TUBERCULOSIS CONTROL
SAARC REGION

SAARC TB and HIV/AIDS Centre
TUBERCULOSIS CONTROL
SAARC REGION

Update 2010
Foreword

Tuberculosis has staged a frightened return and continues to be a public health problem in the world despite the availability of highly effective treatment regimens. More over multi drug resistant TB and HIV are looming threats for tuberculosis control. Control of Tuberculosis is a priority for the development.

This is the Eight annual report on TB situation in the SAARC region and it is an update of the previous one. It includes information on population coverage by DOTS, case detection and treatment outcome of eight member countries of SAARC and challenges ahead.

This report has been prepared on the basis of information collected from member countries during the year 2010 (and early part of the year 2008/09) and reviewing other documents including WHO Report 2010 on Global TB Control. In this report, DOTS coverage and case detection rates are on the basis of 2010 data and treatment outcome is for the 2008 cohort. But some latest information available from country reports is also highlighted.

This report indicate that remarkable progress in TB control has been made in this region since the introduction of DOTS strategy. Major challenges are however there in control of TB, such as sustaining quality in diagnosis and case management, improving the quality of implementation and making it more accessible to people in order to increase case detection, strengthening human resources in terms of numbers and technical capacity, strengthening laboratory network and improving EQA and supervision, establishing effective coordination between NTP and NACP and tackling migration & cross border issue.

Documentation of achievements from implemented activities is essential for future planning and moving the programme forward. Dissemination of such information is also important for the inspiration of the TB control programmes and others working for control of TB. I am confident that this document “Tuberculosis Control SAARC Region, Update -2010” will serve these purposes.

I would like to thank the epidemiologists and experts within SAARC member countries and WHO, who have generated and shared the epidemiological data and facts utilized for this report. Finally, I appreciate the sincere efforts of STAC staff members for publication of this document.

We look forward to your comments and suggestions, and continued collaboration in our joint efforts to broaden the partnership for control of tuberculosis in the SAARC region.

Dr. Kashi Kant Jha
Director, STAC
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### Abbreviations and Acronyms

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<th>Abbreviation</th>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>AFB</td>
<td>Acid Fast Bacillus</td>
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<td>ARTI</td>
<td>Annual Risk of Tuberculosis Infection</td>
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<tr>
<td>BCG</td>
<td>Bacillus Calmette Guerin</td>
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<tr>
<td>BRAC</td>
<td>Bangladesh Rural Advancement Committee</td>
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<td>BPHS</td>
<td>Basic Public Health Services</td>
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<tr>
<td>CBO</td>
<td>Community</td>
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<tr>
<td>CDR</td>
<td>Case Detection Rate</td>
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<tr>
<td>DFB</td>
<td>Damien Foundation Belgium</td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td>Directly Observe Treatment</td>
<td></td>
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<tr>
<td>DOTS</td>
<td>Directly Observe Treatment Short-course</td>
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<tr>
<td>DRS</td>
<td>Drug Resistance Surveillance</td>
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<tr>
<td>DST</td>
<td>Drug Susceptibility Test</td>
<td></td>
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<tr>
<td>DTC</td>
<td>District Tuberculosis Centre</td>
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<tr>
<td>EQA</td>
<td>External Quality Assurance</td>
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<tr>
<td>ESP</td>
<td>Essential Service Package</td>
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<tr>
<td>FDC</td>
<td>Fixed Dose Combinations</td>
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<tr>
<td>GFATM</td>
<td>Global Fund for AIDS, TB and Malaria</td>
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<tr>
<td>GLC</td>
<td>Green light Committee</td>
<td></td>
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<tr>
<td>HBCs</td>
<td>High burden Countries</td>
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</tr>
<tr>
<td>HIV/AIDS</td>
<td>Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome</td>
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<tr>
<td>HR</td>
<td>Human Resources</td>
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<tr>
<td>ICTC</td>
<td>Integrated Counseling and Testing Centres</td>
<td></td>
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<tr>
<td>I/NGO</td>
<td>International Governmental Organization</td>
<td></td>
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<tr>
<td>IEC</td>
<td>Information Education and Coordination</td>
<td></td>
</tr>
<tr>
<td>IGMH</td>
<td>Indira Gandhi Memorial Hospital</td>
<td></td>
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<tr>
<td>IUATLD</td>
<td>International Union Against Tuberculosis &amp; Lung Diseases</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
<td></td>
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<tr>
<td>MDR</td>
<td>Multi Drug Resistance</td>
<td></td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
<td></td>
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<tr>
<td>MOHP</td>
<td>Ministry of Health and Population</td>
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<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
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<tr>
<td>NACO</td>
<td>National AIDS Control Organization</td>
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<tr>
<td>NACP</td>
<td>National AIDS Control Programme</td>
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<tr>
<td>NATA</td>
<td>Nepal Anti-TB Association</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<td>-----------</td>
<td>---------------------------------------------------------------------------</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
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<tr>
<td>No.</td>
<td>Number</td>
<td></td>
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<tr>
<td>NPTCCD</td>
<td>National Programme for Tuberculosis Control and Chest Diseases</td>
<td></td>
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<tr>
<td>NRL</td>
<td>National Reference Laboratory</td>
<td></td>
</tr>
<tr>
<td>NTI</td>
<td>National Tuberculosis Institute</td>
<td></td>
</tr>
<tr>
<td>NTP</td>
<td>National Tuberculosis Programme</td>
<td></td>
</tr>
<tr>
<td>PLWHA/PLHA</td>
<td>People Living With HIV/AIDS</td>
<td></td>
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<tr>
<td>Pop</td>
<td>Population</td>
<td></td>
</tr>
<tr>
<td>PPM</td>
<td>Public Private Mix</td>
<td></td>
</tr>
<tr>
<td>RNTCP</td>
<td>Revised National TB Control Programme</td>
<td></td>
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<tr>
<td>SCC</td>
<td>Short Course Chemotherapy</td>
<td></td>
</tr>
<tr>
<td>SIDA</td>
<td>Swedish International Development Agency</td>
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</tr>
<tr>
<td>SS</td>
<td>Sputum Smear</td>
<td></td>
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<tr>
<td>SAARC</td>
<td>South Asian Association for Regional Coorporation</td>
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<tr>
<td>STAC</td>
<td>SAARC Tuberculosis and HIV/AIDS Centre</td>
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<tr>
<td>SEAR</td>
<td>South-East Asia Region</td>
<td></td>
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<tr>
<td>TB</td>
<td>Tuberculosis</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>Tuberculosis Research Centre</td>
<td></td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children Emergency Fund (United Nation’s Children Fund)</td>
<td></td>
</tr>
<tr>
<td>VCT</td>
<td>Voluntary Counseling and Testing</td>
<td></td>
</tr>
<tr>
<td>VTC C</td>
<td>Voluntary Counseling and Testing Centre</td>
<td></td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
<td></td>
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<tr>
<td>WFP</td>
<td>World Food Programmes</td>
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</table>
Executive Summary

The SAARC Tuberculosis and HIV/AIDS Centre (STAC) has been publishing an annual update report on Tuberculosis in the SAARC Region every year since 2003. The main purpose of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress made in TB care and control at global, SAARC region and Member States in the SAARC Region. In this update, measuring progress towards global targets set for 2015 has been given particular attention. The target included in the Millennium Development Goals (MDGs) is that TB incidence should be falling by 2015. The Stop TB Partnership has set two additional targets, which are to halve, rates of prevalence and mortality by 2015 compared with their levels in 1990.

With nearly two billion people (one third of the World’s population) harboring latent infection, TB is a global threat. Based on surveillance and survey data, WHO estimates that 9.4 million new cases of TB occurred in 2009 (137 per 100,000 population), and 5.8 million cases were notified in 2009 of which 2.6 million were New Smear-Positive TB cases. For the 2.6 million patients with sputum smear positive pulmonary TB in the 2008 registered cohort, 86% were successfully treated.

Among the 9.4 million incident cases of TB in 2009, an estimated 1.0-1.2 million (11-13%) were HIV-positive. Of the HIV-Positive TB Cases, approximately 80% were in African Region.

There were an estimated 14 million prevalent cases in 2009 (200 per 100,000 population). An estimated 1.3 million HIV-negative people (20 per 100,000 population) died from TB in 2009, and there were an additional 400,000 (0.4 million) TB deaths among incident TB cases who were HIV-positive people. A total of, approximately 1.7 million people died of TB in 2009. The total estimated mortality amounts to 26 deaths per 100,000 population.

There were an estimated 0.44 million (440,000) cases of Multi-drug Resistant TB (MDR-TB) cases in 2009.

The SAARC region, with an estimated annual incidence of 2.7 million TB cases, carries 28.7% of the global burden of TB. Four of the eight Member Countries in the Region are among the 22 high burden countries, with India accounting for 21% of the world’s cases. Among 2.7 million incident TB cases, 1.2 million are estimated to be sputum smear positive infectious cases. Four of the 22 countries with the highest burden of TB namely India, Bangladesh, Pakistan and Nepal together notified 851,475 new smear positive cases, which represent 97.95% of total new smear positive cases notified in the Region. India alone accounted close to three fourth (71.87%) of all notifications in the SAARC region and continues to account for almost one fifth of the global burden of TB and patients with sputum smear-positive pulmonary TB in the 2008 cohort, 88% were successfully treated.
All the SAARC Member states had achieved either close to 70% or above of case detection rate of New smear Positive cases with Maldives 100 %, Sri Lanka 91 %, Bhutan 85%, Nepal 75.9 %, Bangladesh 74 %, India 71.5 %, Pakistan 71 % and Afghanistan 66 % achievements, respectively. In case of treatment success rate all the member states achieved more than 85 %.

As the large number of HIV infected persons are in the SAARC Region particularly in India, Bangladesh and Pakistan with high rates of TB transmission and the presence of high TB prevalence, the HIV epidemic could have significant implications on TB control in the Region. Collaborative TB/HIV activities are critical in order to ensure that HIV positive TB patients are identified and treated and also to prevent active TB disease in latently infected HIV positive people. HIV Testing for TB patients is a critical entry point for both treatment and prevention. There was a significant progress in offering HIV testing for TB patients between 2002 and 2009 as health care providers initiated the “provider initiated HIV testing” for newly diagnosed TB patients.

All the SAARC Member States have developed their strategic plans for expansion of TB/HIV collaborative activities and are in the expansion mode. Some SAARC Member States have made significant progress in TB/HIV collaboration, while some are slow on this component.

Nepal was the first country in the SAARC region to introduce DOTS-Plus, integrating with the NTP since 2005. It was started at 5 main centers and 16 sub-centers in September 2005. By end of 2008 it was expanded and covered 10 treatment Centers and 34 Sub-Treatment Centers. Nepal’s National TB Control Programme has also initiated management of XDR-TB under the National Programme.

All the Member States have initiated management of MDR-TB under the National TB Control Programme.

While, all the SAARC Member States have initiated management of MDR-TB under the National TB Control Programme, one of the most important constraints to rapid expansion of diagnostic and treatment services for MDR-TB identified by all the SAARC Member States, is laboratory capacity. Constraints in availability and retention of adequately trained human resources, is one of the major concerns of all the SAARC Member States.

New and compelling data from 8 countries shows that efforts by national TB programmes (NTPs) to engage all care providers in TB control (termed public-private mix, or PPM) can be a particularly effective way to increase the Case Detection Rate. In areas where PPM was implemented, non-NTP providers accounted for around one-fifth to one third of total notifications in 2009.
1. Tuberculosis in the SAARC Region
- An Update 2010

1.1 Introduction

SAARC (South Asian Association for Regional Cooperation) is an association for manifestation of the determination of the people of South Asia to work together towards finding solutions to their common problems in a spirit of friendship, trust and understanding and to create an order based on mutual respect, equity and shared benefits. The SAARC comprises of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

SAARC Tuberculosis and HIV/AIDS Centre is one of the Regional Centres of SAARC working for prevention and control of TB and HIV/AIDS in the Region by coordinating the efforts of the National TB Control Programmes (NTPs) and National AIDS Control Programmes (NACPs) of Member Countries.

The Heads of State or Government of Member Countries of SAARC at their Fifth Summit held in Male from 22 to 23 November 1990 decided that SAARC Tuberculosis Centre would be set up in Nepal. In this way the SAARC TB Centre came into existence and started it functioning since 1994 as one of the Regional centres of SAARC.

The Thirty-first Session of Standing Committee of SAARC held in Dhaka on November 9-10, 2005 approved the renaming of the Centre as SAARC Tuberculosis and HIV/AIDS Centre.

