TUBERCULOSIS CONTROL
SAARC REGION

Update 2011
Foreword

Tuberculosis continues to be a public health problem in the world despite the availability of extremely effective treatment regimens. Moreover, multi drug resistant TB and HIV are emerging threats for tuberculosis control. SAARC region continues to make a considerable contribution to the global efforts towards the elimination of TB. Control of Tuberculosis is a priority for the development.

This is the Ninth Annual Report on TB situation of 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 2011 (and early part of the year 2009/10) and reviewing other documents including WHO Report on Global TB Control, 2011. In this report, DOTS coverage and case detection rates are on the basis of 2010 data and treatment outcome is for the 2009 cohort.

But some latest information available from country reports is also highlighted. This report indicates 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 -2011” will serve these purposes.

I would like to thank the programme managers and experts within SAARC member countries, who have generated and shared the epidemiological data and facts utilized for this report. Finally, I appreciate the sincere and relentless 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
# Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td></td>
</tr>
<tr>
<td>Abbreviations</td>
<td></td>
</tr>
<tr>
<td>Executive Summary</td>
<td></td>
</tr>
</tbody>
</table>

1. Situation of Tuberculosis
1.1 Introduction of SAARC
1.2 SAARC TB and HIV/AIDS Centre (STAC)
1.3 Goals, Targets and Indicators for TB Control
1.4 The Stop TB Strategy
1.5 Global Epidemiology of TB
1.6 TB/HIV Co-infections
1.7 Mortality due to TB

2. PROGRESS in TB Control in SAARC Region
2.1 DOTS Coverage
2.2 Epidemiology of TB in SAARC Region
2.3 Notifications, Case Detections and treatment Success
2.4 Trends of incidence, prevalence and mortality (1990-2009)

3. PROGRESS WITH TB CONTROL IN SAARC MEMBER STATES
- Afghanistan
- Bangladesh
- Bhutan
- India
- Maldives
- Nepal
- Pakistan
- Sri-Lanka

4. TB HIV CO INFECTION
5. STAC’S SUPPORT TO TB CONTROL IN THE REGION
6. References
### Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFB</td>
<td>Acid Fast Bacillus</td>
</tr>
<tr>
<td>ARTI</td>
<td>Annual Risk of Tuberculosis Infection</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacillus Calmette Guerin</td>
</tr>
<tr>
<td>BRAC</td>
<td>Bangladesh Rural Advancement Committee</td>
</tr>
<tr>
<td>BPHS</td>
<td>Basic public Health Services</td>
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<tr>
<td>CBO</td>
<td>Community</td>
</tr>
<tr>
<td>CDR</td>
<td>Case Detection Rate</td>
</tr>
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<td>DFB</td>
<td>Damien Foundation Belgium</td>
</tr>
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<td>DOT</td>
<td>Directly Observe Treatment</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observe Treatment Short-course</td>
</tr>
<tr>
<td>DRS</td>
<td>Drug Resistance Surveillance</td>
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<td>DST</td>
<td>Drug Susceptibility Test</td>
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<td>DTC</td>
<td>District Tuberculosis Centre</td>
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<td>EQA</td>
<td>External Quality Assurance</td>
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<td>ESP</td>
<td>Essential Service Package</td>
</tr>
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<td>FDC</td>
<td>Fixed Dose Combinations</td>
</tr>
<tr>
<td>GFATM</td>
<td>Global Fund for AIDS, TB and Malaria</td>
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<td>GLC</td>
<td>Green light Committee</td>
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<td>HBCs</td>
<td>High burden Countries</td>
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<td>H.E.</td>
<td>His Excellency</td>
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<tr>
<td>HIV/AIDS</td>
<td>Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome</td>
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<td>HR</td>
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<tr>
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<td>Integrated Counseling and Testing Centres</td>
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<td>I/NGO</td>
<td>International Governmental Organization</td>
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<td>IEC</td>
<td>Information Education and Coordination</td>
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<td>Indira Gandhi Memorial Hospital</td>
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<td>IUATLD</td>
<td>International Union Against Tuberculosis &amp; Lung Diseases</td>
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<td>MDG</td>
<td>Millennium Development Goal</td>
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<td>MDR</td>
<td>Multi Drug Resistance</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<tr>
<td>MOPH</td>
<td>Ministry of Health and Population</td>
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<td>Millennium Development Goals</td>
</tr>
<tr>
<td>NACO</td>
<td>National AIDS Control Organization</td>
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<td>National AIDS Control Programme</td>
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<td>NATA</td>
<td>Nepal Anti-TB Association</td>
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<td>NGO</td>
<td>Non Governmental Organization</td>
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<td>NPTCCD</td>
<td>National Programme for Tuberculosis Control and Chest Diseases</td>
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<td>NRL</td>
<td>National Reference Laboratory</td>
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<td>NTI</td>
<td>National Tuberculosis Institute</td>
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<td>NTP</td>
<td>National Tuberculosis Programme</td>
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<td>PLWHA/PLHA</td>
<td>People Living With HIV/AIDS</td>
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<td>Pop</td>
<td>Population</td>
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<tr>
<td>Acronym</td>
<td>Meaning</td>
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<td>PPM</td>
<td>Public Private Mix</td>
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<td>RNTCP</td>
<td>Revised National TB Control Programme</td>
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<td>SCC</td>
<td>Short Course Chemotherapy</td>
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<td>SIDA</td>
<td>Swedish International Development Agency</td>
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<td>SS</td>
<td>Sputum Smear</td>
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<td>SAARC</td>
<td>South Asian Association for Regional Cooperation</td>
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<td>STAC</td>
<td>SAARC Tuberculosis and HIV/AIDS Centre</td>
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<td>SEAR</td>
<td>South-East Asia Region</td>
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<td>TB</td>
<td>Tuberculosis</td>
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<td>TRC</td>
<td>Tuberculosis Research Centre</td>
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<td>UNICEF</td>
<td>United Nations Children Emergency Fund (United Nation's Children Fund)</td>
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<td>VCT</td>
<td>Voluntary Counseling and Testing</td>
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<td>VCTC</td>
<td>Voluntary Counseling and Testing Centre</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WFP</td>
<td>World Food Programmes</td>
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<td>Year</td>
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Executive Summary

This is the Ninth Annual update on tuberculosis (TB) situation of SAARC Region, published by SAARC Tuberculosis and HIV/AIDS Centre (STAC) in a series which was started in 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 Regional and Member States levels. Worldwide, the absolute number of incident TB cases per year has been decreasing since 2006 and the incidence rate (per 100 000 population) has been falling by 1.3% per year since 2002. Although TB prevalence is declining globally and in all regions, it is unlikely that the Stop TB Partnership target of a 50% reduction by 2015 compared with 1990 will be reached. However, the target has already been achieved in the Region of the Americas and the Western Pacific Region is very close to reaching the target. Globally, TB mortality is declining and the Stop TB Partnership target of a 50% reduction by 2015 compared with 1990 will be met if the current trend is sustained. The target could also be achieved in all WHO regions with the exception of the African Region.

TB is a global threat. Based on surveillance and survey data, WHO estimates that 8.8 million new cases of TB occurred in 2010 (128 per 100 000 population) and 5.7 million cases were notified in 2010 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 2009 registered cohort, 87% were successfully treated. There were an estimated 12 million prevalent cases in 2010 (178 per 100 000 population). Worldwide, there were an estimated 0.65 million (650 000) cases of Multi-drug Resistant TB (MDR-TB) cases in 2010.

A total of approximately 1.4 million people died of TB in 2010, among them there were 1.1 million (range, 0.9–1.2 million) deaths from TB among HIV-negative people and an additional 0.35 million (range, 0.32–0.39 million) deaths from HIV-positive associated TB.

The SAARC region, with an estimated annual incidence of 2.8 million TB cases, carries 31.8% 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 26% of the world’s TB cases. Among 2.8 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 Afghanistan, India, Bangladesh and Pakistan together notified 853147 new smear positive cases, which represent 97.6% of total new smear positive cases notified in the Region. India alone accounted close to three fourth (72%) of allnotifications in the SAARC region and continues to account for about one quarter (26%) of the global burden of TB. Of the patients with sputum smear-positive pulmonary TB registered in 2009 cohort, 88.7% were successfully treated.
A total 2,019,536 cases (all types) were notified in 2010 in the region, of which 43% were new sputum smear positive cases. The case detection rate for new smear positive is 72% for 2010 in the SAARC region. Overall case detection rate in the region in 2010 for all type of TB cases is 71%.

All the SAARC Member states had achieved either or close to 70% or above of case detection rate of New smear Positive cases with Bhutan 100%, Maldives 91%, Sri Lanka 88%, Nepal 76%, India 74%, Bangladesh 70%, Afghanistan 67% and Pakistan 60% case detection rate, respectively in the region. In case of treatment success rate all the member states achieved more than 85% except Maldives where the cure rate was 82%.

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 2010 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. 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 another major concern for all the SAARC Member States. New and compelling data from eight 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.

It is emphasized that National TB programmes should make research and development an integral part of their programme as research and development play a significant role in achieving programme targets.
1. SITUATION OF TUBERCULOSIS

1.1 Introduction of SAARC

The South Asian Association for Regional Cooperation (SAARC) was established on 8th December 1985, SAARC comprises of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. SAARC is a 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 Secretariat is supported by different regional centers’ established in Member States to promote regional cooperation. Among them, SAARC TB and HIV/AIDS Centre is one of the regional centers which are located in Nepal.

1.2 SAARC TB and HIV/AIDS Centre (STAC)

1.2. I Background

The Heads of State or Government of Member Countries of SAARC at their Fifth Summit held in Male on 22-23 November 1990 decided to establish SAARC Tuberculosis Centre in Nepal. The Centre was established in 1992 to work for control and prevention of Tuberculosis in the Region. Considering the role played by the centre through its activities on TB/HIV co-infection, the centre was renamed as SAARC Tuberculosis and HIV/AIDS Centre by the Thirty-first Session of Standing Committee of SAARC held in Dhaka on November 9-10, 2005 (during the Thirteen SAARC Summit) to work for prevention and control of TB and HIV/AIDS in the Region by coordinating the efforts of the National Tuberculosis Control Programme and National AIDS Control Programme of Member States, with the following vision, mission, goal and objective.

1.2. II Vision

SAARC TB and HIV/AIDS Centre be the leading institute to support and guide SAARC Member States to make the Region free of TB and HIV/AIDS.

