 847 globally *(47)*. Of these, around 20% were due to direct non-medical costs and, on an average, 60% to income loss *(48)*. Cost as a percentage of income was particularly high among poor people and those with MDR-TB. Commonly reported coping mechanisms included taking a loan and selling household items. Therefore, the total cost of TB for patients can be catastrophic. Income loss often constitutes the largest financial risk for patients. There is a need to ensure that TB patients and affected families receive appropriate income replacement and other social protection interventions. There is considerable evidence from research to show that TB worsens and perpetuates poverty, results in a loss of income for 3–4 months for individuals, a substantial loss of annual household earning, and even a significant loss of GDP for countries (4–7%) *(49)*.

In countries of the Region, it has also been indicated that low case detection and treatment completion rates among patients with TB may partly be due to the inability of poor patients to cope with the economic consequences of diagnosis and treatment *(50)*.

Published data show that social protection spending levels are inversely associated with TB prevalence, incidence and mortality *(51)*. An increase in spending of 1% of gross domestic product (GDP) on social protection was associated with a decrease in prevalence of more than 18 per 100 000 population and a more than 8 per 100 000 population decrease in incidence. A significant decrease in mortality was also observed with increasing spending on social protection.

As early as 2006, data published from India showed that TB patients incur out-of-pocket expenditure of more than US$ 130 (at the applicable exchange rate at that time) amounting to about US$ 3 billion a year for the country *(52)*.

Effect of TB on children as per 2006 data published from India



For effective implementation of this objective and achievement of the desired results, the focus must be on UHC and social protection, which are fundamental to mitigating the social burden of TB. A quarter to half of the TB treatment costs faced by patients can be attributed to direct medical costs, which can be addressed by UHC alone. The remaining costs to patients are due to the reasons mentioned above and are addressable by social protection approaches. TB treatment coverage is part of the UHC tracer indicators, which is defined as the percentage of incident TB cases that is detected and successfully treated each year. Beyond social protection, TB patients also need social inclusion and employment through rehabilitation services. COVID-19 has already impacted and will continue to adversely impact the social and economic conditions of TB patients and communities in the years to come; this must be factored in all future planning by NTPs for resolute action. Funding of TB programmes and specifically provisioning for patient support costs are further discussed in Chapter 6.

The key implementation considerations to achieve Objective 4 are given below:

Within TB programmes

- **Counselling and peer support for TB patients.** Ensure supportive counselling of patients at the time of initiation of TB treatment and thereafter at any point of contact with the patient. Expand community awareness-generation interventions, including in health-care settings. Provide integrated people-centred health services. This means putting people and communities, not diseases, at the centre of health systems, and empowering people to take charge of their own health rather than being passive recipients of services. Evidence shows that health systems oriented around the needs of people and communities are more effective, cost less, improve health literacy and patient engagement, and are better prepared to respond to health crises *(53)*.

  Undertake training of all health-care providers on patient-centred counselling and ensure the availability of necessary facilities such as handbooks, counselling tools and an appropriate environment. Motivate previously treated TB patients to form peer support groups and provide counselling and psychosocial support as well as share personal experiences with TB patients on treatment. Also consider family support systems at the community level and provide them with the necessary resources to support TB patients. Take proactive steps to reach out to high-risk and vulnerable groups, such the elderly, PLHIV, adolescents and smokers.

Within the health sector

- **Universal health coverage (UHC). For UHC,** put in place an essential set of health-care interventions, including TB diagnosis and treatment, and consider a national strategy for achieving it to reduce the TB incidence rate. Set subnational targets for both the rate at which TB incidence should be falling by 2025 and the case-fatality ratio in 2025. Target a case-fatality ratio of around 6–7% in the year in which UHC and social protection are expected to be achieved *(54,55)*.

- **Systemwide approach that addresses all the needs of TB patients, including comorbid conditions.** Joint programming and strong referral linkages are essential to effectively address comorbidities. Identify opportunities to align plans, optimize support systems and gain efficiencies so that high-quality and sustainable integrated services can be delivered in a structured manner.

  Develop TB–HIV operational plans as part of the respective NSPs and allocate adequate resources for these. Coordinate training conducted by both the TB and HIV programmes and harmonize reciprocal elements in the respective training curricula and training materials. Strengthen integrated supervision and monitoring by establishing robust systems for supportive supervision and monitoring, conduct review meetings at various levels and evaluate progress. Prioritize bidirectional screening for TB and diabetes mellitus with a focus on vulnerable groups.

  Assess disability at the end of treatment and refer to social support services like rehabilitation schemes. Put in place TB-inclusive social assistance schemes in the case of death during TB treatment of a person in the economically productive age group.

- Address tobacco use. Support and implement joint TB–tobacco action plans by countries in the Region, as smokers are almost twice as likely to be infected with TB and progress to active disease.

> *Of the 400 million tobacco users in the Region, India, Bangladesh and Indonesia have a high burden of both TB and tobacco use.*

Ensure that TB–tobacco collaborative plans are integral to NSPs for TB and adequately resourced. Build the institutional capacity necessary to ensure the sustainability of the joint activities for TB and tobacco control, such as integrating tobacco cessation activities in the NTP modules, and TB diagnosis and management in tobacco control modules. Link all TB patients and even symptomatic persons who are current tobacco users to cessation clinics.

Include community awareness campaigns on the TB–tobacco linkage within the overall communication efforts of both TB and tobacco programmes. Strongly advocate for and enforce a policy of smoke (tobacco)-free environments in all health facilities, particularly where services are delivered to TB patients and their families. Integrate supervision and monitoring and reporting as per recommended indicators on joint activities for TB and tobacco programmes.

- **Address alcohol use disorder among TB patients and their contacts,** as alcohol use is a strong risk factor for TB disease and results in poorer treatment outcomes at the individual level. Undertake a situational analysis of the burden of alcohol use disorder and its linkage with TB and address this in the NSPs. Organize communication campaigns to improve awareness about the harmful effects of alcohol dependence on TB. Consider rolling out a framework for counselling and bi-directional screening for TB and alcohol use at treatment facilities, and ensure that affected TB patients are linked to evidence-based treatment services.

  Some countries in the Region have already developed tobacco and alcohol cessation tools that can be replicated for use in other countries.

Beyond the health sector

- **Ensure access to nutrition programmes.** Undernutrition is a key driver of the TB epidemic in the Region. To address food insecurity, strengthen linkages between nutrition and social protection programmes with the TB programme for the delivery of nutrition packages to patients with TB, with a particular focus on children and women. Some countries may choose targeted cash transfers for nutrition support while others may distribute food packs through government systems or NGOs. Increase awareness of the role of nutrition in TB and other infections, as this is critically important.

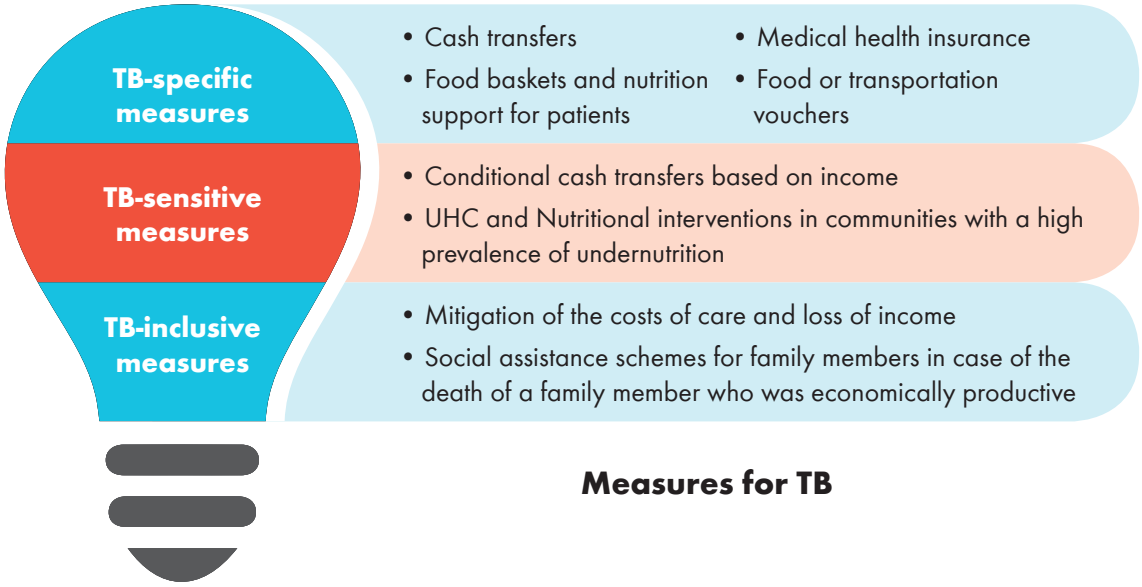
  Considering the magnitude of the issue and available evidence, immediately focus on the management of moderate and severe acute malnutrition among patients with TB who have a body mass index (BMI) less than 18.5 kg/m^2. Advocate with the private/corporate sector to expand corporate social responsibility (CSR) and encourage the development of nutritious food products for patients with TB.

- **Provide context-specific social protection.** Substantial progress towards social protection by 2025 are fundamental requirements for achievement of the global targets for reduction in TB cases and deaths. While poverty alleviation initiatives in Member States vary, strong collaboration between TB programmes and relevant poverty alleviation programmes will be important in all countries, irrespective of country income status, as TB patients, especially those with DR-TB, are prone to face catastrophic costs. These could be as high as 65% in Myanmar to, more than 80% as seen in studies from Timor-Leste *(25)*. Measuring catastrophic costs is important for the formulation of appropriate policy and advocacy. All countries need to plan such surveys to monitor progress towards zero catastrophic costs.

  Social protection measures can address those suffering from TB as well as individuals and communities at risk and can be divided into TB-specific measures, TB-inclusive measures, and TB sensitive measures. TB-specific measures are those targeting TB-affected individuals and/ or households with the intent of addressing a specific TB care and prevention issue *(56)*. TB-inclusive measures are those that are not limited to TB-related issues but include TB disease among their eligibility criteria. TB-sensitive measures are not specific to TB patients but could have an impact on TB patients or for TB prevention because they target groups and/ or people at high risk of TB and those vulnerable to the worsening of poverty due to its consequences.

TB-specific measures may consist of cash transfers (conditional or unconditional), food baskets and nutrition support for patients, medical health insurance, food vouchers or transportation vouchers. These can contribute directly or indirectly to improved TB outcomes as has been shown in some national programmes *(57)*.

TB-sensitive measures could include conditional cash transfers based on income, and UHC, and nutritional interventions in communities with a high prevalence of undernutrition. TB-inclusive measures could include mitigation of the costs of care and loss of income. They could also include social assistance schemes for family members in case of the death of a family member who was economically productive.



Measures for TB

There have been experiences of social protection measures in the Region, the largest being the unconditional cash transfer called the Nikshay Poshan Yojana to enable a better diet. Implementation challenges regarding equity consideration, timeliness, coverage and quantum of support have been noted. The impact of such schemes on adherence and outcomes as well as the

operational challenges in implementation need to be assessed. In light of the moderate/severe undernutrition seen in patients in many countries, most notably India, a hybrid model of cash + nutritional support would be ideal.

A driver of costs in TB care is money spent on diagnosis before treatment (e.g. in cases of EPTB, where specialized procedures may be involved) as well as inpatient care costs. A TB-inclusive measure would be to cover the costs of diagnosis as well as inpatient care, which is currently not available for patients with TB in UHC schemes in some countries such as India *(58)*.

Finally, in the case of death, the family is driven into further poverty, often by the loss of an economically productive member of the family. Social assistance schemes for death-related benefits should be TB-inclusive.

To improve the outreach of ***social protection,*** identify the type of socioeconomic support required across communities/geographical areas and ensure coverage across public and private health-care providers. Thereafter, facilitate convergence between various government schemes for single-window provision of socioeconomic support to common beneficiaries. Establish links with other ministries to facilitate benefits under TB programmes, including direct benefit transfers. Consider rolling out targeted interventions for key populations such as prisoners, miners, sex workers, people living in slums and temporary shelters, factory workers, migrants and displaced people.