One of the main functions of this centre is to collect, collate, analyze and disseminate relevant information in the field of TB and HIV/AIDS control in the Region and elsewhere. In this regard, the Centre has been preparing and publishing annual SAARC Regional epidemiological reports on TB and HIV/AIDS for dissemination to all Member States and other stakeholders working in the field of TB and HIV/AIDS. Based on this information, progress towards Millennium Development Goals (MDGs) in relation to TB and HIV/AIDS in the SAARC Member States can be monitored. In all Member States, the Governments together with its many and diverse partners from the public and private sectors, is committed to further intensify the DOTS programme in order to sustain the achieved success and to reach the MDG-related TB control targets.

<table>
<thead>
<tr>
<th>Goal 6</th>
<th>To combat HIV/AIDS, malaria and other diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target 8</td>
<td>To have halted by 2015, and begun to reverse the spread (incidence) of malaria and other major diseases</td>
</tr>
<tr>
<td>Indicator 23</td>
<td>Prevalence and death rates associated with tuberculosis: Halve TB death and prevalence by 2015 (compared to 1990)</td>
</tr>
<tr>
<td>Indicator 24</td>
<td>Proportion of tuberculosis cases detected and cured under DOTS</td>
</tr>
</tbody>
</table>
1.2 Goals, targets and indicators for TB control

The global targets and indicators for TB control were developed within the framework of the MDGs as well as by the Stop TB Partnership and the WHA. The impact targets are to halt and begin to reverse the incidence of TB by 2015 and to reduce by 50% prevalence and mortality rates by 2015 relative to 1990 levels.

The outcome targets – to achieve a case detection rate of new smear-positive cases of at least 70% and to reach a treatment success rate of at least 85% for such cases – were first established by the WHA in 1991. Within the MDG framework, these indicators were defined as the proportion of cases detected and cured under DOTS. The ultimate goal of eliminating TB, defined as the occurrence of less than 1 case per million populations per year by 2050, was set by the Stop TB Partnership.

The TB Control Programmes focuses on the five principal indicators that are used to measure the impact and outcomes of TB control: incidence, prevalence and deaths (impact indicators) and case detection and treatment success rates (outcome indicators).

GOALS, TARGETS AND INDICATORS FOR TB CONTROL

HEALTH IN THE MILLENNIUM DEVELOPMENT GOALS, SET FOR 2015

GOAL 6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES

Target 6.c: Halt and begin to reverse the incidence of malaria and other major diseases

Indicator 6.9: Incidence, prevalence and death rates associated with TB.

Indicator 6.10: Proportion of TB cases detected and cured under DOTS

STOP TB PARTNERSHIP TARGETS, SET FOR 2015 AND 2050

By 2015: Reduce prevalence and death rates by 50%, compared with their levels in 1990.

By 2050: Reduce the global incidence of active TB cases to < 1 case per 1 million population per year

1.3 The Stop TB Strategy

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

THE STOP TB STRATEGY

<table>
<thead>
<tr>
<th>VISION</th>
<th>A TB-Free world</th>
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<tbody>
<tr>
<td>GOAL</td>
<td>To dramatically reduce the global burden of TB by 2015 in line with the</td>
</tr>
<tr>
<td></td>
<td>Millennium Development goals and the Stop TB Partnership targets</td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>• Achieve universal access to high-quality care for all people with TB</td>
</tr>
<tr>
<td></td>
<td>• Reduce the human suffering and socioeconomic burden associated with TB</td>
</tr>
<tr>
<td></td>
<td>• Protect vulnerable populations from TB, TB/HIV and drug resistant TB</td>
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<tr>
<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</td>
</tr>
<tr>
<td>TARGETS</td>
<td>• MDG 6, Target 6.c: Halt and begin to reverse the incidence of TB by 2015</td>
</tr>
<tr>
<td></td>
<td>• Targets linked to the MDGs and endorsed by the Stop TB partnership</td>
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<td></td>
<td>- 2015: reduce prevalence of and deaths due to TB by 50% compared with a baseline</td>
</tr>
<tr>
<td></td>
<td>1990</td>
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<tr>
<td></td>
<td>- 2050: eliminate TB as a public health problem</td>
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</table>

COMPONENTS

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

2. **Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations**
   a) Scale-up collaborative TB/HIV activities
   b) Scale-up prevention and management of multi-drug-resistant TB (MDR-TB)
   c) Address the needs of TB contacts and of poor and vulnerable populations

3. **Contribute to health system strengthening based on primary health care**
   a. Help improve health policies, human resource development, financing, supplies, service delivery, and information
   b. Strengthening infection control in health services, other congregate settings and households
   c. Upgrade laboratory networks, and implement the Practical Approach to Lung Health (PAL)
   d. Adapt successful approaches from other fields and sectors, and foster action on the social determinants of health
4. **Engage all care providers**  
a. Involve all public, voluntary, corporate and private providers through public-private Mix (PPM) approaches  
b. Promote use of the international Standards for Tuberculosis Care (ISTC)

5. **Empower people with TB, and communities through partnership**  
a. Pursue advocacy, communication and social mobilization  
b. Foster community participation in TB care, prevention and health promotion  
c. Promote use of the Patients’ Charter for Tuberculosis Care

6. **Enable and promote research**  
a. Conduct programme-based operational research

Advocate for and participate in research to develop new diagnostics and vaccines. Achievements in TB control in the years following implementation of DOTS and the Stop TB Strategy, and prospects for the further gains that could be made up to 2015, are highlighted below

**Achievements in TB control during the period 1995-2009 and prospects for 2010-2015**

The DOTS strategy was developed as the internationally recommended approach to TB control in the mid-1990s. DOTS is also the foundation of the Stop TB strategy, launched by WHO in 2006 to 2015. The start of WHO efforts to systematically monitor progress in TB control on an annual basis in 1995 coincided with global promotion and expansion of the DOTS strategy; data compiled since then allow assessment of achievements in TB control between 1995 and 2009 and projections of what further gains could be made up to 2015.

**Patients treated and cured, 1995-2009**: A total of 49 million patients were treated in DOTS programmes, of whom 41 million were successfully treated in 2008, the treatment success rate reached 86% worldwide and 87% in high-burden countries.

**Mortality**: Globally, TB mortality has fallen by more than a third since 1990. The region of the Americas and the Western Pacific Region have already achieved the 2015 target of halving the 1990 mortality rate. Mortality rates are falling in all WHO regions.

**Incidence**: Globally, incidence rates peaked in 2004. This means that the world is on track to achieve MDG Target 6.c, as are five of WHO’s six regions.
**Lives saved 1995-2009:** UP to 6 million lives were saved through implementation of DOTS and the Stop TB Strategy.\(^2,3\)

**Lives that could be saved from 2010-2015:** A further 5 million lives could be saved if current efforts in TB control are sustained, including around 2 million women and children with expansion of treatment for MDR-TB and interventions such as ART for HIV-positive TB patients, even more lives could be saved.

### 1.4 Global Situation of TB

With nearly two billion people (one third of the World’s population) harbouring latent infection, TB is a global threat. Based on surveillance and survey data, WHO estimates that 9.4 million new cases of TB occurred in 2009 (137 per 100 000 population), 5.8 million cases were notified in 2009 of which 2.6 million were New Smear-Positive TB cases. For the 2008 registered cohort, 86% were successfully treated.

Among the 9.4 million incident cases of TB in 2009, an estimated 1.0-1.2 million (11-13%) were HIV-positive. Of these HIV-Positive TB Cases, approximately 80% were in African Region.

There were an estimated 14 million prevalent cases in 2009 (200 per 100 000 population). An estimated 1.3 million HIV-negative people (20 per 100 000 population) died from TB in 2009, and there were an additional 400 000 (0.4 million) TB deaths among HIV-positive people. A total of, approximately 1.7 million people died of TB in 2009. The total estimated mortality amounts to 26 deaths per 100 000 population.

There were an estimated 0.44 million (440 000) cases of Multi-drug Resistant TB (MDR-TB) cases in 2008. The four countries that had the largest number of estimated cases of MDR-TB in absolute terms in 2008 were China (100 000; range, 79 000–120 000), India (99 000; range, 79 000–120 000), the Russian Federation (38 000; range, 30 000–45 000) and South Africa (13 000; range 10 000–16 000). By July 2010, 58 countries and territories had reported at least one case of extensively drug-resistant TB (XDR-TB).

One of the most important constraints to rapid expansion of diagnostic and treatment services for MDR-TB is laboratory capacity. Without greater capacity to diagnose MDR-TB, the number of cases diagnosed and treated will remain low. Diagnostic testing for drug susceptibility, or DST, among new cases of TB remains almost entirely confined to the European Region and the Region of the Americas.

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1. Assuming the treatment success rate in 2008 is maintained in 2009
2. Excluding deaths averted among HIV-positive people (classified as deaths attributable to HIV rather than TB in ICD-10)
3. Compared of care and case notification rates maintained at 1995 levels
Prevalence rate is falling at a faster rate than TB incidence as indicated in figure 2. If verified by further monitoring, MDG target 6.c was met globally by 2005 (incidence rates peaked in 2004), and in five of six WHO regions (the exception being the European Region, where rates are approximately stable). The targets to halve prevalence and death rates by 2015 compared with 1990, set by the Stop TB Partnership, are more demanding. Based on trends for last five years, it indicates that the Stop TB Partnership targets of halving prevalence and death rates by 2015 compared to 1990 could be achieved in South East Asia, Western Pacific and Eastern Mediterranean, regions of Americas.

The case detection rate of all forms of TB was 63% in 2009. The highest rates of case detection in 2009 are estimated to be in the European Region (best estimate 80%; range, 74–85%) and the Region of the Americas (best estimate 79%; range, 74–85%), followed by the Western Pacific Region (best estimate 70%; range, 64–78%). The African Region has the lowest estimated rate of case detection (best estimate 50%; range, 48–53%). Among the HBCs, the highest rates of case detection in 2009 are estimated to be in Brazil, the Russian Federation, South Africa, Kenya, the United Republic of Tanzania and China; the lowest rate is in Nigeria.

Table 2: Global Epidemiological Burden of TB

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2009</th>
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<tbody>
<tr>
<td>Population</td>
<td>6.8 billion</td>
</tr>
<tr>
<td>Prevalent TB cases</td>
<td>14 Million (200/100,000)</td>
</tr>
<tr>
<td>Estimated New TB Cases</td>
<td>9.4 Million (137/100,000)</td>
</tr>
<tr>
<td>Notified New TB cases</td>
<td>5.8 Million</td>
</tr>
<tr>
<td>CDR of all forms of TB</td>
<td>63 %</td>
</tr>
<tr>
<td>Treatment success rate (2008 cohort)</td>
<td>86 %</td>
</tr>
<tr>
<td>Estimated MDR-TB cases</td>
<td>0.44 Million</td>
</tr>
<tr>
<td>Deaths due to TB (HIV-ve)</td>
<td>1.3 Million</td>
</tr>
<tr>
<td>Death due to TB (HIV +ve)</td>
<td>0.4 million</td>
</tr>
<tr>
<td>HIV Prevalence in incident TB cases</td>
<td>12.0 %</td>
</tr>
</tbody>
</table>

Source: WHO Global TB Report, 2010
Table 3: Global Estimated incidence of all forms of TB & Case Detection (under DOTS) 2009

<table>
<thead>
<tr>
<th>WHO Regions</th>
<th>Estimated incidence of all forms of TB (Number 1000s)</th>
<th>New and Relapse</th>
<th>New Cases</th>
<th>Smear Positive</th>
<th>smear Negative Unknown</th>
<th>Extra Pulmonary</th>
<th>Relapse</th>
<th>Retreatment Excl. Relapse</th>
<th>Case Detection rate % of all Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa Region</td>
<td>2800</td>
<td>1434049</td>
<td>607337</td>
<td>472722</td>
<td>288834</td>
<td>54811</td>
<td>54327</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Region of Americas</td>
<td>270</td>
<td>200120</td>
<td>110152</td>
<td>44464</td>
<td>30934</td>
<td>10208</td>
<td>10930</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Eastern Mediterranean Region</td>
<td>660</td>
<td>464321</td>
<td>177213</td>
<td>187049</td>
<td>87726</td>
<td>11724</td>
<td>6240</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>European Region</td>
<td>420</td>
<td>226301</td>
<td>67669</td>
<td>112228</td>
<td>31344</td>
<td>15060</td>
<td>37927</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>South East Asia region</td>
<td>3300</td>
<td>2124370</td>
<td>1028656</td>
<td>636755</td>
<td>329338</td>
<td>127825</td>
<td>203598</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Western Pacific Region</td>
<td>1900</td>
<td>1331353</td>
<td>637484</td>
<td>550566</td>
<td>85849</td>
<td>57436</td>
<td>32256</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Global</td>
<td>9400</td>
<td>5780714</td>
<td>2628511</td>
<td>2003784</td>
<td>854025</td>
<td>277064</td>
<td>345278</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

Source: WHO Global TB Report, 2010

Figure 1: Estimated TB Incidence rates, by Country, 2009
Figure 2: Trends in estimated Prevalence & Incidence of all forms of TB and Mortality: 1990-2009
Figure 3: Treatment outcomes among New Smear positive cases: 2008 cohort
Figure 4: Trend of Case Detection Rate & Treatment success

Source: WHO Global TB Report, 2010
2. Progress in TB Control in SAARC Region

This chapter reviews the progress made in TB control in SAARC Member States. It provides an analysis of the compiled country reports on the numbers of TB cases registered in 2009 and reporting on the treatment outcomes of patients registered in 2008.

