

# **The South-East Asia Regional Response Plan for Drug-resistant TB Care and Control 2011–2015**



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# The South-East Asia Regional Response Plan for Drug-resistant TB Care and Control 2011–2015

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## Abbreviations

ACSM	advocacy, communication and social mobilization
AFB	acid-fast bacilli
AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
CPT	co-trimoxazole preventive therapy
CXR	chest X-ray
DOT	directly observed therapy
DOTS	the internationally recommended strategy for TB control and the foundation of the new Stop TB Strategy introduced in 2006
DRS	drug resistance surveillance
DR-TB	drug-resistant tuberculosis
DST	drug susceptibility testing
FDC	fixed-dose combination
FIND	Foundation for Innovative New Diagnostics
GDF	Global (TB) Drug Facility
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HRD	human resource development
IC	infection control
LFT	liver function test
MDR-TB	multidrug-resistant tuberculosis
MIC	minimum inhibitory concentration
NTP	national TB control programme
NRL	national reference laboratory
PMDT	programmatic management of drug-resistant tuberculosis

R&R	recording and reporting
SCC	short-course chemotherapy
SRL	supranational reference laboratories
STB	WHO Stop TB Department
TB	tuberculosis
TB/HIV	HIV-related TB
TSH	thyroid-stimulating hormone
UVGI	ultraviolet germicidal irradiation
WHO	World Health Organization
XDR-TB	extensively drug-resistant tuberculosis

## Foreword

The Sixtieth World Health Assembly passed a resolution in 2007 requesting WHO to strengthen its support to countries affected by tuberculosis (TB), in particular those heavily affected by multidrug-resistant and extensively drug-resistant TB (M/XDR-TB), as well as HIV-related TB (TB/HIV). The Sixtieth session of the Regional Committee for South-East Asia following the ministerial meeting of countries with a high MDR-TB burden in Beijing, China in April 2009, and the Sixty-second World Health Assembly, endorsed resolutions urging all Member States to achieve universal access to diagnosis and treatment of M/XDR-TB, and monitor achievement in the sphere of prevention and control of M/XDR-TB.

Considerable efforts are required to expand the capacity of countries, which would have to strengthen planning to adequately respond to the M/XDR-TB challenge. Further, all activities also need to be in alignment with the latest WHO guidelines. Keeping this in mind, the WHO South-East Asia (SEA) Region has developed a response plan to draw a roadmap for regional contribution to achievement of the global targets set forth for M/XDR-TB in the Global Plan to Stop TB 2011–2015. The plan will also act as a guiding tool for Member States for developing strategic and operational plans for programmatic management of drug-resistant TB (PMDT), and serve as a reference document and tool of communication for regional priorities for addressing the challenges related to M/XDR-TB in the Region.

The plan calls for a comprehensive approach to address the MDR-TB burden by preventing the emergence of new MDR-TB cases, as well as through early diagnosis and treatment of the existing cases. All sectors will need to be involved for mobilization of available resources. The activities would need to be supported by advocacy, communication and social mobilization (ACSM). While scaling up MDR-TB services, the health systems would also need to be strengthened in accordance with the needs. Appropriate operational research for diagnosis and models of care will help countries to adapt new tools and technologies to local needs.

With the implementation of this response plan, it is expected that the Region will strengthen the laboratory capacity by introducing newer tools for diagnosis, such as the GeneXpert and line probe assay (LPA). This will help to initiate

treatment in at least 55 000 MDR-TB cases with quality-assured second-line antiTB drugs by 2015. It is expected that out of these, at least 75% will be treated successfully.

Thus, the plan will contribute to the overall regional Plan to Stop TB 2006–2015 by reducing the morbidity and mortality due to TB in the SEA Region.



Dr Samlee Plianbangchang  
Regional Director

# **1 Introduction**

## **1.1 Global M/XDR-TB situation**

WHO estimates that 390 000–510 000 cases of MDR-TB emerged globally (best estimate, 440 000 cases) in 2008. Among all incident TB cases globally, 3.6% (95% confidence interval [CI]: 3.0–4.4) are estimated to have MDR-TB. Almost 50% of MDR-TB cases worldwide are estimated to occur in China and India. There were an estimated 150 000 deaths in 2008 due to MDR-TB.<sup>1</sup>

One of the most important global constraints to the rapid expansion of diagnosis and treatment of MDR-TB is laboratory capacity. In 2008, diagnostic testing for drug susceptibility (DST) among new cases of TB was almost entirely confined to the European Region and the Region of the Americas. Among previously treated cases, DST was done for 17% of the cases in the Region of the Americas and for 13% in the European Region, with figures of less than 10% in all other regions.

## **1.2 Global plan to scale up response to M/XDR-TB**

The Global Plan to Stop TB 2006–2015 recognized the need to scale up diagnosis and effective treatment of MDR-TB. The plan set a target to increase the number of diagnosed and treated MDR-TB cases to around 100 000 per year by 2015, with all patients to be enrolled in programmes following international guidelines. This target was subsequently made more ambitious in the Global MDR/XDR Response Plan that was launched in 2007. In this updated version of the Global Plan, the target was to expand diagnosis and treatment, such that 85% of TB patients with MDR-TB would be diagnosed and treated by 2015. The efforts to address the problems of MDR and XDR-TB received a momentum and saw renewed commitment in 2009. A ministerial conference held in Beijing, China in April 2009 brought together high-level representatives from the 27 high MDR-TB burden countries, which collectively account for around 85% of the world's cases of MDR-TB, and issued a call to action on the part of governments

and international agencies. The global targets for MDR-TB for these 27 countries were updated. In May 2009, the World Health Assembly resolution 62.15 urged the Member States “to achieve universal access to diagnosis and treatment of multidrug-resistant and extensively drug-resistant tuberculosis”. The Health Assembly called on all countries to implement the measures needed to achieve universal access to diagnosis and treatment of MDR-TB by 2015, including strengthening of basic TB control, development of laboratory capacity for diagnosis, establishment of comprehensive patient management and care programmes, effective collaboration with HIV programmes, strengthening of health information and surveillance systems and acceleration of research and development related to new tools for prevention, diagnosis and treatment.

The Global Plan to Stop TB 2011–2015 calls for a renewed focus on certain areas to strengthen the fight against M/XDR-TB. Some of the key targets relevant to M/XDR-TB in this plan are presented in the Table 1.

**Table 1:** Key targets related to M/XDR-TB

	<b>Baseline (2008/2009)</b>	<b>Target (2015)</b>
<b>Drug-resistant TB/laboratory strengthening</b>		
Percentage of previously treated TB patients tested for MDR-TB	5%	100%
Percentage of new TB patients tested for MDR-TB	2%	20%
Number of countries among the 22 HBCs and 27 high MDR-TB burden countries with $\geq 1$ culture laboratory per 5 million population	18–21	36
Percentage of confirmed cases of MDR-TB enrolled on treatment according to international guidelines	28%	100%
Number of confirmed cases of MDR-TB enrolled on treatment according to international guidelines	11 000	~270 000
Treatment success rate among confirmed cases of MDR-TB	60%	$\geq 75\%$

**Table 2:** Expected achievements in diagnosis and treatment: totals for the period 2011–2015 (in millions)

Plan component	Best Estimate	Plausible range
<b>Drug-resistant TB/laboratory strengthening</b>		
Previously treated TB patients tested for MDR-TB	4.5	3.9 - 5.1
New TB patients tested for MDR-TB	2.6	2.4 - 2.9
Cases of MDR-TB treated according to international guidelines	1.1	0.9 - 1.2
Cases of MDR-TB successfully treated	0.8	0.7 - 0.9

Mobilization of both national and international resources is urgently required to meet the current and future needs. The Global Fund to Fight AIDS, Tuberculosis and Malaria is the single biggest source of external funding for TB control. Building of laboratory capacity to diagnose MDR-TB and undertake antiTB drug resistance surveillance is one of the most important challenges that countries face in scaling up care. In 24 of the 27 high MDR-TB burden countries, at least one laboratory could perform culture for *M. tuberculosis* and DST to first-line drugs. Nevertheless, in many settings, diagnostic capacity cannot match the current needs. Due to lack of resources for building laboratory infrastructure, contemporary diagnostics for MDR-TB are available in less than half of the high MDR-TB burden countries. The EXPAND-TB Project was created in response to this need. This initiative aims to scale up and accelerate access to MDR-TB diagnostics in 27 countries through a network of partners, which include WHO, the Global Laboratory Initiative, the Foundation for Innovative New Diagnostics (FIND), the Stop TB Partnership's Global Drug Facility and UNITAID. The project is funded by UNITAID and has a budget of US\$ 87 million over five years.