- Address occupational and industrial health. Commitment from the corporate sector to promote health among workers and general public, as part of their CSR, is essential. National TB programmes and the corporate sector should collaborate on TB screening and start of appropriate treatment for all those found positive. TB screening among those at risk such as workers with silicosis in mine industries should be provided by employers under the technical guidance of the NTP and those who develop TB should be treated by the NTP. TPT should be administered to high-risk groups without active TB, as per the global and national guidelines. This is a win–win situation for both the industry by boosting productivity among workers and for the national programmes in reaching out to additional TB patients. Industry owners should also be encouraged to come up with workplace policies that ensure TB patients are not stigmatized and discriminated against. This would include paid leave, medical compensation and job protection *(59)*.

5.4. Objective 5:

Promote people-oriented research and innovation for improved service delivery through the development and roll-out of new tools and innovative digital technologies.

Research and innovation **along a continuum from basic sciences to clinical trials, operational research, systems review and policy research** are needed to address persistent challenges that have led to suboptimal progress in the fight against TB, and to identify and address emerging challenges. Delivering on technological breakthroughs will require a multistakeholder and multisectoral approach to developing the most appropriate medical and programmatic innovations.

> *The End TB Strategy recognizes that optimal implementation of existing TB control strategies along with major technological breakthroughs (by 2025) are needed to ensure a rapid decline in TB incidence.*

The current progress in the development of new diagnostics, medicines and vaccines does not meet the needs identified earlier. The major reasons for this are inadequate funding and infrastructure for conducting TB research and innovation. In addition, there is also a shortage of trained human resources (especially in high-TB burden countries) to conduct a wide variety of research required to address TB control challenges in the local context. There is a growing understanding among stakeholders that investment in research needs to be enhanced. A collaborative approach is vital to move TB research forward and it is important to share resources, benefits and risks among various stakeholders.

WHO has developed a Global strategy for tuberculosis research and innovation *(60)* to support the efforts of governments and other stakeholders to accelerate TB research and innovation, and improve equitable access to the benefits of research.

The key implementation considerations to achieve Objective 5 for national TB programmes are given below:

Within TB programmes

- **Develop a national research plan.** WHO has developed a framework and checklist for conducting a situational analysis and this may be used by countries to perform the situational analysis *(60)*. The situation analysis includes mapping of research activities, plans, research capacity and resources in the country. Identify (TB-related) institutions, human resources, research studies completed and those that are currently under way, available funding sources (national/ regional and global), mechanisms to avail this funding, and existing partnerships (or institutional collaborations) to conduct all types of TB-related research. The COVID-19 pandemic has brought in several changes in health systems across Member States (including reallocation of resources that were earmarked for TB research). The changes may have some major impact on TB services in countries. Therefore, undertake a situational analysis to help in ascertaining these changes and design better strategies for creating an enabling environment for TB research. After the situational analysis has been conducted, develop a comprehensive national strategy or roadmap for TB research and innovation (or update it if it already exists). Include assessment of the impact of COVID-19 on the epidemiology of TB in the country in the research strategic plan. Also consider constituting a national TB research expert group to guide the development of a national research plan and its implementation.

- **Identify national research priorities.** As part of the national research plan, identify and publish national priorities and periodically update these. Develop research priorities through a multistakeholder consultative process and include representatives from national, state and district levels, and the community so that the research priorities reflect all perspectives and field-level requirements/realities.

- **Establish collaborations.** Research initiatives in collaboration with partners, including international collaboration and public–private partnerships, are important to move the research agenda forward. Promote policy frameworks for collaborative arrangements to incentivize public–private engagement in research. In addition, adopt best practices in research capacity-building, e.g. the Structured Operational Research and Training Initiative *(61)*. Such collaboration could be among countries in the Region as well as with institutions from other regions to facilitate cross-fertilization of ideas.

- **Create a national fund for TB research** to ensure support for research, specifically in high-TB burden countries. Use this national fund to strengthen institutions to undertake research, support national TB programmes to make investments in research and activities aimed at research capacity-building, such as workshops, scholarships, training courses and experience-sharing. Also ensure that there is equity in fund allocation for the conduct of essential social, health system and operational/implementation research to support the effective scale up of innovative strategies and tools.

- **Promote operational/implementation research for the rapid adoption of recent international guidelines** on the prevention, diagnosis and treatment of TB at all levels of the health-care system, including for key TB populations (e.g. prisoners and migrants). Consider supporting research that enables TB technologies and medicines to be included in national essential medicine and technology lists and effective supply-chain management to improve procurement and use of high-quality medicines and technologies. Organize periodic/annual/biannual dissemination meetings to facilitate uptake of research findings and support researchers to present their research findings at international/regional/national TB conferences.

- **Promote evidence-based planning and decision-making** by identifying areas/topics that are critical for planning and designing interventions at the national and subnational levels. Commission studies to synthesize the available evidence, both published and unpublished, from within the country and other countries with similar settings. Disseminate the results of evidence synthesis to all stakeholders and partners, including communities, to obtain their inputs on the next steps. This should be followed by implementation as well as periodic monitoring to evaluate the emerging evidence and thereafter refine the interventions to suit local contexts.

  Evidence-based planning and implementation will be a hallmark of all the activities conducted by the NTPs in the Region and research will be one of the key elements to ensure that this is done in a systematic manner.

Within the health sector

- **Advocate to include TB in the national health sector research initiatives** and innovation strategies among other departments of the MoH so that TB is included in their health research and actions (and related investments). Develop and/or adopt standard processes for review of clinical trials, and evaluation of TB products developed in the country or elsewhere. Frame/update national guidelines to outline a clear pathway for transport of biological samples, study drugs, research reagents and equipment in and out of the country while ensuring all statutory requirements, privacy and confidentiality.
- Facilitate the timely development and diffusion of appropriate and affordable biomedical tools and technologies through **advocacy within the MoH for developing innovative and collaborative financing mechanisms.**
- **Engage civil society** across the board for advocacy and demand timely adoption, uptake and implementation of research findings. Encourage the participation of civil society representatives in discussing the findings and uptake of research in all health programmes.
- **Form a community advisory board (CAB) for research activities.** The CAB should be as important as the ethics committee as there is equal participation of the community from the time of forming a research protocol, identifying appropriate populations and risk assessment of the people who would be the recipients of services.

Beyond the health sector

- **Advocate with the ministries of science and technology, finance and education to include TB in their health research and innovation strategies and actions** (and related investments) so that TB research becomes a part of the broader sociodevelopmental research agenda. Advocate with the government at all levels to increase allocation (as a percentage of GDP) for research and development to ensure adequate funding so that TB researchers can benefit.
- **Regulate frameworks and partnerships** among sectors to reduce trade and distribution mark-ups on the prices of essential TB medicines and technologies, so that lifesaving medical products are affordable and available to all citizens who need them.

In the spirit of fast-tracking efforts to end TB, all stakeholders must make concerted efforts and collaborate. The Regional Strategic Plan calls for a unified and aligned response, in which key relevant national and international partners and affected communities support Member States by committing to the investments or partnerships (or both) needed to accelerate research and innovation.

CHAPTER 6:

Investments for ending TB in the South-East Asia Region

6.1 Investments in TB are cost effective – globally and in the SEA Region

Investments for ending TB are among the most cost-effective interventions for communicable diseases. On an average, an individual in the middle of their productive years who receives effective TB treatment resulting in cure extends their life by an additional 20 years as compared to those patients who do not receive treatment. This contributes to their ability to look after the family and remain productive members of society. According to the Copenhagen Consensus, every dollar invested in averting TB deaths returns on an average US$ 43 dollars in economic benefits *(62)*.

In India, it is estimated that over three quarters of TB patients are from households with an income of less than a dollar a day per person, but it costs about US$ 145 for treatment (nearly half a year's income for one person). The average patient (across all social groups) also loses about US$ 500 in income *(63)*.

In Thailand, Kamolratanakul et al. (1999) estimated the total percentage of patients reporting any out-of-pocket (OOP) expenditure before diagnosis. The greatest impact of costs was seen among patients with incomes below the poverty line. In this group, average OOP expenditure for the disease amounted to more than 15% of annual household income. Almost 12% of patient households used bank loans, while more than 15% sold some of their property or other assets *(50)*.

Studies in Bangladesh show that investments of just about US$ 15 per person per year by programmes would buy an extra year of life for most people with TB. Valuing each year at US$ 1000 means that every dollar spent on TB control pays back thirtyfold *(64)*.

As detailed in Chapter 2 of this document, the annual budget of NTPs of the Region has seen a significant increase from US$ 578 million in 2015 to US$ 1254 million in 2020. The funding available for NTPs has increased from US$ 480 million in 2015 to US$ 840 million in 2020 with domestic funding having more than tripled, from US$ 168 million to US$ 539 million during the same period *(1)*. However, the funding gap for NTPs has increased from US$ 98 million in 2015 to US$ 414 million in 2020. This also needs to be seen in light of the fact that even the current requirements of NTPs may not be enough to reach the end TB targets.

The COVID-19 pandemic-related restrictions are expected to impact progress towards ending TB in several ways. In addition to direct impacts such as the underdetection of all forms of TB cases, reduced coverage of TPT and disruption in treatment, there will be indirect impacts, because of the socioeconomic impact such as loss of wages leading to higher proportions of catastrophic costs and undernutrition. This will increase the number of vulnerable people and hence TB incidence.

This Plan estimates the funding needs at US$ 14.5 billion over a period of 5 years between 2021 and 2025 to avert nearly 4.5 million new cases and prevent more than a million TB deaths during the period. The investments will also avoid the loss of more than 31 million disability-adjusted life years (DALYs) that in turn would contribute to socioeconomic development in Member States. Some of these costs may need to be frontloaded, depending on the COVID-19 impact on individual countries in terms of a decline in case notifications, TPT coverage and the socioeconomic impact. At current funding levels and anticipated increase as per the trends, there will be a funding gap of around US$ 6 billion over the Plan period, as detailed later in this chapter.

The COVID-19 pandemic is also expected to substantially impact the fiscal space for several countries because of competing priorities, such as the pandemic response and diversion of resources, which will make plugging of the funding gap altogether more difficult. This will need innovative financing and reprioritization of some of the activities, at least in short term.

6.2. Costing the Regional Strategic Plan

A costing exercise to project the resources needed to end the TB epidemic as a public health threat in the Region forms the basis of the price tag for the Plan.

The modelling exercise examined the costs of five priority interventions that individually and collectively reduce the incidence and mortality of TB and hence accelerate progress towards the End TB targets for 2030. It was assumed for the costing that current baseline investments would also continue.

The interventions are aspirational, in the sense that they do not necessarily represent current country practice, but rather what is required as per WHO recommendations to achieve the End TB targets in the SEA Region. The programmatic costs for setting up and implementing these interventions as well as patient support costs are calculated separately and presented in subsequent sections. Table 6.1 outlines the interventions used in the epidemiological model, which also form the basis of the present analysis.