2.1 DOTS Coverage

Globally the total number of countries implementing Directly Observed Treatment Short-course (DOTS) has increased steadily from 1995 to 2003, and has since remained stable at around 180 countries. All 22 HBCs have had DOTS programmes since 2000, many of which have been established for much longer.

A remarkable progress has been made for DOTS since its inception in 1993 in SAARC Region. By 1997 all Member States started DOTS strategy for TB control.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year of adopting DOTS strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>1997</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1993</td>
</tr>
<tr>
<td>Bhutan</td>
<td>1996</td>
</tr>
<tr>
<td>India</td>
<td>1997</td>
</tr>
<tr>
<td>Maldives</td>
<td>1994</td>
</tr>
<tr>
<td>Nepal</td>
<td>1996</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1995</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>1994</td>
</tr>
</tbody>
</table>

DOTS coverage within SAARC region has steadily increased since 2000. Population coverage in 1997 was 11%, since then it has been increasing and reached 99.5% in 2006 and 100% in 2007.

2.2 Epidemiology of TB in SAARC region

The SAARC region, with an estimated annual incidence of 2.7 million TB cases, carries 28.7% of the global burden of TB. Four of the eight Member Countries in the Region are among the 22 high burden countries, with India accounting for 21% of the world’s cases. Among 2.7 million incident TB cases, 1.2 million are estimated to be sputum smear positive infectious cases.
Table 5: Estimates of TB disease incidence, prevalence and mortality in the SAARC region 2009

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Estimated Incidence a*</th>
<th>Estimated Incidence b*</th>
<th>Estimated Prevalence b*</th>
<th>Estimated death rate per lakh pop.-all forms of TB b*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All types</td>
<td>Rate per lakh pop.</td>
<td>New sputum smear +ve.</td>
<td>Rate per lakh pop.</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>23993500</td>
<td>45587</td>
<td>190</td>
<td>18955</td>
<td>79</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>147638873</td>
<td>329235</td>
<td>223</td>
<td>147639</td>
<td>100</td>
</tr>
<tr>
<td>Bhutan</td>
<td>683407</td>
<td>1536</td>
<td>225</td>
<td>512</td>
<td>75</td>
</tr>
<tr>
<td>India</td>
<td>1164127000</td>
<td>1955688</td>
<td>168</td>
<td>873075</td>
<td>75</td>
</tr>
<tr>
<td>Maldives</td>
<td>298968</td>
<td>125</td>
<td>42</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>Nepal</td>
<td>27522443</td>
<td>44084</td>
<td>160</td>
<td>30560</td>
<td>74</td>
</tr>
<tr>
<td>Pakistan</td>
<td>176400000</td>
<td>320000</td>
<td>181</td>
<td>143000</td>
<td>81</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>20781328</td>
<td>11676</td>
<td>56</td>
<td>5253</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>1561445519</td>
<td>2707931</td>
<td>173</td>
<td>1208983</td>
<td>77</td>
</tr>
</tbody>
</table>


a* Data from country report, b* Data from Global Tuberculosis control 2010, WHO

Figure 5: Trend of estimated incidence rates of all forms and NSP TB Cases, SAARC region, 1990-2009

Figure 5 shows the overall trends in the estimated incidence of all forms of TB cases as well as NSP cases of TB rates per 100 000 population in the region between 1990 and 2009.
2.3 Notifications, Case Detections and treatment Success

Table 6: Case detection (2009) and Treatment outcome (2008), SAARC Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Estimated</th>
<th>Notified</th>
<th>Case Detection Rate (%)</th>
<th>Treatment outcome (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All types</td>
<td>New smear +ve.</td>
<td>All types</td>
<td>New smear +ve.</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>23993500</td>
<td>45587</td>
<td>18955</td>
<td>26,368</td>
<td>12503</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>147638873</td>
<td>329235</td>
<td>147639</td>
<td>160875</td>
<td>109402</td>
</tr>
<tr>
<td>Bhutan</td>
<td>683407</td>
<td>1536</td>
<td>512</td>
<td>1150</td>
<td>434</td>
</tr>
<tr>
<td>India</td>
<td>1164127000</td>
<td>1955988</td>
<td>873075</td>
<td>1533309</td>
<td>628417</td>
</tr>
<tr>
<td>Maldives</td>
<td>298968</td>
<td>125</td>
<td>45</td>
<td>101</td>
<td>45</td>
</tr>
<tr>
<td>Nepal</td>
<td>27522443</td>
<td>44084</td>
<td>20504</td>
<td>35611</td>
<td>15969</td>
</tr>
<tr>
<td>Pakistan</td>
<td>176400000</td>
<td>320000</td>
<td>143000</td>
<td>267451</td>
<td>101887</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>20781328</td>
<td>11676</td>
<td>5253</td>
<td>9118</td>
<td>4764</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,561,445,519</strong></td>
<td><strong>2707931</strong></td>
<td><strong>1208983</strong></td>
<td><strong>2,033,983</strong></td>
<td><strong>869221</strong></td>
</tr>
</tbody>
</table>

Source: NTP Reports 2010, from SAARC Member States

*8 Cases on ATT

A total 2,033,983 cases (all types) were notified in 2009 in this region, of which 42.7% were new smear positive cases. The case detection rate for new smear positive is 71.9% for 2009 for SAARC region. Overall case detection rate in the region in 2009 for all type of TB cases is 75.1 %. (Table 6)

Figure 6: Distribution of notified New Smear positive TB cases in SAARC Member States, 2009

Four of the 22 countries with the highest burden of TB namely India, Bangladesh, Pakistan and Nepal together notified 851475 new smear positive cases, which represent 97.95 % of total new smear positive cases notified in the Region. India alone accounted close to three fourth (71.87%) of all notifications in the SAARC region and continues to account for almost one fifth of the global burden of TB. (figure 6)
**Figure 7: Progress in TB control in SAARC Region**

![Graph showing progress in TB control](image)

Source: NTP Report, 21010 (SAARC Member States) and Tuberculosis Control SAARC Region, Update-2009

Fig 7 shows the overall progress in tuberculosis control in the region. It depicts that there is remarkable progress in DOTS coverage and reached to 100% in 2007. Regarding treatment success, the target is achieved since 2001. In 2009 case detection rate reached to 71.9% which is more than global target.

**Table 7: Global vs SAARC Region on TB Indicators**

<table>
<thead>
<tr>
<th>TB Control Indicators</th>
<th>Global 2008/09</th>
<th>SAARC 2008/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Population</td>
<td>6.8 Billion</td>
<td>1.56 Billion</td>
</tr>
<tr>
<td>New SS +ve TB Cases notified</td>
<td>2.6 Million</td>
<td>0.87 Million</td>
</tr>
<tr>
<td>New all types of TB Cases notified</td>
<td>5.8 Million</td>
<td>2.0 Million</td>
</tr>
<tr>
<td>New SS +ve Case Detection Rate (%)</td>
<td>63.0</td>
<td>71.9</td>
</tr>
<tr>
<td>Treatment Success Rate (%)</td>
<td>86.0</td>
<td>87.9</td>
</tr>
</tbody>
</table>

Source: WHO, Global Report, 2010 and NTP Report, 2010 (Member States)

**2.4 Trends of incidence, prevalence and mortality (1990-2009)**

The prevalence and incidence surveys are important as they provide accurate estimations of the burden of disease in countries. There are still uncertainties about the current estimates for TB disease prevalence, incidence and mortality rates in individual member countries in the Region. This requires strengthening of all aspects of the TB surveillance system, focusing on quality data entry, compilation and reporting.

There were an estimated 4.5 million prevalent cases in 2009. Figure 8 shows the estimated prevalence rates in the 8 Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2006, 2007 2008 and 2009.
Figure 8: Estimated prevalence of all forms of TB, SAARC region, (1990 – 2009)

Figure 9: Estimated incidence of all forms of TB, SAARC region, (1990 – 2009)

Figure 9 shows the estimated incidence rate of all forms of TB in the 8 Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2006, 2007 2008 and 2009. There are indications of decrease in Bangladesh, Bhutan, Maldives and Nepal, whereas in remaining other member countries it shows no significant change.
Figure 10 shows the estimated mortality rate of all forms of TB in the 8 Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2006, 2007, 2008 and 2009. There are indications of continuous decrease in all member countries except in Afghanistan, where it shows fluctuation.
3. Progress with TB Control in SAARC Member States

Afghanistan
Bangladesh
Bhutan
India
Maldives
Nepal
Pakistan
Sri Lanka
Islamic Republic of Afghanistan is one of the eight countries of the SAARC Region. Afghanistan is a land-locked country, surrounded by Pakistan, Iran, Turkmenistan, Uzbekistan, Tajikistan and China. The land area is 652,225 square kilometers. The primary administrative unit in Afghanistan is a Province which is governed by a Governor. Afghanistan consists of 34 Provinces and 364 Districts.

Population of Afghanistan was 23.99 million in 2009. Of that approximately 22% is categorized as urban dwellers. Afghanistan is one of the least developed countries in the world with 70% of the population living in extreme poverty and health vulnerability. Years of conflict has taken a devastating toll on human, social and economic indicators in Afghanistan, resulting in some of the lowest human development indicators in the world.

Organizational Structure of the National Tuberculosis Control Program (NTP):

The MoPH has developed a new organizational chart that places the NTP directly under the General Directorate of Primary Health Care, which is in turn accountable to the Deputy Minister for Technical Affairs. Previously, 8 Regional TB Coordinators (RTCs) were responsible for overseeing TB control at the main provinces of Kabul, Ghazni, Kandahar, Herat, Mazar e Sharif, Kunduz, Badakshan and Nangarhar. Because “regions” are not officially endorsed, the MoPH has recruited 34 provincial TB coordinators (PTCs) to oversee TB control in the provinces under the supervision of PHDs. The new organogram will include up to 400 staff from central to district level. From central to provincial level the NTP is implemented as a vertical program, after which it is integrated within the BPHS system. Because the government budget only covers NTP staff salaries, the MoPH depends on WHO and GFATM to provide additional incentives.
Status of Tuberculosis Control

In Afghanistan, Tuberculosis (TB) is one of the main public health problems. Afghanistan ranks 22nd on the list of 22 High-Burden TB countries in the world. Despite political instability and limited resources, the National TB Control Programme (NTCP) Afghanistan has managed to provide high quality TB treatment to greater numbers of patients each year for the past decade.

In 1997, Ministry of Population and Health (MOPH) in collaboration with WHO and other NGO’s, adopted the Directly Observed Treatment Short course (DOTS) strategy. By the end of 2002, the country reported 38 percent DOTS coverage. With increased support, improved regional coordination, and greater collaboration between private providers and communities, DOTS coverage reached at 100 percent in 2006.

In early 2003, the first National Strategic Plan for TB Control 2002-2005 was drafted and the global targets of 70% case detection and 85% treatment success by 2005 were adopted by the MOPH as the national goals of the 3-year DOTS strategy and now TB control is the top priority of Public Health.

DOTS centers have increased from 30 in 2001 to 1061 in 2009 all over the country. The Case Notification Trend has also increased from 9581 cases in 2001 to 26308 cases in 2009. The case Detection Rate of New Smear Positive Cases was 66 % in 2009. The treatment success rate was 87.5 % for the patients registered in 2008.

NTP Objectives and Strategies:

NTP aims to reduce the risk of infection, morbidity and mortality due to tuberculosis by:

- Increasing DOTS to 100% population coverage
- Increasing the cure rate of diagnosed new TB Sputum smear positive cases to at least 85%, and
- Increasing case detection rate to over 70% of the estimated smear-positive cases.