In 27 high-burden countries (those estimated to have had at least 4000 MDR-TB cases arising annually and/or at least 10% of newly registered TB cases with MDR-TB), 1.3 million M/XDR-TB cases will need to be treated between 2010 and 2015 at a cost of US\$ 16 billion over six years, rising from US\$ 1.3 billion in 2010 to US\$ 4.4 billion in 2015. Funding needed for MDR-TB control in 2015 will be 16 times higher than what was available in 2010.

### 1.3 Regional M/XDR-TB situation and response status

Well-functioning national TB control programmes in the Region have achieved high treatment success rates leading to maintenance of a slow but steady decline in TB incidence rates during the past decade. This has also led to low levels (range: 1.7%–4.2%) of multidrug resistance (MDR) among newly detected cases. Among previously treated cases in the Region, MDR-TB rates range from 10.0%–34.7%. However, given the large numbers of TB cases in the SEA Region, this translates to 130 000 MDR-TB cases (110 000–170 000), accounting for nearly one third of the world’s MDR-TB cases. The country-wise estimated burden of MDR-TB is presented in Table 3.

XDR-TB has been reported from six countries in the Region. MDR-TB could potentially replace drug-susceptible TB, and constitutes a threat to global public health security. In areas of high HIV prevalence, the potential for increased transmission of MDR-TB is also high.

Considerable efforts are required to expand capacity for quality-assured DST in the Region to more accurately estimate the extent of drug-resistant TB. Given the widespread availability and use of second-line drugs, and as laboratory capacity to conduct second-line drugs susceptibility testing increases, additional numbers of patients with XDR-TB are likely to be identified.

**Table 3:** Estimated MDR-TB cases and rates in SEA Region Member States, 2010

Country	Source of estimates	% MDR among new TB cases (95% CI)	% MDR among previously treated TB cases (95% CI)	Number of MDR-TB among incident total TB cases (95% CI)
Bangladesh	model	2.2 (0.0–5.6)	14.7 (0.0–39.6)	9 800 (1 000–19 000)
Bhutan	model	2.2 (0.0–5.6)	14.7 (0.0–39.6)	33 (4–61)
DPR Korea	model	2.2 (0.0–5.6)	14.7 (0.0–39.6)	3900 (658–7 200)
India	DRS, <sup>a</sup> 2005	2.3 (1.8–2.8)	17.2 (14.9–19.5)	99 000 (79 000–120 000)
Indonesia	DRS, <sup>b</sup> 2004	2.0 (0.5–6.9)	14.7 (0.0–39.6)	9 300 (0–21 000)
Maldives	model	2.2 (0.0–5.6)	14.7 (0.0–39.6)	3 (0–6)
Myanmar	DRS, 2007	4.2 (3.2–5.6)	10.0 (7.1–14.0)	9 300 (6 400–12 000)

Country	Source of estimates	% MDR among new TB cases (95% CI)	% MDR among previously treated TB cases (95% CI)	Number of MDR-TB among incident total TB cases (95% CI)
Nepal	DRS, 2007	2.9 (1.9–4.3)	11.7 (7.6–17.6)	1 700 (990–2 300)
Sri Lanka	DRS, 2006	0.2 (0.0–1.0)	18–21	63 (0–130)
Thailand	DRS, 2006	1.7 (1.1–2.6)	34.5 (28.2–41.5)	2 900 (2 100–3 800)
Timor-Leste	model	2.2 (0.0–5.6)	14.7 (0.0–39.6)	130 (6–260)

(a) Estimates based on subnational drug resistance data.

(b) DRS survey in Indonesia was completed for Mimika district in 2004 and Central Java province in 2006. Mimika district: MDR-TB in newly diagnosed TB cases 2.0 %. Central Java province (preliminary result): MDR-TB in newly diagnosed TB cases 1.8% and among previously treated TB cases, 16.7%. DRS drug resistance surveillance or survey data; CI confidence interval; MDR-TB multidrug-resistant TB

PMDT is at various stages of implementation in the Member States of the Region. The countries are facing challenges in incorporating the management of MDR-TB into their national TB programmes. A substantial amount of additional resources is required to provide adequate human resources and training to create a pool of skilled personnel, and to provide quality infrastructure for diagnosis, patient management and surveillance. As of now, less than 5% of the estimated MDR-TB cases are being registered for treatment by national TB control programmes (NTPs). This means that a huge proportion of cases are either not getting treatment or being treated under unknown conditions with a high chance of a non-standardized regimen being used. The situation is further complicated by overburdened health infrastructures, specifically, overcrowded hospitals with no infection control (IC) policy, which leads to the further spread of infection. Several countries in the Region also face poor housing conditions, specifically, overcrowding in urban areas that facilitates the spread of infections<sup>2</sup>. The costs of containment of the already existing MDR-TB are high—each MDR-TB patients requires drugs that cost 100 times more than drugs for drug-susceptible TB patients. Other costs that have to be borne by the system and patient are additional. If the epidemic is not addressed at this stage, the future costs will be beyond the capacity of several national health systems in the Region and epidemic proportions of MDR could emerge over a period of time.

There is thus a need for developing comprehensive, costed national plans for the urgent, but feasible, scale-up of diagnostic and case management capacity for MDR-TB. The plans should conform to internationally recommended protocols, and should include good IC measures and ensure access to quality-assured drugs.

## **2. Goal and objectives**

### **2.1 Goal**

As per the regional strategic plan for 2006–2015, the overall goal for TB control is to reduce morbidity, mortality and transmission of TB until it is no longer a public health problem in the Region.

The regional response plan for drug-resistant TB is seen as complementing the regional strategic plan by reducing morbidity, mortality and transmission of DR-TB.

### **2.2 Objectives**

The objectives for TB control in all Member States in the Region, as proposed in the regional strategic plan for TB control 2006–2015, are to sustain or surpass the 70% case detection and 85% treatment success rates among TB cases set by the World Health Assembly in 2000 (related to Indicator 24 under the Millennium Development Goals [MDGs]). The aim is to halve TB deaths and prevalence by 2015 (related to Indicator 23 under the MDGs), and move towards halting and beginning to reverse the incidence of TB, as implicitly stated under the MDGs set for 2015.

By fully implementing this response plan for drug-resistant TB, the realization of these objectives will become an achievable target.

Accordingly, the overall aim of the regional response plan for drug-resistant TB care and control, 2011–2015 is to achieve universal access to drug-resistant TB care services by 2015. The components of the plan include:

- Preventing the emergence of resistance through sustained and enhanced efforts to reach all TB patients with quality care
  - Strengthening basic TB control services to improve case notification and treatment success
  - Promoting the adoption of International Standards of TB Care (ISTC) by all care providers
  - Promoting rational use of drugs and pharmacovigilance
  - Strengthening TB-HIV collaboration
- Scaling up PMDT
  - Screening and testing for resistance to first- and second-line drugs, as well as HIV testing among confirmed cases of MDR-TB
  - Providing access to effective treatment for drug-resistant TB
  - Providing patient-centric care and promoting adherence
- Implementing TB-IC in health-care facilities and congregate settings
- Strengthening surveillance, including recording and reporting of drug-resistant TB
- Strengthening health systems to ensure capacity for PMDT integrated with primary health care
- Forging partnerships and ensuring coordination with stakeholders to mobilize the requisite resources
- Supporting PMDT through ACSM
- Undertaking research

### **3. Strategies and interventions**

#### **3.1 Preventing the emergence of resistance through sustained and enhanced efforts to reach all TB patients with quality care**

##### ***Strengthening basic TB control services to improve case notification and treatment success***

The Stop TB Strategy<sup>3</sup> is the approach recommended by WHO to reduce the burden of TB in line with global targets set for 2015. The six major components of the strategy are to: (i) pursue high-quality DOTS expansion and enhancement; (ii) address TB-HIV, MDR-TB, and the needs of poor and vulnerable populations; (iii) contribute to health system strengthening based on primary health care; (iv) engage all care providers; (v) empower people with TB, and communities through partnership; and (vi) enable and promote research.

All countries in the SEA Region have adopted the Stop TB strategy and aim to achieve universal access to DOTS, thus ensuring the uniform use of standard regimens, free diagnosis and treatment, directly observed therapy (DOT), strict monitoring of treatment, defaults and outcomes, and the use of fixed-dose combinations (FDCs). Providing standardized treatment under the DOTS strategy is one of the foremost measures that needs to be adopted to prevent the emergence of resistance.

