According to the latest estimates, the regional goal of halving the tuberculosis (TB) prevalence and mortality rates by 2010, relative to 2000 levels, is likely to be achieved. Despite this expected achievement, approximately 1.9 million incident TB cases and 260 000 TB deaths are estimated each year in the Western Pacific Region. Multidrug-resistant TB (MDR-TB) patients account for 120 000 of the incident cases, representing 28% of the global MDR-TB burden. In addition, HIV has a potential to reverse the gains in TB control as it helps fuel the TB epidemic.

To mitigate the threats of MDR-TB and the TB-HIV co-infection, the Region must overcome a number of challenges. The current level of case detection is too low to halt the chain of transmission. Laboratory capacity is insufficient for early diagnosis of TB and for effective responses to MDR-TB and the TB-HIV co-infection. The lack of qualified human resources, quality-assured drugs and infection-control activities has slowed progress in the scale-up of MDR-TB programme management, and TB/HIV collaborative activities remain limited. Current programme management capacity is often insufficient for the acquisition and management of donor grants and the expansion of related programme operations.

In order to address these challenges, the Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) has been developed in consultation with the Member States. This Strategy builds on the previous two regional strategies, but adds new evidence-based interventions and technologies. As such, it provides guidance to countries on the critical sets of interventions that are necessary to control TB in the Region. The Regional Committee is asked to review and endorse the Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015).
1. CURRENT SITUATION

According to the latest WHO estimates, the Western Pacific Region is likely to achieve its goal of halving prevalence and mortality by 2010 relative to 2000 levels. This expected result is due to the rapid expansion of directly observed treatment, short-course (DOTS) while maintaining a high cure rate, thus reducing the number of prevalent cases from 3.5 million in 2000 to 2 million in 2008. During the same period, 10 million patients were diagnosed and an estimated 800,000 deaths were averted.

Despite the progress, the global and regional situations remain dire. Globally, a total of 9.4 million people are still suffering annually from tuberculosis (TB), resulting in 1.3 million deaths. In the Western Pacific Region alone, approximately 1.9 million incident TB cases and 260,000 TB deaths are estimated annually. Cambodia, China, the Philippines and Viet Nam, four countries among 22 global high-burden countries, account for 93% of the regional caseload. TB tends to be more concentrated in high-risk and vulnerable populations, especially in countries where the socioeconomic discrepancies are widening. The situation is exacerbated by the TB-HIV co-infection and the emergence and silent spread of drug-resistant TB, particularly multidrug-resistant TB (MDR-TB). The overlap of both epidemics in certain vulnerable populations poses an important public health threat.

As for MDR-TB, the Region faces 120,000 incident MDR-TB patients annually, which equals 28% of the world’s MDR-TB burden. Surveillance data show that, as of 2008, 4% of new incident cases and 24% of previously treated TB patients in the Region were suffering from MDR-TB. China, the Philippines, and Viet Nam account for 97% of the total number of estimated MDR-TB cases among both new and re-treatment cases.

HIV has the potential to reverse the gains in TB control in several parts of the Region. TB case fatality among patients with HIV is considerably higher than among HIV-negative TB patients even under a well-functioning TB programme. In 2007, the overall estimated prevalence of HIV in new TB cases was 2.7%, with rates varying widely from less than 1% to up to 15% in countries in the Region.

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1 It should be noted that the latest WHO estimates have large confidence intervals and should thus be interpreted with caution. The 2010 national prevalence survey in China, where approximately 70% of the regional TB burden is found, will provide important information to assess the real burden of disease.
In summary, quantitative gains over the last decade were accompanied by qualitative developments of the TB epidemic that undermine efforts to control and eliminate tuberculosis in the Region.

2. ISSUES

2.1 Insufficient detection of TB

The current level of case detection is insufficient to control the transmission of TB. New evidence from prevalence studies and operational research suggest a number of underlying causes. First, some infectious patients do not seek care or self-medicate. Second, a significant proportion of infectious patients have symptoms that do not match the current diagnostic algorithms. Third, many patients with active TB disease turn to private providers that are not linked with the national TB programme and who do not follow diagnostic and treatment guidelines. Lastly, the diagnostic methods (smear microscopy) used in DOTS programmes are not sensitive enough.

These findings indicate the need for: (1) increasing TB awareness among the general population, (2) strengthening public-private mix (PPM) approaches to engage all health care providers in offering a standard quality of TB services, (3) introducing more sensitive diagnostic methods and algorithms, and (4) broader interventions seeking to provide social and financial risk protection, and for removing barriers to quality health services. After all, TB disproportionately affects specific segments of the population, notably the poorest, most marginalized and vulnerable populations. Equitable access is therefore crucial to TB programme success.

In addition, there are a number of unexplored opportunities for increased case detection among groups of people at high risk of TB. TB contact investigation is an obvious example of a high-yield intervention that also brings an opportunity to diagnose TB in children. Other examples include targeted case-finding among diabetic patients and high-risk populations such as health care workers, the elderly, migrants and people in congregated settings.

Thus, country-specific policy development at the national level should focus on universal and equitable access to TB diagnosis and treatment for all people suffering from TB by strengthening public-private mix approaches, revising diagnostic algorithms and implementing approaches to target high-risk populations and addressing access barriers to TB care for vulnerable populations.
These challenges require firm political commitment and financial input to develop and implement comprehensive scale-up plans for the programmatic management of drug-resistant TB, and to develop policies and legislation that ensure proper treatment with quality drugs by all providers.

2.4 Limited coverage of TB-HIV collaborative activities

Progress has been slow in the implementation of TB-HIV collaborative activities. In 2008, only 11% of new TB patients received HIV testing. Among patients found to be co-infected with TB and HIV, only 18% were enrolled in antiretroviral treatment (ART). A major weakness in all TB high-burden countries has been inadequate implementation of the three interventions aiming to reduce the TB burden among people living with HIV: (1) intensified TB case finding; (2) isoniazid preventative therapy; and (3) ensuring infection control in health facilities.

To address the above, TB-HIV collaborative activities need to be strengthened by developing and implementing the comprehensive policy framework for TB-HIV collaborative activities, including critical interventions to reduce the morbidity and mortality associated with TB and HIV.

2.5 Limited programme management capacity

Current programme management capacity is often insufficient for acquisition and management of donor grants and expansion of related programme operations. This inadequacy undermines rational planning, timely implementation of activities, accountability, programme performance monitoring, supervisory activities, and quality data collection and reporting. Furthermore, the requirements of donors such as the Global Fund to Fight AIDS, Tuberculosis and Malaria for grant application, implementation and reporting demand competencies that are often not readily available and put an enormous burden on often fragile and under-staffed TB control programmes. Current levels of national funding are not always sufficient to sustain and scale up new costly TB control interventions.

The Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) provides guidance to countries in the development of their national TB control strategies. The Strategy was developed based on an in-depth analysis of region- and country-specific challenges and opportunities; as such, it is informed by the latest technical and health systems developments.
REGIONAL STRATEGY TO STOP TUBERCULOSIS IN THE WESTERN PACIFIC (2011–2015)

World Health Organization
Regional Office for the Western Pacific

Manila, 2010
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<tr>
<td>ACSM</td>
<td>advocacy, communication and social mobilization</td>
</tr>
<tr>
<td>AIDS</td>
<td>acquired immune deficiency syndrome</td>
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<tr>
<td>ART</td>
<td>antiretroviral treatment</td>
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<tr>
<td>CPT</td>
<td>co-trimoxazole preventive treatment</td>
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<tr>
<td>DOTS</td>
<td>direct observed treatment, short-course</td>
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<tr>
<td>DRS</td>
<td>drug-resistance surveillance</td>
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<tr>
<td>FDC</td>
<td>fixed-dose combination</td>
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<tr>
<td>GLC</td>
<td>Green Light Committee</td>
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<tr>
<td>HIV</td>
<td>human immunodeficiency virus</td>
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<tr>
<td>LED</td>
<td>light-emitting diodes</td>
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<tr>
<td>M/XDR-TB</td>
<td>multidrug-resistant TB and extensively drug-resistant TB</td>
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<tr>
<td>MDR-TB</td>
<td>multidrug-resistant TB</td>
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<tr>
<td>PMDT</td>
<td>programmatic management of drug-resistant TB</td>
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<tr>
<td>PPM</td>
<td>public-public and public-private mix</td>
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<tr>
<td>TB</td>
<td>tuberculosis</td>
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1. EXECUTIVE SUMMARY

In the Western Pacific Region, the most recent estimates indicate that there are approximately 1.9 million incident TB cases and 260,000 TB deaths annually. Cambodia, China, the Philippines and Vietnam, four countries in the Region that are among the 22 high-burden countries globally, account for 93% of the regional case load.

Significant progress has been made in tuberculosis (TB) control in the Western Pacific Region in the past decade. The number of prevalent TB patients in the Region fell from 3.6 million in 2000 to 2 million in 2008. During the same period, over 10 million patients were diagnosed and treated and an estimated 800,000 deaths were averted. According to the latest WHO estimates, the Western Pacific Region is likely to achieve its goal of halving prevalence and mortality by 2010 relative to 2000 levels. It should be noted, however, that the latest WHO estimates have large confidence intervals and should thus be interpreted with caution.

Despite these quantitative successes, TB control programmes in the Region face significant qualitative threats. The TB epidemic tends to concentrate in vulnerable and marginalized populations that are difficult to reach and often have limited access to health care. The situation is exacerbated by the TB-HIV co-infection and the emergence and silent spread of drug-resistant TB, particularly multidrug resistant TB (MDR-TB). The Region faces 120,000 incident MDR-TB patients annually, which equals 28% of the world’s MDR-TB burden. Several factors continue to contribute to the development of drug-resistant TB, such as inadequate treatment in the private sector, over-the-counter sales of TB drugs and drugs of poor quality. Surveillance data show that already half of all MDR-TB cases result from transmission of MDR-TB in the community.