Table 6.1: Priority Interventions modelled in the study

Interventions	What it involves	What is costed*
Engaging all care providers	Coordination between the NTP and (where applicable) non-NTP providers to ensure that all patients treated receive the same standard of care as described by the NTP	Training and incentives for the non-NTP sector for engagement, providing care and related costs
Increasing diagnostics outreach and use of new technology	Increased availability of diagnostic centres over and above the existing centres; replacement of microscopy with rapid molecular tests – up to 80% in most countries	Costs of diagnosis – microscopy and rapid molecular tests, based on 1. symptomatic or high-risk persons to be screened 2. number of tests for diagnosis and follow up 3. gradual increase in molecular tests over time (as per model) (chest X-ray costs are included at the screening level)
Increasing case-finding among household contacts (HHC)	For every index TB case, at least "n" additional cases are found among contacts (where "n" is specified per country based on disease burden) to increase the number of patients initiated on treatment	Active case-finding activities – use of chest X-ray for screening and rapid molecular tests for diagnosis
Reducing treatment-seeking delay	In every country, there is a pre-care-seeking delay before first contact with a health-care provider. Assume measures that reduce this delay by x% (specified per country) These could involve active case-finding in vulnerable populations, including asymptomatic persons, other contacts as well as demand-generation measures such as awareness generation, stigma reduction, etc.	Two types of activities are costed: 1. active case-finding activities + community referral 2. information dissemination activities (lumpsum assumption)
Providing TB TPT as per existing WHO guidelines	Assuming increased uptake of TPT among HHC and people living with HIV (PLHIV), as per existing WHO guidelines	Since these activities build upon active case-finding, only treatment costs are considered additional for TPT

**Cost of drugs and delivery of treatment services at the facility level is part of the overall costing exercise, based on a targeted number of patients to be enrolled as per the epidemiological modelling outputs. Possible changes in variables used in calculating the costs would have an impact on the overall funding needs. For example, improved nutritional status will decrease the development of active cases from TB-infected persons.*

6.2.1. Costs of priority interventions

The priority interventions costed here are based on epidemiological modelling, as detailed in Chapter 4. The exercise of costing these interventions was supported by Triangulate Health. Table 6.2 presents the total regional cost for implementing priority interventions over the action plan period 2021–2025. These costs build cumulatively from the baseline scenario to include all activities modelled in the epidemiological model, including diagnosis, treatment and prevention. However, programme costs such as salaries of programme managers, monitoring and evaluation, among others, are not included. Table 6.2 also gives the total costs by scenario, starting with the baseline scenario. Cumulative costs resulting from expanding activities to other scenarios are also shown. The total cost for the 5-year plan ranges from US$ 3.3 billion in the baseline scenario to US$ 9.3 billion when all the interventions are combined.

Table 6.2: Total regional cost by scenario and activity (net present value, 2020 US$)

	Diagnosis ($)	Treatment ($)	Prevention ($)	Total ($)
1 BASELINE	616 605 313	2 640 386 159	_	3 256 991 472
2 + Engaging all care providers	675 996 129	2 881 961 800	_	3 557 957 929
3 + Increasing diagnostic outreach and use of new technologies	1 343 023 403	4 802 599 368		6 145 622 771
4 + Increasing case-finding among HHCs	1 740 061 271	4 878 596 970		6 618 658 240
5 + Reducing treatment-seeking delay	3 090 150 921	5 295 057 810		8 385 208 731
6 + Providing TPT as per existing WHO guidelines	3 040 887 087	5 077 948 890	1 177 783 973	9 296 619 949

Note: cost of prevention includes drug costs, cost of screening (interferon-gamma release assay/tuberculin sensitivity test [IGRA/TST]) and consultation costs for preventive treatment. Adding TPT in scenario 6 results in a reduction in costs for diagnosis of and treatment for reactive care, and an increase in the cost of preventive care.

6.2.2. Programme costs

The calculation of programme support costs included items such as salaries and incentives of those working only on TB activities at the central and peripheral levels (e.g. provincial TB coordinators, district TB coordinators), management and supervision of the TB programme, training, policy development, meetings, visits for supervision, purchase of office equipment/vehicles, construction of buildings for use by programme staff, routine surveillance, and advocacy and communication.

As per information submitted to WHO *(1)*, the total budget allocated for programme support was US$ 504 million, which is approximately 25% of the total funding availability estimated at US$ 1.46 billion when the cost of additional estimates for inpatient and outpatient service delivery are included in the total budget reported.

A large proportion of the programme costs are because of the vertical structures and human resources that are utilized exclusively for TB services. These costs can be reduced by integrating programme services. However, keeping in view that most countries will embark on accelerated efforts towards ending TB, it is assumed that the proportion of programme costs in the total budget will remain the same for the SEA Region on an average. Cost efficiency in some of the areas would be used for enhanced supervision and monitoring or other programme support aspects, keeping the funding requirements at similar levels.

The programme costs are estimated to be US$ 3.3 billion over a period of 5 years from 2021 to 2025.

6.2.3. Patient support costs

Social protection is a fundamental component of the strategy to end TB. Social protection can be implemented in various forms and needs to be thought through carefully, depending on the context and available resources. Catastrophic cost surveys were conducted in the Region in Myanmar and Timor-Leste; it is evident that up to 50% of patient costs for treatment are attributable to non-medical costs. Nutrition supplementation accounted for nearly 38% of total patient spending in Timor-Leste and similar results were seen in Myanmar where a quarter of the patients on DS-TB treatment and a third of those on DR-TB treatment were spending on nutrition supplements. Another significant contributor to patient costs was travel, which was 7% of total patient spending during DS-TB treatment. It is essential that a significant part of these costs is covered under patient support to avoid catastrophic costs. Studies have also reported inpatient costs among major drivers of patient costs in countries like India *(65)*.

Simply put, just by providing diagnostics and drugs, NTPs will not be able to move towards zero catastrophic costs. Current investment in patient support and social protection is limited and variable in the Region. In 2020, 8% of the total funding available was allocated for patient support costs for the Region as a whole. However, the investments varied from <1% to 11%, with the highest investment in India, which is also driving the regional average. It is estimated that to mitigate financial hardship to patients, national programmes need to budget for a support of US$ 125 per patient per year[d] on an average for at least 80% of patients being put on treatment in the Region (varying by country income level, this could be 100% of TB patients in countries where income levels are low). This will require

[d] The actual losses to the patient as indirect costs are quite high, as per several published studies. This is an assumed figure, which is higher than current provisions (e.g. INR 500X6 = INR 3000 in India), as well as what appears realistic for countries to invest.

increased budgetary allocation. Going forward, it is assumed that at least 15% of the total funding availability (or 25% of direct programme costs) would be allocated for patient support costs, of which nutrition and transport costs will need to be prioritized. The costs could be alleviated through cash transfers, food packages, transportation vouchers, educational and emotional support to patients or other in-kind benefits given to TB patients such as mobile phones (airtime or device for video-observed treatment) and medication monitors. There is also expected to be an increase in patient support costs such as nutrition and transportation costs, and for communication with patients because of the restriction due to pandemic. Direct benefit transfers are used for all TB patients in India, while conditional benefit transfers are being provided for poor TB patients in Indonesia. These examples can be scaled up and implemented in all countries in the Region to enhance patient support.

For the purpose of this Regional Strategic Plan, the patient support costs are estimated to be US$ 1.9 billion over a period of 5 years from 2021 to 2025.

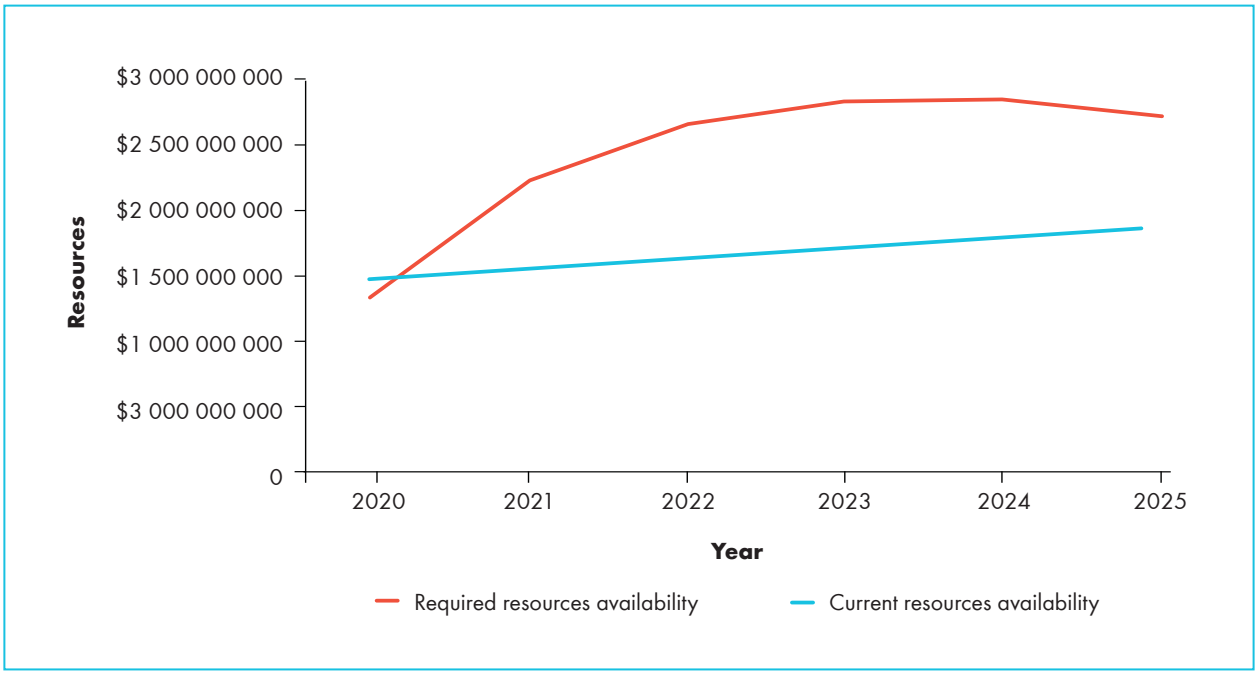
There is an opportunity to further develop costings on human rights, stigma, community engagement, advocacy, law and policy reform. Based on the country situation, these can be developed and included in national strategic plans.

6.3. Funding gaps in implementing the Regional Plan

Given the above cost calculations, it is estimated that the total funding requirement for implementing the aspirational TB package will be US$ 14.5 billion for a 5-year period between 2021 and 2025. However, as can be seen in Fig. 6.1, the requirement is not uniform over 5 years and is based on coverage levels as well as the number of patients expected to be put on treatment. For the baseline, the funding availability for the year 2020 has been projected forward with a 5% increase per year. This would mean that, at current rates, the total budget available is US$ 8.5 billion. Therefore, at current funding levels, there is a gap of US$ 6 billion. However, there is an anticipated decrease in fiscal space because of resource diversion for addressing the COVID-19-related challenges and mitigating the immediate impact. This may further challenge resource allocation for TB programmes in the near future.

The COVID-19 pandemic has contributed to additional financial gaps for TB programmes because of the diversion of resources and reprioritization of needs in the system. At the time of preparing the RSP, the Global Fund had already committed to additional funding for countries under the COVID-19 response mechanism (C19RM). In round 1 of C19RM, there was an allocation of US$ 70 million through immediate allocation and another US$ 40 million through grant flexibility, while in round 2, another US$ 220 million was allocated along with a similar amount as the above allocation grant for the SEA Region. However, this alone is not enough. Countries need to take stock of what additional resources and actions are needed, and then tap into all available funding sources (domestic and global). Resources need to be front-loaded, with a particular focus on human resources, to embark on immediate recovery and put countries back on track to ending TB.

Fig. 6.1: Resources available in 2020* vs resource requirement – combined for the SEA Region



** includes intervention costs, programme support costs and patient support costs, as reported by national programmes to WHO, as well as estimated costs of first- and second-line treatment delivery*

6.4. Funding the TB programmes

The Global Plan (using the TIME model) estimates that the 11 countries of the SEA Region would require US$ 3 billion funding in 2022 to reach the End TB goals, including US$ 1.5 billion in India *(66,67)*. The costing estimates in this Regional Plan are similar when averaged out over 5 years. As per costing done for this Regional Plan, the funding requirement will increase from about US$ 1.5 billion in 2021 to about US$ 2.8 billion in 2023 and 2024, which is similar to the TIME model estimates. If this amount is invested (with corresponding implementation of interventions), the requirement will start decreasing from 2025.

While the Global Fund has been the biggest multilateral donor for TB activities in the Region, there has been substantial investment from domestic resources, and that needs to be further increased to plug the gaps. Countries may also need to look at innovative financing mechanisms as well as greater engagement of other sectors, including the private sector through the CSR activities to pool resources.

In addition, countries should also use approaches to reduce implementation costs through innovations such as the use of mobile phone technology to reduce transport cost for patients, digital technology such as the use of AI for CXR, telemedicine good practices, virtual outreach, virtual contact investigation and use of social media for dissemination of appropriate messages.