##### *Challenges*

- With a case detection rate of 65% of all cases,<sup>4</sup> it is obvious that more than one third of estimated new cases are not registered by NTPs in the Region.
- While the geographical/administrative coverage for DOTS in all Member States has reached 100%, populations in several pockets face challenges to access due to various reasons. The factors contributing to suboptimal access are difficult terrain, either in the entire country or parts of the country; socio-demographic isolation; residence in areas torn by conflict; and social reasons, such as stigma.

- Intersectoral collaborative interventions, both public and private, are at present insufficient to make a significant impact on case detection and treatment success rates at the national level. There is also lack of involvement of hospitals that treat a significant number of TB patients and do not always follow the standards of care prescribed internationally.
- Supervision and monitoring of services is suboptimal, as is accountability of the programme to those it serves. This happens because of variable political commitment and motivation of staff, lack of staff and lack of resources for supervision, which also lead to poor quality of services.
- The public health systems are overstretched. Being free or subsidized, public health systems cater to the health-care needs of large populations. Yet the resources available at these facilities often do not match the needs.
- Several countries such as Bangladesh, Bhutan, India, Nepal and Thailand have adjoining borders and several of them are 'porous', leading to cross-border migration. The migration is specifically an issue for TB control as it leads to default and inaccurate accounting of cases. Further, from the patient's point of view, irregular treatment can cause the development of drug resistance.
- Community awareness, the utilization of the services available and civil society involvement in TB control continue to be inadequate. NTPs need to ensure equitable access to services for all TB patients, particularly the poor and the marginalized, in urban slums and shanty towns, remote border areas and among displaced communities, if transmission and thereby, the incidence of TB are to be reduced.
- ACSM efforts have not been satisfactorily addressed by most national TB programmes.

### *Regional interventions*

The regional strategic plan 2006–2015<sup>5</sup> incorporates strategies for addressing all challenges and issues pertaining to the implementation of the Stop TB strategy in the Region. The key interventions in the context of this document are listed below.

- Improving access to quality TB care services through a multi-pronged strategy focusing on involving all sectors and various government departments providing health care.
- Promoting evidence-based policy and strategy development at regional and national levels through the Regional TB Technical Advisory Group, regional meetings and consultations.
- Assisting Member States with updating medium- and long-term national plans for TB control as an integral component of national health sector and development plans.
- Advocating for TB services as an entry point to strengthening health systems and ensuring the inclusion of key components of DOTS within integrated health systems.
- Strengthening human resources through a well-designed human resource development plan and technical assistance in its implementation.
- Raising the profile of TB with development partners by documenting the burden of disease, complemented by a strong evidence base demonstrating the contribution of TB control to the improvement of overall health and development.
- Supporting countries to enhance ACSM efforts at national and subnational levels.
- Promoting cross-border collaboration for TB control through intercountry forums and regional associations, such as SAARC and ASEAN, and developing guidelines and training materials to operationalize cross-border TB control activities.

### **Promoting adoption of International Standards of TB Care (ISTC) by all care providers**

The ISTC<sup>6</sup> describes a widely accepted level of TB care that all practitioners should seek to achieve and the standards underpin the Stop TB strategy. These include: prompt and accurate diagnosis; the use of standardized treatment regimens of proven accuracy; appropriate treatment support and supervision until cure; monitoring of the response to treatment; and essential public health responsibilities, such as reporting on patients diagnosed and their treatment outcomes to national programmes.

There are constraints involved in extending the reach of TB services to less cohesive and marginalized communities, in adjusting to the time constraints of TB patients, especially in urban settings, and in addressing the stigma associated with TB. National TB control programmes, therefore, need to continue to engage a wide range of stakeholders, both within the health sector and other sectors, to ensure that the distribution and coverage of DOTS is equitable across all geographical locations and that it reaches various socioeconomic groups.

The data available show that efforts by NTPs to engage all care providers in TB control (termed public–private mix, or PPM) can be a particularly effective way to increase the case notifications. The Global TB Control Report 2010 states that in areas where PPM was implemented, non-NTP providers accounted for around one fifth to one third of total notifications in 2009.<sup>1</sup> Studies have also shown that treatment success rates among TB patients in PPM are comparable to public health settings.<sup>7</sup> Multi-sector involvement is essential for the prevention of drug resistance.

### *Challenges*

- The private sector is the first contact for a large proportion of TB patients—65% of patients in India<sup>8</sup> and 73% in Myanmar,<sup>9</sup> as per studies in the Region. A study in Indonesia also reveals that the majority of people in the rural areas prefer private practitioners for the treatment of TB.<sup>10</sup> Despite significant progress, the involvement of private and other health sectors in TB control is yet far from being optimal in the Region.
- There are apprehensions among programme managers regarding the quality of services provided by the private sector.

- The private sector has apprehensions about financial viability, individualistic attention to patients, follow-up and transparency.
- Private sector engagement in planning is limited.
- There is a persistent hesitation to leave TB care to the private sector.<sup>11</sup>
- Programme managers are preoccupied with the implementation of the demanding public sector DOTS programmes.
- It is difficult to organize the private sector as it is too large a group, unorganized and spread out.

#### *Regional interventions*

- Promoting the widespread dissemination and adoption of the ISTC and other guidelines relevant to the management of M/XDR TB patients at the country level, among private and un-linked public providers, to help prevent further emergence of drug resistance to both first- and second-line antiTB drugs.
- Promoting continuous engagement with a wide range of stakeholders, both within the health sector and other sectors, to ensure that the distribution and coverage of DOTS are equitable across all geographical locations and that DOTS reaches various socioeconomic groups.
- Supporting the development and update of guidelines for the involvement of the private sector in Member States.
- Building the capacity of all the existing and potential care providers and partners involved or intending to be involved in TB control to effectively support national efforts.
- Encouraging Member States to report on the involvement and contribution of the private sector to the national programme.
- Holding PPM/PAL regional workshops.

### ***Promoting rational use of drugs and pharmacovigilance***

Pharmacovigilance is defined by WHO as “the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug-related problems”. It involves strengthening of technical and regulatory requirements, along with bringing about a change in the behaviour of prescribers and users.

This would be another key area in preventing the emergence of resistance. The countries would need to undertake situational analysis that involves the evaluation of prescription policies in health-care settings in the public and private sectors, and the utilization of antimicrobial agents at various levels; they would need to assess therapeutic and non-therapeutic use in animals and appraise the impact of the promotion of pharmaceuticals.<sup>12</sup> Countries need to promote optimal prescription through:

- The development of standard national guidelines advocating evidence-based therapy in conformity with international standards of best practice.
- Training professionals in the use of these guidelines and regimen.
- Preventing over-the-counter (OTC) availability of TB drugs.
- Ensuring the availability of treatment guidelines and information to all prescribers.
- Implementing drug use feedback form and monitoring efficacy and side-effects.
- Providing/sharing regular (bi-annual) reports/feedback on adverse events for antiTB/HIV drugs with the Global (TB) Drug Facility (GDF)/Green Light Committee (GLC).

### *Challenges*

- Overall, this is a relatively new area for NTPs in the Region and hence, special efforts are required to promote pharmacovigilance.
- Complete information on drugs with the providers is lacking.

- The M/XDR-TB regimen is complicated and sometimes difficult to understand for practising physicians.
- Monitoring and management of the side-effects in cases of MDR-TB therapy are difficult.
- There is a lack of readily available tools/systems/processes in place to report AR.
- Patients often stop treatment/default due to the long treatment period for MDR-TB and XDR-TB and the multiple adverse effects.

### *Regional interventions*

- Supporting countries in the development of provider and patient information literature on TB treatment and the management of adverse reactions.
- Promoting the development and use of provider feedback forms for treatment efficacy and reporting adverse reactions through a defined in-country system.
- Providing technical assistance for strengthening the national drug regulatory authorities and promoting their coordination with TB programmes.
- Supporting countries to undertake audit of prescription practices.

### ***Strengthening TB-HIV collaboration***

Given the high rates of TB transmission and latent TB infection, as measured by tuberculin surveys undertaken in the Region, it may reasonably be concluded that a significant number of people living with HIV/AIDS (PLHA) in the Region are infected with TB and also MDR-TB in the same proportions. It is recognized that TB is indeed the most common life-threatening opportunistic infection in this population. In some areas and regions in countries where HIV prevalence rates are high, an increase in the incidence of TB has been reported. However, HIV does not appear to have fundamentally altered the epidemiology of TB in the Region. The impact of HIV on TB mortality has also been recognized in Thailand and Myanmar, where high case-fatality rates have been reported in regions known to have a high prevalence of HIV.