In order to mitigate these threats, the Region must overcome a number of operational challenges. First, the current level of case detection is insufficient to cut the chain of transmission. New evidence suggests a number of underlying causes: some infectious patients do not seek care or self-medicate; a significant proportion of infectious patients has symptoms that do not match the current diagnostic algorithms; many patients with active TB disease turn to private providers that do not follow diagnostic and treatment guidelines; and diagnostic methods used are not sensitive enough. Second, there is insufficient laboratory capacity for early diagnosis of TB and for an effective response to MDR-TB and the TB-HIV co-infection. Third, the scale-up of the programmatic management of drug-resistant TB is hampered by the lack of the following: capacity
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to test for resistance; qualified human resources; effective linkages with private and hospital sectors; models of care that ensure adherence to long and complicated treatment regimens; quality assured second-line drugs; and infection control. Fourth, progress has been slow in the implementation of TB-HIV collaborative activities. In 2008, only 11% of new TB patients received HIV testing. Among patients found to be co-infected with TB and HIV, only 18% were enrolled in antiretroviral treatment (ART). Lastly, current programme management capacity is often insufficient for the acquisition and management of donor grants and the implementation and expansion of related and often complicated programme operations.

In order to address the challenges listed above, the Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) has been developed in consultation with the Member States and the WHO technical advisory group (TAG). This Strategy builds on the previous two regional strategies, but has been adapted to reflect new and emerging challenges to TB control, as well as new evidence-based interventions and technologies. The purpose of the Strategy is to provide guidance to countries on the critical sets of interventions that are necessary to control TB in the Region. The Regional Strategy encompasses the following guiding principles: positioning the health systems strengthening agenda at the centre of the TB control strategy; considering the legal and ethical issues of TB care and promoting a human rights-based approach to TB policy developments; and, valuing partnership, participation and social mobilization at all stages of TB programming.

The goal of the Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) is to reduce by half the prevalence of and mortality from all forms of TB by 2015, relative to 2000 levels, in all countries with a high burden of TB by moving towards universal access to diagnosis and treatment of all forms of TB, including smear-negative and MDR and extensively drug-resistant TB. The Strategy provides a reference for actions to be taken in light of the five core objectives:

- Objective 1. Promoting universal and equitable access to quality TB diagnosis and treatment for all people

- Objective 2. Strengthening TB laboratory capacity

- Objective 3. Scaling up the programmatic management of drug-resistant TB

- Objective 4. Expanding TB/HIV collaborative activities
Objective 5. Strengthening TB programme management capacity, supported by sustained political commitment and sufficient financing for TB control.

As for Objective 1, important innovations include the introduction of routine contact investigation for household contacts, the introduction of more sensitive diagnostic algorithms and targeted active case-finding among high risk populations. In addition, interventions should focus on universal and equitable access to quality TB services by strengthening public-private mix approaches and addressing access barriers to TB care for vulnerable populations.

As for Objective 2, laboratory capacity-building needs to be informed by MDR-TB and HIV-TB scale-up plans and by opportunities for cross-cutting collaboration between disease programmes. New diagnostics, which are easy to operate, offer opportunities to decentralize the diagnosis of drug-resistant TB, to reduce the turn-around time from months to hours, to increase the sensitivity of TB diagnosis compared to conventional methods and to share equipment and human resources with other disease programmes.

Objective 3 addresses the need for development and implementation of comprehensive scale-up plans for the programmatic management of drug-resistant TB. This requires firm political commitment to ensure sufficient financial and human resources, as well as policies and legislation that ensure proper treatment with quality drugs by all providers.

Objective 4 focuses on the implementation of the comprehensive policy framework for TB-HIV collaborative activities, including critical interventions to reduce the morbidity and mortality associated with TB and HIV. In settings with HIV prevalence among TB patients greater than 1%, HIV testing should be offered to all TB patients and antiretroviral treatment should be provided to all TB patients with HIV co-infection.

Objective 5 addresses a critical prerequisite for effective TB control, namely TB programme management capacity. Effective TB programmes require sufficient financing, appropriate legislation and regulatory controls, well-planned human resource development strategies, and integrated TB control within the primary health care networks that address cross-cutting issues, such as infection control and evidence-based programme management through operational research.
Indicators to measure progress towards achieving the objectives and corresponding targets have been identified for each of the five objectives. But since this is a guidance document some indicators and expected results may be adapted according to the unique context of each country. Member States are recommended to develop or update their national TB strategic plans using this Regional Strategy as a framework, and to mobilize the resources for sustainable state-of-the-art TB control as current levels of national funding are not sufficient to sustain and scale-up new costly TB control interventions.
2. Introduction

Significant progress has been made in tuberculosis (TB) control in the Western Pacific Region in the past decade. Every year, more than 1.3 million patients in the Region are diagnosed with TB and more than 90% of those with infectious forms of pulmonary tuberculosis are successfully treated. As a result of the successful expansion of quality TB services, the number of prevalent TB patients in the Region fell from 3.6 million in 2000 to 2.0 million in 2008. In addition, fewer patients are dying of TB.

Despite these successes, TB control programmes in the Region face significant challenges that need to be addressed urgently with increased political commitment and resources. The TB epidemic tends to concentrate in vulnerable and marginalized populations that often have limited access to health care and are difficult to reach. In addition, the HIV epidemic still poses a major threat and has the potential to reverse the gains achieved by the TB control efforts. Finally, the Region has not yet adequately responded to the silent epidemic of multidrug-resistant TB (MDR-TB) in terms of technical, financial and human resources.

The Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) aims to provide guidance to countries in the development of their national TB control strategies, putting into practice the critical components of the global The Stop TB Strategy (Appendix 1, Table 2). The Regional Strategy was developed based on an in-depth analysis of the evolution of the TB epidemiology and public health response in the Region. It builds upon the achievements made by the previous two strategic plans (Box 1), while taking into account Regional and country-specific challenges and opportunities. The new strategy also has been informed by the latest technical and health systems developments, including the introduction of new cross-cutting diagnostics.
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Box 1. Development of the Regional TB control efforts from 1999 to 2010

Following the declaration by the Regional Committee for the Western Pacific in September 1999 of a "tuberculosis crisis" in the Region, a resolution was adopted to establish the Special Project to Stop TB. The Regional Committee in 2000 endorsed the regional goal of reducing by one half the TB prevalence and mortality and set the targets for 2010, compared with the level in 2000.

As an intermediate step towards reaching this goal, three regional targets were set for 2005—detecting 70% of estimated TB cases, successfully treating 85% of these cases, as well as 100% regionwide DOTS (directly observed treatment, short course) coverage. The Special Project to Stop TB in the Region was remarkably successful in achieving these three targets within five years.

In 2006, the second regional plan, the Strategic Plan to Stop TB in the Western Pacific (2006-2010) was launched. The goal of the plan was to increase the decline of prevalence and mortality rates in order to achieve the regional goal by 2010. The plan had three strategic objectives: sustaining and optimizing the quality of DOTS while progressing beyond the "70/85" targets; ensuring equitable access to high-quality TB care for all people with TB; and adapting DOTS to respond to multidrug-resistant and extensively drug-resistant TB, as well as the TB-HIV co-infection.

From 2000 to 2008, case notifications have increased by 73% and the Region has achieved remarkable progress by diagnosing 10 million patients, including 6.6 million patients in China. More than 90% of patients with infectious forms of pulmonary TB were treated successfully, and, between 2000 and 2008 an estimated 800 000 deaths were averted.

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1 Regional Committee resolution WPR/RC50.R5.
2 Regional Committee resolution WPR/RC51.R4.
3 Strategic Plan to Stop TB in the Western Pacific 2006-2010, World Health Organization Western Pacific Region, 2006

3. Current situation

The global TB incidence has seen a reversal since 2004. However, the most recent global estimates indicate that some 9.4 million TB cases occur, resulting in 1.3 million deaths. Furthermore, approximately 1.4 million TB patients are co-infected with HIV. In addition, the emergence and silent
spread of drug-resistant TB, particularly MDR-TB, poses serious public health challenges. Globally more than 440,000 MDR-TB cases occur every year, of which only a small proportion of cases has been properly diagnosed and treated.

In the Western Pacific Region, the most recent estimates indicate that there are approximately 1.94 million incident TB cases and 260,000 TB deaths annually (Fig. 1). Cambodia, China, the Philippines and Viet Nam, four countries in the Region that are among the 22 high-burden countries globally, account for 93% of the regional case load.

Fig. 1 – TB disease burden in the Western Pacific Region

![Distribution chart showing the number of TB cases and deaths by region and the main countries contributing to the burden.](chart)

According to the latest WHO estimates, the regional goal of halving prevalence and mortality by 2010 relative to 2000 levels is likely to be achieved (Fig. 2). This achievement is the result of the rapid expansion of DOTS, while maintaining a high cure rate. It should be noted, however, that the latest WHO estimates have large confidence intervals and should thus be interpreted with caution. The 2010 national prevalence survey in China, where approximately 70% of the regional TB burden is found, will provide important information to assess the real burden of disease.
Multidrug-resistant TB and extensively drug-resistant TB (M/XDR-TB) pose increasing threats to TB control in many countries in the Western Pacific Region. The Region carries 28% of the world’s MDR-TB caseload (Fig. 3). As of 2008, it is estimated that 4% of new incident and 24% of previously treated TB patients in the Region are suffering from MDR-TB. China, the Philippines and Viet Nam account for 97% of the total number of estimated MDR-TB cases among both new and re-treatment cases.

In addition, HIV has the potential to reverse the gains in TB control in several parts of the Region. Cambodia, Malaysia, Papua New Guinea, Viet Nam and areas of China are particularly...
Affected in terms of the number of people co-infected with HIV and the number of deaths associated with TB-HIV (Fig. 4). TB case fatality among patients with HIV is considerably higher than among HIV-negative TB patients, even under a well-functioning TB programme. In 2008, the overall estimated prevalence of HIV in new TB cases was 2.3%, with a wide variation between less than 1% and up to 15% in countries in the Region.

Fig. 4 – Estimated morbidity and mortality associated with TB-HIV co-infection

4. Challenges and opportunities

Although TB control in the Western Pacific Region has made substantial progress over the last decade, the Region faces significant challenges and recognizes new control opportunities.