1.2. III Mission

The Mission of the SAARC TB and HIV/AIDS Centre is to support the efforts of National TB and HIV/AIDS Control Programmes through evidence based policy guidance, co-ordination and technical support.
1.2. IV  Goal

The goal of the SAARC TB and HIV/AIDS Centre is to minimize the mortality and morbidity due to TB and HIV/AIDS in the Region and to minimize the transmission of both infections until TB and HIV/AIDS cease to be major public health problems in the SAARC Region.

1.2. V  Objective

To work for prevention and control of TB and HIV/AIDS in the Region by coordinating the efforts of the National TB and National HIV/AIDS Control Programmes of the SAARC Member States.

1.2. VI  Role of STAC

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 control. Based on this information, progress in achieving Millennium Development Goals (MDGs) in relation to TB and HIV/AIDS in the SAARC Member States can be monitored. In all Member States, the Government 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 to reach the MDG-related TB control targets.

The New Stop TB strategy embraces the fundamentals of TB control originally framed as DOTS, but extends beyond the TB control (DOTS) activities into other key areas. These include the well-known problems of multi-drug resistant TB or MDR TB (and now also extensive drug resistance TB) and of TB associated with the Human Immunodeficiency Virus (HIV). The Global Plan of the Stop TB Partnership details the scale at which the six components of the strategy should be implemented if the global targets are to be achieved.

1.3  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).

### 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

### 1.4 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

VISION
A TB-Free World

GOAL
To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals and the Stop TB Partnership targets.

OBJECTIVES
- Achieve universal access to high-quality care for all people with TB.
- Reduce the human suffering and socioeconomic burden associated with TB.
- Protect vulnerable populations from TB, TB/HIV and drug resistant TB
- Support development of new tools and enable their timely and effective use
- Protect and promote human rights in TB prevention, care and control

TARGETS
- MDG 6, Target 6.c: Halt and begin to reverse the incidence of TB by 2015
- Targets linked to the MDGs and endorsed by the Stop TB partnership

COMPONENTS OF STOP TB STRATEGY
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

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
   b. Advocate for and participate in research to develop new diagnostics, drugs and vaccines

### 1.5. GLOBAL EPIDEMIOLOGY OF TB

**1.5.1 Global Epidemiology:**

As per WHO Global Report 2011, there were an estimated 8.8 million incident cases of TB (range, 8.5 million–9.2 million) globally in 2010, the estimated deaths 1.1 million (range, 0.9 million–1.2 million) among HIV-negative cases of TB and an additional 0.35 million deaths (range, 0.32 million–0.39 million) among people who were HIV-positive.

Worldwide, the absolute number of incident TB cases per year has been decreasing since 2006 and the incidence rate (per 100 000 population) has been decreasing by 1.3% per year since 2002. If these trends are maintained, the MDG target that TB incidence should be decreasing by 2015 will be attained.

Simultaneously, TB mortality is going down globally and the Stop TB Partnership target of a 50% reduction by 2015 compared with 1990 will be reached if the current trend is sustained. The target could also be accomplished in all WHO regions with the exception of the African Region. While TB prevalence is decreasing globally and in all regions, it is unlikely that the Stop TB Partnership target of a 50% reduction by 2015 compared with 1990 will be attained. However, the target has already been achieved in the Region of the Americas and the Western Pacific Region is very close to reaching the target. Dramatic reductions in TB cases and deaths have been achieved in China.
1.5. II Incidence of TB

Globally, in 2010, there were an estimated 8.8 million incident cases of TB (range, 8.5 million–9.2 million) equivalent to 128 cases per 100,000 population. Most of the estimated number of cases in 2010 occurred in Asia (59%) and Africa (26%); smaller proportions of cases occurred in the Eastern Mediterranean Region (7%), the European Region (5%) and the Region of the Americas (3%). The 22 High Burden Countries (HBCs) that have been given highest priority at the global level since 2000 accounted for 81% of all estimated cases globally.

The five countries with the largest number of incident cases in 2010 were India (2.0 million–2.5 million), China (0.9 million–1.2 million), South Africa (0.40 million–0.59 million), Indonesia (0.37 million–0.54 million) and Pakistan (0.33 million–0.48 million). India alone accounted for an estimated one quarter (26%) of all TB cases worldwide, and China and India combined accounted for 38%. Of the 8.8 million incident cases in 2010, 1.0 million–1.2 million (12–14%) were among people living with HIV, with a best estimate of 1.1 million (13%). The proportion of TB cases co-infected with HIV is highest in countries in the African Region; overall, the African Region accounted for 82% of TB cases among people living with HIV. Globally, incidence rates decreased slowly from 1990 to around 1997, and then increased up to around 2001 as the number of TB cases in Africa was driven upwards by HIV epidemic.

1.5. III Prevalence of TB

The prevalence of TB can be directly calculated in nationwide population-based surveys. When repeat surveys are conducted, trends in TB prevalence can be directly measured as well. The data available from prevalence surveys allow for a robust assessment of trends and are becoming more commonly available for countries with a high burden of TB. If population-based survey data are not available, prevalence can be indirectly estimated as the product of incidence and the average duration of disease. TB prevalence can be estimated only indirectly in most countries of the world.

There were an estimated 12.0 million prevalent cases (range, 11.0 million–14.0 million) of TB in 2010. This is equivalent to 178 cases per 100,000 population. Globally, prevalence rates have been decreasing since 1990, with a faster decline after 1997. However, current forecasts suggest that the Stop TB Partnership’s target of halving TB prevalence by 2015 compared with a baseline of 1990 will not be met. Regionally,
prevalence rates are declining in all of WHO’s six regions. The Region of the Americas has halved the 1990 level of TB prevalence already, well in advance of the target year of 2015, and the Western Pacific Region is close to doing so. Reductions in TB prevalence in the Eastern Mediterranean, European and South-East Asia regions have been considerable since 1990, and appear to have accelerated since 2000. Nonetheless, current forecasts suggest that the 2015 target will not be reached. In the African Region, estimates of TB prevalence rates are far from the target level, and halving the 1990 rate by 2015 appears unlikely.

1.5. IV  MDR-TB

The estimated number of prevalent cases of MDR-TB can be estimated at global level as the product of the estimated number of prevalent cases of TB and the best estimate of the proportion of notified TB patients with MDR-TB at global level. In 2010, there were an estimated 650 000 cases of MDR-TB among the world’s 12.0 million prevalent cases of TB. There has been substantial progress in the coverage of continuous surveillance and surveys of drug resistance. Unfortunately, progress is not yet sufficient to provide a definitive assessment of trends in MDR-TB globally.

1.5. V  Case Detection Rate

All the WHO regions have improved their estimated CDRs since the mid-1990s, with improvements particularly evident since 2000. Worldwide the best estimate of the CDR for all forms of TB was 65% (range, 63–68%) in 2010. The highest CDRs in 2010 were estimated to be in the Western Pacific Region (best estimate 79%; range, 73–87%), the European Region (best estimate 73%; range, 68–78%) and the Region of the Americas (best estimate 80%; range, 75–85%). The other regions had estimated CDRs in the range 56–71%, with best estimates of around 60%. Among the 22 HBCs, the highest rates of case detection in 2010 were estimated to be in Brazil, China, Kenya, the Russian Federation and the United Republic of Tanzania; the lowest rates were in Mozambique, Nigeria, Afghanistan and Bangladesh.

1.6  TB/HIV Co-infection

In 2010, 34% of notified TB patients knew their HIV status. The highest rates of HIV co-infection in TB patients are in the African Region, where 44% of TB patients with an HIV test result in 2010 were HIV-positive (range among high TB/HIV burden countries, 8%–82%), followed by the Region of the Americas (17%). Currently, HIV testing of TB patients is an accepted practice in many countries in 68 countries and territories including

TUBERCULOSIS CONTROL SAARC REGION UPDATE 2011 | 7
22 countries in the African Region, ≥75% of TB patients knew their HIV status in 2010. The worldwide coverage of antiretroviral therapy (ART) for TB patients living with HIV remains low (only 46%), despite the large increase in HIV testing among TB patients and the WHO recommendation that ART should be provided to all TB patients living with HIV regardless of their CD4 cell count.

1.7 Mortality due to TB

Globally, an estimated 1.1 million deaths (range, 0.9 million–1.2 million) occurred in 2010 among HIV-negative cases of TB, including 0.32 million deaths (range, 0.20 million–0.44 million) among women. This was equivalent to 15 deaths per 100 000 population. In addition, there were an estimated 0.35 million deaths (range, 0.32 million–0.39 million) among incident TB cases that were HIV-positive. Thus, in total, approximately 1.4 million people (range, 1.2 million–1.5 million) died of TB in 2010. The number of TB deaths per 100 000 population among HIV-negative people plus the estimated number of TB deaths among HIV-positive people equates to a best estimate of 20 deaths per 100 000 population.

Globally, mortality rates (excluding deaths among HIV-positive people) have declined by more than one-third since 1990, and the current forecast suggests that the Stop TB Partnership’s target of a 50% reduction by 2015 compared with a baseline of 1990 will be achieved. It is only in the African Region that the target of halving mortality rates by 2015 seems out of reach. Among the 22 HBCs, mortality rates appear to be decreasing with the possible exception of Afghanistan.