HIV coinfection is a significant challenge for the prevention, diagnosis and treatment of drug-resistant TB, especially in the case of M/XDR-TB. Reports have shown high mortality rates among HIV-infected patients with drug-resistant TB and alarming mortality rates in patients coinfecting with XDR-TB and HIV. Early diagnosis of drug-resistant TB and HIV, prompt treatment with adequate regimens, sound patient support and strong IC measures are all essential components of the management of drug-resistant TB in HIV-infected persons.

### *Challenges*

- A firm national policy is required, with a mandate for collaborative activities.
- There is a need to ensure the availability of decentralized counselling and testing services for HIV, coordinating with TB services.
- The health system infrastructure is overstretched to effectively undertake the additional services.
- A properly functioning system of cross-referral needs to be established and implemented.
- There is a need to integrate good administrative and environmental IC practices into health facilities serving large numbers of PLHA and TB patients.
- The delivery of uninterrupted supplies of antiretroviral therapy (ART) and antiTB treatment (ATT) to patients needs to be coordinated between the two programmes.
- Staff must be trained to initiate and manage the concurrent administration of ATT and ART.
- There is a need to ensure uninterrupted supplies of necessary drugs and consumables at all facilities offering TB and HIV diagnosis, treatment and care.
- HIV information needs to be included within routine TB recording and reporting systems while maintaining the confidentiality of the patient's HIV status.

- There are difficulties in shifting from “anonymous unlinked testing” among TB patients to “provider-initiated counselling and testing” for surveillance.
- Routine surveillance needs to be established for TB among HIV-infected people.
- Efforts required to empower NGOs and sustain community-based support services.

### *Regional interventions*

- Advocacy to establish a system for coordination at the country level that includes joint policy and strategy for planning, implementation and monitoring and surveillance of HIV prevalence among TB patients.
- Promoting policies that include intensified case finding, Isoniazid preventive therapy and TB-IC in health-care and congregate settings.
- Providing technical assistance for strategies that decrease the burden of HIV among drug-resistant TB patients through provider-initiated HIV testing and counselling for all TB suspects, HIV prevention methods and co-trimoxazole preventive therapy.
- ACSM for enhancing community involvement and building partnership with communities, PLHA and NGOs.
- Bringing HIV and TB control programmes on a common platform to discuss issues relating to coordination.

## **3.2 Scaling up PMDT**

### ***Screening and testing for resistance to first- and second-line drugs, as well as HIV testing among confirmed cases of MDR-TB***

Lack of diagnostic capacity is a crucial barrier preventing an effective response to the challenges of TB-HIV and drug-resistant TB, with less than 5% of the estimated burden of MDR-TB patients currently being detected globally. Estimation models and projections confirm that an effective response to the diagnostic challenges of TB-HIV and MDR-TB requires

urgent and massive scale-up of laboratory services. Stop TB Partnership Working Groups, technical expert bodies, and international research and donor agencies also agree that the critical lack of TB laboratory capacity constitutes a global crisis, requiring a paradigm shift in the provision of laboratory policy guidance and technical assistance, and knowledge transfer within a global and integrated laboratory network.<sup>13</sup>

Access to DST is required in all programmes. Under exceptional circumstances, and while building the laboratory capacity to perform DST, programmes may use strategies to enrol patients with a high risk of drug-resistant-TB in Category 4 regimens without individual DST. For example, the results of representative DRS may identify a group or groups of patients with a high percentage of drug-resistant TB, which can justify the use of Category 4 regimens in all patients in the group.

It is estimated that the regional capacity needs to be scaled up to perform 20–30 million primary cultures and around 2 million DST by 2015 to meet the MDG targets.

As of 2010, all Member States in the Region had a quality-assured smear microscopy laboratory network in place, with functional EQAP services. There is at least one functional national reference laboratory (NRL) in every Member State, except Bhutan, DPR Korea and Maldives. DPR Korea is being technically supported by the Stanford University for the development of infrastructure and culture and DST services in the NRL. Maldives is planning to develop its NRL at the Indira Gandhi Memorial Hospital, Male. Equipment for solid culture and drug susceptibility, using Lowenstein Jensen medium, is in place in most countries, except Maldives (to be established) and Timor-Leste (not planned).

National laboratory plans for expanding services including newer tools are already in place in India and Thailand. They are being developed in Bangladesh and Sri Lanka.

### *Challenges*

- The current capacity of supranational reference national laboratories (SNRLs) to undertake quality assurance and training is stretched.

- Laboratory capacity for the diagnosis of drug-resistant cases and for DRS is limited.
- Even countries with culture and DST facilities do not have enough quality-assured laboratories to meet the needs of patients.
- Models for planning/costing laboratory scale-up are not available (assumptions for use of LPAs, liquid and solid cultures for the numbers of MDR-TB suspects estimated in a given country).
- There is a reliance on conventional/solid culture techniques. This leads to delays of several weeks in diagnosis, which results in the spread of infection, drop-out of patients and unfavourable outcomes.
- While recently recommended new diagnostic techniques have been welcomed by countries, deployment has been slow.
- The involvement of private and other laboratories is not easy—the costs for paying for private services are exorbitant.

### *Regional interventions*

- The existing SNRLs would need additional support to strengthen their training capacities, and at least one more laboratory would need to be identified and accredited as SNRL. It would be necessary to support the current SNRLs through mobilization of resources specifically to complement the training needs.
- There is a need to evaluate the operational use of Xpert MDR-TB/Rif, liquid culture and molecular LPA for rapid diagnosis of MDR-TB as a means of expediting detection and referral of patients eligible for MDR-TB treatment.
- Countries shall be assisted in assessing requirements and developing plans for the required laboratory infrastructure and technical capacity for expanded quality-assured culture and DST for first-line and second-line drugs.

- Regional and country-specific training workshops are to be organized for NRL staff on quality assurance, culture and DST, and laboratory network management, including biosafety and IC.
- NRL capacity is to be built to respond to the needs of national TB programmes through the involvement of laboratories with capacity for MDR-TB diagnosis in the private sector and medical teaching institutions.
- NTPs shall be provided with updated information on the feasibility and cost-effectiveness of newer diagnostics and drug regimens to guide programme decisions on adopting newer case management and diagnostic modalities.
- Steps shall be taken to facilitate the participation of institutions and national programmes in the Region in global operational research and field testing of newer diagnostics and treatment modalities to generate an evidence base, and in the application of research findings to guide policy and strategy formulation for the management of MDR-TB.
- Overall priority for screening will be given to screening of all retreatment cases and among retreatment cases, to treatment failures and to symptomatic contacts of MDR-TB patients. However, as the laboratory capacity for screening increases, the screening will gradually be increased to all smear-positive TB cases reporting to health facilities.

### ***Access to effective treatment for drug-resistant TB***

According to the WHO guidelines, any patient with chronic or MDR-TB requiring treatment with second-line drugs falls under WHO diagnostic Category 4 and will require specialized regimens (termed “Category 4 regimens” in these guidelines). Programmes should design a treatment strategy when both the DRS data and the frequency of use of antituberculosis drugs in the country have been assessed. Programmes that plan to introduce a treatment strategy for drug-resistant TB should be familiar with the prevalence of drug resistance in new patients, as well as in different groups of retreatment cases (failures, relapse, return after default, and chronic cases). It is essential to determine which, and with what

frequency, second-line antituberculosis drugs have been used in the area served by the drug-resistant TB control programme. Some second-line antituberculosis drugs may have been used only rarely and will likely be effective in drug-resistant TB regimens, while others may have been used extensively and, therefore, have a high probability of being ineffective in patients with resistant strains. It is also recognized that some programmes may have to design strategies based on limited data, as treatment for many patients cannot wait until the full assessment information has been obtained.

Key recommendations from WHO 2008 guidelines<sup>14</sup>

- Design treatment regimens with a consistent approach based on the hierarchy of the five groups of antituberculosis drugs.
- Promptly diagnose drug-resistant TB and initiate appropriate therapy.
- Use at least four drugs with either certain, or almost certain, effectiveness.
- DST should generally be used to guide therapy; however, do not depend on DST in individual regimen design for ethambutol, pyrazinamide, and Group 4 and 5 drugs.
- Do not use ciprofloxacin as an antituberculosis agent.
- Design a programme strategy that takes into consideration access to high-quality DST, rates of drug-resistant TB, HIV prevalence, technical capacity and financial resources.
- Use adjunctive measures, including surgery and nutritional and social support, appropriately.
- Treat XDR-TB aggressively whenever possible.
- Treat adverse effects immediately and adequately.