4.1 Many TB patients remain undiagnosed, resulting in ongoing transmission in communities

It is increasingly recognized that the current level of case detection is not sufficient to control TB transmission in communities. Data from TB prevalence surveys, detailed analyses of TB case notifications and various operational research findings suggest the following underlying causes:

- A significant proportion of infectious patients continue transmitting TB before they are detected by TB programmes. The national prevalence survey of Cambodia (2002) found that 38% of smear-positive patients identified did not meet the "TB-suspect criteria" of the TB programme (prolonged cough or haemoptysis). These patients are transmitting tuberculosis, but are currently not diagnosed in routine programmatic settings. In
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addition, prevalence surveys in the Region show the limitations of TB diagnosis when only smear microscopy is used. The introduction of TB culture during the prevalence survey resulted in the identification of up to 3 times as many bacteriologically confirmed TB patients, compared to the use of TB smear microscopy alone. These facts imply the serious limitations of the current diagnostic algorithm and methods predominantly relying on passive case detection, symptom screening and sputum smear microscopy.

People with active TB disease are not promptly seeking care from health care providers linked with national TB programmes. The prevalence survey of the Philippines (2007) showed that only 32% of subjects with TB symptoms consulted a health care provider, 43% self-medicated and 25% had taken no action. Of those who consulted a health care provider, 38% went to private providers or hospitals, 26% to public hospitals and 27% to DOTS centres. The national prevalence survey of China (2000) also showed that 43% of symptomatic cases had not attended any health facility. These findings illustrate a number of challenges: the lack of TB awareness in communities results in delayed and inadequate health-seeking behaviour; and inappropriate treatment by various health care providers will continue to drive drug-resistant TB. Thus, the ultimate challenge is all health care providers need to be allied to offer standardized, quality TB services in order to minimize diagnosis and treatment delays.

There are a number of unexplored opportunities for increased case detection among groups of people at high risk of TB. For example, TB contact investigation is not widely implemented, although it has been proven to contribute to the prevention of transmission through the early diagnosis and treatment of patients with active disease, as well as latent TB infection. In addition, intensified contact investigation would provide an excellent opportunity to diagnose TB in children and overcome some of the difficulties in diagnosing childhood TB. It is also known that diabetes is associated with both an increased risk of TB and poor treatment outcomes. Systematic TB screening among diabetic patients may contribute to early case detection and improves patients’ well-being by preventing complications associated with dual pathologies. Other high-risk populations that deserve attention include health care workers, the elderly, migrants and people in congregated settings.

Ensuring equitable access to quality health services is one of the top priorities of the universal health coverage agenda. Since TB disproportionately affects specific segments of the population, notably the poorest, most marginalized and vulnerable populations, equitable access is crucial to TB
programme success, especially in countries where the socioeconomic discrepancies are widening. In this sense, TB control activities could serve as an entry point for broader interventions seeking to provide social and financial risk protection and for removing barriers to quality health services.

4.2 Insufficient laboratory diagnostic capacity

Insufficient laboratory diagnostic capacity prevents an effective response to the challenges of the TB-HIV co-infection, smear-negative TB and drug-resistant TB. Gap analyses have confirmed that such a response requires the urgent and massive scale up of laboratory services, including related human resources. The lack of TB laboratory capacity constitutes a crisis, requiring a paradigm shift in providing laboratory policy guidance, quality assurance and knowledge creation within national laboratory networks.

New diagnostics, which are easy to operate, offer opportunities to decentralize the diagnosis of drug-resistant TB to the district level and, more importantly, to increase the sensitivity of TB diagnosis compared with conventional methods. In addition, some of these new diagnostic tools can be used for other diseases such as HIV/AIDS, malaria and avian influenza. However, plans for laboratory strengthening are often developed in isolation, without links to national MDR-TB and TB-HIV scale-up plans and without benefiting from opportunities for cross-cutting collaboration between disease programmes.

Lack of coordination between management of laboratory services, the TB control programme, other disease programmes and relevant ministries may result in insufficient capacity to treat all diagnosed MDR-TB patients and in inefficient utilization of public health resources.

4.3 Slow progress in the expansion of MDR-TB response

The Western Pacific Region has not seen much progress in preventing the development and transmission of drug-resistant TB. The cumulative number of patients receiving second-line treatment since 2005 was less than 3000 in 2009, covering only a fraction of the estimated number of MDR-TB cases (Fig. 3).

Although most countries with a high burden of MDR-TB have successfully piloted programmatic management of drug-resistant TB (PMDT), the scale up is hampered by the lack of: (a) laboratory networks; (b) qualified human resources; (c) effective linkages with private and hospital sectors; (d) models of care that ensure adherence to long and complicated treatment
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regimens; (e) quality-assured second-line drugs; and (f) infection control. Overall, there is limited strategic planning of PMDT at all levels.

Drug-resistant TB is developing beyond the group of "retreatment cases". Fig. 5 shows the estimated number of MDR-TB cases among new smear-positive cases (blue bar) and previously treated cases (red bar) based on actual case notifications from countries and reliable drug-resistance surveillance data. These numbers represent the MDR-TB cases that can be detected if all notified smear positive cases receive culture and DST. It also illustrates that more than half of MDR-TB occurs in newly infected TB patients as a result of ongoing transmission of MDR-TB in the community.

In addition, several factors continue to contribute to the development of drug-resistance, such as inadequate treatment in the private sector, self-medication, over-the-counter sales of TB drugs and drugs of poor quality (see also paragraph 5.5.6).

These challenges require firm political commitment and financial resources to develop and implement comprehensive scale-up plans for the programmatic management of drug-resistant TB and to develop policies and legislation that ensure proper treatment with quality drugs by all providers.

Fig. 5 – Estimated number of MDR-TB cases
4.4 Limited coverage of TB-HIV collaborative activities

Progress has been slow in the implementation of TB-HIV collaborative activities. In 2008, only 11% of new TB patients received HIV testing. Among patients found to be co-infected with TB and HIV, 29% received co-trimoxazole preventive treatment (CPT) to prevent opportunistic infections and only 18% were enrolled in antiretroviral treatment (ART). In total 10,551 TB patients were identified as HIV-positive, representing 7% of the 152,468 TB cases that were tested. These HIV-positive TB patients represented 22% of the estimated number of HIV-positive TB cases in the Region.

Cambodia has been the most successful country to implement the TB-HIV collaborative activities. However, a major weakness in all TB high-burden countries has been the inadequate implementation of the three interventions intended to reduce the TB burden among people living with HIV. The three ‘i’s, or interventions, are Intensified TB case-finding, Isoniazid preventative therapy, and ensuring Infection control in health facilities.

4.5 Limited programme management capacity

In many countries, national TB programmes face the challenge of expanding programme operations and increasing financial resources, without appropriate management capacity. This inadequacy undermines rational planning, timely implementation of activities, disbursement of donor funds, accountability, programme performance monitoring, supervisory activities, and quality data collection and reporting.

Furthermore, the requirements of the Global Fund to Fight AIDS, Tuberculosis and Malaria and other donors for grant applications, implementation and reporting place an enormous burden on fragile and understaffed programmes. The Stop TB Strategy established at the global level is also far more complex than “basic DOTS” and requires technical competencies that are often not available within a country. Technical assistance provided to countries in response to some of these challenges is often uncoordinated and can unintentionally overwhelm programmes even further.

5. Guiding principles

The Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) encompasses the following guiding principles:
5.1 Positioning the health systems strengthening agenda at the centre of the TB control strategy

It has been increasingly recognized that TB control efforts will have more impact when addressed in conjunction with the critical components of the health systems agenda. Issues particularly relevant to TB control include: (1) universal health care coverage to ensure equitable access to quality care; (2) public policy reforms, including social and financial risk protection for vulnerable and marginalized populations; (3) sound planning and implementation of human resources development for health; (4) strong health and social policies to ensure and enforce quality standards of health care practices and medical products, particularly in the private sector; and (5) the promotion of collaboration between different programmes within the health sector. The strategy therefore covers relevant cross-cutting elements of the critical health systems agenda to maximize synergies between TB control programmes and health system strengthening efforts.

5.2 Considering the legal and ethical issues of TB care and promoting a human rights-based approach to TB policy developments

With the increasing complexity of TB control efforts today—as well as the emergence of multidrug-resistant and extensively drug-resistant TB (M/XDR-TB) and TB-HIV co-infection—a range of concerns has been raised about the ethics of TB care. There is broad consensus that mainstreaming a human rights-based approach to TB programming will support an effective response to several challenges, including universal and equitable access, TB interventions among undocumented migrants, and ensuring proper care for people in congregate settings. WHO is currently undertaking a thorough analysis and will provide guidance on priority ethical and legal issues related to TB care (e.g. access to diagnosis and treatment, obligations and rights of health care workers and patients, and public health measures and research). In the meantime, this Strategy aims to incorporate the available knowledge and guidance in these relatively new and important areas.

5.3 Valuing partnership, participation and social mobilization at all stages of TB programming

Partnerships at the global, national and local levels are critically important in any TB control effort. The global Stop TB Partnership has been instrumental in harmonizing and coordinating the global players in TB control with shared responsibilities and objectives. Effective national-level coordination among partners is even more critical in terms of aid effectiveness, planning and priority-setting, as well as ownership of national TB control programmes. Still many countries
require further enhanced efforts for advocacy, communications and social mobilization (ACSM) to build a broadly allied social movement to eliminate TB.


The vision of TB control in the Region is to achieve elimination of TB as a public health problem. The definition of elimination is an incidence rate of less than 1 TB case per 1 million population.

The goal of the *Regional Strategy to Stop Tuberculosis in the Western Pacific*(2011–2015) is to reduce by half the prevalence of and mortality from all forms of TB by 2015, relative to 2000 level, in all countries with a high burden of TB by moving towards universal access to diagnosis and treatment of all forms of TB, including smear-negative and M/XDR-TB.

The Strategy provides a reference for actions to be taken in light of the five core objectives:

**Objective 1.** Promoting universal and equitable access to quality TB diagnosis and treatment for all people

**Objective 2.** Strengthening TB laboratory capacity

**Objective 3.** Scaling up the Programmatic Management of Drug-resistant TB

**Objective 4.** Expanding TB/HIV collaborative activities

**Objective 5.** Strengthening TB programme management capacity supported by sustained political commitment and sufficient financing for TB control.

Successful implementation of the Strategy is expected to result in the achievement the following targets.