Countries also need to make provision for funding to TB-affected communities and civil society (social contracting is one proposed mechanism) to facilitate community-led monitoring, participation and engagement in governance, law and policy reform in addition to the usual functions of service delivery. This has been done successfully in many health programmes, including in the HIV response.

Key messages

1. The current funding for TB programmes in the Region (2020 budgets) may need to be increased by close to **three times** to implement comprehensive strategies towards ending TB. The ongoing COVID-19 pandemic will push up the costs further.
2. **Multiple and innovative funding mechanisms** through strong multisectoral and multistakeholder collaboration, including private sector engagement, are needed to plug the funding gaps.
3. **Efficiencies in programme costs,** and hence a reduction in total funding needs, can be introduced by integration of services. Opportunities to improve programme efficiency through the use of new (lower cost) DR-TB regimens, ambulatory services, and lower cost methods to engage with the private sector need to be explored.
4. **Digital technologies** such as CXR with AI, telemedicine good practices, virtual outreach, virtual contact investigations, virtual advocacy and social mobilization efforts by utilizing the social media – could all reduce costs of reaching and managing TB cases.
5. Patient support costs need to be enhanced to **provide social protection** measures as a long-term intervention, but more so in the immediate future to mitigate the impact of the COVID-19 pandemic on TB patients.

CHAPTER 7:
Monitoring indicators for the Regional Strategic Plan

7.1. Monitoring progress and impact

Table 7.1 defines the **top ten global indicators and the additional indicators for the Region,** relevant for monitoring implementation and progress of the Regional Strategic Plan at the regional and country levels, in line with WHO's End TB Strategy, SDG targets and global targets set in the Political Declaration of the UNHLM-TB *(2,6,68)*. These include the top ten global indicators and two additional indicators specific to the Region. The latter two have been added to monitor the funding status of the plans, given the dependence of several Member States on donor funding, and to monitor implementation of social protection measures, as undernutrition is a key social determinant of TB in the SEA Region.

This table also defines the recommended target level for each indicator and explains the rationale for its inclusion in all countries. For each indicator, an essential part of adapting the Regional Strategic Plan to End TB at the national level is to define the year in which the target level should be achieved. Some Member States will already have achieved the recommended target level, and targets can be set to sustain or improve upon the current level. In other Member States, the target year will need to be defined based on the baseline situation and the anticipated speed and scale at which the necessary improvements can be made.

The following annexes also list other targets and indicators that could be used to further monitor the health system's response to the TB programme.

- Annex 3. Sustainable Development Goals and targets relevant to the burden of tuberculosis
- Annex 4. Sustainable Development Goal 17 and associated targets and indicators relevant to the monitoring of the tuberculosis epidemic
- Annex 5. Targets and milestones set in WHO's End TB Strategy
- Annex 6. Global targets set in the Political Declaration of the United Nations High-Level Meeting on Tuberculosis

Table 7.1: Priority indicators for the Region, including the global top ten priority indicators (not ranked) for monitoring implementation of the End TB Strategy with recommended target levels that apply to all countries

	Indicator	Recommended target level by 2025	The main rationale for inclusion of indicator
1	TB treatment coverage Number of new and relapse cases that were notified and treated, divided by the estimated number of incident TB cases in the same year expressed as a percentage	≥90%	High-quality TB care is essential to prevent suffering and death from TB and to cut transmission. High coverage of appropriate treatment is a fundamental requirement for achieving the milestones and targets of the End TB Strategy. In combination, these two indicators will likely be used as tracer indicators for monitoring progress towards universal health coverage (UHC) within the Sustainable Development Goals (SDGs).[e]
2	TB treatment success rate[f] Percentage of notified TB patients who were successfully treated. The target is for drug-susceptible and drug-resistant TB combined, although outcomes should also be reported separately	≥90%	
3	Percentage of TB-affected households that experience catastrophic costs[g] due to TB Number of people treated for TB (and their households) who incur catastrophic costs (direct and indirect combined), divided by the total number of people treated for TB	0%	One of the End TB Strategy's three high-level indicators; a key marker of financial risk protection (one of the two key elements of UHC) and social protection for TB-affected households
4	Percentage of new and relapse TB patients tested using a molecular WHO-recommended rapid diagnostic (mWRD) at the time of diagnosis Number of new and relapse TB patients tested using a WRD at the time of diagnosis, divided by the total number of new and relapse TB patients, expressed as a percentage	≥90%	Accurate diagnosis is a fundamental component of TB care. Rapid tests help to ensure early detection and prompt treatment.
5	Latent TB infection (LTBI) treatment coverage Number of people living with HIV newly enrolled in HIV care and the number of children aged <5 years who are household contacts of cases started on LTBI treatment, divided by the number eligible for treatment, expressed as a percentage (separately for each of the two groups)	≥90%	Treatment for LTBI is the main treatment intervention available to prevent the development of active TB disease in those already infected with M. tuberculosis.

[e] This As the population in the Region starts ageing and there are greater proportions of the elderly being treated, programmes may need to make additional efforts to reach a treatment success rate of 90% and above.

[f] It would be difficult to achieve the same target for DR-TB unless the new regimen for DR-TB is effectively implemented.

[g] Catastrophic costs are provisionally defined as total costs that exceed 20% of annual household income.

	Indicator	Recommended target level by 2025	The main rationale for inclusion of indicator
6	Contact investigation coverage Number of contacts of people with bacteriologically confirmed TB who were investigated for TB divided by the number of eligible persons, expressed as a percentage	≥90%	Contact-tracing is a key component of TB prevention, especially in children.
7	Drug-susceptibility testing (DST) coverage for TB patients Number of TB patients with DST results divided by the number of notified cases in the same year, expressed as a percentage. DST coverage includes results from molecular (e.g. Xpert MTB/RIF) as well as conventional phenotypic DST results	100%	Testing for drug susceptibility is essential to provide the right treatment for every person diagnosed with TB.
8	Treatment coverage, new TB drugs Number of TB patients treated with regimens that include new (endorsed after 2010) TB drugs, divided by the number of notified patients eligible for treatment with new TB drugs, expressed as a percentage	≥90%	An indicator that is relevant to monitoring the adoption of innovations in all countries. Note: Indicators related to the development of new tools are needed at the global level but are not appropriate for monitoring progress in all countries.
9	Documentation of HIV status among TB patients Number of new and relapse TB patients with documented HIV status divided by the number of new and relapse TB patients notified in the same year, expressed as a percentage	100%	One of the core global indicators used to monitor collaborative TB–HIV activities. Documentation of HIV status is essential for providing the best care for HIV-positive TB patients, including ART.
10	Case fatality ratio (CFR) Number of TB deaths divided by the estimated number of incident cases in the same year, expressed as a percentage	≤5%	This is a key indicator for monitoring progress towards the 2020 and 2025 milestones. A CFR of 6% is required to achieve the 2025 global milestone for reductions in TB deaths and cases.

	Indicator	Recommended target level by 2025	The main rationale for inclusion of indicator
Additional indicators for pilot testing in the initial two years prioritized as per the list below, and take-up on a wider scale contextualized to the respective country needs subsequently			
11	Protection against undernutrition offered to TB patients. The description would accordingly be Proportion of TB patients screened for undernourishment using anthropometry (mid-upper arm circumference and/or BMI and judged to have lower values against the national standards) and provided or referred for calorie and micronutrient supplementation	≥80%	To ensure adequate social protection for TB patients, seen as a key intervention to address the TB burden
12	Comorbidity screening among TB patients Proportion of TB patients screened for diabetes mellitus and referred for appropriate management	≥80%	To ensure adequate screening for important comorbidity (the indicator will be taken up by countries based on the local context)
13	Mobilization of funding to the TB programme Proportion of expected funding (from domestic and external sources) against the budget required as per the strategic plan (at regional or country level) for effective implementation of the TB programme	>90%	This is a key indicator for monitoring progress towards assuring the required financing in the TB programme, which is key to effective programme implementation and one of the key UNHLM targets and also a measure of accountability of each country and its commitment to ending TB.
14	Engagement of the private sector Proportion of private sector contribution to total TB case notifications	≥30%	To ensure adequate engagement of the private sector (the indicator will be taken up by countries based on local context – some countries with little or no private sector may choose to substitute "private sector" with "non-engaged public sector")
15	Engagement of community in service delivery Proportion of notified TB patients screened for TB disease by community members outside of health facilities	≥20%	Number of individuals screened for TB disease outside of health facilities by community-based organizations (CBOs) and civil society organizations (CSOs) during the specified reporting period, as a proportion of total notified TB patients

7.1.1. Assessing targets and indicators that are relevant for achievement of the TB targets in the non-health SDGs

The United Nations SDGs framework provides the means to address the socioeconomic determinants of TB, which is vital for achieving the End TB goals in the SEA Region. WHO has identified the following list of goals and indicators (beyond SDG 3) as relevant to TB for monitoring *(1)*. The framework includes only those indicators for which a relationship with TB incidence could be established and therefore all countries are urged to use these indicators for monitoring progress on the social determinants of TB and engage with stakeholders who are addressing these indicators for the SDGs (Table 7.2).

Table 7.2: SDGs framework for addressing the socioeconomic determinants of TB

SDG	SDG indicators
SDG 1: End poverty in all its forms everywhere	1.1.1 Proportion of population living below the international poverty line 1.3.1 Proportion of population covered by social protection floors/systems
SDG 2: End hunger, achieve food security and improve nutrition and promote sustainable agriculture	2.1.1 Prevalence of undernourishment
SDG 7: Ensure access to affordable, reliable, sustainable, and modern energy for all	7.1.2 Proportion of population with primary reliance on clean fuels and technology
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.1.1 Annual growth rate of real GDP per capita
SDG 10: Reduce inequality within and among countries	10.1.1 Growth rates of household expenditure or income per capita, overall and for the bottom 40% of the population
SDG 11: Make cities and human settlements inclusive, safe, resilient, and sustainable	11.1.1 Proportion of urban population living in slums, informal settlements, or inadequate housing

- Countries in the Region will be supported in reporting on these indicators.
- Analysis of these SDG indicators in relation to TB indicators will be undertaken at country and regional levels and disseminated to policy-planners and leaders.

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ANNEXURES

ANNEX 1:
Methods used for modelling

Fig. A1 illustrates a deterministic, compartmental model used to capture the transmission dynamics of TB. The model incorporates the difference between the public and private sectors (only for those countries in the Region where the private sector plays an important role in managing TB patients); the role of HIV coinfection; and the acquisition and transmission of RR-TB. For each of the 11 countries in the Region, we calibrated the model separately to capture the most recent WHO estimates for annual incidence and mortality rates, as well as for the proportion of incident cases that are HIV coinfected, and that are rifampicin resistant.