NTP will achieve the above objectives through the following key strategies:

- Ensure effective, standardized chemotherapy to all diagnosed patients for the recommended duration (8 months);
- Promote early detection of TB Sputum Smear positive cases on the basis of sputum smear examination;
- Organize treatment delivery and supervision of NTP activities at various levels of the system;
- Introduce a standardized system of registration and reporting;
- Monitor results of treatment and evaluate progress of NTP through quarterly cohort analysis;
• Provide continuous training for all staff involved in the NTP at various levels of the system;
• Strengthen co-operation and co-ordination between governmental and non-governmental organizations involved in the NTP;
• Integrate tuberculosis control activities with BPHS activities being carried out in the country;
• To accelerate DOTS expansion through adoption of new approaches such as, Public-Private Mix and Community-based DOTS;

Improving quality and efficiency of general services in respiratory illnesses using Practical Approach to Lung Health (PAL);

Laboratory Services

• Number of Laboratories performing smear microscopy: 571
• National Reference lab: 1
• Intermediate Reference lab : 4(not functional)
• Number of Accredited Laboratories performing Culture and DST: 1 (only do culture)

Achievements

• TB REACH proposal approved in A grade
• GF R10 proposal was developed and sent for approval
• Establishment of Urban DOTS for Kabul city
• TB and Lung Disease Society Established
• TB/HIV policy, strategy and operational guideline developed
• PPM-DOTS policy, strategy and operational guideline developed
• ACSM policy and strategy developed
• SOPs for Tuberculosis in Children developed
• SOPs for TB IC developed
• SOPs for CB-DOTS developed
• Structured progress by establishing partnership at sub national level and the work done by the sub national partnerships.
• 12 Abstracts of NTP and partners has been accepted for 41Union

Challenges

• Security
• Multiple donors
• HR development (training, turn over)
• Enhancing Quality DOTS
• Program management in cross border areas
• DOTS expansion to entire health system

Future Plans:
• Starting of MDR, multiple drug resistance management
• Improve quality of TB services through continuous monitoring and evaluation of TB control activities
• Consolidating the M&E and capacity building, mainly focusing the provinces.
• Starting of TB REACH proposal activities in September 2010.
• Follow up and response to TRP GF for approval of R10 proposal
• Applying of TB infection control SOPs
• TB/HIV collaborative activities

Figure: 11 Case Notification by types of Patients, 2009
Figure: 12 New Smear Positive cases by age and gender, 2009
Figure: 13 Treatment outcome among New Smear positive cases: 2008 cohort
Figure: 14 Trend of Case Detection Rate & Treatment success

Source: NTP, Afghanistan Report, 2010
**Surveillance and Epidemiology, 2009**

Population (Thousands) - 23.99 million

**Epidemiological burden**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence (all cases/100 000 pop/yr)</td>
<td>190</td>
</tr>
<tr>
<td>Incidence (ss+/100 000 pop/yr)</td>
<td>79</td>
</tr>
<tr>
<td>Prevalence rate (all cases/100 000 pop)</td>
<td>335*</td>
</tr>
<tr>
<td>Mortality rate (TB Cases/100 000 pop)</td>
<td>37*</td>
</tr>
</tbody>
</table>

**Surveillance and DOTS implementation**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOTS Case detection rate (all types %)</td>
<td>79</td>
</tr>
<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>66</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
<td>87.5</td>
</tr>
</tbody>
</table>

**Laboratory services**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of laboratories performing smear microscopy</td>
<td>571</td>
</tr>
<tr>
<td>National Tuberculosis Reference Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

**Collaborative TB/HIV activities**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>National policy of counseling and testing TB patients for HIV</td>
<td>drafted</td>
</tr>
<tr>
<td>National surveillance system of HIV infection in TB patients</td>
<td>planned</td>
</tr>
</tbody>
</table>

Source:
- NTP, Afghanistan Report, 2010
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
People's Republic of Bangladesh is one of the Member States of the SAARC Region. It is a coastal country in South Central Asia. It shares the land borders with India and Myanmar and has an irregular coastline of Bay of Bengal to the south. Bangladesh has six Divisions and these Divisions in turn are divided into 64 Districts or Zila.

Population of Bangladesh is 147.6 million and it is one of the most densely populated countries in the world. The capital of Bangladesh, Dhaka is bearing the highest population density. Bangladesh is a developing country with 36% of the population living with a per capita income below US$ 1 per day. The human development in Bangladesh is slow and steady and ranking the country at 137 among 177 countries in 2004.

National Tuberculosis Control Programme

Tuberculosis (TB) is a major public health problem in Bangladesh since long. In 1965, tuberculosis services were mainly curative and based in TB clinics and TB hospitals. TB services were expanded to 124 upazila health complexes (UHCs) during the Second Health and Population Plan (1980-86), and were operationally integrated with leprosy during the Third Health and Population Plan (1986-91) under the Mycobacterial Disease Control (MBDC) unit of the Directorate General of Health Services (DGHS).

The revised NTP adopted the DOTS strategy during the Fourth Population and Health Plan (1992-98) under the project "Futher Development of TB and Leprosy Control Services". The NTP started its field implementation in November 1993 in four thanas (upazilas) and progressively expanded to cover all upazilas by mid 1998. In July 1998, the NTP was integrated into the Communicable Disease Control component of the Essential Services Package under the Health and Population Sector Program (HNPS) and NTP is recognized as a priority in HNPSP.

The Government of Bangladesh, together with its many and diverse partners from the public and private sectors, is committed to further intensify the DOTS program in order to sustain the achieved success and to reach the TB control targets linked to the Millennium Development Goals (MDGs).

Status of Tuberculosis Control

Tuberculosis is a major public health problem in Bangladesh since long. Bangladesh ranks 7th among 22 High Burden Countries for Tuberculosis. Among 160875 TB cases notified in 2009, 68 % were new smear positive, 16% new smear negative and 14% new extra-pulmonary. Treatment outcomes of new smear positive cases registered in 2008: cured 90.0%, failure 1.0% treatment completed 1.5%, defaulted 2.0%, death 4.0% and 1.8% were transferred out.
Treatment success rates under DOTS have been consistently high from the beginning and crossed the global target of 85% in 2003. This treatment success rate improved further to reach 89% for the cases registered in 2004. The NTP has successfully treated 96962 of the 106,136 (91.0%) new smear positive cases registered in 2008.

HIV prevalence in the adult population (15-49 yrs) has been estimated to be low at 0.02%. A recent survey revealed an HIV prevalence of 7% among injecting drug users (IDUs). This has raised concerns regarding the potential for transmission of HIV to other population groups. A limited number of NGOs provide HIV counseling, prevention and care for TB/HIV co-infection individuals.

By June 1998, NTP services were made available in rural areas of the country.

- From July 1998, NTP was integrated into the Communicable Disease Control (CDC) area of Essential Services Packages (ESP) under Health and Population Sector Programme (HPSP).
- 2003- HPSP was renamed as HNPSP (Health, Nutrition and Population Sector Programme (HPSP) and NTP was recognized as a priority program.

MDR-TB patients

286 reported MDR-TB patients registered in 2009 and these cases belong to CAT II failure group. Data from national drug resistance surveys indicate low levels of MDR-TB. A nationally representative population-based survey has been planned in 2010 to evaluate the magnitude of drug resistance. Isolated surveys has indicated that MDR-TB rates among newly diagnosed cases range between 0.4% and 3% and between 3% and 15.4% among previously treated cases. A limited survey of drug susceptibility among patients failing category-II regimens showed that 88% had MDR-TB.

Achievements of the National Tuberculosis Control Programme

The NTP has achieved remarkable progress over the past years, as listed below:

- The country adopted the DOTS strategy in 1993 and at the end of 2006 the entire country was covered. The program registered good results: the case detection rate for sputum smear positive patients increased from 61% in 2005 to 74% in 2009; 91% treatment success was achieved for new smear positive cases registered in 2009.

- The HNPSP showed a strong commitment for TB control as reflected in its Annual operational Plan.

- The NTP works in close collaboration with several NGOs which have a strong cooperation with staff from the Ministry of Health and family Welfare (MoH&FW) at divisional, district and upazila levels.
• The memoranda of Understanding (MoU) between NTP and its partners were revised and expanded, thereby sustaining the strong collaboration between the Government and NGOs.

• The network of diagnostic and treatment centers has been expanded in different metropolitan prisons and work places.

• External quality assessment (EQA) for sputum smear microscopy is being institutionalized through the establishment of 28 EQA centers in the country.

• Public private Mix (PPM) guidelines were printed.

• Contributions of community health volunteers, village doctors and other community members in referral of TB suspects and direct observation of the treatment (DOT) have played a major role in the success of the TB services. This was also recognized internationally.

• A strategic plan and operational guidelines for advocacy, communication and social mobilization (ACSM) were approved; ACSM activities (television spot, poster display, sticker, etc.) were conducted.

• Data management has improved through introduction of a customized database to allow a more detailed analysis of sub-national data and of the performance of different services providers.

• Supervision and monitoring activities were further strengthened through national, divisional and district-level supervisors.

• HRD Plan reviewed and training for all categories of staff conducted as per schedule.

• A DOTS-Plus pilot project to manage 700 patients with multidrug-resistant tuberculosis (MDR-TB) over a period of four years was approved by the Green Light Committee (GLC); DOTS-Plus guidelines were drafted.

• The programme management unit of the NTP central level was strengthened.

• Since the second part of 2004, funding was received from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) through its third (2003) and fifth (2005) round of proposals.

The World Health Organization (WHO), the Canadian International Development Agency (CIDA), the Royal Netherlands, Tuberculosis Association (KNCV Tuberculosis Foundation), the Research Institute of Tuberculosis (RIT), Japan; the International Union Against Tuberculosis and Lung Disease (The Union); Management Sciences for Health (MSH), the University Research Corporation (URC), The United States Agency for International Development (USAID), USA; and some international academic institutes have also provided financial and technical support.

**Future Direction and Planned Activities**

The NTP has planned the following activities:
- Bangladesh completed TB prevalence survey in 2009.
- Expansion of PPM activities with proper coordination and collaboration among the stakeholders.
- Introduction of comprehensive ACSM activities.
- Establishment of formal linkages with the HIV program for planning and implementation of collaborative activities.
- Strengthening the procurement and supplies management system
- Establishing a new National Reference Laboratory for culture and drug susceptibility testing (DST).

Figure: 15 Sex distribution among different types of registered TB patients, 2009

Figure: 16 New Smear Positive cases by age and gender, 2009

Figure: 17 Case notification by type of patients, 2009

Figure: 18 Cases Registered by treatment category, 2009

Figure: 19 Treatment outcome among New Smear positive cases: 2008 cohort

Figure: 20 Trend of Case Detection Rate & Treatment success

Source: NTP, Bangladesh Report, 2010
### Surveillance and Epidemiology, 2009

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>147.6 Million</td>
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#### Epidemiological burden

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Incidence (all cases/100 000 pop/yr)</td>
<td>223</td>
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<tr>
<td>Incidence (ss+/100 000 pop/yr)</td>
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<tr>
<td>Prevalence rate (all cases/100 000 pop)</td>
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</tr>
<tr>
<td>Mortality rate (TB cases/100 000 pop)</td>
<td>51*</td>
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#### Surveillance and DOTS implementation

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOTS Case detection rate (all types %)</td>
<td>49</td>
</tr>
<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>74</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
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#### Laboratory services

<table>
<thead>
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<th>Value</th>
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<tbody>
<tr>
<td>Number of laboratories performing smear microscopy</td>
<td>1050</td>
</tr>
<tr>
<td>Intermediate Reference lab</td>
<td>02</td>
</tr>
<tr>
<td>National/Provincial reference Lab</td>
<td>01</td>
</tr>
<tr>
<td>Implemented of EQA</td>
<td>35</td>
</tr>
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</table>

Source:
- NTP, Bangladesh Report 2010,
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
The Royal Government of Bhutan is a land locked country situated in the South Asia and is a Member State of the SAARC. Bhutan shares its borders with China and India. It has a land area of 38,394 square kilometers and the altitude varying from 180m to 7,550m above sea level. Bhutan is divided into 20 administrative districts.

The total population of Bhutan was estimated to be 683, 407 in the year 2007 [Source: National Report provided by NASP, Bhutan in July 2010]. The population is largely rural as approximately 69.1% of them living in villages. Bhutan has a precious environment and a rich cultural heritage.

The Government of Bhutan continues to put great emphasis on public health. TB remains one of the major public health problems of Bhutan. The country initiated TB control activities long before the introduction of DOTS strategy. The Royal Government of Bhutan accords high priority to the National Tuberculosis Control Program (NTP). Since its inception in 1976 the program has been fully integrated into the primary health care system. Short course chemotherapy (SCC) initially piloted in 1988 and was introduced nationwide in 1994. The Directly Observed Treatment Short Course (DOTS) was introduced nationwide in 1997. The recording, reporting and management aspect of the program is in line with the WHO global strategy for TB control.

The notifications of all forms of TB cases in Bhutan have decreased dramatically from 4323 cases in 1991 to 1150 cases in 2009. Among the total cases notified in 2009, 31% were new extra pulmonary, 38% were smear positive and 25% smear negative. The maximum number of new smear positive cases occurred within the age group of 15-24 years. Males proportion is higher than females in all age groups except 35-44, 15-24 and 0-14 year’s group. Male occupies higher proportion than females in different types of registered TB patients (NSP, NSN& Retreatment) except among new extra pulmonary TB patients.