- reduce the prevalence and mortality from all forms of TB by half by 2015, relative to 2000 level in all countries with a high burden of TB, by moving towards universal access to diagnosis and treatment of all forms of TB, including smear negative and M/XDR-TB;

- cure rates for new cases continues to be higher than 85%;
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- an increase in case notification rates of all forms of TB, reflecting intensified case-finding efforts;

- all countries with a high burden of TB develop and implement comprehensive laboratory network plans that take into account opportunities for collaboration with other public health programmes and that include new diagnostics;

- all countries with a high burden of TB develop and implement a comprehensive PMDT expansion plan to gradually cover the whole country;

- in areas covered by PMDT, at least 90% of MDR-TB suspects received an appropriate diagnostic test for drug-resistant TB;

- all identified MDR-TB patients have access to appropriate treatment regimens with quality assured second-line drugs;

- all countries develop a comprehensive policy framework for TB-HIV collaborative activities and implement critical interventions to reduce morbidity and mortality associated with TB and HIV; and

- national TB programmes secure adequately trained and sufficient human resources according to human resources development plans.

Indicators to measure progress towards achieving the objectives and corresponding targets have been identified for each of the five objectives (Appendix 1, Table 1). The indicators should be adapted according to the needs of each country. The specific activities should be formulated in national TB control plans.

6.1 Objective 1 – Promoting universal and equitable access to quality TB diagnosis and treatment for all people

The first objective focuses on intensifying and improving case-finding to detect as many cases of TB as possible, as early as possible. This will require a comprehensive set of activities that begin with ensuring the availability of basic quality TB services nationwide and conducting a detailed assessment on where the missing TB cases might be found. Initiatives for engaging all health care providers, namely public-public and public-private mix (PPM) approaches, should be further
strengthened and institutionalized, together with the dissemination of the *International Standards for Tuberculosis Care*.

Each country needs to develop TB strategies for high-risk groups that are tailored to the specific characteristics of each risk group and the country's unique environment. Approaches to minimizing access barriers, especially for the poor and vulnerable, are to be developed and promoted, including social and financial risk protection of vulnerable populations. The desired and undesired consequences of insurance schemes need to be carefully studied.

The focus on TB high-risk groups and vulnerable populations will be increasingly important in the Region because it has historically been shown that a decline in TB incidence leads to disease concentration among specific segments of the population. It is, therefore, critically important for the national TB programmes to maintain focus on TB high-risk groups, even if TB control successes among the general population lead to decreased attention and political commitment.

6.1.1 **Analysis on the distribution of undetected TB patients**

The critical first step is a detailed review of current case-finding efforts to identify possible reasons for missing cases and for diagnostic delay. Several methodologies can be applied for this purpose. The "onion" model framework guides a programme to assess the fraction of TB cases unaccounted for in TB notification data.\(^1\) The analysis would include reviewing the awareness of TB in the population, as well as health-seeking behaviour of people with respiratory symptoms. Various health systems studies provide valuable information such as the coverage, accessibility and affordability of health services, and the quality of the diagnostic network.

In-depth analysis of TB surveillance data can also reveal the trend of TB notification disaggregated by geographical area, age group and sex. The cross-validation of TB surveillance data with other data sources, such as vital registration data, health insurance databases, hospital registries and the like will provide estimates of TB surveillance coverage. A systematic review of available operational research may provide crucial information to develop case-finding strategies.

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\(^1\) The "Onion" model: a framework for assessing the fraction of TB cases accounted for in TB notification data.
http://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/resources_documents/onionmodel.pdf
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6.1.2 Engaging all health care providers and ensuring the quality standards of care

In many countries in the Region, people with respiratory symptoms seek care from a variety of different health care providers not linked with the national TB programmes. These include private clinics, general hospitals, workplace clinics, pharmacies and traditional practitioners. Engaging these care providers to refer suspects or provide quality TB services through public-private or public-public mix (PPM) approaches greatly expands the network of TB care through which high-quality TB services are provided. Experience in the Philippines shows the potential to increase case detection by as much as 20% and to significantly improve case management through the PPM approach. In China, case-notification increased by 30% when general public hospitals were obliged to notify TB suspects and cases through an Internet-based infectious diseases surveillance system.

Promoting International Standards for Tuberculosis Care among care providers, health professionals, patients and communities will further consolidate PPM approaches and ensure quality care for all TB patients, thus reducing the development of drug resistance. Furthermore, strengthening PPM is of utmost importance considering the fact that a large proportion of MDR-TB cases are being treated in the private sector, often at substandard quality with non-quality assured second-line drugs. As such, promotion of international standards for tuberculosis and PPM contributes to the prevention of M/XDR-TB. Ensuring quality standards of care is not a TB control issue alone, but rather a wider health system issue discussed in a later section of this document (section 5.5.6).

Box 2. Patient diagnostic rate: an alternative measure to assess TB case detection

The case detection rate (CDR), defined as the number of reported cases per 100 000 persons per year divided by the estimated incidence rate per 100 000 per year, has been an indicator to measure the progress in case finding. Since TB incidence is based on estimates, the CDR is always accompanied by a significant degree of uncertainty. The patient diagnostic rate (PDR) is an alternative measure for case finding, which is expressed as the number of reported cases per 100 000 persons per year divided by the prevalence per 100 000. The PDR is the rate at which prevalent cases are detected by control programmes (i.e. ‘clearance rate’ of the existing cases) and the prevalence can be measured directly through national prevalence surveys. The Western Pacific Region is fortunate to have many countries with prevalence survey data available or surveys under way.

The PDR can be a useful indicator to assess the level of case detection for the countries in which a prevalence survey has been conducted. It can be applied for sub-groups if disaggregated data is available for both TB prevalence and case notification. The figure shows an application of the PDR for Viet Nam prevalence survey 2006-7 with the disaggregation for sex, age-group and geographical areas. Although its utility is still to be explored and validated, there is a great potential to use the PDR as a tool to assess both epidemiology and case-detection performance in relation to gender, age group, geographical setting and socioeconomic status.

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As a result of all these developments, existing algorithms and procedures need to be revised, and new ones need to be developed and evaluated to expand routine case-finding to include smear-negative/culture-positive, extra-pulmonary and childhood TB. For example, the definition of a "TB suspect" should be revisited based on findings of prevalence surveys showing that a large proportion of TB patients, including those with smear-positive disease, do not meet the usual suspect definition of a "cough for more than two to three weeks". There is also a potential to employ additional suspect criteria, such as diabetes, smoking status, malnutrition, immuno-compromised status, substance abuse and other socioeconomic factors appropriate to a country. Regardless of other symptomatic criteria, patients attending health services with abnormal chest radiography should always have direct smear microscopy, and more sensitive diagnostics such as culture should be considered depending on available infrastructure and financial resources.

However, during the coming years, sputum smear microscopy remains the main diagnostic tool for pulmonary TB. To improve some of its shortcomings, particularly low sensitivity, a gradual transition to fluorescent microscopy using light-emitting diodes has been recommended. (The subject is discussed in a later section of this paper.) Also, the same-day diagnosis method, the so-called "front-loading" procedure in which two consecutive sputum specimens are taken on the day of the first consultation, has the potential to reduce the initial drop out of patients before confirming the diagnosis. Lastly, the new definition of smear-positive TB (requiring only one smear-positive result) will contribute to increased case detection.

Diagnostic tests for TB in children have shortcomings, and the full range of tests is often not available. To overcome the difficulty in diagnosing TB in children, TB programmes are encouraged to further develop innovative approaches appropriate to the situation in their countries. These may include effective links with paediatric hospitals, collaboration with various feeding programmes for malnourished children and intensified contact tracing, as discussed in section 5.1.4. Cambodia has been successfully increasing case detection among children in recent years by organizing "outreach" contact investigation in targeted districts where a relatively large number of smear-positive cases has been notified.

The currently recommended algorithm for smear-negative TB involves a course of broad-spectrum antibiotics and follow-up chest radiography. While this algorithm minimizes the risk of false-positive diagnosis, it can cause drop out and delay during the diagnostic process, which can be critical for people co-infected with TB and HIV. Ideally, these patients should have access to culture.
The gradual introduction and decentralization of far more sensitive diagnostic methods than sputum smear microscopy, such as solid or liquid culture and molecular methods have the potential to boost the detection of TB in general and drug-resistant TB in particular.

Countries are recommended to revisit case-finding strategies, taking into account the four developments listed above while ensuring that laboratory network design and the selection of diagnostic methods are informed by the national case-finding strategies, and vice versa. Priority groups for culture and drug susceptibility testing should include, but not exclusively, people living with HIV and MDR-TB suspects according to the global and national guidelines. The introduction of new case-finding strategies and laboratory methods will require qualified human resources.

6.1.3 **Intensified case finding strategies for high-risk populations**

There are a range of population groups that are at higher risk of TB than the general population. Although the global TB strategy has been operating by "passive" case detection through symptomatic screening and sputum microscopy, some specific high-risk groups deserve systematic and active case finding approaches—one of the most prominent examples being the intensified TB case finding among people living with HIV. An effective active case-finding strategy aims for easy access and early diagnosis and treatment for TB patients among high-risk groups. It will not only benefit the patients themselves by reducing morbidity and mortality associated with TB, but should also contribute to the greater epidemiological impact by shortening the duration of infectiousness and thus cutting the chain of transmission in the community.

One of the most rational and cost-effective strategies is TB contact investigation, particularly the active screening of close contacts of smear-positive pulmonary TB patients. There is convincing evidence for the substantial yield of TB case-finding by contact investigation in both developed and developing countries. A recent systematic review found that 4.5% of household contacts were diagnosed with active TB disease. Most countries in the Region have already included contact investigation in national TB guidelines. However, the routine implementation of this activity is very limited in many countries. This is a missed opportunity for the national programmes to detect and treat more cases, while protecting concerned families and communities. All TB control programmes should systematically implement TB contact investigations. TB contact investigation would also

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provide an excellent opportunity to facilitate the diagnosis of TB in children. The above mentioned literature review reported even higher prevalence (8.5%) of active TB disease among children under 5 years.

The scope of active and intensified TB case-finding should be further extended. For example, there are many unexplored opportunities for TB screening in existing clinical or non-clinical settings, such as diabetes clinics, smoking cessation clinics, feeding programmes for malnourished children, elderly people under institutional or home care, and health care workers and clerks at an increased risk of TB infection.