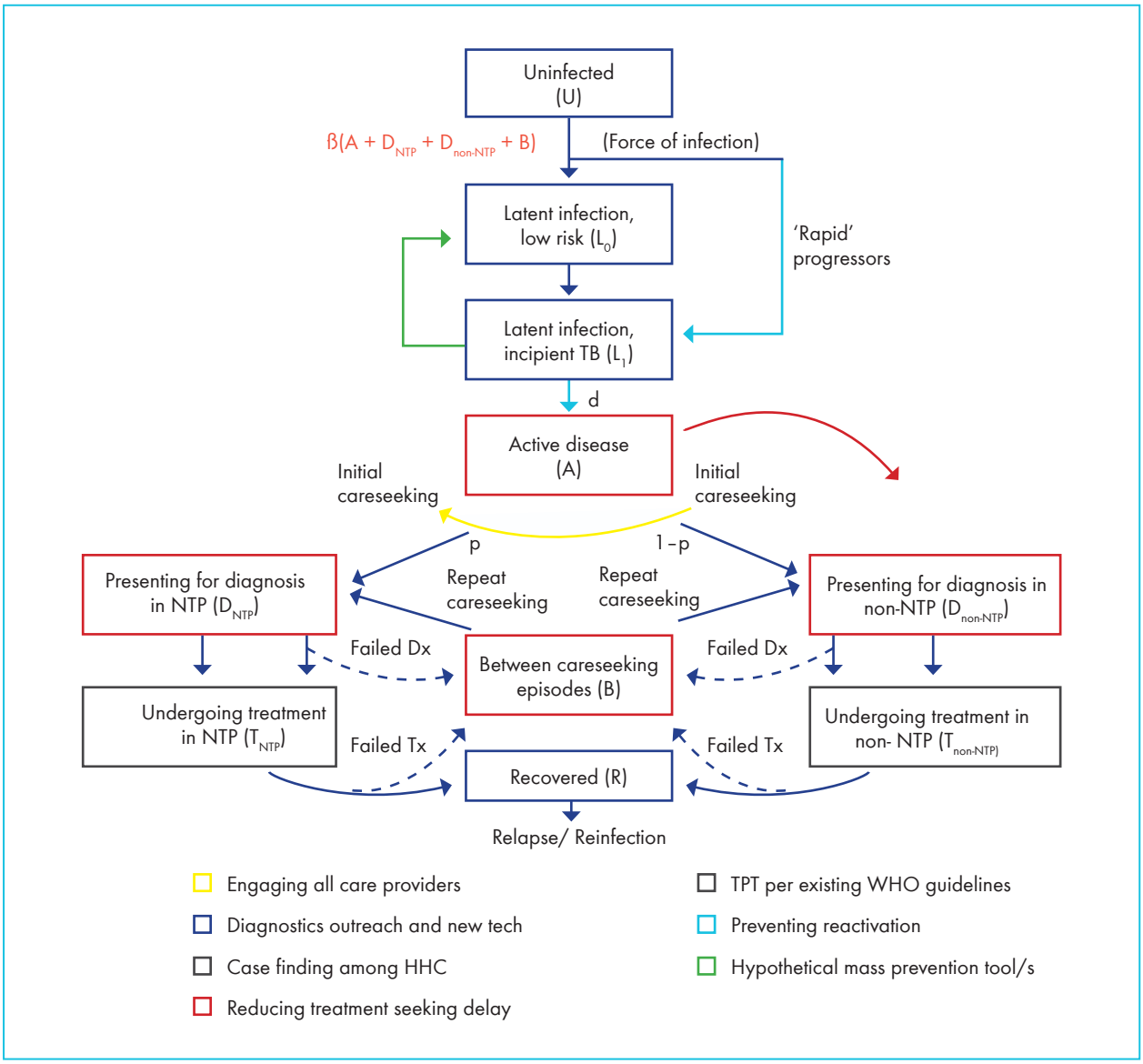


Fig. A1. Schematic illustration of the model framework. This model was calibrated separately to each of the 11 countries in the Region. Compartments in red are infectious; the aim of any case-based interventions (e.g. case-finding or improved treatment outcomes) is to minimize the number of people in these compartments, thus minimizing the force of infection. On the other hand, the purpose of preventive interventions is to slow the transition of individuals from latent infection to active disease (e.g. see arrow marked "LTBI Rx"). [based on modelling]

For most countries in the analysis, for the sake of simplicity, we ignored age structure, instead assuming an average infectiousness across age groups. However, there are two countries in the Region, Thailand and Sri Lanka, in which the elderly (>65 years) account for a disproportionate burden of overall TB. For these countries, we additionally incorporated a distinction between those above and below 65 years of age, using this distinction to model intensified case detection and prevention efforts focused on the elderly.

Interventions modelled

For each country, we modelled the following interventions (with country-wise coverage listed in Tables A1 and A2). We distinguished "case-based" interventions (those aimed at early detection and effective treatment of active TB) from "preventive" interventions (those aimed at preventing LTBI from developing into active TB).

Case-based interventions

- *Engaging all care providers* (applies only to countries where non-NTP providers play a sizeable role in managing TB patients): coordination between NTP and (where applicable) non-NTP providers to ensure that all patients treated receive the same standard of care as required by the NTP. This intervention builds on, and extends, any such existing efforts in each country.
- *Increasing diagnostics outreach and use of new technology:* increased availability of diagnostic centres over and above the existing centres; urgent replacement of microscopy with rapid molecular tests.
- *Increasing case-finding among household contacts:* for every index TB case, at least n additional cases are found among contacts (where n is specified per country based on the disease burden) to increase the number of patients initiated on treatment.
- *Reducing treatment-seeking delay:* in every country, there is a pre-care-seeking delay before first contact with a health-care provider. Assume measures that reduce this delay by a certain percentage (specified per country). These could involve active case-finding in vulnerable populations, including asymptomatic persons, other contacts, and demand-generation measures such as awareness generation, stigma reduction, etc.

Preventive interventions

- *TPT per existing WHO guidelines:* assuming increased uptake of TPT among HHCs and PLHIV, as per existing WHO guidelines, and facilitated using new, shorter, simpler regimens for preventive therapy.
- *Preventing reactivation:* TB prevention is extended to the general population to reduce the average rate of reactivation of LTBI by a certain percentage (specified per country). Such measures could involve intersectoral efforts such as addressing malnutrition or risk-targeted preventive therapy.
- *Hypothetical mass prevention tools:* in alignment with the End TB strategy, assume that from 2025 onwards, either biomarker-guided mass preventive treatment or an incidence-reducing vaccine will be available. Coverages for this scenario are listed in Table A2.

For each country, we compared the incidence and mortality impacts of these interventions against:

- the End TB/SDG targets for 2030, i.e. an 80% reduction in annual TB incidence rates and 90% reduction in the number of TB deaths, compared to 2015;
- the 2025 milestones for reaching these targets, i.e. a 50% reduction in annual TB incidence rates and 75% reduction in the number of TB deaths, compared to 2015.

Additional analyses

As described above and listed in Table A1, in Sri Lanka and Thailand, we modelled additional case-finding and preventive efforts focused on those over 65 years of age. In order to demonstrate the value of such focused interventions, we simulated an alternative scenario where interventions are applied uniformly across the population, with no additional measures focused on those over 65 years.

Second, the public health response to COVID-19, mostly starting in March/April 2020, has caused substantial disruptions to TB programmes across the world, and countries of the SEA Region are no exception. Although our main analysis (as described above) did not incorporate the effects of such disruptions in all countries of the Region, in the illustrative example of India, we performed additional sensitivity analysis to examine the effects of incorporating these disruptions in our analysis. Modelling available, monthly notification data through a temporary reduction in TB diagnosis, we modelled the resulting increase in undetected TB during the period of disruption, alongside a 50% reduction in TB transmission during this same period, the latter to reflect the transmission-reducing effects of social distancing measures. We assumed these disruptions to be in full effect from April 2020 to October 2020, after which routine TB services would be restored gradually to pre-lockdown levels by April 2021.

Table A1. Coverage targets as per modelling assumptions in order to meet the 2025 and 2030 targets for incidence and mortality

Country	Engaging all care providers (% of unengaged providers reached)	Diagnostics outreach and new technologies				Case-finding among HHCs (yield per index case)	Reducing treatment-seeking delay	WHO-recommended TPT among specified risk groups		Preventing reactivation	
		Lab expansion (%)	Accelerated substitution of smear by rapid molecular test (%)	Tx initiation (%)	Tx completion (%)	(%)	(%)	HHC (%)	PLHIV (%)	Cutting reactivation rate (%)	Cutting breakdown rate (%)
Bangladesh	0	0	80	90	95	0.15	60	100	90	10	10
Bhutan	0	5	80	90	95	0.25	60	100	90	10	10
DPR Korea	0	10	80	90	95	0.15	60	100	90	10	10
India	50	35	80	90	95	0.15	60	100	90	10	10
Indonesia	50	30	80	90	95	0.15	60	100	90	10	10
Maldives	0	0	80	90	95	0.15	60	100	90	10	10
Myanmar	50	20	80	90	95	0.15	60	100	90	10	10
Nepal	50	35	80	90	95	0.15	60	100	90	10	10
Sri Lanka (*)	0	10	80	90	95	0.25	60	100	90	10	10
Thailand (*)	0	20	80	90	95	0.15	60	100	90	10	10
Timor-Leste	0	30	80	90	95	0.20	60	100	90	10	10

HHC: household contacts; PLHIV: people living with HIV; TPT: tuberculosis preventive therapy

For Sri Lanka and Thailand, where a substantial proportion of the TB burden is in those over 65 years of age, we assume additional interventions targeted towards this age group to reduce the delay before first seeking care and to reduce the hazard of progression to active disease. In Sri Lanka, we assume this delay and hazard both to be reduced by 70% and in Thailand by 85%, both over and above the effect of other interventions listed in the table.

Table A2. Coverage levels needed in different countries for hypothetical mass prevention interventions

	Bangladesh	Bhutan	DPR Korea	India	Indonesia	Maldives	Myanmar	Nepal	Sri Lanka	Thailand	Timor-Leste
Effect size, mass prevention	**44**	**44**	**50**	**50**	**50**	**58**	**29**	**50**	**55**	**58**	**29**

Such interventions, assumed to be implemented in addition to all interventions listed in Table A1, may include the use of an incidence-reducing vaccine, biomarker-guided preventive therapy, or measures to address the social determinants of TB such as undernutrition. Here, "effect size" denotes the percentage reduction achieved by such measures in the population-level average risk of reactivation among those with LTBI. The different values across countries reflect the varying impacts of the full combination of interventions listed in Table A1, and thus the varying need for additional prevention to meet the End TB targets.

ANNEX 2:
Costing methods and assumptions

This report develops an indicative cost for the SEA Regional Strategic Plan. The regional costs are based on country-level cost calculations, and country-level costs in turn are calculated by using the best available sources and, where necessary, appropriate adjustments – this is further explained in the "Sources for unit costs" section below. The regional costing is developed to be indicative rather than for use in detailed regional- or country-level planning. This regional costing focuses on priority interventions that are forecast to lead to maximum impact on the incidence rather than the implementation of the entire programme. It excludes programme costs and patient-incurred costs.

The cost of scenarios (baseline and single scenarios combining several interventions) were estimated by combining epidemiological model outputs, empirical and secondary cost data, and expert consultation. The general method used was an accounting approach, using a combination of ingredients and unit costs attached to model outputs or intervention coverage descriptions.

For each intervention, the report considers the cost-of-service delivery required to increase coverage to the modelled level. To maintain comparability, the above service costs (programmatic costs) and patient-incurred costs were excluded from the analysis. Commodities are assumed to be procured through international procurement mechanisms, yielding maximum economies of scale for market-traded goods. However, no assumption was made on the economies or diseconomies of scale at the site level due to the extensive data requirements for such an assessment.

To estimate the gap between available and required resources, we compared the resource requirements from the present analysis with WHO's financing database, available from the WHO Global TB Programme. This database includes reported TB programme budgets available at the national level*(1)*.

Unit cost estimation

To undertake costing and cost–effectiveness analysis, unit costs of the various health-care resource use events were estimated based on Value TB data and expert opinion where specific costs were not available, and categorized into diagnosis, treatment and prevention costs.

The estimation of mean unit cost per resource element was an amalgamation of the various components that each resource element entailed in direct TB service delivery – such as drug costs, cost of diagnostic tests, outpatient visits and inpatient days.

The inpatient days for treatment were calculated for each country by multiplying the average proportion of patients having an inpatient episode with the average inpatient length of the stay of the episode in that country – this was done individually for DS-TB (first-line treatment) and MDR-TB (second-line treatment), based on the WHO TB data available for the 11 countries of the SEA Region*(1)*.

Future costs were discounted from the year they were incurred at 3% to calculate the net present value. Similarly, health outcomes were discounted at 3% to get the net present value for each effectiveness measure. Discounting adjusts future costs and outcomes to the "present value" accounting for time preference, i.e. a higher value is placed on receiving a benefit sooner rather than later*(2)*. All costs and benefits for the years 2020–2025 are presented as present value when aggregated in totals.

Sources for unit costs

Unit cost data were primarily extracted from the latest Value TB India data, which provided costs in 2018 US$. Bottom–up unit costs per output and per intervention were used for the calculation of unit costs. These costs included the costs of capital, consumables, overheads and staff time. Where unit cost data were not available from Value TB, experts within the Regional Office provided realistic estimates. Data from the Global Drug Facility were used for drug costs for treatment and preventive therapy.