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<th>S. No.</th>
<th>Indicators</th>
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<td>1</td>
<td>Population</td>
<td>7 billion</td>
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<tr>
<td>2</td>
<td>Estimated Incidence</td>
<td>8.8 million (128 cases/100 000)</td>
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<tr>
<td>3</td>
<td>Estimated Prevalence</td>
<td>12 million (178 cases/100 000)</td>
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<tr>
<td>4</td>
<td>CDR of all form of TB</td>
<td>65%</td>
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<tr>
<td>5</td>
<td>Treatment Success Rate (2009 cohort)</td>
<td>87 %</td>
</tr>
<tr>
<td>6</td>
<td>Estimated MDR-TB Cases</td>
<td>0.65 million</td>
</tr>
<tr>
<td>7</td>
<td>Estimated Death Due to TB</td>
<td>1.45 million</td>
</tr>
<tr>
<td>8</td>
<td>HIV Positive in incident TB cases</td>
<td>1.1 million</td>
</tr>
</tbody>
</table>

Table 1: Global Epidemiological Burden of TB (year 2010)

### Table 2: Global Estimated Incidence and Notified New Cases of TB

<table>
<thead>
<tr>
<th>WHO Regions</th>
<th>Estimated Incidence (in thousands)</th>
<th>Total Notified</th>
<th>New</th>
<th>Smear-Positive</th>
<th>Smear Negative/Unknown</th>
<th>Extra Pulmonary</th>
<th>Retreatment Relapse</th>
<th>Retreatment Excl. Relapse</th>
<th>New and Relapse</th>
<th>% new pulmonary case smear positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa Region</td>
<td>2300</td>
<td>1478356</td>
<td>597364</td>
<td>480665</td>
<td>246997</td>
<td>53603</td>
<td>98872</td>
<td>1379271</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Region of Americas</td>
<td>270</td>
<td>226669</td>
<td>116828</td>
<td>52169</td>
<td>32184</td>
<td>10410</td>
<td>12135</td>
<td>213721</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Eastern Mediterranean Region</td>
<td>650</td>
<td>421384</td>
<td>168563</td>
<td>137256</td>
<td>91947</td>
<td>11201</td>
<td>8598</td>
<td>409600</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>European Region</td>
<td>420</td>
<td>355258</td>
<td>81155</td>
<td>130897</td>
<td>33314</td>
<td>23683</td>
<td>37943</td>
<td>269436</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>South East Asia Region</td>
<td>3500</td>
<td>2332333</td>
<td>1046865</td>
<td>615258</td>
<td>328353</td>
<td>130714</td>
<td>205286</td>
<td>2125929</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Western Pacific Region</td>
<td>1700</td>
<td>1341391</td>
<td>622211</td>
<td>566146</td>
<td>61042</td>
<td>54170</td>
<td>32875</td>
<td>1303596</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td><strong>Global</strong></td>
<td><strong>8800</strong></td>
<td><strong>6155391</strong></td>
<td><strong>2632986</strong></td>
<td><strong>1982391</strong></td>
<td><strong>793837</strong></td>
<td><strong>283781</strong></td>
<td><strong>395709</strong></td>
<td><strong>5701553</strong></td>
<td><strong>57</strong></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: Estimated TB Incidence Rates, by Country 2010

Figure 2: Global Trend in Estimated Prevalence, Incidence and Mortality rates of TB (1990-2010)

Figure 3: Global Treatment Outcomes among New Smear Positive Cases 2009 Cohort


Figure 4: Global Trend of Treatment Success and Case Detection rate (1995-2010)

2. PROGRESS IN TB CONTROL IN SAARC REGION

This chapter provides an analysis of the compiled country reports on the numbers of TB cases registered in 2010 and reporting on the treatment outcomes of patients registered in 2009 for the SAARC Member States.

2.1 DOTS Coverage

At the global level, all 22 HBCs have had DOTS programmes since 2000, many of which have been established for much longer. 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. 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. 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 2.85 million TB cases, carries 31.8% of the global burden of TB incidence. Four of the eight Member Countries in the Region are among the 22 high burden countries, with India accounting for 26% of the world’s TB cases. Among 2.8 million incident TB cases, 1.2 million are estimated to be sputum smear positive infectious cases.
Table 3: Estimates of TB disease incidence, prevalence and mortality in the SAARC region 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Estimated Incidence</th>
<th>Estimated Prevalence</th>
<th>Death Rate per lakh pop. All forms of TB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All types</td>
<td>Rate per lakh pop.</td>
<td>Rate per lakh pop. All types</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>24500000</td>
<td>46305</td>
<td>189</td>
<td>19355</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>150050000</td>
<td>334612</td>
<td>223</td>
<td>150050</td>
</tr>
<tr>
<td>Bhutan</td>
<td>695822</td>
<td>1246</td>
<td>179</td>
<td>459</td>
</tr>
<tr>
<td>India</td>
<td>1192000000</td>
<td>2000000</td>
<td>168</td>
<td>850000</td>
</tr>
<tr>
<td>Maldives</td>
<td>319738</td>
<td>102</td>
<td>32</td>
<td>45</td>
</tr>
<tr>
<td>Nepal</td>
<td>27498585</td>
<td>41108</td>
<td>149</td>
<td>20554</td>
</tr>
<tr>
<td>Pakistan</td>
<td>176000000</td>
<td>420000</td>
<td>239</td>
<td>175000</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>21037526</td>
<td>11676</td>
<td>56</td>
<td>5253</td>
</tr>
<tr>
<td>Total</td>
<td>1592101671</td>
<td>2855049</td>
<td>179</td>
<td>1220716</td>
</tr>
</tbody>
</table>

Source: NTP Reports, 2011 (SAARC Member States); *Figure in percent **Absolute number

Figure 5: Trend of estimated incidence rates of all forms and NSP TB Cases, SAARC Region, (1990-2010)

Source: NTP Reports, 2011 (SAARC Member States)
2.3 Notification, Case Detections and Treatment Success

Table 4: Case detection (2010) and Treatment outcome (2009), 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 Sputum Smeared +ve</td>
<td>All types</td>
<td>New Sputum Smeared +ve</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>24500000</td>
<td>46305</td>
<td>19355</td>
<td>28238</td>
<td>12947</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>150050000</td>
<td>334612</td>
<td>150050</td>
<td>158698</td>
<td>105772</td>
</tr>
<tr>
<td>Bhutan</td>
<td>695822</td>
<td>1246</td>
<td>459</td>
<td>1332</td>
<td>457</td>
</tr>
<tr>
<td>India</td>
<td>119200000</td>
<td>2000000</td>
<td>850000</td>
<td>1522147</td>
<td>630165</td>
</tr>
<tr>
<td>Maldives</td>
<td>319738</td>
<td>102</td>
<td>45</td>
<td>95</td>
<td>41</td>
</tr>
<tr>
<td>Nepal</td>
<td>27498585</td>
<td>41108</td>
<td>20554</td>
<td>36354</td>
<td>15569</td>
</tr>
<tr>
<td>Pakistan</td>
<td>176000000</td>
<td>420000</td>
<td>175000</td>
<td>269290</td>
<td>104263</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>21037526</td>
<td>11676</td>
<td>5253</td>
<td>10095</td>
<td>4635</td>
</tr>
<tr>
<td>Total</td>
<td>1592101671</td>
<td>2855049</td>
<td>1220716</td>
<td>2018158</td>
<td>873849</td>
</tr>
</tbody>
</table>

Source: NTP Reports, 2011 (SAARC Member States)

A total 20,18,158 cases (all types) were notified in 2010 in this region, of which 43% were new sputum smear positive cases. The case detection rate for new smear positive is 72% for 2010 for SAARC region. Overall case detection rate in the region in 2010 for all type of TB cases is 71%. (Table 4)

Figure 6: Distribution of notified New Smear Positive TB Cases in SAARC Member States, 2010

Four of the 22 countries with the highest burden of TB namely Afghanistan, India, Bangladesh and Pakistan together notified 853147 new smear positive cases, which represent 97.6 % of total new smear positive cases notified in the Region. India alone accounted close to three fourth (72%) of all notifications in the SAARC region. (Figure 6)
Figure 7 shows the overall progress in tuberculosis control in the region. It depicts that there is remarkable progress in DOTS coverage which has reached 100% in 2007. Regarding treatment success, the target is achieved since 2001. In 2010 case detection rate reached 72%.

<table>
<thead>
<tr>
<th>TB Control Indicators</th>
<th>Global 2009/10</th>
<th>SAARC 2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Population</td>
<td>7 Billion</td>
<td>1.59 Billion</td>
</tr>
<tr>
<td>New all types of TB Cases notified</td>
<td>6.1 Million</td>
<td>2.0 Million</td>
</tr>
<tr>
<td>New SS +ve TB Cases notified</td>
<td>2.6 Million</td>
<td>0.87 Million</td>
</tr>
<tr>
<td>Case Detection Rate all forms of TB (%)</td>
<td>65</td>
<td>71</td>
</tr>
<tr>
<td>Treatment Success Rate (%)</td>
<td>87</td>
<td>88.73</td>
</tr>
</tbody>
</table>


2.4 Trends of incidence, prevalence and mortality (1990-2010)

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 4.4 million prevalent cases in 2010. Figure 08 shows the estimated prevalence rates in the eight Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2008, 2009 and 2010.

Figure 8: Estimated Prevalence of all forms of TB, SAARC Region (1990-2010)


Figure 9 shows the estimated incidence rate of all forms of TB in the eight Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2008 2009 and 2010. There are indications of decrease in Bhutan, India and Maldives, where as in remaining other member countries it shows no significant change.

Figure 9: Estimated Incidence of all forms of TB, SAARC Region (1990-2010)

Figure 10 shows the estimated mortality rate of all forms of TB in the eight Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2008, 2009 and 2010. There are indications of continuous decrease in all member countries except in Afghanistan and Nepal 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 24.5 million in 2010. Of that approximately 22% is categorized as urban dwellers. In Afghanistan, 50% population comprised of children less than 15 years. 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.

**Status of Tuberculosis Control**

Tuberculosis (TB) is one of the main public health problems. Afghanistan is also included in 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.
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);

Achievements

- Reference laboratory performing culture
- Operational research for clinical culture conducted
- National and sub national QRM guidelines was develop and applied
- survey TB among General Population in Afghanistan
- Identifying magnitude of pulmonary tuberculosis among internally displaced population (IDPs) in three provinces of Afghanistan
• Situational analysis of Management of Pediatric TB in Provincial and District Hospitals of Afghanistan
• Staff appraisal has been introduced in NTP central level
• Competency needs assessment is done and base on finding two years action plan is developed
• TB integration in BPHS resulted involvement of 13400 health workers in TB at health facilities
• In-service trainings on TB is systemized
• Training Modules and SOPs for all level of health staff are available
• PPM practical guideline was developed
• ACSM strategy was finalized and translated to local languages
• CBD activities is running through R8 GF is some provinces
• Community health workers are involved in case detection, DOT and providing TB awareness for community

Challenges

• Security
• Multi donor coordination
• Strengthening laboratory system
• HR development (training, turn over)
• Enhancing Quality DOTS
• MDR program Management
• Program management in cross border areas
• DOTS expansion to entire health system

New Initiatives

• Introducing new diagnostic technology
• Introducing new lab diagnostic tool
• Introduction of slide sending and sputum transportation