Among total TB cases registered, 93% were in Category I treatment group and only 7 % in category II group. The treatment outcomes of 2008 Cohort were cured 89%, treatment completed 2% and 3% died. Failure is only 3%. Treatment success rate was 91% and treatment failure proportion was 3%. Trend of case detection and treatment success rate showed that both were marginally increasing, treatment success reached global target in 2005 where as case detection rate reached global target in 2008.

National TB Control Program (NTP)

National Tuberculosis Control Program under the Department of Public Health was started in the year 1986. Since its inception, the government has accorded priority to TB program. In 1994 Short Course
Chemotherapy was piloted in three districts and was implemented nationwide in 1994. Nationwide Directly Observed Treatment Short Course (DOTS) was introduced in 1997. Revised WHO reporting system was introduced throughout the country in 2001.

At the national level, the National Tuberculosis control program is responsible for programming, planning, resource mobilization, monitoring, and evaluation. At the district level, DHO/DMO are responsible for implementing, planning, coordinating, monitoring, and evaluation for the respective districts. Each district has a TB in-charge responsible for compiling and reporting monthly, quarterly, and annual TB reports and also for default tracing and follow-up. National Referral/Regional Referral and District hospitals are responsible for diagnosis and starting the treatment for TB. TB patients will be treated in these hospitals for the intensive phase of treatment.

The health workers in the basic health units are responsible for sending monthly case holding reports and follow-up and default tracing and referral of TB suspects to the district hospitals for confirmation. They also provide the continuation phase of treatment. Advocacy on Tuberculosis is provided at all levels of the health facility.

**Strategies of the NTCP**

The NTCP has adopted the DOTS strategy for implementation of the TB control services. This strategy has been recommended by WHO and major partners since 1993.

1. Sustained political commitment;
2. Diagnosis based on quality-assured microscopy;
3. Uninterrupted supply of drugs and logistics;
4. Use of standardized regimens, including direct observation of treatment (DOT); and

Standardized recording and reporting to monitor case detection and treatment outcome.

**MDR-TB patients**

There are 11 patients registered as MDR-TB, among them 7 are CAT II failures and 4 are CAT I failure. By the end of 2009, the number of laboratories performing smear microscopy was 30 and 1 reference laboratory. The implementation of EQA was present. In case of Collaboration TB/HIV activities, National policy of counseling and testing TB patients for HIV was absent while National surveillance system of HIV infection in TB patients is ongoing.

In Bhutan, steady progress in case detection rate and cure rate of more than 85% achieved. Also, MDR-TB guidelines developed with capacity building of health workers.

**Achievements of NTP:**

- Steady progress in case detection rate of NSS+.
- Cure rate of more than 85% achieved.
• MDR-TB guidelines developed
• Shift from single drugs formulations to fixed dose combinations.
• Annual Risk of TB Infection Survey conducted and DRS in progress.
• Procurement of computers for all 30 reporting centers.
• Capacity building of health workers
• Drug Resistance Surveillance (DRS) in progress

Challenges:
• Human resource development
• Sustainability of financial resources
• Community participation
• Limited public private mix

New Initiatives:
• Introduction of FDCs of anti-TB drugs

Future Plans:
• Introduction of electronic reporting for TB by all reporting centers

Planned Activities:
• Conduct MDR (DRS) survey in 2008
• Conduct ARTI Survey in 2008
• Introduce electronic recording and reporting system (Computerization)
• Upgrade Culture and DST facilities at the National Referral Hospital (PHL)
• Address TB control among vulnerable populations
Figure: 21 Sex distribution among different types of registered TB patients, 2009

Figure: 22 New Smear Positive cases by age and gender, 2009

Figure: 23 Case notification by type of patients, 2009

Figure: 24 Cases Registered by treatment category, 2009

Figure: 25 Treatment outcome among New Smear positive cases: 2008 cohort

Figure: 26 Trend of Case Detection Rate & Treatment success

Source: NTP, Afghanistan Report, 2010
### Surveillance and Epidemiology, 2009

**Population**  
- 6,83,407

### Estimates of epidemiological burden

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<thead>
<tr>
<th>Measure</th>
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<tbody>
<tr>
<td>Incidence (all cases/100,000 pop/yr)</td>
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<td>Incidence (ss+/100,000 pop/yr)</td>
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<td>Prevalence rate (all cases/100,000 pop)</td>
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<td>Mortality rate (TB cases/100,000 pop)</td>
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### Surveillance and DOTS implementation

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<tr>
<td>DOTS case detection rate (all cases, %)</td>
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<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>85</td>
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<td>DOTS treatment success (new ss+, %)</td>
<td>91</td>
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### Laboratory services

<table>
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<th>Service</th>
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<td>Number of laboratories performing smear microscopy</td>
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<td>Reference lab</td>
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<tr>
<td>Implementation of EQA</td>
<td>Present</td>
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<tr>
<td>Culture and DST</td>
<td>NPHL</td>
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### Collaborative TB/HIV activities

<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td>National policy of counseling and testing TB patients for HIV</td>
<td>absent</td>
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<tr>
<td>National surveillance system of HIV infection in TB patients</td>
<td>ongoing</td>
</tr>
</tbody>
</table>

Source:
- NTP, Bhutan Report 2010,
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
Republic of India is an extremely large country with a population of almost 1.16 billion in the SAARC Region. India is the second most populous country in the world accounting for 17% of the population of the world. The land area is 3,287,263 square kilometers. The country is surrounded by Bangladesh, Bhutan, China, Nepal, Pakistan and the Indian Ocean. The primary administrative unit in India is a state. The country is divided into 35 states and they in turn divided into 650 districts.

Health is administered in a decentralized manner at the level of the states and union territories, 71% were living in rural areas in 2005. The population aged less than 15 years age group was 372,520,640 in 2009.

**Status of Tuberculosis Control**

Tuberculosis threatens the health of millions in the country. India is the highest TB burden country globally, with 1.98 million cases occurring annually, India accounts for one fifth of the world’s new TB cases and 2/3rd of the cases in South-East Asia. Nearly 40% of the Indian population is infected with the TB bacillus.

TB remains one of the most serious diseases that affect the health as well as the economy of the country. The bacillus *Mycobacterium tuberculosis* presents itself in various forms – Latent TB infection, Active TB and Multi-drug resistant TB (MDR-TB) disease. The spread of HIV during the last two decades and the emergence of MDR-TB pose additional challenges to effective TB control.

The first estimates of tuberculosis disease prevalence in India became available in the 1950s, and the figure of 4/1000 for the nation as a whole was accepted. Today, it is estimated that two of every five Indians are infected with the TB bacillus. There is a strong chance that of them, at least 10% will develop TB disease during their lifetime. Of the 1.9 million new TB cases occurring annually, around 0.8 million have sputum positive pulmonary TB. Every day, more than 5000 people develop TB disease and nearly 1000 people die of TB i.e 2 deaths every 3 minutes. India rank first among the 22 High Burden Countries, in terms of the total number of incident cases.

The Revised National Tuberculosis Control Programme (RNTCP) based on the internationally recommended Directly Observed Treatment short course (DOTS) strategy, was launched in 1997 and expanded across the country in a phased manner to slow the spread of TB and weed it out in the near future. RNTCP has been recognized for the fastest expansion of DOTS in the world, with over 55-fold expansion in RNTCP coverage since 1998, leading to total coverage of the country in March 2006. India’s DOTS programme is the fastest expanding programme, and the largest in the world
in terms of patients initiated on treatment, placing more than 100,000 patients on treatment every month. In 2005 alone, 1.29 million TB patients, in 2006, 1.39 million and in 2007, 1.48 million patients have been enrolled for treatment. In 2008 1.51 million patients were put on treatment and in 2009 1.53 million patients have been placed on treatment.

In the year 2009, more than 7.24 million TB suspects were examined and 1,533,309 all types of TB cases were notified of which 624,617 were smear positive, which are capable of spreading the disease to others.

Diagnostic facilities have been established in >12,000 laboratories throughout the country. Quality Assurance protocol for smear microscopy has been implemented in all the states. During the year 2009, new sputum positive case detection rate of 72% and treatment success rate of 87% was achieved for the NSP patients registered in 2008.

The Revised National Tuberculosis Control Programme, since its inception in 1997 has trained over half a million staff in the health system, evaluated more than 44 million people with suspected TB, examined more than 120 million sputum slides and treated more than 11 million patients, thereby saving >2 million additional lives. This rapid expansion has not compromised the quality of services. The results meet the internationally set benchmark of a treatment success rate of >85% among new sputum positive pulmonary TB cases. Case detection rate as per global target of 70% has been achieved.

RNTCP is committed to implementing the 2006 Global Strategy to Stop TB and reaching the TB related targets of the Millennium Development Goals by 2015. The RNTCP II aims to provide a road map for TB control to achieve the long term goal, by 2015, of reducing the prevalence of TB by 50%.

**TB-HIV Co-infection:**

The tuberculosis situation in the country is further threatened by the emergence and spread of HIV and Drug-resistant tuberculosis. India, the third highest HIV burdened country, had an estimated 2.31 million (0.36% of adult population in the country) people living with HIV/AIDS (PLHAs) in 2007 (estimates revised from the earlier 5.2 million PLHAs in the country, based on the findings of the comprehensive National Family Health Survey – NFHS 3), emphasizing the enormous challenge ahead. The HIV epidemic pattern in the country shows great variance. The worst affected states are Andhra Pradesh, Karnataka, Manipur, Maharashtra, Nagaland and Tamil Nadu. These six states have reported more than 75% of all the AIDS cases in India and are classified as High Prevalence States. Another three states namely Gujarat, Goa and Pondicherry have been classified as Moderate
HIV prevalence states. Even within the high prevalence states, there are districts which have ANC HIV levels below 1%.

In India, the TB epidemic in the country is predominantly driven by the non-HIV positive TB cases. TB mortality could well be influenced by the TB/HIV co-infection at least in certain districts in the country with high prevalence of HIV in TB patients. It has been estimated that in 2007, about 4.85% of the incident TB cases in India were HIV-positive. WHO has estimated a prevalence of 6.7% (5.5%-7.9%) of HIV in TB patients in India for 2008.

**MDR and XDR-TB in India**

A large scale population based survey in the state of Gujarat and Maharashtra has indicated multi drug resistance levels of <3% among new TB cases and 14-17% among previously treated TB patients. Though the rate of MDR-TB is relatively low in India, this translates into a large absolute number of cases, with an estimated annual incidence of 131,000 cases of MDR TB in the country.

XDR-TB has been reported in India by isolated studies with non-representative and highly selected clinical samples. The magnitude of the problem remains to be determined due to the absence of laboratories capable of conducting quality assured second line DST.

However, what is alarming is the potential threat of XDR-TB in India, with unregulated availability and injudicious use of the second line drugs along with non-existence of systems to ensure standardized regimens and treatment adherence for MDR-TB outside the national programme.