During the past two years, steady progress has been made in the Region in initiating treatment in MDR-TB cases. The GLC had approved the case management of patients with MDR-TB under national programmes in nine countries. Bangladesh, India, Indonesia and Myanmar are in the process of expanding these services, while Nepal has already established ambulatory case management services for MDR-TB throughout the country.

Maldives continues to treat the few cases that occur on a case-by-case basis. Under their respective national programmes, Bhutan, Sri Lanka and Thailand will begin enrolling cases later in 2010, while DPR Korea will apply to the GLC to establish MDR-TB case management in 2011.

### *Challenges*

- Excessive/irrational use of second-line drugs (SLD) outside programme conditions in several countries in the Region has led to a substantial risk of SLD resistance, and hence, a reduction in the choice of effective antibiotics for regimen selection.
- In the absence of substantive evidence from national DRS in many countries, the understanding of the burden of M/XDR-TB is based on “best estimates”.
- Many countries are still in the expansion phase of PMDT and have only centralized treatment services. There could be some challenges in administering treatment once services are decentralized.
- There is insufficient pharmacovigilance data to support regimen selection.

### *Regional interventions*

- Countries will be given assistance for developing PMDT guidelines and expansion plans.
- There shall be regular country assessment and evaluation missions for countries initiating and implementing MDR-TB case management.
- Support shall be given for updating national guidelines for the treatment of drug-resistant TB.
- Advocacy will be done for promoting rational drug use and where possible, limiting the use of SLDs for purposes other than MDR-TB treatment.
- Pharmacovigilance systems and the use of data in drug-resistant TB regimen design will be strengthened.

### ***Patient-centric care and promoting adherence***

Treatment could be delivered to MDR-TB patients through hospital-based care, out-patient/ facility-based services or community-based care. The programmes need to weigh the options and decide according to the local context.

**Table 4:** Comparing different models of care and treatment delivery

	<b>Hospital-based</b>	<b>Outpatient</b>	<b>Community-based</b>
Treatment administration and DOT	Easier, but commitment of authorities and staff is important. DOT should not be taken for granted.	Easier. Requires capacity-building and good networking with peripheral health facilities and regular supervision.	Convenient to patient. Needs training of community volunteers and continuous monitoring. Administration of injectables and supervision are key challenges.
Adherence to treatment	Good	Chances of default are high, but can be spotted easily.	High chances of default and need for rigorous monitoring to spot it early.
Addressing adverse events	Quick attention and address adverse events	There could be a delay of 1–2 days, but manageable.	Adverse events need referral and depending on accessibility of health services, there could be longer delay.
Infection control	Challenge in hospital settings. Needs high commitment and resources.	Relatively easy if basic IC measure can be ensured.	Requires effective health education on IC among peripheral health workers, community and family members for in-house IC. Relatively cheaper measures.
Costs and sustainability	High costs. Sustainability depends on political commitment.	Moderate costs to the system but high costs to the patient if the health facility is not conveniently located.	Low costs to patients. However, additional cost of training of community supporters and supervision.

	<b>Hospital-based</b>	<b>Outpatient</b>	<b>Community-based</b>
Psycho-social factors	Patients need to stay away from family and community, and hence, need more support.	Repeated visits to hospital could lead to apprehensions/ stigma similar to in-patient treatment.	Convenient for patient if family/ community is supportive. Needs family/ community education.

### *Directly observed therapy (DOT)*

Because the treatment of drug-resistant TB is the last therapeutic option for many patients, and because there is a serious public health consequence if therapy fails in a patient with drug-resistant TB, it is recommended that all patients receiving treatment for drug-resistant TB receive DOT either in the community, at health centres or posts, or within the hospital setting. DOT should be provided in a way that does not place undue burden on patients and their families. Long transportation times and distances, short clinic operation hours and difficulty in accessing services may all reduce the efficacy of DOT. When human and financial resources permit, the first choice for DOT delivery is to use health-care workers. Otherwise, trained community members can serve as effective DOT workers. With appropriate training and support, they can visit patients in their homes or workplaces. Receiving DOT from a community member is often a convenient alternative to the health centre and can result in excellent adherence to treatment.

### *Adherence to treatment*

Adherence to treatment can be promoted through the following:

- Health education: Patients and their families should receive education about drug-resistant TB, its treatment, the potential adverse effects of the drugs and the need for adherence to therapy. Educational interventions should begin at the start of therapy and continue throughout the course of treatment. Education can be provided by physicians, nurses, community health workers (CHWs) and other health-care providers. The materials used should be appropriate to the literacy level of the population and should be culturally sensitive as well.

- Community-based TB care: Although early in the history of drug-resistant TB treatment, strict hospitalization of patients was considered necessary, community-based care provided by trained community members and health workers can achieve comparable results and, in theory, may result in decreased nosocomial spread of the disease. In each setting, care should be delivered by a multidisciplinary team of providers, including physicians, nurses, social workers and CHWs. The roles and responsibilities of each of these groups of providers will vary depending on the needs and resources available in specific settings. CHWs and community-based support can facilitate timely access to the hospital, as hospitals and emergency services sometimes reject drug-resistant TB patients, making advocacy necessary. During hospitalization, the community-based network can continue to accompany patients and provide additional support, as needed. With an efficient network for community-based care, the patient will be able to return to ambulatory treatment sooner, resulting in less nosocomial transmission, reduced hospitalization costs and reduced dependence on hospital beds. Understanding and compassion are often lacking in hospitals that cater to general diseases because of health workers' fear of contracting drug-resistant TB, as well as lack of experience in dealing with drug-resistant TB.
  
- Psychosocial and other supportive interventions: Having drug-resistant TB can be an emotionally devastating experience for patients and their families. Considerable stigma is attached to the disease and this may interfere with adherence to therapy. In addition, the long nature of drug-resistant TB therapy, combined with the adverse effects of the drugs, may contribute to depression, anxiety and further difficulty with adherence to treatment. Some of the studies available show that introducing psychosocial support for patients leads to strengthening of the overall TB control programme and improved case-holding for the most vulnerable patients.<sup>15,16</sup> Socioeconomic problems, including poverty, homelessness and unemployment, need to be addressed to enable patients and their families to adhere to treatment. These problems have been successfully tackled through the provision of "incentives" and "enablers". Maximal

interventions should be given to patients with the greatest need.

Socioeconomic interventions include:

- health-care services that are free of charge
- food parcels for drug-resistant TB patients and their dependents
- temporary shelter in a housing facility or in a rented home for drug-resistant TB patients
- school fees for dependent children
- transportation fees
- advice and assistance in administrative matters relating to the treatment, including psychological support and counselling
- assistance in defending the rights and/or reinforcing the responsibilities of patients
- provision of skills training and livelihood to patients while they are on treatment as well as to prepare them with skills that can support them as they reintegrate into the community upon the completion of treatment.

### *Challenges*

- Community-based TB care for M/XDR-TB is still evolving, considering the complexity of the treatment and the possible adverse events.
- Disease education is not a consistent feature of care delivery.
- Psychosocial and financial support is not part of a comprehensive package of services in some countries. Specifically, the sustainability of financial support is challenging.
- In several cases, the policy of social support does not always percolate to all implementing units and since the concept is relatively new, there is a need for training of the staff concerned.
- Financial incentives also mean additional budgetary allocation within the resource-constrained settings.

### *Regional interventions*

- Evidence-based regional guidance shall be developed on community-based care and social support for MDR-TB patients.
- All aspects of social support, including counselling methods, vocational training and rehabilitation, are to be incorporated into support policy.
- Advocacy measures are to be promoted for the following:
  - (a) Implementation of social support
  - (b) Community involvement in social support to reduce stigma and promote early rehabilitation

### **3.3 Implementing TB-IC in health-care facilities and congregate settings**

TB-IC is a combination of measures aimed at minimizing the risk of TB transmission within populations. The foundation of IC is early and rapid diagnosis, and proper management of TB patients, as already discussed.

TB-IC requires and complements the implementation of core activities in TB control, HIV control and health-systems strengthening. It should be part of national infection prevention and control policies because it complements such policies, in particular, those that target airborne infections.

TB-IC requires action at all levels—at national, subnational and health facility levels, at the level of other congregate settings where known or unknown TB cases (including M/XDR-TB cases) mix with other people, and at the household level.<sup>17</sup> These activities should be part of wider IC measures in general and specifically, respiratory IC applicable in all settings.