All Value TB unit costs from India were adjusted by the gross domestic product (GDP) per capita for each country to capture the difference in regional medical costs across countries in the SEA Region. GDP per capita data were obtained from the World Bank for the latest available year (2019) for all 11 countries *(3)*. GDP deflator from the World Bank was used to inflate the 2018 Value TB costs to 2020 US$ *(4)*.

Sensitivity analysis

A range of possible costs are examined in sensitivity analysis based on unit cost ranges (minimum and maximum) from empirical data (Value TB) or expert opinion. This range of costs is included in the result tables below.

Funding gap analysis

We compared the resource requirements from the present analysis with the reported TB programme budgets available at the national level on the WHO Tuberculosis Profiles site *(5)*. We note that, for comparison, the reported national-level budgets include the following items, some of which (indicated with an asterisk*) are not included in the present costing. Consequently, the present analysis represents a lower bound on the actual resource requirement:

- laboratory infrastructure, equipment and supplies
- national TB Programme staff (central unit staff and subnational TB staff)*
- drug-susceptible TB: drugs
- drug-susceptible TB: programme costs*
- drug-resistant TB: drugs
- drug-resistant TB: programme costs*
- TB preventive treatment: drugs
- collaborative TB–HIV activities*
- patient support*
- operational research and surveys*
- all other budget lines.*

Assumptions

The costing model makes a series of assumptions, developed collaboratively with the Regional Office:

- The proportion of pulmonary tuberculosis (PTB) to extrapulmonary tuberculosis (EPTB) is 80:20.
- The proportion of adults with TB to children (below 14 years) with TB is 92:8.
- The proportion of digital X-rays to film X-rays is 50:50.
- The proportion of liquid culture to solid culture is 50:50.
- TB patients undergoing non-Xpert diagnosis would undertake a first-line DST in the first instance.
- The number of people having second-line DST (second-line fluoroquinolone injection) would be the number of people initiating second-line treatment (20-month and 9-month regimens) – scaled up by 8% per year from 50% in 2020 (baseline determined on proportions reported to WHO for the 2020 Global TB report) to 90% in 2025.
- The range of drug costs for MDR-TB and DS-TB is considered to be 100% up to 120% of the Global Drug Facility (GDF) cost.
- Due to the non-availability of GDP data (GDP deflator, GDP per capita) for the Democratic People's Republic of Korea, values from India were used as a proxy.

ANNEX 3:

Sustainable Development Goals and targets relevant to the burden of tuberculosis

GOAL AND NUMBER	TARGETS	EXPLANATORY NOTES
Directly related to tuberculosis		
3. Ensure healthy lives and promote well-being for all at all ages	**3.3** End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases	
Indirectly related to tuberculosis		
Ensure healthy lives and promote well-being for all at all ages	**3.4** By 2030, reduce by one third premature mortality from noncommunicable diseases through prevention and treatment and promote mental health and well-being **3.5** Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol **3.8** Achieve universal health coverage, including financial risk protection, access to quality essential health- care services and access to safe, effective, quality and affordable essential medicines and vaccines for all **3.a** Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate **3.b** Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines and provide access to medicines for all **3.c** Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in the least developed countries and small island developing States	**Noncommunicable diseases such as diabetes, and smoking and alcohol use, are risk factors for tuberculosis. Universal health coverage is part of the End TB Strategy, and necessary to reach its targets and milestones. Research and innovation for tuberculosis is part of the End TB Strategy and its targets cannot be achieved without it.**

GOAL AND NUMBER	TARGETS	EXPLANATORY NOTES
1. End poverty in all its forms everywhere	**1.1** Eradicate extreme poverty for all people everywhere **1.3** Ensure nationally appropriate social protection systems and measures for all, including social protection floors/ systems	Levels of poverty, social protection, undernutrition, indoor air pollution, income levels and distribution, and housing quality are all associated with tuberculosis incidence. Women and girls account for about one third of tuberculosis cases globally.
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	**2.1** End hunger and ensure access by all people to safe, nutritious and sufficient food year-round	
5. Achieve gender equality and empower all women and girls	**5.1** End all forms of discrimination against all women and girls everywhere **5.4** Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies **5.A** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	
7. Ensure access to affordable, reliable, sustainable and modern energy for all	**7.1** Ensure universal access to affordable, reliable and modern energy services	
8. Promote inclusive and sustainable economic growth, employment and decent work for all	**8.1.1** Annual growth rate of real GDP per capita	
10. Reduce inequality within and among countries	**10.1** Achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average	
11. Make cities inclusive, safe, resilient and sustainable	**11.1** Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	

ANNEX 4:

Sustainable Development Goal 17 and associated targets and indicators

GOAL 17	TARGETS RELEVANT TO MONITORING OF THE TUBERCULOSIS EPIDEMIC	INDICATORS RELATED TO MONITORING OF THE TUBERCULOSIS EPIDEMIC
Strengthen the means of implementation and revitalize the global partnership for sustainable development	**17.18** By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts	**17.18.1** Proportion of sustainable development indicators produced at the national level with full disaggregation when relevant to the target, in accordance with the Fundamental Principles of Official Statistics
	17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries	**17.19.2** Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100% birth registration and 80% death registration

ANNEX 5:

Targets and milestones set in WHO's End TB Strategy

INDICATORS	MILESTONES		TARGETS	
	2020	2025	2030	2035
Percentage reduction in the absolute number of tuberculosis deaths *(compared with 2015 baseline)*	35	75	90	95
Percentage reduction in the tuberculosis incidence rate (new cases per 100 000 population per year) *(compared with 2015 baseline)*	20	50	80	90
Percentage of tuberculosis-affected households experiencing catastrophic costs due to tuberculosis disease	0	0	0	0

ANNEX 6:

Global targets set in the Political Declaration of the United Nations High-Level Meeting on Tuberculosis

INDICATOR	TARGET
Number of people with tuberculosis diagnosed and treated	40 million people treated for TB from 2018 to 2022, including: ➤ 3.5 million children ➤ 1.5 million people with drug-resistant TB, including 115 000 children
Number of people reached with treatment to prevent tuberculosis	At least 30 million people provided with TB preventive treatment from 2018 to 2022, including: ➤ 6 million people living with HIV ➤ 4 million children under 5 years of age and 20 million people in other age groups, who are household contacts of people affected by TB
Mobilization globally of sufficient and sustainable financing for universal access to quality prevention, diagnosis, treatment and care of tuberculosis	Funding of at least US$ 13 billion per year for universal access to TB prevention, diagnosis, treatment and care by 2022
Mobilization globally of sufficient and sustainable financing for tuberculosis research	Funding of at least US$ 2 billion per year for TB research from 2018 to 2022

ANNEX 7:

Unit costs of resource use – costed elements

(Note: This is an example for India. As the unit costs used were for India, the GDP per capita adjustment factor was 1.0 – thereby resulting in the same values as the original unit costs.)

INDICATORS	GDP per capita adjustment			Original unit costs		
	Mean	Min	Max	Mean	Min	Max
Number of suspects undergoing smear microscopy (public)	4.11	1.06	11.30	4.11	1.06	11.30
Number of suspects undergoing smear microscopy (engaged private)	4.11	1.06	11.30	4.11	1.06	11.30
Number of suspects undergoing GeneXpert, public sector	20.06	17.54	23.88	20.06	17.54	23.88
Number of suspects undergoing GeneXpert, private sector	20.06	17.54	23.88	20.06	17.54	23.88
Number of cases diagnosed passively (to trigger contact-tracing)	3.40	1.15	9.98	3.40	1.15	9.98
Number of suspects undergoing contact-tracing	4.30	1.80	10.90	4.30	1.80	10.90
Number of suspects undergoing community referral	3.52	1.12	7.82	3.52	1.12	7.82
Number of TB patients undergoing (non-Xpert) drug susceptibility testing (DST)	40.96	39.87	43.35	40.96	39.87	43.35
Number of people having second-line DST	25.66	24.57	28.06	25.66	24.57	28.06
Number of first-line TB patients initiating treatment, public sector	55.74	18.11	92.98	55.74	18.11	192.98

INDICATORS	GDP per capita adjustment			Original unit costs		
	Mean	Min	Max	Mean	Min	Max
Number of TB patients first-line initiating treatment, engaged private sector	55.74	18.11	192.98	55.74	18.11	192.98
Number of TB patients second-line initiating treatment (public, 20-month regimen)	486.88	172.80	1626.29	486.88	172.80	1626.29
Number of TB patients initiating on second-line treatment (public, 9-month regimen)	238.77	92.10	767.22	238.77	92.10	767.22
Number of TB patients initiating on second-line treatment (engaged, 20-month regimen)	486.88	172.80	1626.29	486.88	172.80	1626.29
Number of TB patients initiating on second-line treatment (engaged, 9-month regimen)	238.77	92.10	767.22	238.77	92.10	767.22
Patient-months of treatment, first-line public	7.57	7.25	10.20	7.57	7.25	10.20
Patient-months of treatment, second-line public (20-month regimen)	142.57	142.25	204.60	142.57	142.25	204.60
Patient-months of treatment, second-line public (9-month regimen)	167.57	167.25	240.60	167.57	167.25	240.60
Patient-months of treatment, first-line private	7.57	7.25	10.20	7.57	7.25	10.20
Patient-months of treatment, second-line engaged provider (20-month regimen)	142.57	142.25	204.60	142.57	142.25	204.60
Patient-months of treatment, second-line engaged provider (9-month regimen)	167.57	167.25	240.60	167.57	167.25	240.60
Number of HHCs initiating preventive therapy	16.51	15.57	28.85	16.51	15.57	28.85
Number of PLHIV initiating preventive therapy	16.51	15.57	28.85	16.51	15.57	28.85

ANNEX 8:

Breakdown of unit cost calculation for health service costs, current US$ 2020

(baseline) (example for India)

Break-down of unit costs	Resource use	Costs			Case mix			Source	
		Mean	Min	Max	Mean	Min	Max	Costs	Case mix
Elemen	Number of suspects smear microscopy (public								
Components	Smear microscopy ZN (Value TB)	2.49	0.62	7.02	1.00	1.00	1.00	Value TB	Expert opinion
	Outpatient diagnostic visits costs (Value TB)	1.41	0.38	3.68	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	3.90	1.00	10.70					
Element	Number of suspects GeneXpert, public sector								
Components	Xpert MTB/RIF (Value TB)	17.59	6.24	18.95	1.00	1.00	1.00	Value TB	Expert opinion
	Outpatient diagnostic visits costs (Value TB)	1.41	0.38	3.68	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	19.00	6.61	22.62					
Element	Number of cases diagnosed passively (to trigger contact-tracing)								
Components	Passive case-finding (Value TB) Adults, EPTB	1.64	0.53	4.89	0.18	0.18	0.18	Value TB	Expert opinion
	Passive case-findings (Value TB) Adults, PTB	1.64	0.53	4.89	0.74	0.74	0.74	Value TB	Expert opinion
	Passive case-finding (Value TB) Children, EPTB	0.91	0.91	0.91	0.02	0.02	0.02	Value TB	Expert opinion

Break-down of unit costs	Resource use	Costs			Case mix			Source	
		Mean	Min	Max	Mean	Min	Max	Costs	Case mix
	Passive case-finding (Value TB) Children, PTB	0.91	0.91	0.91	0.06	0.06	0.06	Value TB	Expert opinion
	Outpatient screening visit (Value TB)	1.64	0.53	4.89	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	3.22	1.09	9.45					
Element	Number of suspects contact tracing								
Components	Chest X-ray (digital) (Value TB)	2.89	0.71	8.42	0.50	0.50	0.50	Value TB	Expert opinion
	Chest X-ray (film) (Value TB)	1.98	1.64	2.46	0.50	0.50	0.50	Value TB	Expert opinion
	Outpatient screening visit (Value TB)	1.64	0.53	4.89	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	4.07	1.70	10.33					
Element	Number of suspects community referral								
Components	Community visit (Value TB)	1.70	0.53	2.52	1.00	1.00	1.00	Value TB	Expert opinion
	Outpatient screening visit (Value TB)	1.64	0.53	4.89	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	3.34	1.06	7.40					
Element	Number of TB patients undergoing (non-Xpert) drug susceptibility testing								
Components	Culture (culture liquid media MBBCh Al) (Value TB)	13.88	13.88	13.88	0.50	0.50	0.50	Value TB	Expert opinion
	Culture (culture solid medium Lowenstein) (Value TB)	10.23	10.23	10.23	0.50	0.50	0.50	Value TB	Expert opinion
	DST (DST_FL_liquid) (Value TB)	25.33	25.33	25.33	1.00	1.00	1.00	Value TB	Expert opinion
	Outpatient diagnostic visits costs (Value TB)	1.41	0.38	3.68	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	38.80	37.76	41.06					
Element	Number of people having second-line DST								