**Achievements:**

- TB HIV collaborative activities which were being undertaken in 14 states earlier have been scaled up to involve all the states in 2008.
- Intensified IMA-PPM project is being undertaken in 167 districts of 6 states under Global Fund Project (Round 6) seeking to involve 536 IMA branches, sensitize around 40,000 PPs.
- Catholic Bishops Conference of India (CBCI) is implementing RNTCP in 11 states of India under the Global Fund Project (Round 4).
- Revised Operational research (OR) agenda based on the RNTCP priority research areas has been developed and disseminated.
- The programme is undertaking repeat Zonal ARTI survey (2008-10) and disease prevalence surveys at seven sites (2007-09) to assess the impact of the programme on TB control and additionally monitor the progress towards MDGs.
Challenges:

- Maintaining, strengthening and improving the quality of DOTS implementation across a population of almost 1.2 billion
- Ensuring adequate numbers of trained microbiologists and laboratory technicians in all states and increasing capacity of NRLs & Intermediate reference laboratories for monitoring, evaluation, DRS
- Programmatic implementation of DOTS-Plus, including ensuring supply of quality assured, second-line drugs
- Wide availability of second-line drugs in the open market
- Diverse epidemiology of HIV across the country making it difficult to have a uniform policy
- Human resource related issues such as frequent transfers, lack of human resource in the area of laboratory personnel, etc

Planned activities:

- Expansion of service provision for MDR-TB patients
- Pilot decentralized delivery of CPT to HIV-infected TB patients in three districts, and pilot routine offer of VCT to all TB patients in two districts
- Strengthening of TB/HIV collaborative activities
- Training on drug logistics management for national and state level officials dealing with drug management
- Promoting rational use of second-line, anti-tuberculosis drugs by all health care providers and bring out a guideline for management of MDR-TB based on the recommendations of the consultative meeting held at Chennai
Figure 27: Sex distribution among different types of registered TB patients, 2009

Figure 28: New Smear Positive cases by age and gender, 2009

Figure 29: Case notification by type of patients, 2009

Figure 30: Country accounting for the global Incidence of TB

Figure 31: Treatment outcome among New Smear positive cases: 2008 cohort

Figure 32: Trend of Case Detection Rate & Treatment success

Source: RNTCP Report, 2010
### Surveillance and Epidemiology, 2009

**Population** - 1164 million

#### Epidemiological burden
- Incidence (all cases/100 000 pop/yr) - 168
- Incidence (ss+/100 000 pop/yr) - 75
- Mortality rate (TB cases/100 000 pop) - 23*
- Case Notification/(100 000 pop) - 132
- Prevalence rate (all cases/100 000pop) - 249*

#### Surveillance and DOTS implementation
- DOTS Case detection rate (all types %) - 78
- DOTS case detection rate (new ss+, %) - 72
- DOTS treatment success (new ss+, %) - 87

#### Laboratory services
- Number of laboratories performing smear microscopy - 12704
- National/Provincial reference Lab - 04
- Intermediate Reference Lab - 10 (Accredited)
- No. of Accredited Lab Performing Culture & DST - 13
- Implementation of EQA - All Designed microscopy centers are implemented EQA

#### Collaborative TB/HIV activities
- National policy of counseling and testing TB patients for HIV - Present
- National surveillance system of HIV infection in TB patients - Ongoing
- Cross-referral mechanism between ICTC and RNTCP - Present

Source:
- RNTCP Report, India Report 2010,
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
Republic of Maldives is a country formed by a number of natural atolls plus a few islands and isolated reefs which form a pattern from North to South. The islands are located southwest of the Indian subcontinent stretching 860 km north to south and 80 – 129 km east to west. For administrative purposes, the Country has been organized into seven provinces which consist of twenty one administrative divisions [20 administrative "atolls" and Male’ city].

The population of Maldives was over 298,968 as at the end of year 2009. Of which approximately one third of the population is living in the island of Male, the capital. The remaining two-thirds of the population are spread out over 198 islands. The economy of the Maldives depends mainly on tourism, fishing trade, shipping and construction. Resort islands, and modern hotels in Male are the main attractions for the increasing numbers of tourists during the winter months.

National TB Control Programme (NTP)

Tuberculosis (TB) is a significant public health problem in Maldives, causing a considerable burden of disease. For this reason a national TB control programme (NTP) was created in 1962. The fact that Kessum Bali, the coughing disease, remains a feared killer in the community is evidenced by the very high priority it received during the community survey performed as part of the Health Master Plan exercise.

The actual TB control programme was started during the first half of 1976 in collaboration with the World Health Organization (WHO) and the Scout Association of Denmark.

Status of Tuberculosis Control

Maldives adopted DOTS in 1994 and achieved the targets of TB control by 1996. WHO listed Maldives among 5 countries to achieved Global target which was announced in 44th World health assembly for achieving the targets of TB control well ahead of 2005. Maldives was the first country in the SAARC region to reach global target and received award from Stop TB Partners Forum in 2004.

The policy goal of the NTP is to reduce TB prevalence to a level that it is no longer a public health threat in the Maldives. In part of laboratory services, the number of laboratories performing smear microscopy was 18 and there were National reference lab-Indira Gandhi memorial Hospital also Intermediate reference lab and implementation of EQA has 1 lab.

The overcrowding in Male remains a major threat to spread of diseases including TB. Furthermore, many of these diseases are still stigmatized and there is hesitance to seek early treatment. Thus open cases remain untreated in the community posing a major risk to further spread of these diseases.
Progress and Achievements in TB Control

In the Maldives Mortality from tuberculosis is insignificant. However TB related morbidity (from post tuberculosis sequela) is still considerable. The main thrust of the TB control programme is case finding, follow up treatment, and management of diagnosed cases using WHO standard protocol. INH prophylaxis has not been adequately strengthened.

Active and passive case finding is set up at all levels of the health care system. The cases diagnosed by private sector are also referred and treatment provided by the National TB programme.

Training is given to health workers through formal and non – formal training courses and in-service training. Health awareness programmes are conducted for the public on prevention and control of TB and the importance of contact screening.

- Three years grant of Anti TB first line Drugs were received from GDF for 2005 – 2007.
- The Government of Maldives is fully committed to TB control in the country. Except first line TB drugs the Government is funding all costs of the programme. On expiration of the GDF grant 2007 the Government has decided to finance the procurement of first, and if required second line, TB drugs from its own resources. MOH plans to procure first line TB drugs from Global Drug Facility.
- The whole country was covered 100% of DOTS programme by 1996. Directly Observed Treatment is followed during the entire treatment.

Table 8-: TB Notification for 2009, Maldives

<table>
<thead>
<tr>
<th>No of TB cases registered</th>
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<tbody>
<tr>
<td>New pulmonary smear positive</td>
<td>45</td>
</tr>
<tr>
<td>Relapse pulmonary smear - positive</td>
<td>1</td>
</tr>
<tr>
<td>New pulmonary smear -negative</td>
<td>14</td>
</tr>
<tr>
<td>New pulmonary smear - unknown</td>
<td>0</td>
</tr>
<tr>
<td>Extra-pulmonary smear - negative</td>
<td>41</td>
</tr>
<tr>
<td>Treatment after failure (Pulmonary)</td>
<td>1</td>
</tr>
<tr>
<td>Treatment after default (Pulmonary)</td>
<td>0</td>
</tr>
<tr>
<td>Number of MDR –TB were found</td>
<td>0</td>
</tr>
</tbody>
</table>

Treatment cure rate was sustained at over 91% till 2007; however it decreased to 60% for 2008 cohort. However, it has been reported by the national Programme that 8 out of 45 registered cases (18%0 are still on treatment. The case detection rate of new smear positive cases was consistently improving till 2005 and reached 100% in 2009.
Among the total cases notified in 2009, 43% were new extra pulmonary, 45% were smear positive and 11% smear negative. The maximum number of new smear positive cases occurred within the age group of 15-24 years, which is productive young group. Male occupies higher proportion than female in all age groups except in age group 35-44. The Case detection among males is higher than females for all types of cases.

Among total TB cases registered for treatment, 50% were in Category I and 49% were in Category III treatment group and only 1% in category II group. Treatment outcomes of 2008 Cohort: cured 60%, 2% died, defaulted 11% and transferred out 7%.

**MDR-TB patients**

After a decade since 1997, two cases of MDR-TB were recorded till 2008 and these cases belong to CAT II failure group.

**Achievements of NTP:**

- Development of health master plan for 2007-2017 which accords high priority and adequate funding for TB control
- Collaboration with the HIV/AIDS programme
- Long standing stigma attached to TB addressed through information education and communication
- Awareness progress undertaken to encourage early self referral and decrease the proportion of nationals seeking care abroad.

**Challenges:**

- Require skilled manpower at all levels of the programme
- Require trained staff for DOTS centre
- No capacity is available in country for DST no official links have been established with reliable external TB laboratory for DST as for diagnosis as well as for follow up for X/MDR patients
- Inadequate X/MDR TB Management is observed (including diagnosis and treatment)
- No proper training in X/MDR TB control for Doctors and other health professionals have been conducted
- Separation the curative and preventive we face many problems to implementing the TB programm
- Need Proper ventilation infection control in main DOTS centre & laboratory at IGMH
- Increasing emergence of MDR-TB
- Require to strengthen supervisory mechanism on quality assurance of smear microscopy
New Initiatives:

- Intensified Case detection
- Standardization of management and treatment of TB cases
- Introduce prophylaxis to children and mantoux contact of SP index cases
- Develop close coordination and cooperation with partners in TB control
- Expansion of DOTS to community level
- Increase awareness to reduce stigma
- Improve quality of diagnostic services
- Obtaining critical information to support policy making
- Strengthen NTP management

Future Plans:

- International Training for TB Laboratory workers on culture/sensitivity
- Training workshop for CHW on TB case management/contact tracing in Malé
- Develop and print IEC information package on transmitting and prevention of TB for school children
- Adopt WHO guidelines on treatment of MDR-TB as national guidelines
- Educate expatriate recruiting agents on TB prevention and control through one day workshop
- Conduct workshop for rehab & penitentiary workers transmitting and prevention of TB
- Develop information brochure on prophylaxis for providing prophylaxis treatment
- Carry out awareness programme together with TB/HIV co-infection and active case finding on World TB
- Integrate TB surveillance information into the SIDAS system
- Print Strategic plan
- Surveillance of HIV in TB patients
Figure 35: Sex distribution among different types of registered TB patients, 2009

Figure 36: New Smear Positive cases by age and gender, 2009

Figure 37: Case notification by type of patients, 2009

Figure 38: Cases Registered by treatment category

Figure 39: Treatment outcome among New Smear positive cases: 2008 cohort

Figure 40: Trend of Case Detection Rate & Treatment success

Source: NTP, Maldives Report, 2010
### Surveillance and Epidemiology, 2009

<table>
<thead>
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<th>Parameter</th>
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<tr>
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#### Epidemiological burden

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<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Incidence (all cases/100,000 pop/yr)</td>
<td>42</td>
</tr>
<tr>
<td>Incidence (ss+/100,000 pop/yr)</td>
<td>15</td>
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<tr>
<td>Prevalence rate (all cases/100 000 pop)</td>
<td>47*</td>
</tr>
<tr>
<td>Mortality rate (all cases/100,000 pop)</td>
<td>2.6*</td>
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#### Surveillance and DOTS implementation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOTS Case detection rate (all types %)</td>
<td>81</td>
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<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>100</td>
</tr>
<tr>
<td>Cure rate (new ss+, %)</td>
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#### Laboratory services

<table>
<thead>
<tr>
<th>Parameter</th>
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</thead>
<tbody>
<tr>
<td>Number of laboratories performing smear microscopy</td>
<td>18</td>
</tr>
<tr>
<td>National Reference lab (NRL)</td>
<td>1</td>
</tr>
<tr>
<td>Implementation of EQA</td>
<td>present</td>
</tr>
</tbody>
</table>

Source:
- NTP, Maldives Report 2010,
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
NEPAL

Nepal is one of the eight Member States of the SAARC Region. It is a land-locked country and shares borders with India and China. It has five development regions [Far-Western, Mid-Western, Western, Central and Eastern] and 14 zones. These fourteen zones are in turn divided into 75 districts. The land area is about 147,181 square kilometers.

The population of Nepal was approximately 27.5 million in the year 2009. Approximately 80% of the population depends on agriculture for livelihood. Tourism was one of the main sources of income in the past and has been affected by the civil conflict and violence. During the conflict, a significant proportion of the productive labour force left the country for overseas employments.

National Tuberculosis Programme (NTP)

Tuberculosis (TB) is a major public health problem in Nepal and recognized by the Government as a priority one (P1) programme.

Nepal has a long and successful history of TB control. National Tuberculosis Programme (NTP) was launched by Government of Nepal almost about six decades ago. The Tokha Sanatorium was established in 1937 which was situated in the north of Kathmandu city. Secondly, the Central Chest Clinic (CCC) came into existence in 1951 with facilities of Diagnosis and Treatment services for the TB patients on domiciliary basis.

Nepal National Tuberculosis Programme (NTP) was launched in 1965 with tripartite agreement between Government of Nepal, World Health Organization and UNICEF. DOTS strategy was adopted as national policy for TB control in 1996. DOTS programme started initially in four districts of the country as demonstration centers and covered a population of 1.7%. By year 2001 DOTS based TB control services were provided in all the 75 districts of the country.

National TB control has effective coordination with public and private sectors, local government bodies, INGOs, social workers educational sectors and other various sectors of the society in order to expand DOTS and sustain the present achievement made by the programme.

Status of Tuberculosis Control

Nepal is situated between India and China. The majority of Population (84%) lives in rural areas. Tuberculosis (TB) remains one of the major public health problems in Nepal. About 50% population is infected with TB, of which 60% are adults. Every year, 21,827 smear positive infectious TB incident cases are expected to arise in the country. With the introduction of DOTS, numbers of deaths has dramatically reduced from 9,712 (51/100k) in 1990 to 6,436 (23/100k) in 2007. Expansion of DOTS has proved its efficacy in Nepal.
The global targets of 85% treatment success and 70 % case detection rate have already been achieved.


NTP initiated DOTS strategy in 1996 with 4 pilot centers and achieved nationwide coverage by 2001. Currently, DOTS based TB services are available in all 75 districts of the country. By mid July 2009, the number of DOTS centers reached to 1251 with 3,132 sub treatment centers which are fully integrated in the general health services throughout the country.