The national and subnational managerial activities listed below provide the managerial framework for the implementation of TB-IC in health-care facilities, congregate settings and households.

While policy and overall planning is done at the national level, there are managerial, administrative, environmental and personal protective measures that need to be taken at the subnational and health facility levels

and other congregate settings. It has generally been observed that the implementation of IC measures is given low priority at several levels and even simple interventions that do not have much financial implication are not being implemented.

### *Challenges*

- Infection control has not received due priority from policy-makers and managers.
- Even where national strategy for IC is in place, lack of operational guidelines/plan and inadequate availability of resources prevent its implementation.
- Infection control measures require a mix of medical and engineering expertise. There is a general lack of expertise to address the needs of IC.

### *Regional interventions*

- There is a need to raise the issue of the need for greater attention to IC within national health systems at the highest-level policy forums for greater attention to this neglected area.
- A roster of experts is to be mobilized and additional staff trained at higher levels within ministries of public health trained to help disseminate internationally recommended guidelines and prepare sound IC plans in countries.
- Technical assistance is to be extended for developing operational plans for IC.
- Operational research shall be conducted to explore how IC can be implemented successfully.

## **3.4 Strengthen surveillance, including recording and reporting of drug-resistant TB**

Surveillance means the systematic and continuous collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response.<sup>18</sup>

Drug resistance surveillance (DRS) is a crucial part of MDR-TB and is important for:

- Planning and monitoring of PMDT
- Quantifying the need for scale-up of services
- Deciding on the probable effective treatment regimen
- Monitoring the trend of resistance
- Evaluating the impact of services.

It is recommended that countries should move from periodic survey to continuous surveillance. Continuous surveillance of retreatment cases should be a priority in all countries. Sentinel surveillance is recommended as an interim approach till continuous surveillance is established.

### *Monitoring*

Monitoring requires the routine collection and analysis of information and data on the implementation of a health intervention to ensure that activities are undertaken as planned. It reveals the progress towards identified targets and goals, and helps to identify problem areas and develop and take corrective action.

- Monitoring is done at multiple levels within the health-care delivery system.
- It includes the follow-up of the clinical characteristics, evolution and outcome of each patient to measure the quality of diagnosis and treatment (individual data).
- It also applies to the progress and outcomes of cohorts of patients, and helps to measure the capacity of the MDR-TB services (aggregated data).

The minimum set of indicators required for monitoring PMDT are grouped in four categories:<sup>19</sup>

- (1) Detection
- (2) Enrolment

- (3) Interim results
- (4) Final outcomes

### *Challenges*

- The capacity and resources to undertake DRS are limited. Only four countries have undertaken a national DRS survey and another two have undertaken subnational DRS.
- There is a new and complex set of indicators for which data need to be collected making DRS even more challenging
- Training must be imparted for the collection of the new set of data.
- The long duration of treatment poses problems in cohort classification and correlation with programme management for data verification.
- PMDT reporting needs to be integrated into the NTP reports.
- The treatment regimen is variable between countries and there is a need to change the regimen for individual patients.
- Electronic reporting is still evolving and needs to be adapted to the country context.

### *Regional interventions*

- (1) The development of DRS protocol is to be supported for the implementation of surveys on drug resistance.
- (2) Programme evaluation and independent reviews are to be undertaken.
- (3) Regional workshops shall be held to strengthen monitoring and evaluation.
- (4) Technical assistance shall be given to countries for developing recording and reporting tools for MDR-TB and need-based updates.
- (5) There is a need for the introduction and implementation of customized electronic reporting systems.

### **3.5 Strengthening health systems to ensure that capacity for PMDT is integrated into primary health care**

A health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health. This includes efforts to influence the determinants of health, as well as more direct health-improving activities. A health system is, therefore, more than the pyramid of publicly owned facilities that deliver personal health services. It includes, for example, a mother caring for a sick child at home; private providers; behaviour change programmes; vector control campaigns; health insurance organizations; and occupational health and safety legislation. It includes intersectoral action by health staff and encouraging the ministry of education to promote female education, a well-known determinant of better health.<sup>20</sup>

The building blocks of the health system are: service delivery; health workforce; information; medical products, vaccines and technologies; financing; and leadership and governance.

A few Member States in the Region have put into place health sector reforms in order to develop effective and equitable health services to achieve favourable health outcomes, including for TB. These health sector reforms present both threats and opportunities for national TB control programmes. On the one hand, reductions in personnel and budgets specific for TB services, cost-sharing, integrated drug and supply procurement and management, and integrated data and health information management systems have had adverse effects on ensuring sufficient numbers of skilled staff for TB services at various levels, ensuring uninterrupted drug supplies, supervision, and monitoring and reporting mechanisms. On the other hand, these reforms provide for an expanded network, as well as increased capacity for providing DOTS services closer to communities. They also help to strengthen linkages with related programmes, and in the adaptation of effective approaches used by various other health programmes. All this leads to greater sustainability in the longer term. It is critical that TB services are effectively positioned and streamlined within basic health-care services during the process of health systems development, in order to optimize both the implementation of TB control services and the contribution of TB services to strengthening health services as a whole. NTPs will necessarily need to join forces with other programmes and stakeholders involved in health systems development to strengthen human resources, increase health financing and improve health systems management.

## *Challenges*

Health system capacity is cross-cutting and issues related to the systems cannot be addressed by TB programmes alone. Hence, HSS provides an opportunity to liaise with other health programmes of national interest to make a concerted effort. TB programmes, being an integral part of the health system, are as strong or as weak as the health system. The success of TB programmes depends on functioning referral, transfer and information-sharing mechanisms between various public and private health-care providers.

### *Service delivery*

- PMDT is still being managed as a project in isolation in several countries. There is a need to integrate PMDT into the NTP without compromising the quality of services and diluting the focus.
- Primary health-care infrastructure in several countries of the Region is weak, leading to difficulties in the decentralization of services.

### *Health workforce*

- The lack of experience in PMDT and limited avenues for training lead to weak programmatic management.
- There is an overall shortage of qualified and skilled staff.
- With continued expansion of services, new staff needs to be trained on a continuous basis.
- Newer technologies require re-training of already trained staff.
- The level of motivation is low, especially when duties related to the programme are looked upon as additional work in already overstretched working conditions.
- The high turnover of staff and migration to other areas/programmes are other challenges.

### *Procurement of second-line TB drugs*

- There is a lack of quality drugs registered in the countries.
- Too many drugs are needed for treatment, including those for adverse effects caused by TB drugs.
- There is inadequate capacity to manage procurements in general.
- Poor quantification is another challenge. The calculation of the need for medicines is difficult due to the individualized treatment schemes used and change in the regimen during treatment.
- There is a lack of drug quality specifications for all SLDs.
- Some medicines used in drug-resistant TB have short shelf lives.
- The storage of large quantities of drugs and high-value drugs poses a problem.
- The drugs are expensive.

### *Financing*

- Several SEAR countries are low- and middle-income countries. Financial resource constraints are a major factor affecting programme implementation and the expansion of outreach. Most countries have been able to mobilize resources from different funding agencies for TB control. National governments meet almost half of the budgetary requirements to run national TB control programmes, while the Global Fund covers almost a third of funding. Bilateral agreements and grants make up the rest of funding for TB control.

### *Leadership and governance*

- Experience in managing PMDT is lacking.
- Managers are often clinicians who are constrained for time and have to distribute their time between clinical duties and programme management.

## *Regional interventions*

### *Service delivery*

- Health policies, human resource development, financing, supplies, service delivery and information are to be improved.
- PMDT should be integrated into the NTP and systems for effective management of the programme must be established.
- There is a need to adapt successful approaches from other fields and sectors, and foster action on the social determinants of health.

### *Health workforce*

- Countries must be supported in the development of an human resource development (HRD) plan.
- There is a need to support country-level workshops for the management of drug-resistant TB, in association with the introduction of national guidelines for the diagnosis and management of drug-resistant TB, and the management of IC.
- There is a need to support in-country training of laboratory staff to field test and deploy newer diagnostics that are now becoming available.
- Training of SNRL and NRL laboratory staff on second-line DST is necessary.
- Regional and country-level training and demonstration centres, which will also act as models of excellence, should be developed. In countries with adequate resources, there will be at least one such training centre, while in smaller countries with very limited resources, this could be organized as a virtual centre, the resources of which are linked with other facilities.