Break-down of unit costs	Resource use	Costs			Case mix			Source	
		Mean	Min	Max	Mean	Min	Max	Costs	Case mix
Components	(DST_SL fluoroquinolone injectable) (Value TB)	22.90	22.90	22.90	1.00	1.00	1.00	Value TB	Expert opinion
	Outpatient diagnostic visits costs (Value TB)	1.41	0.38	3.68	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	24.31	23.27	26.58					
Element	Number of first-line TB patients initiating treatment, public sector								
Components	Outpatient treatment visit – DOT costs (Value TB)	0.91	0.30	3.14	58.00	58.00	58.00	Value TB	Expert opinion
	Cost of inpatient days (DS-TB) (cost-ValueTB) (frequency-resource use table)	5.51	1.16	19.09	6.00	6.00	6.00	Value TB	Global TB report
	Total unit cost mix	85.70	24.07	96.79					
Element	Number of TB patients second-line initiating treatment, (public, 20-month regimen)								
Components	Outpatient treatment visit – DOT costs (Value TB)	0.91	0.30	3.14	466.00	466.00	466.00	Value TB	Expert opinion
	Cost of inpatient days (MDR-TB) (cost-ValueTB) (frequency-resource use table)	5.51	1.16	19.09	180.00	180.00	180.00	Value TB	Global TB report
	DST (DST_SL fluoroquinolone injecta) (Value TB)	22.90	22.90	22.90	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	1437.72	368.88	4924.08					
Element	Number of TB patients second-line initiating treatment, (public, 9-month regimen)								
Components	Outpatient treatment visit DOT costs (Value TB)	0.91	0.30	3.14	207.00	207.00	207.00	Value TB	Expert opinion

Break-down of unit costs	Resource use	Costs			Case mix			Source	
		Mean	Min	Max	Mean	Min	Max	Costs	Case mix
	Cost of inpatient days (MDR-TB) (cost-Value TB) (frequency-resource use table)	5.51	1.16	19.09	180.00	180.00	180.00	Value TB	Global TB report
	DST (DST_SL fluoroquinolone injectable) (Value TB)	22.90	22.90	22.90	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	1202.70	292.43	4110.35					
Element	Patient-months of treatment, second-line public								
Components	first-line regimen (6 months) (monthly cost) (GDF)	5.00	5.00	6.00	1.00	1.00	1.20	GDF	Expert opinion
	Outpatient monitoring visit costs (Value TB)	2.43	2.13	2.84	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	7.43	7.13	10.04					
Element	Patient-months of treatment, second-line public (20-month regimen)								
Components	second-line regimen (20 months) (monthly cost) (GDF)	140.00	140.00	168.00	1.00	1.00	1.20	GDF	Expert opinion
	Outpatient monitoring visit costs (Value TB)	2.43	2.13	2.84	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	142.43	142.13	204.44					
Element	Patient-months of treatment, second-line public (9-month regimen)								
Components	second-line regimen (9 months) (monthly cost) (GDF)	165.00	165.00	198.00	1.00	1.00	1.20	GDF	Expert opinion
	Outpatient monitoring visit costs (Value TB)	2.43	2.13	2.84	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	167.43	167.13	240.44					

Break-down of unit costs	Resource use	Costs			Case mix			Source	
		Mean	Min	Max	Mean	Min	Max	Costs	Case mix
Element	Number of HHCs initiating preventive therapy								
Components	Drug cost (adults) (GDF)	6.00	6.00	15.00	0.92	0.92	0.92	GDF	Expert opinion
	Drug cost (children) (GDF)	4.00	4.00	6.00	0.08	0.08	0.08	GDF	Expert opinion
	Cost of screening (IGRA) (GDF)	15.00	15.00	18.00	0.50	0.50	0.50	GDF	Expert opinion
	Cost of screening (TST) (GDF)	5.00	5.00	6.00	0.50	0.50	0.50	GDF	Expert opinion
	Outpatient cost (Value TB)	1.39	0.50	3.34	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	16.43	15.54	28.66					
Element	Number of PLHIV initiating preventive therapy								
Components	Drug cost (adults) (GDF)	6.00	6.00	15.00	0.92	0.92	0.92	GDF	Expert opinion
	Drug cost (children) (GDF)	4.00	4.00	6.00	0.08	0.08	0.08	GDF	Expert opinion
	Cost of screening (IGRA) (GDF)	15.00	15.00	18.00	0.50	0.50	0.50	GDF	Expert opinion
	Cost of screening (TST) (GDF)	5.00	5.00	6.00	0.50	0.50	0.50	GDF	Expert opinion
	Outpatient cost (Value TB)	1.39	0.50	3.34	1.00	1.00	1.00	Value TB	Expert opinion
	Total unit cost mix	16.43	15.54	28.66					

Note: Expert opinion refers to the expert group within the WHO Regional Office for South-East Asia and headquarters co-developing this analysis

DST: drug susceptibility testing; EPTB: extrapulmonary TB; GDF: Global Drug Facility; HHC: household contact; IGRA: interferon gamma release assay; MDR-TB: multidrug-resistant TB; PLHIV: people living with HIV; PTB: pulmonary TB; ZN: Ziehl–¬Neelsen.

ANNEX 9:
PPM in the WHO South-East Asia Region

Global and regional TB burden related to PPM

South-East Asia has the largest burden of TB*(1)*, and the largest proportion of 'missing millions', those that are unaccounted in the TB notification data*(6)*. Most people in South East Asia seek healthcare in the private sector (ranging between 74%-84%), including for their initial support for tuberculosis. The COVID-19 pandemic has devastated healthcare systems around the world, and has made healthcare close to home and engagement of all healthcare providers even more important*(7)*. Progress towards Universal Health Coverage (UHC) calls for a multisectoral approach*(8)* engaging all government sectors and private and informal sector in healthcare.

There are seven high-TB burden countries (also known as the "Big Seven") with a large private sector. Four of these are in the WHO South-East Asia Region: Bangladesh, India, Indonesia and Myanmar. In addition, a few other SEA namely, Nepal, Sri Lanka and Thailand have a growing private health sector and are of high priority for PPM implementation *(9)*. (See Table 1)

Table A9.1: TB burden in Member States in relation to PPM

INDICATORS	Missing people with TB		Private provider role		
Country	Missing patients (thousands)	% of global missing patients	% of initial care-seeking in private sector	Per prevalence survey	Private TB drug sales market share
India	478	16.5%	74%	46%	54%
Indonesia	283	9.8%	74%	46%	51%
Bangladesh	69	2.4%	84%	30%	
Myanmar	39	1.4%	78%	38%	
Nepal	36	1.2%	22%		
Democratic Republic of Korea	30	1.0%	NA		

INDICATORS	Missing people with TB		Private provider role		
Country	Missing patients (thousands)	% of global missing patients	% of initial care-seeking in private sector	Per prevalence survey	Private TB drug sales market share
Thailand	15	0.5%	NA		
Sri Lanka	6	0.2%	NA		
Timor-Leste	2	0.1%	8%		
Bhutan	0.28	0.01%	NA		
Maldives	0.04	0.001%	29%		

Source: a. WHO Global TB Report (2020), b. DHS Surveys 2016.

Global progress in PPM

Engagement of the private health sector and non-health TB sectors is a key strategy in many of the Member States' national strategic plans for TB. These are also referred to as PPM programmes, included in the recent WHO End TB Strategy *(10)* and the Stop TB Global Plan to End TB*(11)*. The work on PPM has seen nearly 20 years of publications and WHO guidance documents. In 2018, WHO, the Public–Private Mix Working Group of the Stop TB Partnership, and global partners released a PPM roadmap outlining priority actions for engagement of all health-care providers *(9)*. This was accompanied by a landscape analysis of the private health sector on TB, updated in 2020 *(12)*. In 2019 and 2020, over 20 countries were successfully implementing the PPM roadmap. The TB-PPM (TB Public-Private mix) Learning Network *(13)* was launched in October 2019 to create, nurture and maintain a dynamic south-to-south exchange of expertise. The active online community offers a variety of resources, learning and interaction tools, including monthly webinars, feature stories from the frontline, and discussion forums. A national network in India, with over 300 members already, has been initiated in 2021 to strengthen PPM interaction and implementation capacities.

Progress in PPM in South-East Asia

All kinds of private healthcare providers have roles to play in assuring universal access to TB care depending on the national and local context. The private sector most common in South-East Asia include the following – general practitioners, private hospitals, private laboratories, pharmacies, NGO providers (community healthcare workers and informal providers), professional societies and associations, worksite health facilities (e.g. garment sector in Bangladesh). (See Table 2)

Table A9.2: Types of private providers

Private provider type	Examples	Comments
Specialists (pulmonologists, chest physicians)	450 in Bangladesh; PDPI (Indonesia Pulmonologists' Society) in Indonesia	Very high case load but usually late inpatient pathway and higher income; often challenge national protocols; key opinion leaders
High-end corporate hospitals	500 in India (e.g. Fortis, Care, Apollo, etc.) Private medical colleges: 67 in Bangladesh 1–2 in major cities of smaller lower-income countries	Often reluctant to address TB because of stigma and image Serve higher socioeconomic groups Pathology, imaging, administrative capacity
Mid-size hospitals	~30 000 nursing homes in India	Access in secondary cities and major towns
Laboratories	9000 in Bangladesh; 30 000 in India (including 5 large networks)	Increasingly organized in networks
Pharmacies	25 000 Indonesia	Mainly in urban areas Chains emerging in some countries
Independent qualified general practitioners	60 000 Bangladesh; 8000 Myanmar; ~70 000 Indonesia	Still mainly fragmented Represented by medical associations
Drug shops	200 000 in Bangladesh	Often regulatory controversy about what they can and can't sell. May provide consultations.
Independent less-than-fully-qualified practitioners	3–4 unqualified providers per village (77% of all providers) in India	Often first point of care, especially in rural areas Often controversial Considerable overlap with the category of drug shops

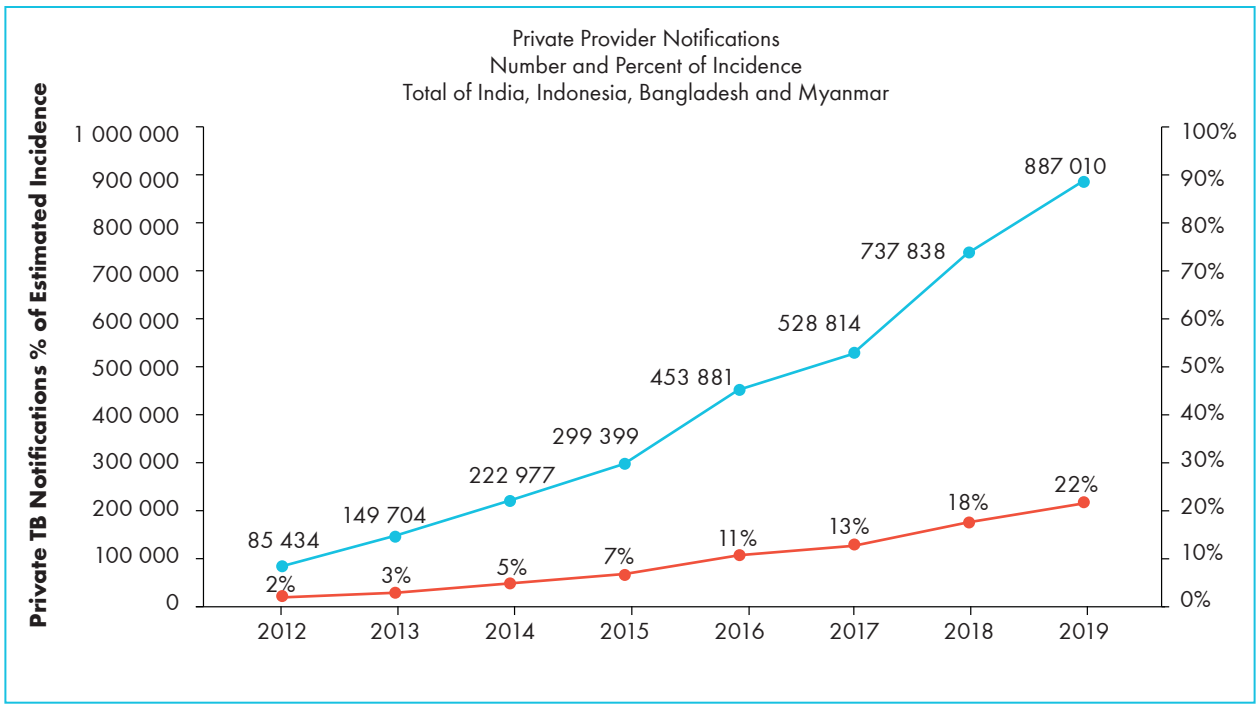
Source: (12)

A significant scale up of private sector engagement has been noted in recent years in Member States resulting in a nearly 10-fold increase in private notifications over a span of 7 years (see Table 3 and Fig. 1 and 2). Relative to the estimated incidence, private for-profit provider notifications are highest in India (26%), followed by Bangladesh (22%).