Further expansion of the program covering the more inaccessible mountainous areas poses a challenge. Different types of approaches have been adopted in those areas. DOT by community volunteers, family members and I/NGOs has been found effective in some hilly and mountain districts.

The Case Detection Rate for new smear-positive cases was 75.9 % in 2009. Achievement of case finding target has been possible due to partnerships with private sectors, medical colleges and intensive community involvement. Among total TB cases registered 44% were new smear positive, 28% new smear negative and 20 % new extra-pulmonary. Regarding treatment outcomes of new smear positive cases, cured were 86%, treatment completed 3%, failure 1%, defaulted 3% and death 4%. The treatment success rate for 2009 was 89%.

**Multi Drug Resistant TB Management (DOTS PLUS):**

Nepal was the first country in the SAARC region to introduce DOTS-Plus, integrating with the NTP since 2005. It was started at 5 main centers and 16 sub-centers in September 2005. By end of 2008 it was expanded and covered 10 treatment Centers and 34 Sub-Treatment Centers.

By end of 2009 NTP registered 681 MDR TB cases for treatment. The largest number of MDR TB cases registered belongs to failures of CAT II 91% followed by CAT I failures with culture and DST confirmed MDR-TB. Cure rate among the first two cohorts of patients completing treatment was 71% and 64%.

Cure rate among 87 MDR patients registered during first year of the programme (Sept.-Dec. 2005) was 70%, while 8% of the patients failed the treatment, 7% died and 15% defaulted. Cure rates among patients registered during 2006 and 2007 who have completed treatment was 64%. Key reason of decline in cure rate in year 2006 and 2007 was due to high default (22% & 15%0 and death 14% rates. However, now NTP is providing some financial support for nutrition and transportation 9NRs 1500/month) through Government and GFATM resources default rates are expected to decrease.

The prevalence of HIV is steadily rising in Nepal making collaborative measures from both national AIDS and TB control Programme more important now than ever before. NTP has conducted several
periodic surveys to establish the prevalence of HIV among TB patients. The latest survey showed HIV prevalence among TB patients at 2.4%.

**Key Constraints & Challenges**

**Allowance of health hazards**
- Problems in the extension of microscopic centers due to lack of man power
- lack of culture facility at regional level
- need for establishment of national reference laboratory within NTP
- lack of electronic Data management system
- urgent need of hostel for MDR-TB patients
- lack of infection control measures with special focus on MDR-TB management sites etc.

**New Initiatives:**
- Infection control training to all microscopists

**Planned Activities**
- Extension of culture and DST services in each region
- Extension of fluorescence microscopy centre on the basis of high workload expanding DOTS-Plus activities
- Developing a human resource development plan to accommodate the expanded activities under the new Stop TB Strategy
- Respiratory hospital will be established
- TB-HIV collaboration will be implemented
- Reduce the morbidity of TB-HIV co-infection
- NTP plans to introduce PAL
- Programme in 29 districts over 2010-2015 period as part of the next National Strategic Plan
Figure: 43 Case notification by type of patients, 2009

Figure: 44 New Smear Positive Cases Age Distribution Trend

Figure: 45 Treatment outcomes of New Smear positive cases registered in 2008

Figure: 46 Trend of Case Detection Rate & Treatment success

Figure: 47 Cases Registered by treatment category

Figure: 48 Treatment Outcomes of MDR TB Patients (130) till 2007

Figure: 49 Result of Multi Drug Resistance (MDR) aSurveillance, 1996-2007

Source: National Tuberculosis Control Programme, Annual Report 2008/09
### Surveillance and Epidemiology, 2008/09

**Population** - 27,522,443

### Epidemiological burden

- **Incidence (all cases/100 000 pop/yr)**: 160
- **Incidence (ss+/100 000 pop/yr)**: 74.5
- **Prevalence rate (all cases/100 000 pop)**: 241*
- **Mortality rate (TB cases/100 000 pop)**: 21*
- **Of new cases, % HIV+**: 2.4
- **Of new TB cases, % MDR-TB**: 2.9

### Surveillance and DOTS implementation

- **DOTS case detection rate (new ss+, %)**: 75.93
- **DOTS treatment success (new ss+, %)**: 89

### Laboratory services

- **Number of laboratories performing smear microscopy**: 471
- **Number of laboratories performing culture and DST**: 1
- **Implemented of EQA**: 5

### Collaborative TB/HIV activities

- **National policy of counseling and testing TB patients for HIV**: No
- **National surveillance system of HIV infection in TB patients**: Yes

Source:
- National tuberculosis control programme, Annual report 2008/09
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010*
Islamic Republic of Pakistan is the second largest country in the South Asia. It is surrounded by India, China, Afghanistan, Iran and Arabian Sea. The land area of the country is 796,096 square kilometers. There are five provinces and two regions. These areas are further divided into 136 districts.

Population of Pakistan was approximately 176.4 million as at the end of 2009. Adult male populations 52.4 million, adult female population 50.6 million and children under 15 yrs are 73.4 million. Pakistan is ranked as the 6th most populous nation in the world. Of the total population, approximately 30% is categorized as urban dwellers. The Pakistan Poverty Assessment Survey conducted in 2000 – 2001 found that 32% of the population lives below the poverty line. Poverty is an important factor in health profile of Pakistan. Those living in absolute poverty are five times more likely to die before reaching the age of 5 years. The major problems in health are due to poverty related communicable diseases, childhood illnesses, reproductive health problems and malnutrition.

National TB Control Programme (NTP)

In Pakistan Tuberculosis control and prevention activities were started in 1949 with mass BCG vaccine campaign.

WHO declared TB a global emergency in 1993; Government of Pakistan endorsed the DOTS strategy and revised its national TB control policy in 1994. Technical guideline was developed and five DOTS pilot sites were initiated in 1995, but only one site became operational.

National TB Control Programme

National TB Control Programme (NTP) is a legal entity in Ministry of Health, Government of Pakistan. NTP is administering programme implementation successfully in the public sector as well as a number of projects in collaboration with partners.

The organization has a well-established network extending from national to provincial and districts level. NTP is the implementing agency for many National and International projects. Existing professional support in terms of financial management, Planning and development and IT services will help in efficient management of the project.

The Mission of the National TB Control Programme is to achieve countrywide control of tuberculosis through DOTS strategy, by ensuring quality TB care through public sector health facilities and enhancing the role of other partners, including private sector and non-government organizations.
The overall purpose of the TB control program is to help the four provinces, the Azad Jammu and Kashmir Government, Northern Areas and federally administered tribal areas in controlling tuberculosis by establishing and operating an effective delivery and management of TB care for their respective population.

The following are the targets:

**By 2005:**
- achieve 100 percent public sector DOTS coverage in the country.

**By 2010:**
- treat successfully, at least 85 percent of the registered new smear-positive TB patients
- detect 70 percent of the estimated incident smear-positive TB cases
- put all TB patients detected in Pakistan under DOTS

**By 2015:**
- reduce, by 50 percent, the prevalence and the mortality due to tuberculosis

The key strategic areas identified, through consultative process, for enabling the programme to achieve its targets include:

- Context-adapted staff training
- Functioning of laboratory network
- Availability of quality drugs
- Surveillance, monitoring and evaluation
- Intra-sectoral and inter-sectoral partnerships
- Programme-based research and development
- Public-private partnership development
- Behavior change communication and community mobilization

The National Tuberculosis Control Program has developed a set of context-sensitive operational strategies and activities for each of the eight key strategic areas. This has been achieved after an extensive consultative process with the provincial health authorities, district level personnel, WHO and other partners.

**Status of Tuberculosis Control**

TB is still a major development challenge for Pakistan. Pakistan ranks 8th amongst the 22 countries with high burden of TB. Government of Pakistan endorsed the DOTS strategy, following WHO’s
declaration of TB as a global emergency in 1993, The National TB Control Programme (NTP) Pakistan adopted DOTS (Directly Observed Treatment, Short course) strategy in 1995. The national guidelines were developed and few pilot projects were also started. However, the program became dormant due to abolition of the Federal Directorate for Tuberculosis Control in 1996. Therefore the progress during the first three years (i.e. 1995 – 1998) remained slow, because of its vertical approach, lack of consensus between federal and provincial units, and non-availability of funds from regular health budget. In 1998 the roles and relationship between the federal and provincial tuberculosis control program were re-defined and agreed. Ministry of Health declared TB as a National emergency in 2001. A Multi year strategic plan was developed for universal coverage of DOTS by year 2005.

Commitment to implement and fund the NTP strategic plan remains strong in Pakistan. TB today is one of the top priorities for the MoH and the government funding for TB has increased remarkably. Many initiatives are taken to come at par with global strategy and to reach the Millennium Development Goals (MDGs). The biggest achievement is the approval of GFATM Round 6 which covers the priority areas identified by the NTP, mainly laboratory strengthening, EQA, DRS and HRD nationwide, TB/HIV Collaborative activities, advocacy and communication strategies in selected districts and initiatives for MDR-TB case management.

Among total TB cases notified in 2009, 38% were New smear positive (NSS+), 42% New smear negative (NSS-) and 16% New extra-pulmonary (EP). In all the categories of TB cases notified, male proportion is higher than females except among smear negative and extra pulmonary TB groups. 97% of TB cases were registered in 2009 belonged to Category I treatment and only 3 % to category II.

Treatment outcomes of new smear positive cases registered for treatment in 2008: cured were 74%, treatment completed 16%, failure 1%, defaulted about 5% and death 2% and The smear positive case detection rate under DOTS is increasing; it was 7% in 2001 and reached 71% in 2009. The treatment success rate under DOTS is also increasing, from 77% in 2001 to 90% for patients registered in 2008.

**Operational Research**

Research is a key strategic area identified in the National strategic and operational plans as well as the new stop TB strategy. The strategy describes operational research (OR) as a core component of NTP work. Designing and conducting locally relevant OR can help in identifying problems and workable solutions, testing them in the field and planning for the scaling up of activities.

Ten research projects were initiated/launched during 2005-06 and successfully completed by the end of 2006. During the course of implementation, continuous monitoring was done by NTP which also supervised the data collection, data entry and data analysis.
Research unit also conducted two research projects in collaboration with SAARC TB and HIV centre. The studies conducted were "HIV Prevalence in TB patients in a tertiary care Hospital in Lahore" and "Gender Disparity among TB suspects and New TB patients: a Record-based retrospective Study in five districts in each province and TB centre".

One research project was completed in earthquake affected area in AJK with the collaboration of PMRC to determine the prevalence of TB in shelters in earthquake effected district Bagh.

Three baseline surveys were designed and conducted (one in progress). The first survey was conducted for CIDA LHW project to determine the baseline information about involvement of LHWs in care of TB patients and to assess the base line knowledge attitude and practices of LHWs about DOTS in twenty districts of Pakistan. The second will be completed to determine the baseline information of socio-economic status of the community and status of health care delivery system with reference to implementation of DOTS for conditional cash transfer scheme. The third was conducted with the collaboration of JICA to determine the drug management situation in five districts of Punjab.

Six abstracts were submitted to International World Lung Health Conference organised by IUATLD from 29 Oct. to 4 Nov. 2006. The abstracts were accepted and published in abstract book of the conference.

**MDR-TB patients**

Treatment of MDR-TB cases had been planned to be initiated from 2nd quarter of 2010.

**Achievements of NTP:**

- 5,000 diagnostic and treatment centers in the public sector provide FREE TB testing and treatment services. No. of microscopy copies are 1170.
- In the year 2009, National TB Control Program extended free of cost treatment of 267,451 patients. It means that more than 84% of the total estimated cases have been detected and registered.
- The treatment success rate for the year 2008 (always calculated on the basis of results of previous year) was 91%
- Since 2001, more than one million patients have been treated and received free of cost medicine.
- National TB Control Programme is spearheading on Public Private Partnership for sustainable solution to quality TB services in the country. A network of private and non profit organization is involved in TB care.
- NTP is moving forward in addressing TB –HIV Co-infection and treatment of Multi Drug Resistant TB.
- National Reference Laboratory (BSL-III) established and functionalized
- MDR-TB guidelines developed, 3 pilot site involve
- TB/HIV activities initiated
- Various operational researches conducted and published.
- To create effective demand for increased uptake of TB services in addition to targeted messages delivered through print media.

**Challenges:**

- Show and curtailed releases from public sector funds
- Coordination with other vertical programs
- Insufficient allocation at provincial level
- Dedicated TB Control Programme Officers at district level
- Sustainability of the initiatives e.g. PPM.
- Free availability of TB drugs in the market
- Issues of bio-availability and bio-equivalence from national pharmaceutical companies.