#### *Procurement of second-line TB drugs*

- The following would be organized in close collaboration with the Global Drug Facility and other partners.
  - Regional workshop/s on the management of second-line drugs. A global workshop has been organized in the Region in 2011 to be followed by country training.
  - Technical assistance to countries for strengthening PSM in general and specifically for MDR-TB drugs.

#### *Financing*

- Country proposals to funding agencies are to be supported through support in writing and review of such proposals prior to submission. Mechanisms like mock-TRP for GF proposals will be used.
- Networking and advocacy with funding organizations will be undertaken.

#### *Leadership and governance*

- Regional courses would be organized on “Leadership and Strategic Management for TB Control Managers”, with a specific focus on MDR-TB. It is anticipated that initially, such a course would be organized each year for two-three years and later, it would be need-based.

### **3.6 Forging partnerships and coordination with stakeholders to mobilize and maximize requisite resources**

Partnerships are an instrument to tap diverse resources—technical, financial, human and infrastructural—to fill the gaps in programme implementation. Partnerships can be viewed as a means of maximizing benefits. The incentives for working in a partnership are not limited to monetary benefits; they include specific skills derived from the learning experience, the greater collective capacity to respond to the problem, and the enhanced quality of solutions.

### ***Involving all health-care providers in MDR-TB response***

While the involvement of all health-care providers in the TB control programme has been discussed earlier, they also have a specific role in the response to MDR-TB services, specifically in decentralization and increased access, making the services more convenient for MDR-TB patients.

Other health-care providers who are not part of the NTP, including the private/ corporate sector, can possibly play the following roles.

- (1) They could identify MDR-TB suspects and refer them to appropriate health facilities where NTP-accredited testing facilities are available.
- (2) They could support DOT for MDR-TB patients and specifically link up with the community for ambulatory care, at least for the duration of injectable requirements.
- (3) Large facilities providing culture and DST services could get their laboratories accredited and quality-assured for diagnosis of MDR-TB.
- (4) Large corporate houses could contribute to social support mechanisms and rehabilitation of MDR-TB patients as part of their corporate social responsibility.

### ***Challenges***

The challenges in the sphere of involvement of the private sector and other health-care providers are more or less the same as those in the case of their involvement in basic TB control. Some additional challenges are:

- Unclear strategy and role for the sector outside the NTP
- The implementation of PMDT services being expensive, cost compensation is required to enable the sector to provide free/ subsidized services to MDR-TB patients.

### *Regional interventions*

- PPM should be promoted for TB control in general and specifically for MDR-TB.
- Countries shall be supported to develop appropriate PPM policies and guidelines.
- There is a need for advocacy with the corporate sector to include MDR-TB in its workplace policy and focus on TB and MDR-TB as part of its corporate social responsibility.
- A regional workshop is to be organized on PPM and countries will be encouraged to follow this up with country-level meetings and workshops.

### ***Partnerships with various stakeholders to support MDR-TB programme***

The countries in the Region are receiving support from various partners. The Bangladesh NTP is collaborating with various NGOs, the predominant among them being BRAC and the Damien Foundation, for the delivery of care to MDR-TB cases. DPR Korea is being supported by the Stanford group for establishing an NRL. FIND and PATH are some of the key partners supporting India's PMDT efforts. PMDT scale-up in Indonesia is being supported by the KNCV. Several NGOs, including the MSF, Red Cross and Maternal and Child Welfare Association, are supporting the programme in Myanmar; the FHI is extending support for C&DST. In Nepal, GENETUP, in collaboration with the SRL in Gauteng, Germany, is supporting the running of the NRL, while a range of medical colleges and I/NGO support PMDT service provision. In Thailand, PMDT is supported by the CDC and in Timor-Leste, PMDT is being run through an NGO, Klibur Domin.

The EXPAND-TB project, Global Fund, GDF, USAID and World Bank are providing financial and commodity support for PMDT in the Region.

### *Challenges*

- The implementation plans for PMDT are inadequately costed, making it difficult for countries to engage in discussions for support.
- The focus on MDR-TB is suboptimal.
- There is a problem of diverse mandate of various agencies and diverse channels of fund flow.

### *Regional strategy and interventions*

- Regional partnership shall be strengthened through advocacy and continuous engagement with the existing and potential partners.
- A technical advisory committee will be formed at the regional level and the formation of similar committees at the country level will be promoted.
- Countries shall receive support to develop fully costed, comprehensive and workable implementation and expansion plans for PMDT. This would include assistance in developing detailed plans of action for MDR-TB surveillance, diagnosis and case management. It would also cover plans for human resource and infrastructure development and involvement of the private sector and medical teaching and research facilities.
- Partnership policy among countries shall be promoted.
- Challenges to the TB control programme, specifically because of the emergence of MDR-TB, should be highlighted in various regional forums.

## **3.7 Supporting PMDT through advocacy, communication and social mobilization**

*Advocacy* denotes activities designed to place TB control high on the political and development agenda, foster political will, increase financial

and other resources on a sustainable basis, and hold authorities accountable to ensure that pledges are fulfilled and results achieved (WHO).

Advocacy often focuses on influencing policy-makers, funding agencies and international decision-making bodies through a variety of channels—conferences, summits and symposia, celebrity spokespeople, meetings between various levels of government and civil society organizations, news coverage, official memoranda of understanding (MoUs), parliamentary debates and other political events, partnership meetings, patients' organizations, press conferences, private physicians, radio and television talk shows, and service providers.

*Communication* is an overarching term meaning the process people use to exchange information about TB. Communication may be used for programme communication, advocacy and social mobilization. In this section, the word communication is used primarily to denote activities that generate awareness about TB and the services available for its detection and treatment, i.e. programme communication..

Communication seeks to create and improve knowledge, and change the attitudes and behaviour of patients and health-care workers. All communication activities make use of some form of media or channel of communication (e.g. mass media, community media and interpersonal communication). While much of the communication effort on TB is concerned with transmitting a series of messages to people affected by TB, nearly all communication practitioners stress that to be effective, communication should be understood as a two-way process, with “participation” and “dialogue” as the key elements.

*Social mobilization* is the process of bringing together all stakeholders to raise awareness, create demand, assist in the delivery of resources and services, and strengthen community participation for sustainability and self-reliance. Strengthening TB programmes in a sustainable way requires involvement at many levels—individual, community, policy and legislative. Social mobilization generates dialogue, negotiation and consensus among a range of players, which include decision-makers, the media, NGOs, opinion leaders, policy-makers, the private sector, professional associations, TB-patient networks and religious groups.

Social mobilization is based on the principle of social justice. Promoting and respecting social justice means contributing to a society in

which all members, regardless of their social, political, economic and religious background, have basic human rights and equal access to their community's resources. Applying these fundamental principles is essential for promoting greater responsibility for health within a society. The recognition or neglect of these principles will often determine whether work in the social arena will succeed or fail.

At the heart of social mobilization is the need to involve people who are either living with active TB or have suffered from it sometime in the past. Empowering TB patients and the affected community helps to achieve timely diagnosis and the completion of treatment, especially among families of TB patients.

### *Challenges*

#### *Advocacy*

- Politicians and administrators are busy with multiple needs and challenges.
- There are competing priorities. If TB is not a priority, it does not get opportunity to catch the attention. There are also more “glamorous” health interventions that draw quick attention.
- There is either too much or too little technical component and data in messages. Data on the extent and impact of TB are not available.
- The objective of advocacy is not clear.
- The relationship between poverty and TB is not brought out clearly.

#### *Communication*

- Communication tends to be one-way.
- A top-down approach is used.
- The messages disseminated are generic. They are not focused on specific groups with low access.

- There is a tendency to use stereotyped messages that do not generate interest; the recipients do not identify themselves with the message. The messages are not sensitive to the local culture.
- Technical jargon is used in messages.
- Incoherent messages from various sources.
- Multiplicity of languages and dialect, visual illiteracy making it necessary to adapt messages in local context.

#### *Social mobilization*

- The community is taken for granted and considered a passive recipient.
- The community is not recognized as an equal and valuable partner.
- The activities appear manipulative rather than participative.
- Mistrust and apprehension about hidden expectation.
- TB control and care is perceived as the responsibility of the medical world alone.
- Easy access to other forms of treatment/care and the cultural acceptability of providers practising alternative/traditional medicine present a challenge.
- Volunteers work with no incentive and disparity in incentives for similar work with government/nongovernmental/various schemes within government health programmes pose a problem.

#### *Regional interventions*

##### *Advocacy*

- Advocacy shall be done with the relevant ministries and stakeholders to draw attention to the problem of MDR-TB and XDR-TB, and for increased allocation of resources.
- The introduction of newer technologies for diagnosing and case management of MDR-TB patients would require resource mobilization to meet the huge financial inputs.