Future Plans

• Program decentralization
• Full involvement of BPHS implementers in all TB activities
• Local professional recruitment
• Community Based DOTS introduction
• Regular TB task force meetings at all level
• Regular PHCC meetings at provincial level
• NTP, stakeholder Coordination Meetings
• Development of consolidated work plan
• Expending EQA Coverage
• Introducing new lab diagnostic tool
• Implementation of HRD strategic plan
• Strengthening HRM, operational research (Publishing of search article in international journal and analytical software) and M&E.
• Revision, development and implementation of tools and documents for quality DOTS implementation
• Expending EQA coverage
• Regular supervision and monitoring
• Strengthening human resource capacity
• Introducing new diagnostic technology
• Expending MDR management to main cities (Regions)
AFGHANISTAN

Figure 11: Percentage of Sex distribution of registered TB patients (2010)

Figure 12: Cases Registered by treatment category, 2010

Figure 13: Percentage of Case notification by type of patient (2010)

Figure 14: Distribution of New smear positive cases by age and gender (2010)

Figure 15: Percentage of treatment outcomes among New smear positive cases (2009)

Figure 16: Case detection rate and Treatment success rate for new smear positive cases (2005 - 2010)
Surveillance and Epidemiology, 2010

Population (Thousands) - 24.50 million

Epidemiological burden of TB
Incidence (all cases/100 000 pop/yr) - 189
Incidence (ss+/100 000 pop/yr) - 79
Prevalence rate (all cases/100 000 pop) - 236
Mortality rate (TB Cases/100000 pop/yr) - 32

DOTS Case detection rate (all types %) - 61
DOTS case detection rate (new ss+, %) - 67
DOTS treatment success (new ss+, %) - 87

Laboratory services
Number of laboratories performing smear microscopy - 670
National Tuberculosis Reference Lab - 1
Collaborative TB/HIV activities -
National policy of counseling and testing TB patients for HIV - drafted
National surveillance system of HIV infection in TB patients - planned

Source: NTP, Afghanistan Report, 2011
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 150.05 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 “Further 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 (HNPSP) 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 among 22 High Burden Countries for Tuberculosis. Among 158698 TB cases notified in 2010, 67% were new smear positive, 14% new smear negative and 15% new extra-pulmonary. Treatment outcomes of new smear positive cases registered in 2009: cured 91 %, failure 01%, treatment completed 01%, defaulted 02%, death 04%.

HIV prevalence in the adult population (15–49 years) has been estimated to be low at 0.02%. The National HIV Prevalence Survey among TB patients is planned to be undertaken in 2011. While a National TB/HIV Committee is now functional, collaboration between the National AIDS and STI Programme and the National TB Programme for TB/HIV activities need to be strengthened. A limited number of NGOs provide HIV counseling, prevention and care for TB-HIV co-infected individuals; capacity-building for wider implementation of TB/HIV interventions is planned for 2011.

**MDR-TB patients**

Data from drug resistance surveys indicate low levels of MDR-TB. Isolated surveys have 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. A nationally representative population-based survey has been initiated in 2010 to better assess the magnitude of drug resistance nationwide. The National Tuberculosis Reference Laboratory (NTRL) was set up in 2007. Upgrading and renovation of the National TB Reference Laboratory at National Institute of Diseases of the Chest and Hospital (NIDCH) in Dhaka were conducted in 2010. Establishment of three additional regional reference laboratories for culture and drug susceptibility testing in a phase-wise manner is planned for 2011.

**Achievements of National Tuberculosis Control Programme**

The NTP has achieved remarkable progress over the past years, as listed below:
• Initiation of the Drug Resistance Survey (DRS) in 2010.
• Budgeting and costing of the National Strategic Plan.
• Upgradation and renovation of NTRL at NIDCH, Dhaka.
• Preparation of 5-year National Strategic Plan for Infection Control.
• National TB Prevalence Survey completed and disseminated.
• External quality assessment/assurance (EQA) systems for acid-fast bacilli (AFB)
microscopy upgraded and standard operating procedures (SOP) developed.
• MDR-TB pilot successfully ongoing on in NIDCH with plan for scale-up in place.
• Regional TB Reference Laboratory (RTRL) Chittagong is made operational.
• Selection of international procurement agent.
• Further expansion of public-private mix in TB control activities and involving the work
  place, e.g. BGMEA, achieved.
• Installation of financial management software.
• Drug storage capacity strengthened by establishing a separate store in the newly
  constructed hospital at Shyamoli, Dhaka.

Major Challenges

• Ensuring quality control of and sustaining the quality of DOTS is a major issue.
• Ensuring uninterrupted supply of drug and logistics.
• Ensuring sustainability of skilled and trained staff at different levels.
• Scaling up the management of MDR-TB.
• Strengthening linkages with the National AIDS and STI programme for TB/HIV.
• Strengthening the diagnosis system of smear-negative, extra-pulmonary and child TB
  cases.
• Further scaling up and strengthening of private-public collaborative interventions.

Future Direction and Planned Activities

The NTP has planned the following activities

• Implementation of the Practical Approach to Lung Health (PAL).
• Establishment of the regional reference laboratories at Khulna, Barisal and Sylhet for
culture and drug susceptibility testing in a phase-wise manner.
• Phase-wise expansion of TB/HIV collaborative activities.
- Undertaking the national HIV prevalence survey among TB patients.
- Further expanding private-public collaborative activities.
- Developing capacity for wider implementation of TB/HIV, MDR-TB and PPM DOTS interventions.
- Strengthening the procurement and supply management system.
- Strengthening supervision and monitoring.
- Developing appropriate curriculum for undergraduate/postgraduate medical, paramedical and nursing students on DOTS, TB/HIV, and MDR-TB.
- Scaling up of comprehensive advocacy, communication and social mobilization (ACSM) activities.
- Conducting an assessment of the impact of the ACSM campaigns on the population and service recipients.
- Establishing a competent pharmacovigilance system.
- Capacity-building for diagnosis and management of smear-negative, extra-pulmonary and childhood TB.
Surveillance and Epidemiology, 2010

Population: 150.05 Million

Estimated Epidemiological burden
- Incidence (all cases/100 000 pop/yr): 223
- Incidence (ss+100 000 pop/yr): 100
- Case Notification (ss+/100 000 pop/yr): 106
- Prevalence rate (all cases/100 000 pop/yr): 411
- Mortality (TB cases/100 000 pop): 43

Surveillance and DOTS implementation
- DOTS Case detection rate (all types %): 46
- DOTS case detection rate (new ss+, %): 70
- DOTS treatment success (new ss+, %): 91

Laboratory services
- Number of laboratories performing smear microscopy: 1050
- Intermediate Reference lab: 02
- National/Provincial reference Lab: 01
- Implemented of EQA: 35

Source: NTP, Bangladesh Report, 2011
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 695,822 in the year 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 1332 cases in 2010. Among the total cases notified in 2010, 39% were new extra pulmonary, 34% were smear positive and 21% smear negative. The maximum number of new smear positive cases occurred within the age group of 15-24 years. Male's proportion is higher than females in all age groups except 45-54, 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 2009 Cohort were cured 88%, treatment completed 6% and 3% died. Failure is only 3%. Treatment success rate was 92% 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. Nation wide Directly Observed Treatment Short Course (DOTS) was introduced in 1997. Revised WHO reporting system was introduced through out the country in 2001.

At the national level 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 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 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.

- Sustained political commitment;
- Diagnosis based on quality-assured microscopy;
- Uninterrupted supply of drugs and logistics;
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 17 patients registered as MDR-TB, among them 9 are CAT II failures, 4 are CAT I failure and 4 are others failures. By the end of 2010, the number of laboratories performing smear microscopy was 32 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.

Achievements of NTP

- Steady progress in case detection rate.
- Cure rate of 85% achieved which is above the set target.
- Mortality among new smear positive below the set target
- Revised and printed the national guidelines for the management of TB
- Developed and printed the MDR-TB guidelines
- Two Medical Specialists completed training on MDR-TB management outside the country
- DRS ongoing
- ARTI data validation and analysis completed
- Developed and introduced electronic reporting system for TB
- Sensitization/training of transport workers completed
- Cross border awareness campaigns completed
- Training on drug and supply management completed
- Software on electronic reporting developed and installed
- Training of trainers on electronic reporting system for TB completed
- Training of TB in-charges on electronic reporting system for TB completed
- Transfer referral mechanisms for TB cases in prisons developed
Challenges

- Inadequate human resources
- Frequent change of TB in-charges
- Inadequate monitoring and supervision
- Inadequate contact tracing and follow up
- Scaling up the TB/HIV collaborative activities
- DOT implementation
- Cross border issues
- Technical and managerial capacity for implementation of additional planned activities
- Limited capacity to conduct research and TB surveillance activities
- Sustainability of financial resources

New Initiatives

- Initiated the development of Five Year National Strategy and Operational Plan

Future Plans

- Conduct training of medical officers on revised TB guidelines
- Conduct training on MDR-TB management
- Conduct situational assessment of TB in monastic institutions
- Conduct training to focal monks and nuns
- Conduct annual TB review meeting
- Procurement of health products and reagents for Culture and DST
- Refurbishment of MDR-TB wards
- Review and finalize the Five Year National Strategy and Operational Plan
- Plan to apply for GFATM Round 11 proposal
Figure 22: Percentage of Sex distribution of registered TB patients (2010)

Figure 23: Distribution of New smear positive cases by age and gender (2010)

Figure 24: Percentage of Case notification by type of patient (2010)

Figure 25: Cases Registered by treatment category, 2010

Figure 26: Percentage of treatment outcomes among New smear positive cases (2009)

Figure 27: Case detection rate and Treatment success rate for new smear positive cases (2004 - 2010)
Surveillance and Epidemiology, 2010
Population - 6,95,822

Estimates of epidemiological burden
Incidence (all cases/100 000 pop/yr) - 179
Incidence (ss+/100 000 pop/yr) - 66
Prevalence rate (all cases/100 000 pop/yr) - 191
Mortality (in percent) - 3

Surveillance and DOTS implementation
DOTS case detection rate (all cases, %) - 107
DOTS case detection rate (new ss+, %) - 99
DOTS treatment success (new ss+, %) - 92

Laboratory services
Number of laboratories performing smear microscopy - 32
Reference lab - 1
Implementation of EQA - Present
Culture and DST - NPHL
Collaborative TB/HIV activities
National policy of counseling and testing TB patients for HIV - absent
National surveillance system of HIV infection in TB patients - ongoing

Source: NTP, Bhutan Report, 2011
Republic of India is an extremely large country with a population of almost 1192 million in SAARC Region. India is the second most populous country in the world accounting for 17.6% 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 658 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 340 million in 2010.