Addressing the needs of people in special situations with an increased risk of TB, such as people in prisons and drug addiction rehabilitation centres, should be carefully planned to meet their special needs, both in diagnosis and treatment support. In some circumstances, programmes may organize active case-finding services for difficult-to-reach, high-risk groups, for example migrant workers, poor urban dwellers and people using homeless shelters. These efforts should always be accompanied by care delivery options that are tailored to the groups involved.

Programmes should also work closely with community workers to enable them to actively identify and refer TB suspects in the communities. These efforts should be carefully documented and monitored, and preferably be investigated further through operational research, which should study the cost effectiveness of these active case-finding methods in a particular setting. The WHO Regional Office for the Western Pacific will provide normative guidance by developing a framework for active case-finding that builds on experience within and beyond the Region.

6.1.4 Minimizing access barriers

National programmes should seek to minimize access barriers, especially for the poor and vulnerable, to ensure that TB treatment and care are consistent with ethics and human rights norms, as well as those of social justice. It is well recognized that the poorest of the poor, those living in remote areas, in urban slums and in conflict zones often have poor access to quality health services. Disempowered, poorly educated, marginalised or illegal residents may have difficulties both accessing care and fully utilizing the available services. Many turn to informal providers or depend on self-treatment and delay formal health care utilization. Women face special barriers in many settings, related to, among other things, disempowerment, stigma, and lack of authority and control of resources.
6.1.5 Effective advocacy, communications and social mobilization strategy and implementation

Advocacy, communications and social mobilization (ACSM) strategies should be based on a good understanding of the knowledge and attitudes of the target audience. Active engagement of community members and civil society is of major importance for planning and implementing effective communications programmes. Increased TB awareness will ensure that people do not neglect TB symptoms, take early and appropriate action, and turn to the right facility for care. It is also equally important that the programme is able to respond to the demand and expectation created by offering high-quality services that are accessible, affordable and do not cause stigma.

ACSM should not merely aim at promoting favourable patient behaviours. The ultimate goal of the ACSM activity is to build a multi-level, multisectoral alliance of social movements to eliminate TB from the communities. ACSM activities and processes should generate dynamic interactions and mutual enforcement between bottom-up demand and high-level political commitment.

6.2 Objective 2—Strengthening TB laboratory capacity

The second objective aims for the development of external quality-assured networks of laboratory facilities to diagnose susceptible and drug-resistant tuberculosis, preferably in the context of integrated diagnostic platforms that can easily absorb new cross-cutting diagnostics. Many new diagnostic methods are based on technologies that are also used for other infectious diseases such as malaria, dengue, HIV and other emerging infectious diseases.

Related activities involve a thorough analysis of the available national laboratory capacity in relation to plans to scale up the diagnosis of drug-resistant and smear-negative TB. This exercise will be repeated periodically, involve both public and private facilities, and cover the quality and quantity of human resources, infrastructure and equipment.

Based on the analysis, countries need to develop comprehensive national laboratory network plans that clearly describe roles and responsibilities of laboratories at all levels of the system, including external quality-control procedures and human resource development needs. These plans need to be informed by national strategic plans for TB control and take into account opportunities for collaboration with other disease programmes in the context of health systems strengthening. This is of utmost importance as, until now, most laboratory network plans have been developed in isolation and have not been informed by TB control programme plans.
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Fig. 6 shows a model laboratory structure and recommended bacteriological techniques provided by the respective levels of the programme. The levels need to be defined according to the needs of the country. The capacity and coverage of the laboratory network, which will provide the new diagnostic techniques, will be country specific depending on the epidemiological situation and the disease burden of TB, available resources and the PMDT expansion plan.

At least for the next several years, sputum smear microscopy will remain the main method for TB case detection for most of the countries with a high burden of TB. To ensure access to high-quality sputum smear microscopy services, a wide network of properly equipped laboratories with trained personnel and the implementation of a quality assurance system are necessary.

**Fig. 6 – A model laboratory structure with recommended diagnostic methods**

There has been a compelling evidence base demonstrating the superiority of direct fluorescent microscopy over direct light microscopy in throughput, efficiency and improved sensitivity of diagnosis. In addition, the fluorescence microscopy using light-emitting diodes (LED) is proven to be simple, inexpensive and a valid alternative for conventional fluorescence microscopy. As such it deserves wide application in resource-poor settings. WHO recommends that conventional fluorescence microscopy be replaced by LED microscopy in all settings where fluorescence microscopy is now used, and that LED microscopy be phased in as an alternative for conventional light microscopy. Sufficient training should be provided, particularly in settings that have not used fluorescent microscopy previously, and internal quality control and external quality assurance systems should be adapted to accommodate the fading of fluorescent stains.
Validation and demonstration studies are needed for the stepwise and rational introduction of new WHO endorsed technologies that allow for decentralization of more sensitive diagnostics in general and the diagnosis of M/XDR-TB in particular. Demonstration studies in high-prevalence settings in Africa and Asia show that molecular diagnostics, such as the line probe assay can: (a) reduce the diagnosis of MDR-TB from 4–6 weeks to one day; (b) be cost-effective; and (c) benefit from cross-cutting laboratory strengthening efforts in HIV and other emerging infectious diseases that require molecular diagnostics.

However, new and even more promising diagnostics appear on the horizon. These have the potential to improve sensitivity, specificity and feasibility of TB and M/XDR-TB diagnosis and decentralize MDR-TB diagnosis down to the district level. One example is the Xpert MTB/RIF system, a real-time, automated nucleic acid amplification assay that simultaneously detects Mycobacterium tuberculosis and rifampicin resistance in sputum specimens in less than two hours. Another tool is a line probe assay that reduces the diagnosis of XDR-TB to two days as it simultaneously detects the genetic mutations most frequently associated with fluoroquinolone resistance, aminoglycosides (kanamycin, amikacin), cyclic peptides (capreomycin), ethambutol, and streptomycin. Both new diagnostic tools are proposed for endorsement by the WHO Strategic Advisory Committee in September 2010.

As WHO is likely to endorse new diagnostics on a regular basis, design of laboratory networks and diagnostic algorithms has become a dynamic process (Fig. 7).

**Fig. 7 – Annual development of new technologies endorsed by WHO**

<table>
<thead>
<tr>
<th>Year</th>
<th>Technology</th>
<th>Turnaround time</th>
<th>Sensitivity gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 2007</td>
<td>ZN microscopy / Solid Culture</td>
<td>2-3 days / 30-60 days</td>
<td>Baseline</td>
</tr>
<tr>
<td>2007</td>
<td>Liquid Culture / DST Rapid speciation</td>
<td>15-30 days</td>
<td>+10% compared to LJ</td>
</tr>
<tr>
<td>2008</td>
<td>Line Probe Assay (1st line, RIF &amp; INH)</td>
<td>2-4 days</td>
<td>At this time for S+ only</td>
</tr>
<tr>
<td>2009</td>
<td>LED-based FM</td>
<td>1-2 days</td>
<td>+10% compared to ZN</td>
</tr>
<tr>
<td>Conditional 2009</td>
<td>In house DST (MODS, CRI, NRA)</td>
<td>15-30 days</td>
<td>1st line only</td>
</tr>
<tr>
<td>Expected 2010</td>
<td>Integrated NAAT (TB, RIF)</td>
<td>90 minutes</td>
<td>+40% compared to ZN</td>
</tr>
</tbody>
</table>

Importance of:
- a) early diagnosis & care
- b) smear-negative TB
- c) rapid MDR/XDR detection
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As a consequence, the scale up of laboratory capacity requires massive technical assistance at all levels. The supranational laboratories should be strengthened to be able to assist countries to train laboratory technicians, to apply to donors such as the Global Fund, to select and procure appropriate equipment, to coordinate proficiency testing of national reference laboratories, and to apply sound biosafety measures. Given the high pace of development of new diagnostics, WHO and international partners have an important normative role to guide countries on the introduction of new technologies in order to prevent disruption of diagnostic performance.

6.3 Objective 3—Scaling up the programmatic management of drug-resistant TB

The third objective will address the M/XDR-TB epidemic in the Region in accordance with the global M/XDR-TB response plan. In May 2009, the Sixty-second World Health Assembly adopted a resolution (62.15) calling for the strengthening the prevention and control of drug-resistant tuberculosis. The resolution was inspired by the Beijing Call for Action in response to M/XDR-TB, endorsed at a ministerial meeting in Beijing in April 2009. The resolution urges Member States to achieve universal access to diagnosis and treatment of drug-resistant tuberculosis to save lives and protect communities. This global momentum is reflected by increased funding and technical and managerial support through the Green Light Committee Initiative, the Global Drug Facility and the Global Laboratory Initiative. WHO guidelines on PMDT are regularly updated to provide the evidence base for PMDT. In this context, most countries in the Region have developed national MDR-TB response plans that address all the minimum requirements for implementing and expanding PMDT (Box 3).

The aim of this objective is to offer the framework for further development and refinement of national PMDT plans and to create an environment in which these plans can become reality. The key activities are listed in Box 3.

Firstly, representative drug-resistance surveillance (DRS) needs to be intensified to adequately monitor the burden of MDR-TB to inform technical policy development and support political commitment. DRS needs to be conducted in compliance with the updated WHO DRS guidelines and should incorporate HIV testing.

Secondly, countries will need to mobilize resources for all components of their national plans, ensuring that all identified MDR-TB suspects have equitable access to quality-assured diagnosis and
that all identified MDR-TB patients are treated with quality-assured, second-line drugs in the context of appropriate models of care. Countries and global partners must recognize and address the challenges related to the changing balance among the capacity to diagnose, to deliver specialized M/XDR-TB care, and to order and manage short-shelf, second-line drugs. This requires careful planning among all partners involved both at national and international levels, as well as specialized electronic monitoring and evaluation systems to link up laboratories, treatment facilities and the management of second-line drugs.