**New Initiatives:**

- Strengthening of Drug Management System
- Structured young volunteers national programme
  - Engaging volunteer organizations
  - Learning from their experience
  - Using them potentiality for TB services
- Structure M & E mechanism
- Quantitative
  - National Logistic and Management information System (NL&MIS)
  - Quality
  - Checklists
  - Reporting formats
  - Field Visits (National & provincial level)
- Engaging Media Personnel and religious Leaders
Future Plans:

- Third party evaluation of the TB program
- Prevalence survey to measure the disease burden
- Expand PPM all over the country
- MDR-TB management in tertiary care hospitals and para-statal organizations

Source: NTP, Pakistan Report, 2010
### Surveillance and Epidemiology, 2009

Population: 176.4 Million

**Epidemiological burden**

- Incidence (all cases/100,000 pop/yr): 181
- Incidence (ss+/100,000 pop/yr): 81
- Prevalence rate (all cases/100,000 pop): 355*
- Mortality rate (TB cases/100,000 pop): 33*

**Surveillance and DOTS implementation**

- DOTS Case detection rate (all types %): 84
- DOTS case detection rate (new ss+, %): 71
- DOTS treatment success (new ss+, %): 90

**Laboratory services**

- National reference laboratory: 1170
- Number of reference labor.: 01
- Intermediate Reference lab: 04 at Provincial, 35
- Number of Accredited laboratories performing Culture and DST: 03
- Implementation of EQA: present

**Collaborative TB/HIV activities**

- Initiated

Out of a total of 13,164 New smear positive pulmonary TB case, 24 were found to be HIV+ve

Source:
- NTP, Pakistan Report 2010,
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
Sri-Lanka is an island in the Indian Ocean with an area of 65,610 square kilometers. It has nine provinces and 26 administrative districts. Each province is governed by a Governor. Population in Sri-Lanka was 20.78 millions in 2009.

National Programme for Tuberculosis Control and Chest Diseases (NPTCCD)

The broad aim of the health policy of Sri-Lanka is to increase life expectancy and improve quality of life. This is to be achieved by controlling preventable diseases and by health promotion activities. Tuberculosis is still contributing to be major public health problem in the country. About 9000 new cases of tuberculosis are notified every year, of which around 60% are smear positive pulmonary TB cases. The National Programme for Tuberculosis Control and Chest Diseases is a decentralized unit, which controls tuberculosis as well as other chest diseases in the country. It functions through a network of 23 District Chest Clinic and 2 Chest hospitals in close coordination with other general health institutions.

Organization of the NPTCCD

The National Tuberculosis Control Programme (NTP) is a part of the national health services, which functions under the Deputy Director General, Public Health Services (DDG/PHS) within the Ministry of Health. The programme is headed by the Director / National Programme for Tuberculosis Control and Chest Diseases (NPTCCD), and is responsible for the tuberculosis control activities of the entire country. It functions through a network of district chest clinics, branch chest clinics, chest hospitals and chest wards in close co-ordination with the general health services.
Status of Tuberculosis Control

Sri Lanka is not among the 22 high burden countries of tuberculosis. However, Tuberculosis remains a widespread problem and poses a continuing threat to the health and development of the people. Regarding the tuberculosis infection it is estimated that about 60% of adults and 45% of the general population were infected with *Mycobacterium tuberculosis*. The annual risk of tuberculosis infection (ARTI) is falling slowly, with the decline estimated at about 2% per year. The highest rates of infection have been found in the most densely populated areas, such as Colombo and other urban areas.

TB patients have been included under the annual surveillance for HIV since 1993. Only 8 cases have been detected from among 13,993 Tb patients tested. Although numbers are few, since 80% of HIV cases reported in the country are in age group of 20-44 years, this is a concern especially since the annual notification for HIV have been increasing since 1987. A national policy for provision of CPT and ART to HIV positive patients is in place.

TB-HIV guidelines have been drafted and operational tools, cross-referral forms and registers have been designed. TB-HIV services have been rolled out to all the districts. Reporting of TB patients with HIV is taking place through the NAP with cross-referral with NTP for treatment. Treatment outcomes are reported by NTP. The management of OIs and HIV care is provided through the NAP while the patients are on treatment for TB. The recording and reporting system of the HIV/AIDS programme requires to be strengthened to accurately capture data on the numbers of PLHIV registered.

The policy for HIV screening of TB patients is based on a clinical risk assessment. Patients are then referred to the NAP services for screening. However the NTP requires having staff skilled in counseling patients being sent for HIV screening. A mechanism is in place to provide feedback to the TB programme on the HIV status of TB patients referred for counseling and testing and this is recorded at the national level.

The 70% case detection target has been reached since 2003 and 85% treatment success was achieved in 2005. Among total new TB cases (9118) notified in 2009, 52% were new smear positive, 22% new smear negative and 26% new extra-pulmonary and relapses were only 2%. Regarding treatment outcomes of new smear positive cases cured were 81%, failure 1.5%, defaulted 7% and death 6%.

**MDR-TB patients**

So far, 4 MDR-TB patients have been registered for treatment.

**Challenges:**

- To identify the patients infected with tuberculosis
- To reduce the patients who defaulted treatment
- To diagnose early the TB patients with low immunity status-HIV/HIDS. DM
- To organize a system and sustain it at special place-prison, elder’s homes
New Initiatives:
- TB reference laboratories in other provinces

Future Plans:
- TB control activities in special places/persons-prisons, Resettlements in North & East, urban population, elder population & patients with diabetes mellitus & TB-HIV/AIDS
- Introduction to practical approach to lung (PAL) through formation of guidelines & formation of EPTB, MDR TB & TB/AIDS guidelines
## Surveillance and Epidemiology, 2009

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>20.78 Million</td>
</tr>
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### Epidemiological burden

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence (all cases/100 000 pop/yr)</td>
<td>56</td>
</tr>
<tr>
<td>Incidence (ss+/100 000 pop/yr)</td>
<td>25</td>
</tr>
<tr>
<td>Prevalence rate (all cases/100 000 pop)</td>
<td>101*</td>
</tr>
<tr>
<td>Mortality rate (TB cases/100 000 pop)</td>
<td>9.2*</td>
</tr>
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### Surveillance and DOTS implementation

<table>
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<tr>
<th>Parameter</th>
<th>Value</th>
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<tr>
<td>DOTS Case detection rate (all types %)</td>
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<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>91</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
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### Laboratory services

<table>
<thead>
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<tbody>
<tr>
<td>Number of laboratories performing smear microscopy</td>
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<td>Intermediate Reference lab</td>
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</tr>
<tr>
<td>National/Provincial reference Lab</td>
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</tr>
<tr>
<td>Number of Accredited Laboratories performing</td>
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</tr>
<tr>
<td>Culture and DST</td>
<td>On going</td>
</tr>
<tr>
<td>Implemented of EQA</td>
<td>N/A</td>
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### Collaborative TB/HIV activities

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>National policy of counseling and testing TB patients for HIV</td>
<td>No</td>
</tr>
<tr>
<td>National surveillance system of HIV infection in TB patients</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Source:
- NTP, Bhutan Report 2010,
- Tuberculosis Control SAARC Region, Update-2009
- *WHO Global Report, 2010
4. STAC’s support to TB control in the Region

1. SAARC Regional TB Reference Laboratory and Lab Network

SAARC TB and HIV/AIDS Centre identified ten Tuberculosis Laboratories in Member States as National TB Reference Laboratories. Subsequently, SAARC Regional TB Reference Laboratory has been setup and networking with National TB laboratories and Reference laboratories have been developed. Activities under Laboratory Network have been initiated in the Region before 2002. Currently STAC is under process to scale up SAARC Regional TB Reference Laboratory at STAC as Supra National TB Reference Laboratory for the region.

2. Human Resource Development

Trained manpower is one of the essential components for a successful TB control programme in the Member States. To develop trained manpower or upgrade the skills of the staffs, STAC organized different training activities to support NTPs of Member States as mentioned below:

1. Training of Trainers (ToT) on TB Control Management and Management of Drug Resistant TB (DOTS Plus) in Member States
2. Training on TB Bacteriology/culture/DST
3. Training on Strengthening IEC Activities on TB & HIV/AIDS
4. Training on Data Management Skills in TB and HIV/AIDS Control
5. Epidemiological Training
6. TB Lab Management Course
8. Leadership and Strategic Management Training

3. Establishment of Epidemiological Network

Since 1994 STAC has been collecting TB related data and preparing regional data. In order to have quality regional reports on TB, HIV/AIDS and TB/HIV co-infection, Regional Epidemiological Networking has been developed in 2003. Since 2003 the center has been producing yearly Update on TB and HIV/AIDS.

4. Development of Regional Strategies

**SAARC Regional Strategies for TB/HIV Co-infection**

The STAC has developed the SAARC Regional Strategy for TB/HIV Co-infection in 2003. This was endorsed by the Twelfth SAARC Summit for implementation. The action plan for implementation was developed in 2004. In 2009, this regional strategy is planned to be updated.
**SAARC Regional Strategies on HIV/AIDS**

On the directive of 12th SAARC Summit SAARC Regional Strategy on HIV/AIDS has been developed in 2005 under the UNAIDS support to SAARC.

5. **Research and study activities**

STAC has been supporting member countries for conducting different research activities in relation to TB and HIV/AIDS with the development of research protocols on priority areas of studies.

Research studies done in 2007 and 2008 are as below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Title of Research</th>
</tr>
</thead>
</table>
| 2007 | 1. Community based risk behavior study on HIV/AIDS targeting women in Nepal  
2. Quality Assurance of Sputum Microscopy in Private Labs in Dhaka  
3. Fourth Round External Proficiency Testing in 9 Reference Laboratories  
4. Acceptability of HIV testing by TB patients in the Member States.  
5. Identify the ways and means of collaboration between TB and HIV/AIDS programs to find out the challenges in implementation and suggest solution in Member States. |
| 2008 | 1. Case –Control Study to identify risk factors for MDR TB in Nepal  
2. Barriers to DOT for MDR-TB patients in Nepal |

6. **NTP Review of Member States**

Participation for NTP review of Member States by the professionals working in SAARC TB and HIV/AIDS Centre on their request.

7. **Partnership Programme for TB and HIV/AIDS control with Schools, Media, Medical/Nursing Colleges, Private Practitioners, Pharmacists, Manpower Agency, Travel Agency and Industry**

STAC has been supplementing Member States in their efforts by taking initiative to develop partnership and/or strengthening partnership with various stakeholders for TB and HIV/AIDS control. The Guidelines for the Partnership Programmes have been developed and distributed.

8. **Advocacy and Awareness**

STAC has been organizing awareness and advocacy programmes on occasion of World TB Day and SAARC Charter Day since its establishment. Since 2004 the Centre has also been organizing similar programme on the occasion of World AIDS Day.

For the development of common Protocols, Policies, Strategies, Plan and Guidelines and solution of common issues, STAC has been organizing various Seminars, Workshops and Meetings.

10. **Sharing Experiences and Expertise**

Besides organizing workshops, seminars, meetings and visits for sharing expertise and experiences, STAC organized first Regional Conference in 2004 on TB, HIV/AIDS and Respiratory Diseases in Kathmandu, Nepal. Around 600 participants from Member States and other countries participated in the conference. STAC is going to organize Second SAARC Conference on TB, HIV/AIDS and Respiratory Diseases on December (15th-18th) 2008.

11. **Collaboration with International Organizations in TB Control**

SAARC has made collaboration and understanding with different UN agencies and INGOs for smooth functioning in control of TB and HIV/AIDS in the Region.

An MoU between SAARC and WHO was signed on 23 August 2000 to work collectively for TB & HIV/AIDS and to continue active collaboration with WHO.

In order to contain the TB and HIV/AIDS epidemic SAARC and CIDA signed a Memorandum of Understanding in July 1997 to work in TB control in Member States. In this context STAC worked in development of Regional Laboratory Network, Regional Epidemiological Network and Regional Strategy for TB/HIV Co infection.

12. **Publications of STAC**

The center has been publishing and distributing different documents for sharing and disseminating information in TB and its control, such as STAC Newsletters, Directory of TB and HIV/AIDS Institutions & Specialists in SAARC Member States, SAARC Journal of Tuberculosis, Lung Diseases and HIV/AIDS, General Information on TB and HIV/AIDS, Epidemiological information, Study Reports, History of TB Control Programme in SAARC region, History of HIV/AIDS Control Programme in SAARC region, national TB control Programme and National AIDS Control Programme of all Member States of SAARC region.

13. **Resource Centre**

A library has been established as a resource centre for TB and HIV/AIDS information. Books, journals, newspapers, reports and other related publications/documents are catalogued for the use of TB control workers, researchers, specialists, medical practitioners, students, journalists and general people.