Table A9.3: Private for-profit notifications in four SEA Region Member States

Country	2012	2013	2014	2015	2016	2017	2018	2019
Private for-profit notifications								
India	3 547	38 596	106 414	184 802	330 186	383 784	542 233	680 948
Indonesia	5 432	26 345	28 186	31 002	38 334	59 549	101 839	107 640
Bangladesh	49 576	59 964	65 239	62 279	65 651	67 332	74 524	79 990
Myanmar	26 879	24 799	23 138	21 316	19 710	18 149	19 242	18 432
Total	**85 434**	**149 704**	**222 977**	**299 399**	**453 881**	**528 814**	**737 838**	**887 010**
Private for-profit notifications as a percentage of total notifications								
India	0%	3%	7%	11%	19%	23%	28%	31%
Indonesia	2%	8%	9%	9%	11%	13%	18%	19%
Bangladesh	29%	32%	34%	30%	30%	28%	28%	27%
Myanmar	19%	18%	17%	15%	14%	14%	14%	14%
Total (7)	**4%**	**8%**	**10%**	**13%**	**18%**	**21%**	**26%**	**28%**
Private for-profit notifications as a percentage of estimated incidence								
India	0%	1%	4%	7%	12%	14%	20%	26%
Indonesia	1%	3%	3%	4%	5%	7%	12%	13%
Bangladesh	15%	18%	19%	18%	19%	19%	21%	22%
Myanmar	12%	11%	11%	10%	10%	10%	11%	11%
Total (7)	**2%**	**3%**	**5%**	**7%**	**11%**	**13%**	**18%**	**22%**

Fig. A9.1. Private for-profit TB notifications 2012–2019 as a percentage of estimated incidence



A9.2. Private TB notifications as a percentage of estimated incidence in SEA countries[9]

Analysis of country national strategic plans and their engagement of the private sector

In recent years, a changing mindset towards the private sector has been evolving, with countries such as India, Bangladesh and Myanmar achieving significant scale up in private provider engagement. In these countries, engagement of large numbers of private primary care providers has been led by strong nongovernmental organizations (NGOs) acting as intermediaries between providers and national TB programmes (NTPs). A short summary of the main countries in the SEA Region can be found in the following source*(13)*.

Bangladesh

Bangladesh has long had an exceptionally strong NGO sector collaborating with the NTP, with funding from the Global Fund and the United States Agency for International Development (USAID). Every subdistrict in the country is allocated to an NGO partner managing health-care providers for case-finding, referral and treatment support (NGO community health-care workers [CHWs] refer 38% of all notified cases; private providers [with support from CHWs] refer 69%; non-NTP public providers: 27%). The Bangladesh National Strategic Plan for TB, 2018–2022, notes the need for engaging private providers but further details in reporting are to be encouraged.

India

Recently, India has begun to demonstrate unprecedented commitment to engaging private providers by setting ambitious targets (2 million private TB notifications per year by 2020), allocating substantial budgets and mobilizing strong political support at all levels as part of India's National Strategic Plan for TB (2017–2025)*(14)*. Global financing support through The Global Fund and the World Bank is seeing strong focus on private provider engagement across the country. An impressive scale-up of strategic action is noted*(15)* since the introduction of mandatory notification and the Nikshay digital data system in 2012, followed by programmes for private patients, direct benefit cash transfers to private providers, deployment of PPM district coordinators and, more recently, government contracting of patient provider support agencies (PPSAs) to coordinate engagement of private providers at state level.

Indonesia

Indonesia is pursuing a model based more on engagement directly from the public sector to private providers with the support of professional associations, rather than using other intermediary organizations. The national TB programme has recognized the importance of engaging private providers in national TB plans since at least 2006, and the recent 2016–2020 National Strategic Plan (NSP) specifies "improvement of networking TB services through public–private mix" as a key activity in "TOSS-TB" (Temukan TB Obati Sampai Sembuh) services. Focus in Indonesia is on working with professional societies, developing technical guidance for district-based PPM, and mapping service providers. Efforts to engage private providers have focused on specialists and hospitals, where the numbers of patients per provider or facility tend to be higher than at the primary care level. Since 2014 there has been an initiative to certify general practitioners for TB, but very few general practitioners had been trained and certified by the end of 2019. Since 2020, PPM interventions have also emphasized social health insurance schemes (BPJS-K)*(16)*) and the integration of BPJS-K's information system. Global Fund financing supports further roll-out activities and USAID provides project funding for TB private provider engagement in Indonesia, as well as a pilot of a modified social health insurance purchasing arrangement to better support TB notification and care.

Myanmar

In Myanmar, private general practitioners have been engaged since 2003. A key intermediary organization working on engaging private providers is PSI Myanmar. Their efforts focus on integrating TB diagnosis and treatment into the range of services offered within its "Sun Quality Health" (SQH) social franchise network. There are more than 1200 general practitioners in the SQH network, of whom 800 are actively involved in TB diagnosis and treatment, as well as 2000 CHWs. The NTP also works closely with the Myanmar Medical Association to further PPM activities in the country.

Frontline PPM action: local initiatives and projects

Several ongoing PPM programmes and initiatives in the SEA Region have excellent models for engaging all private healthcare providers. The TBPPM Learning Network has started documenting feature stories, which provide great insights in practical PPM action.

Organizations in South East Asia have focused on TB diagnostics and engaged all private healthcare providers in a district*(17)*, engaged private providers*(18)* and pharmacies*(19)* in TB screening, worked closely with local communities*(20)*, and engaged private laboratories*(21)*.

Other local examples show various ways of TB treatment and patient support linking private healthcare providers: engaging private providers for childhood TB*(22)*, door-step delivery by pharmacies*(23)*, TB free village program*(24)* and engaging private providers*(23)*, and utilizing drones for TB drug deliveries*(25)*.

Implementation priorities for PPM

Mandatory notification has been a key strategy to achieve the uptick in NTP notification data. However, to ensure that these notification-data also result in quality care*(26)* and better health outcomes for people with TB, the engagement of the private sector and non-health public sectors calls for priority actions as outlined in the PPM Roadmap *(12)* (see figure 3).

Priority indicators for PPM

Data collection on private sector engagement is important not only for the purpose of planning, but also for tracking progress and outcomes. PPM data are not consistently available yet, and NTP managers are encouraged to develop dashboards with PPM information (see Table 4).

Table A9.4. Priority indicators for PPM

Category	No	Indicator*	Data needs	Data source	Rationale/use
Private notifications	**1**	**Private notification as % of estimated incidence**	No. of private notifications; estimated incident cases	TB surveillance database; WHO	Assess progress of private provider engagement
	2	**Private notifications as % of total notifications**	No. of private notifications; total notifications	TB surveillance database	Assess progress of private provider
Coverage of private provider engagement programme	**3**	**% of private providers actively engaged**	No. of private providers notifying TB cases during period; total number of private providers	TB surveillance database; mapping or other estimates of private providers	Indicates effective coverage of private provider engagement

Category	No	Indicator*	Data needs	Data source	Rationale/use
	4	**TB drug sales to privately notified cases in programme as % of total private TB drug sales**	Drug sales to privately notified cases in programme can use number of privately notified cases as proxy; total TB drug sales	Drug sale data to privately notified cases in programme; IMS[h] drug sale data	Indicates effective coverage of programme to engage private providers
Quality of private provider services	**5**	**% of privately notified pulmonary cases with laboratory-confirmed TB**	Diagnostic information on each privately notified case	TB surveillance database	Assess quality of diagnosis for private patients
	6	**% of privately notified pulmonary cases successfully treated**	Treatment outcome on each privately notified case	TB surveillance database	Assess quality of treatment for private patients
Alignment with patient care-seeking	**7**	**Ratio of private provider notifications as % of estimated incidence to % of private provider share of initial care-seeking**	Private notifications as a share of estimated incident cases; estimates of private provider share of initial care-seeking	TB surveillance database and WHO; DHS, TB prevalence or other surveys	Captures degree of alignment between patient care-seeking preference and availability of private provider engagement
Funding for private provider engagement	**8**	**% of TB budget dedicated to private provider engagement**	TB budget information classified by ultimate service channel	Annual analysis of budgets	Allocation of funds is the most important indicator of priority

Moving ahead

Traditionally there is a strong public sector preference among those who manage TB programmes and those who fund them. It also reflects the ongoing journey, not specific to TB programmes, in which the public sector only gradually gains capacity to govern private health providers effectively, as countries develop*(8)*.

[h] Original name: Intercontinental Marketing Statistics

The COVID-19 pandemic has highlighted the calls for new partnerships, modern data systems, new payment mechanisms, new skills, and different attitudes.

It is now time to mainstream PPM targets, strategies and indicators within national programmes. Engagement of private providers on a scale commensurate with their importance will require a transformation of the TB response in countries*(27)*. While countries place PPM as central part of their TB plans, they need to move from donor funding for PPM initiatives to domestic funding as part of national budgets and planning.

Conclusion

In the South-East Asia Region, with 74–84% of people seeking care in the private sector, the engagement of all healthcare providers is essential in reaching the End TB targets. Four out of the "Big Seven" PPM priority countries are in the South-East Asia Region. Each of these countries have made progress, as reflected by the increased TB notification by private providers and emphasize the need for scaling up PPM programmes for the End TB strategy.

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The WHO End TB Strategy aims to end the global TB epidemic by 2030, in alignment with Goal 3 of the United Nations (UN) Sustainable Development Goals (SDGs). Member States of the World Health Organization (WHO) and the UN committed to ending the TB epidemic through adoption of WHO's End TB Strategy and the UN SDGs in 2014 and 2015, respectively.

Almost half of the deaths worldwide caused by TB in 2019 occurred in the WHO South-East Asia Region, home to around a quarter of the global population. Maintaining robust progress in this Region is therefore essential if the global goal of ending the TB epidemic is to be realized. Despite substantial gains made in the Region, the threat to health worldwide posed by the COVID-19 pandemic has the potential to reverse these gains and eclipse the focus on the global TB emergency.

While continuing to tackle COVID-19-related challenges, countries will need to rapidly and urgently deploy supplementary measures to address the large numbers of missed cases, poor treatment outcomes and, potentially, a higher TB burden.

The Regional Strategic Plan towards Ending TB in the Region 2021–2025 clearly articulates priority interventions, analyses the challenges, bottlenecks and opportunities, and focuses on implementation considerations in the Region.

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