Box 3. Global policy on control of M/XDR-TB

1. Strengthen basic TB control, to prevent M/XDR-TB and strengthening TB/HIV collaboration
2. Expand M/XDR-TB and XDR-TB surveillance
3. Strengthen laboratory services for adequate and timely diagnosis of MDR and XDR-TB
4. Scale up programmatic management and care of M/XDR-TB and XDR-TB
5. Ensure availability of quality drugs and their rational use
6. Ensure adequate human resources at all levels
7. Introduce infection control, especially in high-prevalence settings
8. Mobilize resources domestically and internationally
9. Promote research and development into new diagnostics, drugs and vaccines

As PMDT is a complicated intervention, massive technical assistance is required to build capacity to implement it, while also addressing human resources, infrastructure and supply-chains. The third set of activities under Objective 3 therefore involves technical capacity-building, especially in the field of clinical management, infection control and drug management. Although international training opportunities need to be developed and utilized, the focus must shift to in-country training, the development of national and provincial model centres, and related trainings of trainers to support national scale up.

Finally, operational research is crucial for further global and setting-specific guideline development. Countries and international partners need to collaborate to design and implement the upcoming trials that will bring the new drugs and vaccines needed to facilitate PMDT and control drug-resistant TB.
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6.4 Objective 4 – Expanding TB-HIV collaborative activities

The fourth objective aims at strengthening implementation of TB-HIV collaborative activities. The Region, having been relatively spared by the HIV epidemic, has so far been characterized by rather limited implementation of TB-HIV collaborative activities. In most of the countries, TB and HIV/AIDS programmes are vertical in structure, with limited cross-cutting activities.

To scale up the response, WHO Regional Office for the Western Pacific published A Revised Framework to Address TB-HIV Co-infection in the Western Pacific Region in 2008. The aims of the revised framework are to: (1) conduct TB/HIV surveillance as appropriate to the epidemiological context; (2) diagnose HIV and TB as early as possible through early HIV testing of TB patients and TB screening of people living with HIV; (3) ensure that people with both TB and HIV have early access to life-saving treatment; (4) improve infection control at TB and HIV care facilities; and (5) to prevent new cases of TB and HIV. To facilitate implementation of this framework, especially to prevent losing patients during the referrals between TB and HIV clinics, and also taking into account infection-control purposes, it was recommended that HIV tests be given at TB clinics, and TB screening be performed at HIV clinics. To overcome the difficulties in properly screening TB among people living with HIV, a clinical algorithm based on symptoms and signs, which was field-tested in Asia, was recommended.

However, except for few countries, implementation of the “globally recommended collaborative TB/HIV activities” (see Box 4) has been limited so far. Available evidence in the Region shows high mortality among TB/HIV co-infected patients, indicating late case detection of TB and HIV, and inadequate provision of the life-saving interventions such as HIV testing, CPR, and ART among TB patients, and TB screening and isoniazid preventive therapy among people living with HIV.

\[5\] A revised framework to address TB/HIV co-infection in the Western Pacific Region. World Health Organization. 2008
Box 4. Globally recommended collaborative TB/HIV activities

1. Establish mechanisms for collaboration (TB and HIV Programmes)
   (a) Set up coordinating bodies for TB/HIV activities at all levels
   (b) Conduct surveillance of HIV prevalence among tuberculosis patients
   (c) Carry out joint TB/HIV planning
   (d) Conduct monitoring and evaluation

2. Decrease the burden of TB among people living with HIV/AIDS (HIV Programme)
   (a) Establish intensified TB case-finding
   (b) Introduce isoniazid preventive therapy
   (c) Ensure TB infection control in health care and congregate settings
       Three I's

3. Decrease the burden of HIV among tuberculosis patients (TB Programme)
   (a) Provide HIV testing and counseling
   (b) Introduce HIV prevention methods
   (c) Introduce co-trimoxazole preventive therapy
   (d) Ensure HIV/AIDS care and support
   (e) Introduce antiretroviral therapy

Although countries in the Region are facing very different and dynamic HIV/AIDS epidemics, TB-HIV collaborative activities must be strengthened in all the countries.

Firstly, TB programmes must ensure provider-initiated HIV testing be offered to all TB patients (Target 100% in settings with HIV prevalence among TB patients >1%). CPT and ART should be provided to all TB patients with the HIV co-infection, as recognized standards of care.

Secondly, HIV/AIDS programmes are encouraged to implement the "Three I's Strategy" (Intensified TB case-finding, Isoniazid preventive therapy, and Infection control). The TB Programme should coordinate with the HIV/AIDS programmes in implementing TB screening as a standard of care for people living with HIV. The newly developed WHO clinical algorithm based on symptoms and signs can be taken into account for the screening of TB in those co-infected with TB and HIV (see Fig. 8). Once active TB is excluded, those co-infected with TB and HIV should be put on Isoniazid preventive therapy (Global target 50%).

Finally, close collaboration between TB Programme and HIV/AIDS Programme is crucial to carry out the above activities. Both TB and HIV programmes should develop a joint implementation and monitoring plan for TB/HIV activities.
6.5 **Objective 5—Strengthening TB programme management capacity supported by sustained political commitment and sufficient financing for TB control**

The fifth objective addresses a critical prerequisite for effective TB control, namely TB programme management capacity. Effective TB programmes require sufficient financing, appropriate legislation and regulatory controls, well-planned human resource development strategies, and integrated TB control within the primary health care networks that address cross-cutting issues such as infection control and evidence-based programme management through operational research. All of these are important conditions for the effective and efficient implementation of TB control programmes, guided by the previous four strategic objectives.

6.5.1 **Sufficient financing for TB control ensured**

Expanding quality TB services and addressing emerging issues, such as the TB-HIV co-infection and M/XDR-TB, require more costly interventions compared to conventional TB control. Commitment must be made to ensure adequate and sustainable financing at all levels. At the global level the Stop TB Partnership will play an important role and the Interagency Coordination Committee will play an important role at the regional level in sustaining partnerships and mobilizing resources. At the country level, partnership mechanisms, such as the Country Coordination Mechanism of the Global Fund and Interagency Coordinating Committees, should be sustained to
ensure that all international and national aid initiatives are implemented in the context of comprehensive national TB control plans, with national governments in the driver's seat.

World Health Assembly resolution WHA58.14 on sustainable financing for TB prevention and control encouraged Member States to fulfil the commitments made in endorsing resolution WHA53.1 and hence the Amsterdam Declaration to Stop Tuberculosis, including their commitment to ensure the availability of sufficient domestic resources and of sufficient external resources to achieve the internationally agreed development goal relevant to tuberculosis contained in the United Nations Millennium Declaration. However, financial forecasts predict that funding received from international donors and current levels of national budget contributions will not be sufficient to sustain and scale up national TB programmes to address the new and costly challenges to TB control. Political commitment to increase the level of national contributions is crucial to closing the gap in resource needs.

6.5.2 Improved national programme management capacity

The global Stop TB Strategy includes complex and expensive interventions that require competencies that are often not readily available within the countries. Activities and new interventions related to the MDR-TB response, infection control, laboratory strengthening (including validation and demonstration studies), health communication, public-private mix approaches, financial and social risk protection, etc., all require a high level of expertise that extends beyond the disciplines of conventional infectious disease control.

International experts often have limited experience in and understanding of unique country contexts. Likewise, international training courses are often not relevant or are not applicable to a diverse set of countries. In addition, international training activities can be ineffective due to language barriers. To decrease the dependency on these methods, "Trainings of Trainers" at the national level are a preferable training model to ensure country-specific human resource development. National training capacity will also facilitate national scale up of new interventions, such as PMDT.

At the same time, international exposure and exchange visits remain important in terms of sharing experiences. Countries are, therefore, encouraged to gain field experience in certain subjects in other countries, preferably within the Region, that have more experience with implementing certain interventions.
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An ever greater challenge is posed by the acquisition and management of donor grants. Too often, countries face problems with planning, budgeting, proposal writing, expending and reporting of Global Fund and other grants, in addition to the management of complex technical issues. Management courses and the recruitment of staff with a business administration or accountancy background need to be considered.

6.5.3 Integrated human resource development plans

A firm political commitment is essential for strengthening human resources across all levels of programmes, health systems, government departments, partnerships and global stakeholders. Priority should be given to the development of a comprehensive national human resource development plan that covers improvements in educational policies; financial ceilings for recruitment; appropriate skill mixes and distribution; policies to improve staff recruitment, retention and accountability; and budgets to ensure adequate remuneration.

The rapid scale up of quality TB control services, particularly in settings with high rates of HIV, M/XDR-TB or both, exerts high pressure on staff in national TB programmes. Currently, many countries are facing problems related to quantity, quality and distribution of staff. This presents a huge challenge as countries scale up additional and more complex interventions for TB control. For the quality of TB control to be improved and the threats of TB-HIV co-infection and M/XDR-TB to be addressed, adequate numbers of skilled and trained staff must be secured and mechanisms should be developed to maintain and further strengthen their knowledge and skills.

The Human Resources for Health Action Framework is designed to assist countries in developing and implementing strategies to achieve an effective and sustainable health workforce (Figure 9). The application of the Framework for implementing The Stop TB Strategy has been elaborated by specifying the roles of ministries of health and national TB programmes.

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6 The Human Resources for Health Action Framework is available at www.who.int/hrh /tools/en
6.5.4 Integrating disease control, including TB, into primary health care networks

In the Western Pacific Region, most countries have embarked upon health reforms in response to the changing health needs resulting from demographic and socioeconomic developments. The reforms include: (1) universal coverage reforms contributing to health equity and social justice; (2) service delivery reforms responding to people's needs and expectations while producing better outcomes; (3) public policy reforms integrating public health actions with primary care and strengthening national and transnational public health interventions; and (4) leadership reforms replacing disproportionate reliance on command and control on one hand and laissez-faire disengagement of the state on the other. The proposed public policy reforms intended to integrate public health actions with primary health care offer opportunities for disease control by making services more convenient, accessible and affordable to everyone, including TB suspects and TB patients. The experience in Shanghai, in which TB control is integrated into general hospitals and urban health centres, underpins the soundness of this approach.

The Practical Approach to Lung Health is a strategy for the integrated management of patients presented to a health care facility with respiratory conditions. In many countries, including those outside the Region, the approach is proven to be effective in improving the quality of care, especially at the primary health care level. It is an approach that can contribute to the increased TB case

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Annex 1

detection. The Practical Approach to Lung Health also provides an excellent venue for TB programmes to collaborate with smoking cessation programmes and other initiatives on lung health, such as those for asthma and chronic obstructive pulmonary diseases.

