



**SAARC TB Centre**

**TUBERCULOSIS  
IN THE SAARC REGION  
AN UPDATE 2005**

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## Foreword

This is the third annual report on TB situation in the SAARC region and it is an update of the previous one. It includes information on population coverage by DOTS, case detection and treatment outcome of seven member countries of SAARC. Though it is the third report of such kind it covers the available information on TB control since the late 1990s to show the progress towards TB control targets for case detection rate (70%) and treatment success rate (85%) by 2005.

This report has been prepared on the basis of information collected from member countries during the year 2004 (and early part of the year 2005) and reviewing other documents including WHO report 2005 on Global TB control. In this report, DOTS coverage and case detection rates are on the basis of 2003 data and treatment outcome is for the 2002 cohort. But some latest information available from country reports is also highlighted.

This report suggests that remarkable progress in TB control has been made in this region since the introduction of DOTS strategy.. For example i) Nearly three-fourth of the Region's people have access to DOTS where free diagnostic and treatment services are available. ii) Over one million TB patients are being registered under DOTS in member countries of this region every year. iii) Treatment success rates under DOTS are around 85% in most countries of the region and over all regional rate is 85%.Major challenges are however there in control of TB, such as Sustainability of quality in diagnosis and case management, Spreading HIV infection, Emergence of MD-R TB, Migration & cross border issue, Expansion of DOTS in hard to reach areas and Improving the quality of implementation and making it more accessible in order to achieve case detection target.

Quality report on TB epidemiology plays an important role in programme planning and advocacy and there by helps in achieving the success in prevention and control of TB. The present report "Tuberculosis in the SAARC Region, an up date 2005" is such an attempt.

The SAARC Tuberculosis Center (STC) in Kathmandu, Nepal, would like to thank the epidemiologists and experts within WHO and SAARC member countries who have generated and shared the epidemiological data and facts utilized for this report. Special thanks go to Dr. Md. Mojibur Rahman, Epidemiologist STC who gave maximum effort to prepare the report. Contribution provided by Dr. Rano Mal Piryani, Deputy Director STC is gratefully appreciated. The centre acknowledges with thanks the assistance provided by its General Service Staff.

STC is very much indebted to H. E. SAARC Secretary General and Directors of SAARC Secretariat for their guidance and support. STC is also thankful to other staff of SAARC Secretariat for their cooperation.

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, STC

## Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
BRAC	Bangladesh Rural Advancement Committee
CDR	Case Detection Rate (see page 8)
CFR	Case Fatality Rate
CIDA	Canadian International Development Agency
DDR	DOTS Detection Rate (see page 8)
DFB	Damien Foundation, Belgium
DFID (UK)	Department for International Development (UK)
DOTS	Directly Observed Treatment Short-course,
ESP	Essential Service Package
FIDELIS	Fund for Innovative DOTS Expansion through Local Initiatives to Stop TB (reaching the unreached)
GDF	Global Drug Facility
GFATM	Global fund for AIDS, Tuberculosis and Malaria
HIV	Human Immunodeficiency Virus
HPSP	Health and Population Sector Project
MDR-TB	Multi Drug Resistance TB
MOH	Ministry of Health
MOU	Memoranda of understanding
NGO	Non Governmental Organization
NTP	National Tuberculosis Control Programme
RNTCP	Revised National Tuberculosis Control Programme (of India)
SAARC	South Asian Association for Regional Cooperation
SAPP	Social Action Programme Project
SEARO	South East Asia Regional Office
SS+	Sputum Smear-positive
STC	SAARC Tuberculosis Centre
TB	Tuberculosis
TB /HIV	TB and HIV co-infection
USAID	United States –Agency for International Development
WHO	World Health Organization

**Summary:**

This is the third annual report on “TB situation in the SAARC region” and it is an update of the previous one. It includes information on population coverage by DOTS, case detection rate and treatment outcome of seven member countries of SAARC. Though it is the third report of such kind it covers the available information on TB control since the late 1990s to show the progress towards TB Control targets of the Millennium Development Goals (MDGs). The five MDG targets directly relevant to TB control are: to detect 70% of new smear-positive cases and to treat successfully 85% of these cases by 2005, to have halted and begun to reverse TB incidence by 2015, to halve TB prevalence and deaths rates between 1990 and 2015.