**Status of Tuberculosis Control**

Tuberculosis threatens the health of millions in the country. India is the highest TB burden country globally, with 2 million cases of all type of TB cases occurring annually, India accounts for one quarter 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 latent 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 2 million new TB cases occurring annually, around 0.85 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 ranks 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 were placed on treatment.

There were 1,522,147 all types of TB cases notified of which 630,165 were smear positive, in the year 2010, which are capable of spreading the disease to others.

Diagnostic facilities have been established and all total 12,870 laboratories throughout the country. Quality Assurance protocol for smear microscopy has been implemented in all the states. During the year 2010, new sputum positive case detection rate of 74% and treatment success rate of 87.5% was achieved for the NSP patients registered in 2009.

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 threatened by the emergence and spread of HIV and drug-resistant tuberculosis. India, the third highest HIV burdened country, had an estimated 2.39 million (translating to a prevalence of 0.31%) people living with HIV/AIDS (PLHAs), about 0.12 million new HIV infections and 0.172 million deaths due to AIDS related causes in 2009. The worst affected states are Andhra Pradesh, Karnataka, Manipur, Maharashtra, Nagaland and Tamil Nadu. These six states account for about 57% of PLHA in India and classified as High Prevalence States. Another three states namely Gujarat, Goa and Pondicherry have been classified as Moderate HIV prevalence states. This is the first time HIV incidence estimates have been calculated and the 6 high prevalence states accounts for only 39% of these infections.

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.

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 12-17% 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 99,000 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

- Performance of programme against the Objectives of case detection and success rate of 70% and 85% amongst NSP patients achieved and sustained since last three years
• Network of 13000 designated microscopy centers with quality assured microscopy established
• More than 0.44 million DOT centers established with trained DOT provider in every village of the country
• Since implementation of RNTCP –
  i) >44 million TB suspects examined
  ii) >13 million patients placed on treatment
  iii) >2.3 million lives saved

Challenges

• Achieving universal access while maintaining and further improving the quality of services across the country
• Continued motivation of human resources
• Promoting rational use of first and second line anti-TB drugs
• Scaling up diagnostic and treatment services for MDR-TB.
• Scaling up of PPM activities to link all providers to RNTCP
• TB-HIV collaboration
  o ART-DOTS linkages `for improving access
  o Operationalization of CPT prophylaxis to co-infected patients
  o Provider initiated routine referrals of TB patients for VCT
• Promote operational research to address the local challenges
• Introduction of new tools for diagnosis and drugs for treatment
• Geographical variations in programme performance
• Estimation of TB burden in the absence of the private sector notification of TB data and no national representative Prevalence survey for baseline
• Monitoring of partners working with programme

New Initiatives

• PPM consultation meeting
• OR capacity building workshops
• Management Information for Action (MIFA) training for Programme officers
• TB-HIV intensified package launched in 28 / 35 states (country to be covered by 2011)
• DOTS-Plus scale up plan consolidated my state & district level micro-planning aligning with the national plan
Future Plans

- Re-alignment of TB Unit (presently at 1 per 5 lakh pop) to Block level
- Use of telecommunication in demand generation, service delivery & patients tracking
- Designing & implementing effective innovative ACSM tools, NGO-PPM approaches
- Intensified case finding activities in high risk groups
- Use of newer rapid diagnostic tools
- Case-based electronic notification systems for data quality improvement
- Notification of cases diagnosed and treated in the private sector
- Developing diagnostic algorithms for Extra-pulmonary TB
- Establishing referral linkages between primary, secondary and tertiary hospitals
- Conducting prescription audits in private and public sectors including medical colleges
- Promoting and the regulation of rational use of Anti-TB drugs and diagnostics
- 43 Culture and Drug susceptibility testing (C&DST) laboratories to be established by 2013
- Another 30 C&DST laboratories to be established in government and other sectors through public Private partnerships by 2015
- Decentralization of second-line drug susceptibility testing
- Establishment of 120 DOTS Plus Sites (indoor facility 1 per 10 million population)
- Procurement of anti-TB drugs for the management of patients with MDR TB and also additional second-line anti-TB drug resistance (e.g. XDR TB)
- Developing evidence-based treatment guidelines for TB cases resistant to drugs other than Rifampicin
- Establishing drug resistance surveillance in the country Involving secondary and tertiary level hospitals in management of Drug resistant TB
- Priority deployment of newer rapid diagnostics in HIV care settings
- Nationwide provision of TB preventive therapy among HIV-infected individuals after pilot
- Exploring the possibility of alternative regimens in HIV positive TB patients
- Developing guidelines for addressing TB care in special settings like, prisons, mines, alcoholics, beggars, homeless, migrant labourers etc
- Developing gender sensitive approaches to facilitate access and utilization of TB control
- Inter-sectoral coordination for increasing access and quality of TB care
- Initiating TB surveillance in health care workers
- Promoting implementation of Airborne Infection control guidelines
- Increased human resources commensurate to re-alignment of TUs to block level
• Performance appraisal system for contractual staff
• Development & capacity Building of national TB Institutes like NTI, N.D.T.B. center, LRS
• Coordinating with NRHM division for development of long-term policy on sustainable human resources in states for RNTCP
• Coordinating with NRHM division for clearly defining the roles and responsibilities of directorate of health services and mission directorates in the state
• Empowering the STOs & DTOs in financial and programmatic management and reporting within the framework of NRHM
• Individual patient monitoring facilitated by electronic updating of patient treatment card
• Developing monitoring indicators in view of changes and updates to cover all areas
• Bar coding usage for tracking of patient wise boxes
• Regular measurements of the quality of the programme through indicators
• Operational research –
  o Improvement in quality and proficiency of services.
  o Diagnostic & treatment delays both on part of patients and providers
  o TB risk perceptions, health seeking behaviour, KAP of patients and providers and reasons of opting of RNTCP.
  o Improvement in surveillance, both by strengthening routine surveillance as well as planning large inventory studies.
  o Epidemiological studies for incidence, prevalence and mortality measurement.

**Research Studies Published/carried out during the current year:**

• Annual risk of Tuberculosis Infection (zonal surveys) for national representative sample completed in 2007-09 – In process of publishing the results
• 7 prevalence surveys conducted in 2007-09; data analysed. In process of publishing the results
### Surveillance and Epidemiology, 2010

Population - 1192 million

#### Estimated Epidemiological burden

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Incidence (all cases/100 000 pop/yr)</td>
<td>168</td>
</tr>
<tr>
<td>Incidence (ss+/100 000 pop/yr)</td>
<td>71</td>
</tr>
<tr>
<td>Mortality (Deaths/100 000 pop)</td>
<td>23</td>
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<tr>
<td>Case Notification/100 000 pop</td>
<td>128</td>
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<tr>
<td>Prevalence of TB (all cases/100 000pop)</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>
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</tr>
<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>74</td>
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<tr>
<td>DOTS treatment success (new ss+, %)</td>
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#### Laboratory services

<table>
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<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of laboratories performing smear microscopy</td>
<td>12870</td>
</tr>
<tr>
<td>National/Provincial reference Lab</td>
<td>04</td>
</tr>
<tr>
<td>Intermediate Reference Lab</td>
<td>14 (Accredited)</td>
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<tr>
<td>No. of Accredited Lab Performing Culture &amp; DST</td>
<td>27</td>
</tr>
<tr>
<td>Implementation of EQA</td>
<td>All Designed microscopy centers are implemented EQA</td>
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#### Collaborative TB/HIV activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>National policy of counseling and testing TB patients for HIV</td>
<td>Present</td>
</tr>
<tr>
<td>National surveillance system of HIV infection in TB patients</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cross-referral mechanism between ICTC and RNTCP</td>
<td>Present</td>
</tr>
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</table>

Source: NTP, RNTCP India Report, 2011
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 319,738 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. The National TB Control Programme (NTP) at the Centre for Community Health and Disease Control, Ministry of Health and Family, Maldives, is the central body for registration, planning, monitoring, training and evaluation of TB control activities since its establishment in 1976. TB is a notifiable disease and DOTS remains the core element of the National TB Control Programme. Coordination and collaboration with other health-care institutions, especially private health-care institutions, in identifying and accurately reporting identified cases has been established. All anti-TB drugs are available only through the government-run National TB Control Programme. With a population of about 309 000, Maldives has an estimated prevalence and incidence rate of all forms of TB of 13 and 110 per 100 000 population respectively. The notification rate of all forms of TB and new smear-positive cases were 31 and 15 respectively.

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. Drug susceptibility testing, if deemed clinically necessary for a particular patient, is undertaken by shipment of samples to TRC, Chennai, which is also the designated supranational reference laboratory for the country. Patients diagnosed with MDR-TB are managed clinically at the tertiary care hospital – the Indira Gandhi Memorial Hospital (IGMH) in Malé – and treatment is based on individualized regimens.

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.

**Achievements of NTP**

- Development of a health master plan for 2005-2015, which accords high priority and adequate funding for TB control.
- Collaboration with the HIV/Aids program
- Total ban on selling anti-TB drugs at local pharmacies and elsewhere in the country.
- Development of MDR-TB national guidelines for managing MDR-TB
- Health system providing TB diagnosis and treatment free of cost.

**Challenges**

- Strengthening and sustaining the laboratory EQA system.
- Ensuring adequate supervision and monitoring of DOTS centre in the regions and atolls.
- Lack of trained health workers for DOTS centres
- Lack of skilled staff at all levels of the programme.
- Need of proper ventilation for infection control the main DOTS centres laboratory at the Indira Gandhi Memorial Hospital.
- Strengthening supervisory mechanism on quality assurance of smear microscopy.
- Inadequate collaboration between care-providers and the National TB programme.

**New Initiatives**

- Starting to offer counseling and voluntary HIV testing for TB patients.
Future Plans

- Continuation of postgraduate training in MD chest medicines/respiratory medicine.
- Develop, print and disseminate IEC information package on transmission and prevention of TB for school children.
- Training workshop for community health workers on TB case management.
- Awareness programme for expatriates recruiting agents on TB prevention and control.
- Celebration of world TB day.