6.5.5 TB infection control integrated into general infection control programme

TB infection control in health care services has been largely neglected for many years. However, during recent years an increasing amount of evidence has shown that drug-susceptible and drug-resistant TB are an important source of nosocomial transmission among both people with and without HIV infection. While measures in preparation for the outbreaks of airborne infections, such as SARS, avian influenza, and the A (H1N1) virus, have been promptly undertaken, little attention has been paid to TB infection control in health care settings. As such, both diagnosed and undiagnosed TB patients pose a serious threat to health care workers and hospitalized patients. In addition, the decentralized "community-based care" of TB patients requires infection control measures at the community level to protect village health care workers and treatment supporters.

In 1999, WHO published the first guidelines on TB infection control: Guidelines for the Prevention of Tuberculosis in Health Care Facilities in Resource-limited Settings. The importance of the three levels of infection control measures was highlighted: the first priority is administrative control; the second priority is environmental control; and third priority is personal respiratory control. As part of "Three I's Initiative" in response to the HIV-TB co-infection, the addendum to the 1999 guidelines: Tuberculosis Infection-Control in the Era of Expanding HIV Care and Treatment was published in 2007. Finally, a new evidence-based policy document, WHO Policy on TB Infection Control in Health Care Facilities, Congregate Settings and Households, was published in 2009.

In order to protect the patients, their families and health care providers, especially in TB-HIV and MDR-TB care services, the implementation of rational infection control measures is urgently required. Such measures should eventually be implemented in all general health care facilities, congregate settings and households. This requires sound TB infection control policy development at a higher level, establishment of a coordinating body, facility development or renovation, human resource development, advocacy and community participation. As a cross-cutting issue, TB infection control is an integral part of the health system strengthening, and should be integrated into infection control programmes in general health care services.
Political commitment for the effective use of regulatory approaches to support and consolidate TB control efforts

In the last several years, major progress has been made in the field of drug management, including fewer occurrences of drug shortages both at the central and peripheral levels, the introduction of fixed-dose combination medicines of proven quality in many countries, and the effective use of patient kits to ensure that a whole course of treatment is secured for each diagnosed patient. However, the insufficient quality assurance of TB medicines and the unregulated availability of TB medicines in the private market—often without prescription—remains a great concern.

The resolution (62.15) adopted in the Sixty-second World Health Assembly in 2009 urges Member States to take action related to drug quality assurance and regulation by means of “ensuring uninterrupted supply of first- and second-line medicines for tuberculosis treatment, which meet WHO prequalification standards or strict national regulatory authority standards, and that quality-assured fixed-dose combinations of proven bioavailability are prioritized within a system that promotes treatment adherence”. It also urges action for “strengthening mechanisms to ensure that tuberculosis medicines are sold on prescription only and that they are prescribed and dispensed by accredited public and private providers”.

Drug quality assurance and regulation are among the most critical areas to "close the tap" on the MDR-TB epidemic by preventing the development of drug-resistance. It is also the area that TB programmes alone cannot effectively address without high-level coordinated efforts within and outside ministries of health. Therefore, national TB programmes, with utmost urgency, should work closely with national regulatory authorities and other relevant government departments in establishing firm political commitment and enforcing policies in this area.

TB programmes have been working on the issue of ensuring the standards and quality of health care both in the private and public sectors. Beyond TB programmes, the quality assurance of health care services is an important health systems concern, especially in those countries with a rapidly expanding private sector. The measures to control the quality of health care may include a number of regulatory approaches, such as monitoring the adherence to guidelines, authorizing and designating health care facilities for certain medical procedures, a mandatory disease notification

system, and the introduction of a mechanism of certification or accreditation with or without linking to the health insurance system. TB programmes are encouraged to continue seeking ways to effectively use regulatory approaches in collaborating with other government departments to consolidate and enhance TB control efforts.

6.5.7 Evidence-based programme management and policy development through regular monitoring and evaluation activities and operational research

Monitoring and evaluation are an essential component of programme management and performance monitoring. Monitoring and evaluation entail measuring progress in TB control programme implementation according to a set of specific objectives. They also include a periodic evaluation, often called programme review, to determine the status of programme achievements, identify challenges, revise the plan if necessary, and prioritize programme activities. As such, Monitoring and evaluation should be an integral part of the national TB control plans, and the findings should be utilized to improve and inform policy changes.

Well functioning TB surveillance systems have been a fundamental core component of TB programme monitoring and evaluation, and high quality TB surveillance data from countries are of critical importance to improve policies for TB control, as well as for reliable TB control impact measurement. Detailed country specific epidemiological data greatly contribute to improved disease estimates, which are critical in assessing the progress towards achieving the Millennium Development Goals. Regular in-depth analysis of surveillance data, as well as formal assessments of TB data quality and cross validation, help in identifying gaps in performance and needs for policy changes to improve TB control. TB data should be linked with vital registration systems and other sources of data, where feasible. The linkage with the private sector and general hospitals should be strengthened to improve data collection on cases diagnosed in all health facilities.

Operational research is a useful tool to evaluate and study the application of various mechanisms, interventions and tools. In view of the emerging challenges and the increasing complexity of TB control, innovative approaches of delivering or further improving TB care must be pursued. A careful assessment, through operational research, of the benefits from the application of already available but so far underused interventions or expected new tools will be useful. In addition, operational research should be used to analyse barriers to TB control and the feasibility and effectiveness of related actions to address these barriers. Programmes undertaking active case-
finding activities are encouraged to carry out cost effectiveness studies that will guide decision-making on whether or not to use these methods on a programmatic scale. WHO Regional Office for the Western Pacific is committed to providing increased support to promote operation research.
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<th>Indicators</th>
<th>Targets and benchmarks</th>
<th>Verification source</th>
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<tbody>
<tr>
<td>Overall regional goal:</td>
<td>To reduce the prevalence and mortality from all forms of TB by half by 2015, relative to 2000 level in all countries with a high burden of TB, by moving towards universal access to diagnosis and treatment of all forms of TB, including smear-negative and M/DR-TB</td>
<td></td>
<td>Global TB estimate</td>
</tr>
<tr>
<td><strong>Objective 1. Promote universal and equitable access to quality TB diagnosis and treatment for all people</strong></td>
<td>1.1 Cure Rate (Definition: In a cohort of new TB patients with a positive sputum smear registered in a given year, more than 85% are confirmed as cured)</td>
<td>Regional target: Beyond 85%</td>
<td>Annual TB reports</td>
</tr>
<tr>
<td></td>
<td>1.2 Case notification rate of all forms of TB</td>
<td>Target: A country-specific target will be set considering the epidemiological and programmatic conditions. The case-notification rate is expected to further increase as a result of intensified case-finding efforts in most countries.</td>
<td>Annual TB reports</td>
</tr>
<tr>
<td><strong>Expected results</strong></td>
<td>1.4 Proportion of private providers engaged by the programme and proportion of additional cases notified by them</td>
<td>Target: country specific</td>
<td>Annual TB reports, PPM project report</td>
</tr>
<tr>
<td></td>
<td>1.5 Strategies established for intensified case-finding among identified high-risk population in country</td>
<td>All countries with a high and intermediate burden of TB establish the Strategy</td>
<td>Country strategy</td>
</tr>
<tr>
<td></td>
<td>1.6 Systematic contact investigation implemented with a regular standardized reporting system</td>
<td>All countries with a high and intermediate burden of TB systematically implement contact investigation</td>
<td>Report on contact investigation</td>
</tr>
<tr>
<td></td>
<td>1.7 Proportion of TB cases (all and children) identified through contact investigation and enrolled on treatment</td>
<td>Monitoring indicator (no initial target)</td>
<td>Report on contact investigation</td>
</tr>
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## Appendix 1

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<tbody>
<tr>
<td>• TB case detection among children improved</td>
<td>1.3 Proportion of notified TB cases among children (&lt;5 and 5-14)</td>
<td>Target: at least 5% (It is estimated that paediatric TB cases account for 5%–20% of all notified cases in high burden settings).</td>
<td>Quarterly reports, Annual TB reports</td>
</tr>
<tr>
<td><strong>Objective 2. Strengthening TB laboratory capacity</strong></td>
<td></td>
<td>Regional target: As stated</td>
<td>National TB strategy laboratory network plan</td>
</tr>
<tr>
<td>• National laboratory capacity assessment conducted</td>
<td>2.1 All countries with a high and intermediate burden of TB develop and implement a comprehensive laboratory network plans that take into account opportunities for collaboration with other public health programmes and that include new diagnostics</td>
<td>As stated</td>
<td>Assessment report</td>
</tr>
<tr>
<td>• Comprehensive laboratory network plan developed</td>
<td>2.2 National laboratory capacity assessment conducted</td>
<td>As stated</td>
<td>Laboratory network plan</td>
</tr>
<tr>
<td>• Laboratory network capacity expanded</td>
<td>2.3 Comprehensive laboratory network plan developed</td>
<td>As stated</td>
<td>Programme Review, Annual TB reports</td>
</tr>
<tr>
<td>2.4 Laboratory network capacity expanded according to the plan</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Expected results</strong></td>
<td></td>
<td>Regional target: As stated</td>
<td></td>
</tr>
<tr>
<td>• National laboratory capacity assessment conducted</td>
<td></td>
<td>As stated</td>
<td></td>
</tr>
<tr>
<td>• Comprehensive laboratory network plan developed</td>
<td></td>
<td>As stated</td>
<td></td>
</tr>
<tr>
<td>• Laboratory network capacity expanded</td>
<td></td>
<td>As stated</td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3. Scaling up the Programmatic Management of Drug-resistant TB (PMDT)</strong></td>
<td>3.1 All countries with a high and intermediate burden of TB develop and implement a comprehensive PMDT expansion plan to gradually cover whole country (The expansion plans will include establishing the capacity for diagnosis of X/MDR-TB, ensuring the financing and availability of second-line drugs and developing the systems for case-management and patients support in line with the international guidelines.)</td>
<td>Regional target: As stated</td>
<td>Annual TB reports and Green Light Committee (GLC) mission report</td>
</tr>
<tr>
<td>Planning elements</td>
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<td>Targets and benchmarks</td>
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</tr>
<tr>
<td>Expected results</td>
<td>3.2 The proportion of MDR-TB suspects that received an appropriate diagnostic test for drug-resistant TB in areas covered by PMDT.</td>
<td>(Drug resistant TB screening coverage within PMDT area) Regional target: 90%</td>
<td>Annual TB reports and GLC mission report</td>
</tr>
<tr>
<td>· Patients suspected with MDR-TB received appropriate screening</td>
<td>(MDR suspects are defined according to the national guidelines and the number is calculated by using notified TB cases. At least following three groups are included: (1) all previously treated smear-positive patients (relapses, failures, returnees after default and patients treated before outside the NTP); (2) all new smear-positive patients, who are still smear-positive after three months treatment with first-line treatment; and (3) smear-positive contacts of known X/MDR cases.)</td>
<td>(Drug-resistant TB screening coverage for whole country) Target: 60% by 2015 as an intermediate milestone to reach universal coverage by 2020.</td>
<td>Annual TB reports and GLC mission report</td>
</tr>
<tr>
<td></td>
<td>3.3 The proportion of MDR-TB suspects that received an appropriate diagnostic test for drug-resistant TB in the whole country.</td>
<td>Target: 100% (Actual enrolment could be lower due to the ineligibility to treatment for certain patients. Nevertheless, at least 90% enrolment should be aimed at).</td>
<td>Annual TB reports and GLC mission report</td>
</tr>
<tr>
<td>· All diagnosed MDR-TB patients have access to adequate treatment</td>
<td>3.4 In areas covered by PMDT, the proportion of patients diagnosed with drug resistant tuberculosis have access to adequate treatment with quality assured second line drugs.</td>
<td>As stated (Actual enrolment could be lower due to the ineligibility to treatment for certain patients. Nevertheless, at least 90% enrolment should be aimed at).</td>
<td>DRS reports, GLC mission report</td>
</tr>
<tr>
<td>· Drug Resistance Surveillance (DRS)</td>
<td>3.5 Representative DRS established /intensified</td>
<td>Regional target: As described</td>
<td>National TB strategy</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>National TB/HIV policy/ framework</td>
</tr>
<tr>
<td>Objective 4. Expanding TB/HIV collaborative activities</td>
<td>4.1 All countries with high and intermediate burden of TB develop a comprehensive policy framework for TB-HIV collaborative activities and implement critical interventions to reduce morbidity and</td>
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</tbody>
</table>
## Planning elements