This report has been prepared on the basis of information and documents collected from member countries during the year 2004 and reviewing the WHO report 2005 on Global TB control. So in this report, DOTS coverage and case detection rates are on the basis of 2003 data and treatment outcome is for the 2002 cohort. But some latest information available from country reports/documents is also highlighted.

Remarkable progress has been made in this region since the adoption of DOTS strategy

- ❖ Three-fourth of the Region’s people has access to DOTS where free diagnostic and treatment services are available.
- ❖ About 1.04 million patients are being registered under DOTS in this region annually
- ❖ Overall regional treatment success rate under DOTS is 86%.

The region still has a long way to go, a visible impact on controlling TB cannot be made unless this benefit reaches to all. To achieve the targets set for 2005, and the Millennium Development Goals set for 2015, it needs to:

- ❖ Ensure access to TB control services of the entire population in SAARC region
- ❖ Register more cases under DOTS
- ❖ Ensure that the quality of DOTS services is maintained
- ❖ Allocate adequate funds to sustain national TB control programmes and
- ❖ Increase community awareness about TB and inform & “attract” TB patients to DOTS centres where quality diagnosis and effective treatment of TB are being provided **free of charge**.
- ❖ Contain HIV epidemic.

## **Introduction:**

SAARC TB Centre is one of the regional centres of SAARC. The main objective of the centre is to work for prevention and control of TB and HIV/AIDS in the region by coordinating the efforts of member countries in this regard. To achieve this objective one of the important functions of this centre is to collect, collate, analyze and disseminate latest relevant information in the field of TB and HIV/AIDS control in the region and else where. In this regard SAARC TB Centre has started to prepare and publish annual SAARC regional epidemiological reports on TB (& HIV/AIDS) since 2003.

This particular report is on TB situation in the SAARC region and is the third of its kind. The aim of these reports is to chart the progress in regional TB control, and in particular, progress in implementing the DOTS strategy, a cost effective approach to TB control, recommended by WHO. This report presents information on case notifications for 2003 and treatment outcomes for patients registered in 2002. Though it is the third report of such kind it covers the available information on TB control since the late 1990s to show the progress towards the Millennium Development Goals (MDGs) for TB control. The five MDG targets directly relevant to TB control are: to detect 70% of new smear-positive cases and to treat successfully 85% of these cases by 2005, to have halted and begun to reverse TB incidence by 2015, to halve TB prevalence and deaths rates between 1990 and 2015.<sup>1</sup> In addition to that some latest information available from country reports/documents is also highlighted at the end of the report-test (table 9).

## **The Burden of Tuberculosis: Global aspect**

Nearly one-third of the global population (2 billion persons) is infected with *Mycobacterium tuberculosis bacillus* and is at risk of developing active clinical TB disease.<sup>2</sup> Estimate suggest that there were 8.8 million new cases of TB (all types) in 2003 (140/100 000 population), of which 3.9 million (62/ 100 000) were smear-positive and 674000 (11/100 000) were infected with human immunodeficiency virus (HIV).<sup>1</sup> There were 15.4 million people suffering from active TB disease (245/100 000 population) of which 6.9 million were smear positive (109/100 000).<sup>1</sup> TB is the biggest curable infectious killer of young people and adults in the world.<sup>3</sup> An estimated 1.7 million people (28/ 100 000) died from TB in 2003, including those coinfecting with HIV (229 000).<sup>1</sup> The fact is that deaths from TB are avoidable.