- Greater collaboration shall be promoted with services that cater primarily to women, such as maternal and child health programmes, and women's groups and organizations will be involved in TB care and prevention.
- Strategies shall be developed and promoted to ensure equity in access to TB services among the poor, especially in urban and remote areas and prisons, and among marginalized population subgroups. Attention also needs to be paid to addressing gender-specific differences in TB epidemiology and barriers to effective care.
- The national programmes in Member States will undertake TB care and control advocacy activities tagged with HIV, MCH, poverty alleviation, housing, social development, gender discrimination, environment and tobacco control. This will not only result in synergies, but also help expand the outreach of the programme among vulnerable communities.

#### *Communication*

- Media sensitization on MDR-TB and XDR-TB is a must. This would include regional level meetings with journalists, media agencies and social marketing agencies.
- The Regional Office will help countries generate relevant local data with regard to new and emerging problems that confront TB control, and also provide technical assistance on incorporating "quality" content in messages.
- One of the important innovative activities at the regional level will be building of the communication skills of marginalized and vulnerable groups, so that they can be empowered to convey their concerns to the appropriate authorities.
- Contextual messages using local data shall be developed. This will make the messages more effective and identifiable in the local context.

### *Social mobilization*

- Community-based care models will be developed for TB-HIV, MDR-TB and XDR TB.
- Appropriate country strategies and community mobilization plans shall be developed.
- Unreached populations are to be identified and methods developed to address gaps through community-based approaches.
- At the country level, it will be important to undertake community-based message development and dissemination of information specifically on dangers of incomplete/irregular treatment, which leads to the development of MDR-TB and XDR-TB.
- Situational analysis must be undertaken, and vulnerable groups should be identified and trained on symptomatic identification and referral for appropriate treatment to prevent drug resistance.
- Community support groups are to be established in unreached populations. There is also a need to address other special challenges, such as (but not limited to) refugee settings and internally displaced people, or ethnic minorities that may be harder to reach.

## **3.8 Undertaking research**

New rapid diagnostics like Xpert MTB/RIF have recently been endorsed by WHO. Newer drugs and new TB regimens that will cure the disease in shorter periods of time are expected in the near future. This is in view of the ongoing clinical trials using combinations of the currently available drugs and the recent renewed attention to identifying new compounds with novel modes of action. Thus, countries need to be prepared with operational research for quick testing of the feasibility and adaptation of newer tools in the local context.

The working group on MDR-TB developed a research agenda that identifies the key research questions to be answered in order to strengthen the evidence base of the current guidelines, accelerate the scale-up, and simplify the management of drug-resistant TB programmes.

Regional priorities for research are based on the recommendations of the MDR-TB working group. The Regional Office will support countries in the development of protocols and provide technical assistance for undertaking research. The list of areas in which research will be conducted is presented in Annexure 5.

### *Challenges*

- There is inadequate focus on research to improve services.
- The capacity to undertake research is limited.
- Funding opportunities are limited.
- Academic and research institutes are not adequately involved in TB programmes.

### *Regional interventions*

- Capacity will be built for undertaking research.
- Generic protocols that can be adapted to the local context for use at multiple centres/sites in the Region shall be developed.
- Advocacy shall be done with funding agencies for focus on research focus.
- Networking between research institutions within and outside the Region shall be facilitated.

## 4. Indicators and targets

Component	Indicator	Baseline	Targets				
		2010	2011	2012	2013	2014	2015
<b>1. Preventing the emergence of resistance through sustained and enhanced efforts to reach all TB patients with quality care</b>	1.1 Number of countries where national professional bodies have endorsed ISTC	5	7	9	11	11	11
	1.2 Number of countries with SoPs for adverse drug reaction (ADR) reporting and management of ADRs to FLD and SLD	1	2	3	4	5	5
<b>2. Scaling up programmatic management of drug-resistant TB (PMDT)</b>	2.1 Number of countries with PMDT guidelines and expansion plans	7	9	11	11	11	11
	2.2 Countries where rapid molecular diagnostics (Xpert MTB/LPA) have been introduced	0	2	3	7	9	11
	2.3 Percentage of new bacteriologically positive TB patients tested for resistance to first-line drugs	~5%	10%	10%	15%	15%	20%

Component	Indicator	Baseline	Targets				
		2010	2011	2012	2013	2014	2015
	2.4 Percentage of previously treated TB patients tested for resistance to first-line drugs	~30%	≥40%	≥50%	≥60%	≥75%	≥85%
	2.5 Number of countries with capacity for second-line DST	2	2	3	3	5	5
	2.6 Number of confirmed MDR-TB cases enrolled in treatment	3 000	11 000	20 000	30 000	45 000	55 000
	2.7 Percentage of cases with confirmed MDR-TB started on treatment in programmes that follow WHO guidelines	~60%	≥60%	≥65%	≥70%	≥80%	≥ 90%
	2.8 Percentage of cases with confirmed MDR-TB that have access to quality-assured drugs	~30%	≥40%	≥50%	≥ 60%	≥ 70%	≥80%
	2.9 Treatment success rate among patients with confirmed MDR-TB	~60%	65%	65%	70%	70%	≥75%

Component	Indicator	Baseline	Targets				
		2010	2011	2012	2013	2014	2015
	2.10 Number of countries with mainly ambulatory treatment policy for MDR-TB cases	10	10	10	11	11	11
<b>3. Implementing TB infection control (IC) in health-care facilities and congregate settings</b>	3.1 Number of countries with IC guidelines as well as costed operational plan	7	9	11	11	11	11
	3.2 Number of countries reporting ratio of TB notification rate among health-care workers to notification rate among general population	0	2	4	7	9	11
<b>4. Strengthening surveillance, including recording and reporting of drug-resistant TB</b>	4.1 Number of countries reporting results from drug resistance surveys (within five years) and/or continuous surveillance	2	3	3	4	4	6
	4.2 Number of countries reporting treatment outcomes for all confirmed cases of MDR-TB	3	4	6	8	9	11

Component	Indicator	Baseline	Targets				
		2010	2011	2012	2013	2014	2015
<b>5. Strengthening health systems to ensure that capacity for PMDT is integrated into primary health care</b>	5.1 Number of countries with a comprehensive HRD plan that includes requirements for expansion of MDR-TB management	3	5	7	7	9	11
	5.2 Number of countries where at least 80% of subnational staff involved in MDR-TB control have undergone relevant training	NA	2	5	7	9	11
	5.3 Number of high MDR-TB burden countries with an electronic case-based database for MDR-TB patients on treatment at national level	0	0	1	2	4	4
	5.4 Number of countries with adequate infrastructure for SLD storage and distribution	5	7	7	9	9	11

Component	Indicator	Baseline	Targets				
		2010	2011	2012	2013	2014	2015
<b>6. Forging partnerships and coordination with stakeholders to mobilize requisite resources</b>	6.1 Number of countries with committed financial resources (>80%) for MDR-TB as per the costed implementation plan	3	3	4	7	9	11
<b>7. Supporting PMDT through advocacy, communication and social mobilization</b>	7.1 Number of countries that have incorporated MDR-TB focus in ACSM country plans	3	5	5	7	9	11
	7.2 Number of countries with community representation on policy/ programme review meetings	NA					8
<b>8. Undertaking research</b>	8.1 Number of countries undertaking research on treatment adherence and models of care (including community-based care)	1	2	3	3	3	4

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In 2010 there was an estimated prevalence of 650 000 cases of multidrug-resistant TB (MDR-TB) globally, and global mortality exceeded 150 000. Well-functioning national TB control programmes in the SEA Region achieving high cure rates have resulted in maintaining a slow but steady decline in TB incidence rates during the past decade. This has also led to low levels of multidrug resistance among new cases. Extensively drug-resistant TB (XDR-TB) has also been reported from six countries of the SEA Region. MDR-TB could potentially replace drug-susceptible TB, and constitutes a threat to global public health security.

As per the Regional Strategic Plan for 2006-2015, the overall goal for TB control is to reduce morbidity, mortality and transmission of TB until it is no longer a public health problem. The South-East Asia Regional Response Plan for Drug-Resistant TB Care and Control 2011-2015 complements the Regional Strategic Plan for reducing morbidity, mortality and transmission of DR-TB. By fully implementing this Response Plan, the realization of the overall goal for TB control will become an achievable target. This report contains the salient features of the Plan, including goal and objectives, strategies and interventions, strengthening of health systems and other pertinent details.



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