**Figure 33: Percentage of Sex distribution of registered TB patients (2010)**

**Figure 34: Cases Registered by treatment category, 2010**

**Figure 35: Percentage of Case notification by type of patient (2010)**

**Figure 36: Distribution of New smear positive cases by age and gender (2010)**

**Figure 37: Case detection rate and Cure rate for new smear positive cases (2003 - 2010)**
### Surveillance and Epidemiology, 2010

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<tr>
<td>Population</td>
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#### Epidemiological burden

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Incidence (all cases/100,000 pop/yr)</td>
<td>32</td>
</tr>
<tr>
<td>Incidence (ss+/100,000 pop/yr)</td>
<td>14</td>
</tr>
<tr>
<td>Mortality (in absolute number)</td>
<td>4</td>
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#### Surveillance and DOTS implementation

<table>
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<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>DOTS Case detection rate (all types %)</td>
<td>93</td>
</tr>
<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>91</td>
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<tr>
<td>Cure rate (new ss+, %)</td>
<td>82</td>
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#### Laboratory services

<table>
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<tr>
<th>Description</th>
<th>Value</th>
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<tr>
<td>Micro coping Centers</td>
<td>40</td>
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<tr>
<td>National Reference lab (NRL)</td>
<td>01</td>
</tr>
<tr>
<td>Implementation of EQA</td>
<td>01</td>
</tr>
</tbody>
</table>

*Source: NTP, Maldives Report, 2011*
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 as of census day, June 22, 2011 stands at 26.6 millions. Total addition in the population of Nepal during last 10 years is recorded as 3.45 million with an average annual growth of 1.40 percent. However analyses has been done at the population 27.5 which is provided by the NTP Nepal.

**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, I/NGOs, 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. WHO estimates prevalence of all type of TB cases for Nepal at 71 000 (241/100 000) while the number of all forms of incidence cases is estimated around 48,000 (163/100 000). With the introduction of DOTS, number of deaths has dramatically reduced from 9,712 (51/100 000) in 1990 to 6,300 in 2009 (21/100 0000).

The global targets of 85% treatment success and 70 % case detection rate have already been achieved.

Nepal NTP adopted DOTS strategy in 1996 with 4 pilot centers and achieved nationwide coverage since April 2001. Currently, DOTS based TB services are available in all 75 districts of the country. By mid July 2010, a total of 4,220 health institution including 1,122 Treatment Centre and 3,098 Sub Treatment Centers were offering DOTS for provision of DOTS based TB control 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 76 % in 2010. 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 41% were new smear positive, 26% new smear negative and 19 % new extra-pulmonary. Regarding treatment outcomes of new smear positive cases, cured were 87%, treatment completed 3%, failure 1%, defaulted 3% and death 4%. The treatment success rate for 2010 was 90%.
The Treatment Success Rate reached 90% in 2008/2009.
The Case Detection Rate reached 76% in 2010.

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 2010 it was expanded and covered 12 treatment Centers and 54 Sub-Treatment Centers.

Till 2010 NTP registered 882 MDR TB cases for treatment. The largest number of MDR TB cases registered belongs to failures of CAT II 89% followed by CAT I failures 6% 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%.

Achievements

- Case findings (TB) = 76%
- Treatment Success = 90%
- Expansion of PAL in 9 districts
- TB/HIV programme expansion in 15 districts
**Key Constraints & Challenges**

- Programme sustainability: Current over 75% of the NTP operational budget is from external donor sources.
- Lack of human resource and expertise for optimum programme performance and management of specialized NTP components such as MDR treatment, TB/HIV collaboration, Practical Approach to Lung Health, Advocacy Communication and Social Mobilization, PPM and Drug Management. Currently national level focal positions for these areas are funded through TGF grants.
- No sanction post of Chest physician at National, Regional and Zonal level hospitals.
- No chest hospital at National level.
- Lack of electronic data management for DOTS, MDR TB management programme and Drug Management.
- Lack of infection control measures with special focus on MDR-TB management sites etc.

**New Initiatives**

- Infection control training to all microscopists.

**Planned Activities**

- MDR TB Management.
- Chest camps in Banke, Bardiya and Jumla districts.
- Strengthen sputum smear microscopic centers.
- Intensive HIV case findings amongst TB patients.
- ACSM activities in target districts.
- Operational research.
- Supervision, monitoring and evaluation.

**Research Studies Published/carried out during the year.**

Research going on TB/HIV, but not published the report because report not finalized.
### Surveillance and Epidemiology, 2010

<table>
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<tr>
<th>Measure</th>
<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>27,498,585</td>
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<tr>
<td><strong>Epidemiological burden</strong></td>
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</tr>
<tr>
<td>Incidence (all cases/100 000 pop/yr)</td>
<td>149</td>
</tr>
<tr>
<td>Incidence (ss+/100 000 pop/yr)</td>
<td>75</td>
</tr>
<tr>
<td>Prevalence rate (all cases/100 000 pop/yr)</td>
<td>130</td>
</tr>
<tr>
<td>Case Notification (all cases/100 000 pop/yr)</td>
<td>132</td>
</tr>
<tr>
<td>Mortality (deaths/100 000 pop)</td>
<td>21</td>
</tr>
<tr>
<td><strong>Surveillance and DOTS implementation</strong></td>
<td></td>
</tr>
<tr>
<td>DOTS case detection rate (all types, %)</td>
<td>88</td>
</tr>
<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>76</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
<td>90</td>
</tr>
<tr>
<td><strong>Laboratory services</strong></td>
<td></td>
</tr>
<tr>
<td>Number of laboratories performing smear microscopy</td>
<td>489</td>
</tr>
<tr>
<td>Number of laboratories performing culture and DST</td>
<td>2</td>
</tr>
<tr>
<td><strong>Implemented of EQA</strong></td>
<td></td>
</tr>
<tr>
<td>Collaborative TB/HIV activities</td>
<td>489</td>
</tr>
<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, Nepal Report, 2011
PAKISTAN

The 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 796,095 square kilometers. There are four provinces, two regions and one Capital Territory. These areas are further divided into 141 districts.

Population of Pakistan was approximately 176 million as at the end of 2010. Adult male population 52 million, adult female population 50 million and children under 15 yrs are 73 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.

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 provinces 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 5th 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 2010, 39% were New smear positive (NSS+), 39% New smear negative (NSS-) and 17% 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. 96% of TB cases were registered in 2010 belonged to Category I treatment and only 4 % to category II.

Treatment outcomes of new smear positive cases registered for treatment in 2009: cured were 74%, treatment completed 17%, failure 1%, defaulted about 4% 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 91% for patients registered in 2009.
**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 organized by IUATLD from 29 Oct. to 4 Nov. 2006. The abstracts were accepted and published in abstract book of the conference.

**MDR-TB patients**

There are total 254 MDR-TB cases diagnosed and registered for treatment.
Achievements of NTP

A steady progress has been made from 2001 onwards to improve the case detection and treatment success rate by emphasizing on quality assurance of smear microscopy, drug management, community mobilization, involving tertiary care hospitals, NGOs, and inter-sectoral organizations and above all involving private sector for service delivery. Following are the main achievements in 2010;

1. Number of TB cases diagnosed was increased from 20,707 in 2001 to 269,290 in 2010. Since the revival of the program in 2001, NTP has successfully treated more than 1.5 million TB cases free of cost. Current case detection rate of new smear positive TB cases is 74% and treatment success rate is 91%.

2. Around 5,800 diagnostic and treatment centers have been established in the public sector provide which are providing free TB testing and treatment services.

3. National TB guidelines have been developed for TB Control, childhood TB, difficult to diagnose TB, TB/ HIV co-infection and MDR-TB. NTP has trained doctors, paramedics, laboratory technicians and LHWs all over the country.

4. Resources has been secured for 50% requirement of TB drugs for next 5 years. Through Global Fund Round 8, NTP is establishing drug management system and refurbishing warehouses all over the country.

5. 1209 peripheral microscopy centers have been established all over the country and approximately 600,000 TB suspects are tested each year free of cost. In addition NTP has established and functionalized BSL-3 reference laboratory at National level. Five more BSL-3 labs will be established during this year in the provinces.

6. Joint Coordinating Board and National Technical Working Groups have been constituted for TB/HIV & MDR- TB under Federal Ministry of Health for policy guidelines to address these challenges.

7. TB/HIV guidelines and manuals have been developed for the screening and management of TB/HIV co-infected patients in consultation with Technical Working Group. Sixteen sentinel sites are selected and strengthened, through collaborative efforts of TB & AIDS control programs and non-government partners for screening, care and support of TB/HIV co-infected patients.

8. MDR-TB management has been started at 3 pilot sites. Resources have been secured for comprehensive management of 15000 MDR-TB patients (diagnosis, treatment and social support) through GFATM Round 9.
9. Childhood and difficult to diagnose TB case management started through piloting in 30 DHQ hospitals and 27 tertiary care hospitals. Program is providing free pediatric drugs and Purified Protein Derivative (PPD).

10. National TB Control Program 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. During 2010, 15% TB cases in national data were contributed through the PPM.

11. NTP has recently has established Stop TB Partnership Pakistan and designated a Stop TB Ambassador in Pakistan. Branding strategy is adopted for 5,800 health facilities. In addition awareness has been raised through electronic and print media.

12. NTP has a functional research unit which has linkages with national and international organizations. NTP is conducting a large country-wide TB Prevalence survey from 2010 to 2011 to estimate the exact burden of TB in the country.

Challenges

1. Insufficient allocation at provincial level and diversion of public sector funds due to recent devastating flood in July/August 2010
2. Poor security situation, particularly in Balochsitan, Khyber Pakhtoonkwa and FATA
3. Sustainability of the donor funded projects, most of the activities are supported by the GFATM
4. Declaring TB as notify able disease
5. On counter sale of 1st and 2nd line anti TB drugs in the market
6. Pre-qualification of local pharmaceutical companies under WHO scheme for bio-availability and bio-equivalence

New Initiatives

1. Programmatic Management of Drug Resistance TB through the GFATM Round 9
2. Strengthening of the TB Drug Management System, introduction of the TB Drug Management Information System
3. Started TB activities in the prisons, urban slums and other vulnerable population through the TB REACH
4. Third party evaluation of the TB program
5. Prevalence survey to measure the disease burden

Future Plans

1. Expansion of child hood TB
2. Expansion of TB/ HIV
3. Implementation of Practical Approach to Lung Health (PAL)
4. Provision of TB services in high risk groups through active case detection by using innovative technology (Gene Xpert, LED microscope)

**Research Studies Published /carried out during the Current Year.**

The expansion and consolidated of DOTS, along with addition of new intervention areas with the help of a continuously expanding partnership network, has unfolded new challenges in its wake, one of them being evidence-generation. All public health programs generate evidence for decision making and test new initiatives and interventions with scientific rigor. Evidence generation remains incomplete unless feasibilities are put to test and overall program performance subjected to appropriate monitoring and surveillance.