**Expected results**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Access of TB patients to HIV testing ensured</td>
<td>Mortality associated with TB and HIV (critical interventions include, but not limited to, HIV testing among TB patients, CPT and ARV for co-infected patients, regular TB screening and isoniazid preventive therapy for people living with HIV in under a facility implementing proper infection control measures.)</td>
<td></td>
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</tr>
<tr>
<td>CPT coverage among TB-HIV co-infected patients increased</td>
<td>4.2 The proportion of TB patients who had an HIV test result recorded in the TB register.</td>
<td>Target: All TB cases tested for HIV in high HIV prevalence settings, i.e. HIV prevalence among TB patients &gt;1%.</td>
<td>Annual TB report</td>
</tr>
<tr>
<td>ARV of coverage among TB-HIV co-infected patients increased</td>
<td>4.3 Number of HIV-positive TB patients who are started on or continue previously initiated CPT, during TB treatment, expressed as a proportion of all HIV-positive TB patients registered over the reporting period.</td>
<td>Target: 100% in all countries</td>
<td>Annual TB report</td>
</tr>
<tr>
<td>People living with HIV received periodic TB screening</td>
<td>4.4 Number of HIV-positive TB patients who are started on or continue previously initiated ART, during TB treatment, expressed as a proportion of all HIV-positive TB patients registered over the reporting period.</td>
<td>Target: 100% in all countries</td>
<td>Annual TB report</td>
</tr>
<tr>
<td>People living with HIV received Isoniazid Preventative Therapy</td>
<td>4.5 Number of adults and children enrolled in HIV care whose TB status was assessed and recorded during their last visit during the reporting period, expressed as a proportion of all adults and children enrolled in HIV care and seen for care in the reporting period.</td>
<td>Target: 100% in all countries</td>
<td>Report from HIV programme</td>
</tr>
<tr>
<td></td>
<td>4.6 Number of adults and children newly enrolled in HIV care, who are started on treatment for latent TB infection, isoniazid preventive therapy, expressed as a proportion of the total number of adults and children enrolled in HIV care</td>
<td>Target: target should be set according to the national plan for scaling up isoniazid preventive therapy (the target that will be set in the revised national plans).</td>
<td>Report from HIV programme</td>
</tr>
</tbody>
</table>
### Appendix 1

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<tbody>
<tr>
<td>• Infection control policy and practice in place and regularly monitored</td>
<td>children newly enrolled in HIV care during the reporting period.</td>
<td>Global Plan to Stop TB in 2010 will be 50%).</td>
<td></td>
</tr>
<tr>
<td>Objective 5. Strengthening TB programme management capacity supported by sustained political commitment and sufficient financing for TB control</td>
<td>5.1 National TB programmes secure adequately trained sufficient human resources according to the human resources development plans</td>
<td>Regional target: In all countries with a high and intermediate burden of TB.</td>
<td>National human resources development plan, programme review report</td>
</tr>
<tr>
<td>Expected results</td>
<td>5.1 All countries with high and intermediate burden of TB develop an integrated infection control policy including TB infection control.</td>
<td>As stated</td>
<td>Programme review report</td>
</tr>
<tr>
<td>• Infection control policy and practice in place and regularly monitored</td>
<td>Monitoring indicator (no initial target)</td>
<td></td>
<td>Programme review report</td>
</tr>
<tr>
<td>• Fixed-dose combination (FDC) medicines of assured quality introduced</td>
<td>Monitoring indicator (no initial target)</td>
<td></td>
<td>TB/HIV reporting system</td>
</tr>
<tr>
<td>• Effective regulation on the rational use of TB drugs</td>
<td>Monitoring indicator (no initial target)</td>
<td></td>
<td>TB/HIV reporting system</td>
</tr>
<tr>
<td>• TB surveillance system strengthened</td>
<td>Monitoring indicator (no initial target)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Infection control policy and practice in place and regularly monitored</td>
<td>5.4 National TB programmes continue to supply FDC of assured quality without interruption</td>
<td>As stated</td>
<td>Global Drug Facility monitoring mission report, Programme review report</td>
</tr>
<tr>
<td>• Fixed-dose combination (FDC) medicines of assured quality introduced</td>
<td></td>
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</tr>
<tr>
<td>• Effective regulation on the rational use of TB drugs</td>
<td>5.5 Mechanisms in place to ensure that tuberculosis medicines are sold on prescription only and that they are prescribed and dispensed by accredited public and private providers</td>
<td>As stated</td>
<td>Programme review report</td>
</tr>
<tr>
<td>• TB surveillance system strengthened</td>
<td>5.6 National TB programmes conduct regular in-depth analysis of surveillance</td>
<td>As stated</td>
<td>Annual TB report</td>
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</tbody>
</table>
Appendix 1

<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>data including sub-national level analyses to improve the TB surveillance system</td>
<td>As stated</td>
<td>Annual TB report</td>
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<tr>
<td></td>
<td>5.7 Electronic case-based reporting system introduced/expanded preferably linking with an integrated infectious disease notification system</td>
<td></td>
<td>Regional research workshop</td>
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<tr>
<td></td>
<td>5.8 National Programmes identified priority research agenda and conduct operational research in a planned manner</td>
<td></td>
<td>Research publications</td>
</tr>
<tr>
<td>• Operational research promoted</td>
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### Table 2. Global STOP TB Strategy

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<tr>
<th>The STOP TB Strategy</th>
<th>A TB-free world</th>
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<tbody>
<tr>
<td><strong>Vision</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Goal</strong></td>
<td>To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals and the Stop TB Partnership targets</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td>Achieve universal access to quality diagnosis and patient-centred treatment</td>
</tr>
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<td></td>
<td>Reduce the human suffering and socioeconomic burden associated with TB</td>
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<td></td>
<td>Protect vulnerable populations from TB, TB/HIV, and M/XDR-TB</td>
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<td></td>
<td>Support development of new tools and enable their timely and effective use</td>
</tr>
<tr>
<td></td>
<td>Protect and promote human rights in TB prevention, care and control</td>
</tr>
<tr>
<td><strong>Targets</strong></td>
<td>MDG 6, Target 8: Halt and begin to reverse the incidence of TB by 2015</td>
</tr>
<tr>
<td></td>
<td>Targets linked to the Millennium Development Goals and endorsed by the Stop TB Partnership:</td>
</tr>
<tr>
<td></td>
<td>2015: Reduce prevalence and deaths due to TB by 50%</td>
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<td></td>
<td>2050: Eliminate TB as a public health problem</td>
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</tbody>
</table>

**Components:**

- **Pursue high-quality DOTS expansion and enhancement**
  - Secure political commitment with adequate and sustained financing
  - Ensure early case detection, and diagnosis through quality-assured bacteriology
  - Provide standardized treatment with supervision and patient support
  - Ensure effective drug supply and management
  - Monitor and evaluate performance and impact

- **Address TB/HIV, M/XDR-TB and the needs of poor and vulnerable populations**
  - Scale up collaborative TB/HIV activities
  - Scale up prevention and management of multidrug-resistant TB
  - Address the needs of TB contacts, and of poor and vulnerable populations

- **Contribute to health system strengthening based on primary health care**
  - Help improve health policies, human resource development, financing, supplies, service delivery and information systems
  - Strengthen infection control in health services, other congregate settings and households
  - Upgrade laboratory networks, and implement the Practical Approach to Lung Health
  - Adapt successful approaches from other fields and sectors, and foster action on the social determinant of health

- **Engage all care providers**
  - Involve all public, voluntary, corporate and private providers through public-private mix approaches
  - Promote the use of the International Standards for TB Care

- **Empower people with TB, and communities through partnership**
  - Pursue advocacy, communication and social mobilization
  - Foster community participation in TB care, prevention and health promotion
  - Promote use of the Patients' Charter for TB Care

- **Enable and promote research**
  - Conduct programme-based operational research
  - Advocate for and participate in research to develop new diagnostics, drugs, and vaccines