To improve its research capacity, NTP has established one national and four provincial research groups; developed partnerships with the Pakistan Medical Research Council; established linkages with international academic and research institutions. Following were main research activities during 2010;

- Initiation of process for impact measurement through a TB Disease Prevalence Survey planned in Pakistan in 2010-11. The survey is with a challenging sample size of 133000 in 95 clusters across the country. The Protocols of the survey have been finalized with support from WHO and KNCV. Standard operating procedures developed with training manuals. Hiring of staff completed and training done. Recently pilot of the survey has been conducted initially in August and repeated in another selected cluster based upon lesson learned from previous pilot. The second pilot was successful with 80% participation and improved data management. The field work will soon be started from 6th Dec 2010 in 6 clusters simultaneously.

- NTP has a privilege and honor to receive one million dollars Grant highest funding for TB REACH Grant on the active case detection in urban slums through innovative diagnostic techniques ie LED Floresent microscopy in Sind Province Pakistan.

• The Data collection of two TDR Supported studies and one Union Supported study in progress on barriers against DOTS Implementation, Vital Registration and Initial default in tertiary care hospitals vs. peripheral health facilities

• The NTP Research Unit has begin the landmark study of indirect estimation of disease burden through capture Recapture Analysis after piloting the same and it would be complimentary to estimation of disease burden through Prevalence Survey.

Figure 46: Percentage of Sex distribution of registered TB patients (2010)

Figure 47: Distribution of New smear positive cases by age and gender (2010)

Figure 48: Percentage of Case notification by type of patient (2010)

Figure 49: Cases Registered by treatment category, 2010

Figure 50: Percentage of treatment outcomes among New smear positive cases (2009)

Figure 51: Case detection rate and Treatment success rate for new smear positive cases (2001 - 2010)
### Surveillance and Epidemiology, 2010

**Population** - 176 Million

### Epidemiological burden

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence (all cases/100,000 pop/yr)</td>
<td>239</td>
</tr>
<tr>
<td>Incidence (ss+/100,000 pop/yr)</td>
<td>99</td>
</tr>
<tr>
<td>Prevalence rate (all cases/100,000 pop/yr)</td>
<td>373</td>
</tr>
<tr>
<td>Mortality (TB cases/100,000 pop)</td>
<td>38</td>
</tr>
</tbody>
</table>

### 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>
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</tr>
<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>60</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
<td>91</td>
</tr>
</tbody>
</table>

### Laboratory services

<table>
<thead>
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<th>Service</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>National reference laboratory</td>
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</tr>
<tr>
<td>Number of reference labs.</td>
<td>01</td>
</tr>
<tr>
<td>Intermediate Reference laboratory</td>
<td>05</td>
</tr>
<tr>
<td>Number of Accredited laboratories performing Culture and DST</td>
<td>01 NRL</td>
</tr>
<tr>
<td>Implementation of EQA</td>
<td>present</td>
</tr>
</tbody>
</table>

### Collaborative TB/HIV activities

Out of a total of 13,164 New smear positive pulmonary TB case, 24 were found to be HIV+ve in 2009.

Source: NTP, Pakistan Report, 2011
Sri Lanka is an island in the Indian Ocean with an area of 65,610 square kilometers. It has nine provinces and 25 administrative districts. Each province is governed by a Governor. Population in Sri Lanka was 21 millions in 2010.

**National Programme for Tuberculosis Control and Chest Diseases (NPTCCD)**

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. 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.

**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.

The estimated prevalence and incidence rates of all forms of tuberculosis in 2010 were 101 and 66 per 100,000 population respectively. The notification rate of all forms of TB and new smear-positive cases were 45 and 22 respectively, showing a slight but steady increase compared with previous years. Treatment success rates among new smear-positive cases were 86% for the cohort of patients registered in 2009.

HIV co-infection rates among TB patients are currently estimated at less than 0.1%. TB patients have been included under the annual surveillance for HIV since 1993. Only eight cases have been detected from among 13,993 TB patients tested so far. A national policy for the provision of CPT and ART to HIV-positive TB patients is in place.

**MDR-TB patients**

So far, MDR-TB is low only eight cases were detected in 2010. A national drug resistance survey was completed in 2006, and this confirmed the very low levels of drug resistance of 0.2% among new patients and 18%–21% among re-treatment cases in the country. Culture and DST is performed for all patients who fail Category I regimens, at the time of initiation of treatment for all patients commencing Category II regimens, contacts of MDR-TB cases, all patients commencing re-treatment regimens, HIV-infected TB cases, migrants and prisoners. MDR-TB is diagnosed at the national reference laboratory which is supported by the Supranational Laboratory at TRC, Chennai, India. Patients are treated initially at the Central Chest Hospital after which they are referred for treatment at chest clinics in their respective districts. Second-line anti-TB drugs for treatment of MDR-TB cases are procured by the government from the open market. Periodic stock-outs have been reported. The success rate among MDR-TB cases is not yet known. National guidelines for the treatment of MDR-TB have been developed. The programme initiated MDR-TB case management under GLC approval with support through the Global Fund in 2010.

**Achievements**

- DOTS implementation coverage in the country is nearly 100%.
- The number of case detected in year 2010 (9328) is higher than the year 2009(9118) and 2008(8996)
- Treatment success rate remains above 85% in 2009, 2008 and 2007
• Default rate in year 2009 (4.2%) is lower than year 2008 (6.8%) and year 2007 (7.1%)
• Treatment failure rate in year 2009 (1.5%)
• The incidence of the all TB cases 48.0 per100,000 population
• The mortality rate of year 2009 is 2.4 per100,000 population

Challenges

• Maintaining an adequate level of human resources in the face of high turnover of trained staff and lack of opportunities for staff development
• Case detection at special places (prison, elder’s home etc) & among special people (immigrants, drug users etc), achieving patient compliance among those groups
• Sustaining TB control services among IDPs in the context of lack of supervision, inadequate staff, etc
• Addressing the high disease burden and high defaulter rate in Colombo city
• Overcoming the stigma attached to TB

New Initiatives

• Developing a communication strategic plan to strengthen the Advocacy Communication and Social Mobilization for the NTP
• Strengthening public-private mix in Tb control by establishing DOTS centers in private hospital and linking private institutions to the programme data management system
• Initiated the development of PAL guidelines
• Developed the Infection Control Plan for chest clinics, TB wards and other health care facilities

Future Plans

• Establishing interventions to address HIV-related TB (TB-HIV) and Drug – resistant TB with the developing the TB/HIV co-infection guidelines and the MDR-TB management guidelines - initiated the activity
• To developing the five–year Advocacy Communication & Social Mobilization Plan (ACSM) for the National TB control Programme to reduce the social stigma
• Development of an Infection Control Plan for chest clinics, TB wards and other health care facilities
• Initiated the updating of the Laboratory Manual
• Initiated on the improvement of productivity and Quality assurance system at all levels with the technical assistance of the Sri Lanka Institute of Development Administration (SLIDA)
and the guidance of Ministry of Health and Ministry of Labor Relations and Productivity Promotion of Sri Lanka

- Improving laboratory capacity and scaling up of microscopy, and culture and DST facilities. Kandy culture laboratory was established.
- Further to strengthening the TB control activities in prisons by establishing Microscopy centers and providing a x-ray machine and refurbished the x-ray room.
- Improving Procurement Supply Management system by training the key staff and implement the Inventory Control software to the NPTCCD.
- Improving technical capacity of health staff attached to the National TB Control program.
- Improving infrastructure further at facilities for the delivery of quality of TB services.
- Strengthening of PPM in TB control establishing DOTS centers in private hospitals and linking private institutions to the programme data management system.
- Updating the Patient Information Management System (PIMS) software package and introducing online data transmission, networking among District Chest Clinics, National Reference Laboratory, Central Drug Stores and the NPTCCD.
- Initiating of developing the PEN concept to the country.
- Printing and distribution of the revised/newly designed General Manual of TB control Management guidelines for Extra-pulmonary TB.
- Planning to revised the National Strategic Plan for the NTP with the technical assistance from WHO and conducting the GAP analysis for the National TB control programme.

Research Studies Published/carry out during the current year

- The study on determination of prevalence of TB disease pattern its contributory factor and treatment outcome of Tuberculosis among convicted prisoners in Sri Lanka with the technical support from WHO. The protocol & budget was prepared and money was obtained from the WHO to NPTCCD.
- Field survey study on constraints in involvement of General Practitioners in the National TB Control programme in Sri Lanka with the support of the SAARC. The study was ongoing in 2010.
- An analytical study on TB case detection & projection for the future was implemented in year 2008 and it is completed in year 2010.
Figure 52: Percentage of Sex distribution of registered TB patients (2010)

Figure 53: Distribution of New smear positive cases by age and gender (2010)

Figure 54: Percentage of Case notification by type of patient (2010)

Figure 55: Cases Registered by treatment category, 2010

Figure 56: Percentage of treatment outcomes among New smear positive cases (2009)

Figure 57: Case detection rate and Treatment success rate for new smear positive cases (2001 - 2010)

### Surveillance and Epidemiology, 2010

**Population** - 21 Million

#### Epidemiological burden
- **Incidence (all cases/100 000 pop/yr)**: 56
- **Incidence (ss+/100 000 pop/yr)**: 25
- **Mortality rate (TB cases/100 000 pop)**: 9.1

#### Surveillance and DOTS implementation
- **DOTS Case detection rate (all types %)**: 86
- **DOTS case detection rate (new ss+, %)**: 88
- **DOTS treatment success (new ss+, %)**: 86

#### Laboratory services
- **Number of laboratories performing smear microscopy**: 173
- **National/Provincial reference Lab**: 01
- **Number of Accredited Laboratories performing Culture and DST**: No
- **Implemented of EQA**: 163

#### 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: NTP, Sri Lanka Report, 2011*
4. TB/HIV CO-INFECTION

TB/HIV Co-infection poses a critical challenge for the health-sector and for people living with HIV and TB. HIV is the strongest risk factor for developing active TB disease. An HIV positive person is 21-34 times more likely to develop TB disease as compared to an HIV negative person.

Of the estimated 34 million people living with HIV globally, about one third are estimated to have concomitant latent infection with Mycobacterium tuberculosis. In 2010, of 8.8 million incident TB cases worldwide, 1.1 million were among people living with HIV. Sub-Saharan Africa continues to account for the global majority of the people living with HIV and TB, with an estimated 82% in 2010.

A total of 2.1 million people with TB were tested for HIV in 2010, equivalent to 34% of all notified TB cases. Of the people tested in 2010, 488 000 (23%) were HIV-positive. Globally, access to antiretroviral therapy for people diagnosed with TB increased modestly from 173 000 people in December 2009 to more than 200 000 at the end of 2010 (47) among 101 reporting countries. In 2010, 20% of the total estimated number of people with TB and HIV – or 46% of people with TB who tested positive for HIV – were receiving antiretroviral therapy.

WHO recommends the three I’s for HIV and TB – intensified TB case-finding, isoniazid preventive treatment and TB infection control – to decrease the burden of TB among people with HIV. The SAARC TB & HIV/AIDS Center also includes a fourth ‘I’ in its Regional strategy on TB/HIV Co-infection (Revised) it states about the Integrated case management including ART & DOTS. In 2010, progress continued in expanding the availability of these interventions in low- and middle-income countries. As of December 2010, among 119 countries providing data, 69 (58%) indicated that isoniazid preventive therapy (IPT) was part of their package of interventions for people living with HIV.

Globally, HIV testing among TB patients reached 34% in 2010, 59% in the African Region; Also in the year 2010, approximately 80% of TB patients known to be living with HIV were started on cotrimoxazole preventive therapy (CPT) and 46% were on antiretroviral therapy (ART); A large increase in screening for TB among people living with HIV and provision of isoniazid preventive therapy to those without active TB disease occurred.
The World Health Organization recommended interventions are collectively known as collaborative TB/HIV activities. They include HIV testing of TB patients, provision of antiretroviral therapy (ART) and co-trimoxazole preventive therapy (CPT) to TB patients living with HIV, HIV prevention services for TB patients, intensified TB case-finding among people living with HIV, isoniazid preventive therapy (IPT) for people living with HIV who do not have active TB, and infection control in healthcare and congregate settings. WHO recommends that ART should be provided to all TB patients living with HIV, irrespective of their CD4 count (and to all people living with HIV with a CD4 cell count ≤ 350). People living with HIV who are also infected with TB are about 21–34 times more likely to develop TB disease compared with those who are HIV-negative. Globally in 2010, there were an estimated 0.35 million deaths (range, 0.32 million–0.39 million) from TB among people who were HIV-positive.

The number of TB patients who knew their HIV status reached 2.1 million in 2010; equivalent to 34% of notified cases of TB among TB patients with an HIV test result in 2010, 23% was HIV-positive at the global level.

Joint activities between national TB and HIV programmes are crucial to prevent, diagnose and treat TB among people living with HIV and HIV among people with TB. These include establishing mechanisms for collaboration, such as coordinating bodies, joint planning, surveillance and monitoring and evaluation; decreasing the burden of HIV among people with TB (with HIV testing and counseling for individuals and couples, co-trimoxazole preventive therapy, antiretroviral therapy and HIV prevention, care and support); and decreasing the burden of TB among people living with HIV (with the three I’s for HIV and TB: intensified case-finding; TB prevention with isoniazid preventive therapy and early access to antiretroviral therapy; and infection control for TB). Initiating antiretroviral therapy for all people living with HIV with CD4 cell counts less than 350 cells per mm3 or with active TB irrespective of CD4 count is important to prevent TB- and HIV-related transmission, morbidity and mortality. Integrating HIV and TB services, when feasible, may be an important approach to improve access to services for people living with HIV, their families and the community.
In India, in 2010, around 393,110 TB suspects were referred from ICTCs to RNTCP and of them about 35,547 were diagnosed as having TB and provided TB treatment. In the same period, about 480,752 TB patients (59% of total TB patients registered in states implementing Intensified TB/HIV package) were tested for HIV and of them about 41,476 were diagnosed as HIV-infected and linked to HIV care and support including CPT and ART.

In Afghanistan 5170 TB patients have known their HIV status in 2010. In Bangladesh 1778 TB patients have known their HIV status in 2010 among them 4 were HIV positives. And 347 HIV positive patients were screened for TB. In Pakistan 6289 TB patients have known their HIV status in 2010 among them 22 were HIV positives in 2010 while in Sri Lanka 1015 TB patients have known their HIV status in 2010.

### Table 23: HIV testing and provision of CPT, ART and IPT in the SAARC Region, 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>TB patients with known HIV status</th>
<th>Tested TB patients that are HIV-positive</th>
<th>% HIV-positive TB patients started on</th>
<th>HIV-positive people screened for TB</th>
<th>HIV-positive people provided with IPT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>CPT</td>
</tr>
<tr>
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<td>5170</td>
<td>18</td>
<td>0</td>
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</tr>
<tr>
<td>Bangladesh</td>
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<td>1</td>
<td>4</td>
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<tr>
<td>Bhutan</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>India</td>
<td>480752</td>
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<td>Maldives</td>
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<td>Nepal</td>
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<td>Pakistan</td>
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<td>2</td>
<td>22</td>
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<tr>
<td>Sri Lanka</td>
<td>1015</td>
<td>10</td>
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5. **STAC’S SUPPORT TO TB CONTROL IN THE REGION**

1. **SAARC Regional TB Reference Laboratory and Lab Network**

The SAARC Regional TB Reference Laboratory has been established to coordinate the National TB Reference Laboratories in the SAARC Member States in the different areas, such as Quality Assurance (QA) of Sputum Microscopy, Culture and Drug Susceptibility Testing (DST), Surveillance of Drug Resistance and TB/HIV co-infection. Regional networking of National TB Reference Laboratories has been established by identifying ten TB Labs in SAARC Member States as National TB Reference Laboratories. SAARC TB and HIV/AIDS Centre is under the process to scale-up SAARC Regional TB Reference Laboratory as Supra National TB Reference Laboratory for the SAARC Region.

SAARC training module for AFB Smear Microscopy and Quality Assurance in AFB Smear Microscopy has been published in 2011.

2. **Human Resource Development**

Training of staff is very crucial to the scaling-up of TB/HIV activities. STAC is supporting the SAARC Member States by organizing different type of training to produce trained manpower for control of TB and prevention of HIV/AIDS in the Region. To develop trained manpower or upgrade the skills of the staff, STAC organized different types of training activities, such as Training of Trainers (ToT) on TB Control Management and MDR-TB (DOTS Plus) in Member States, Training on TB Bacteriology/culture/DST, Training on Strengthening IEC Activities on TB & HIV/AIDS, Training on Data Management Skills in TB and HIV/AIDS Control, Epidemiological Training, TB Lab Management Course, Leadership and Strategic Management Training etc. to support NTPs and NACP of Member States.

3. **Establishment of Epidemiological Network**

SAARC TB and HIV/AIDS Centre has prepared analytical books on TB and HIV/AIDS under the title of TB Update and HIV/AIDS Update by collecting data from SAARC Member States with objective to share the current information on TB control and HIV/AIDS prevention in the SAARC Region. 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 2011, this regional strategy on TB/HIV Co-infection is 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. This strategy will review and revised strategy. The process has already been initiated.

5. **Research and study activities**

STAC has been supporting SAARC Member States 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 from 2007 to 2011 are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Title of Research</th>
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<tbody>
<tr>
<td>2007</td>
<td>1. Community based risk behavior study on HIV/AIDS targeting women in Nepal</td>
</tr>
<tr>
<td></td>
<td>2. Quality Assurance of Sputum Microscopy in Private Labs in Dhaka</td>
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<tr>
<td></td>
<td>3. Fourth Round External Proficiency Testing in 9 Reference Laboratories</td>
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<td></td>
<td>4. Acceptability of HIV testing by TB patients in the Member States.</td>
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<tr>
<td></td>
<td>5. Identify the ways and means of collaboration between TB and HIV/AIDS programs to find out the challenges implementation and suggest solution in Member States.</td>
</tr>
<tr>
<td>2008</td>
<td>1. Case –Control Study to identify risk factors for MDR TB in Nepal</td>
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<td></td>
<td>2. Barriers to DOT for MDR-TB patients in Nepal</td>
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<tr>
<td>2009</td>
<td>1. A study to determine the constraints in involvement of private practitioners in TB control in Sri Lanka</td>
</tr>
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<td></td>
<td>2. Baseline CD4 count in the adult population in Pakistan</td>
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<tr>
<td></td>
<td>3. Study on culture positivity amongst smear negative TB patients</td>
</tr>
<tr>
<td>2010</td>
<td>HIV Prevalence in MDR-TB patients in Bangladesh</td>
</tr>
<tr>
<td>2011</td>
<td>1. Drug Sensitivity Stud of patients falling among CAT-I treatment in Nepal</td>
</tr>
<tr>
<td></td>
<td>2. HIV Prevalence among CAT-I failure TB patients in Nepal</td>
</tr>
<tr>
<td></td>
<td>3. HIV Prevalence in TB patients in Bhutan</td>
</tr>
</tbody>
</table>
6. NTP Review of Member States

Under the request of NTPs and NACPs of SAARC Member States, STAC is participating in international review of the programmes.

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 is in the process of completion of SAARC Regional Strategy on Advocacy, Communication and Social Mobilization (ACSM) for TB & HIV/AIDS. As regular activities of the centre, STAC has been allocating three special days for organizing awareness and advocacy programmes, such days are:

- World TB Day
- World AIDS Day
- SAARC Charter Day

On these special days, STAC organizes different partnership programmes in SAARC Member States.


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, such as SAARC Regional Workshop for Development of Regionally Relevant Research Protocol on TB & HIV/AIDS for SAARC Member States was held in Jaipur, India in 2010. In the workshop 10 research protocols have been submitted to SAARC TB and HIV/AIDS Centre for the further process.

10. SAARC Conferences on TB, HIV/AIDS and Respiratory Diseases

Besides organizing workshops, seminars, meetings, 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 also organized SAARC Conference in 2008 on TB, HIV/AIDS and Respiratory Diseases in Kathmandu, Nepal. More than 800 participants from Member States and other countries participated in the conference. Those conferences are taken a very good platform for sharing experiences in TB and HIV/AIDS activities in the SAARC Member States.

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. Simultaneously, STAC has made MoU with WHO, CIDA and other related agencies for the collaboration of activities. STAC is also working as who collaborative centre.

12. Publications of STAC


13. Resource Centre

STAC is in the process of developing a Regional Resource Centre for TB and HIV/AIDS. A library has been established at STAC with different facilities. TB, HIV/AIDS and health related books, journals, newspapers, reports etc. are catalogued for the use of TB control workers, researchers, specialists, medical practitioners, students, journalists and general people. An audio visual section is developed for the use of audio visual materials.
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