TB is the leading infectious killer among people living with HIV/AIDS. Globally, TB is still the leading infectious disease cause of death among women of child-bearing age and killing more women than all combined causes of maternal mortality. Each year approximately 2.5 million women get ill from TB and one million die.<sup>3,4</sup> Moreover, worldwide, over 250 000 children develop TB and 100 000 children die from TB every year.<sup>4</sup> By the end of 2003, 77 percent of the world's population were covered by Directly Observed Treatment Short-course (DOTS).<sup>1</sup> DOTS programmes notified 3.7 million new and relapse TB cases in 2003. Among these notified cases 1.8 million were new smear-positive which represent a case detection rate of 45% (of the estimated

incidence).<sup>1</sup> A total of 17.1 million TB patients, and 8.6 million smear-positive patients were treated in DOTS programmes between 1995 and 2003.<sup>1</sup> Treatment success rate for the TB patients registered in 2002 was 82% on average, unchanged since 2000.<sup>1</sup> There were 4.4 million (4392118) cases of TB (all forms) notified in 2003, representing 50% of the estimated 8.8 million new cases.<sup>1</sup>

### **Tuberculosis Burden within SAARC Countries**

Tuberculosis is one of the major public health problems in the SAARC region with immense socio-economic impacts. Almost 50% the adult population of this region have already been infected with *Mycobacterium tuberculosis* and are at risk of developing tuberculosis disease. In the year 2003 an estimated 2.5 million people newly developed TB disease (177/100 000 population), of which about 1.12 million (79/100000) were smear positive and capable to spread the disease to others.<sup>1</sup> According to this estimate SAARC region was bearing 28.31% of the total global new TB cases (with 22.43% of population share). India, Bangladesh and Pakistan are occupying the 1<sup>st</sup>, 5<sup>th</sup> and 6<sup>th</sup> position in the list of 22 high burden nations {*according to estimated incidence (absolute number) of TB: high burden countries.2003*} with India revealing the highest (20.3%) global absolute burden of TB. These 3 SAARC nations account for 27.55% of the total global new TB cases. An estimated 511679 people (36/ 100 000) died from TB in 2003, including those coinfecting with HIV (22969).<sup>1</sup> More than 75% of these cases and deaths occur among 15-54 years age group, economically the most productive age group. As a result the social and economic losses due to TB are huge.<sup>5,6</sup>

By adopting DOTS strategy this region has been started to show success in TB control. By the year 2003 this region has covered over 70% of its population with DOTS and detected 47% of the total estimated new smear positive cases.<sup>1</sup> This region has already achieved the target of 85% treatment success rate of detected new smear positive cases. The treatment success rate for the 2002 cohort was 86%.<sup>1</sup> Major challenges are however there in control of TB, such as

- ❧ Sustainability of quality in diagnosis and case management
- ❧ Spreading HIV infection
- ❧ Emergence of MD-R TB
- ❧ Migration & cross border issue
- ❧ Expansion of DOTS in hard to reach areas
- ❧ Improving the quality of implementation and making it more accessible in order to increase case detection

There is obviously commitment within this region for achieving TB control targets and nationwide DOTS coverage in each country by 2005. Given the current impetus and the additional resources required, the SAARC region will reach global targets between 2005 and 2006.

## Economic and Social Costs associated with TB

TB is a major barrier to social and economic development. More than 90% of global TB cases and deaths occur in the developing world, where 75% of cases are within the economically most productive age-group (15-54 years). An adult with TB (in the developing world) loses on average 3-4 months of work time and the economic losses to the family and community are staggering. The estimates suggest a loss of 20-30% of annual household income and, if the person dies of the disease, an average of 15 years of lost income<sup>5</sup>. Within India, every year, more than 300,000 children are forced to leave school because of their parents' illness due to TB, and approximately 100,000 women lose their status as mothers and wives i.e., abandoned by their families because of TB illness<sup>7</sup>.

## Progress Made in the SAARC Region

Remarkable progress has been made with Directly Observed Treatment Short-course (DOTS) since its inception in 1993 by the region. By 1996 all member countries started DOTS strategy for TB control (Table 1). Of the 3 high burden countries Bangladesh has covered virtually the entire country with DOTS; case detection is being intensified, and 41% of all estimated new smear positive cases were detected in 2003. India has expanded rapidly to cover almost 714 million people (67%) by end of 2003 (Annex I). According to country report, India covered nearly 90% of the population by 2004 and has planned to cover 100% by October 2005.<sup>1</sup> Pakistan adopted DOTS strategy in 1995 and started DOTS demonstration activities in some areas; DOTS expansion began in earnest after 2000 and (DOTS) coverage was 63 % in 2003,<sup>1</sup> substantially greater than 45% in 2002 and 24% in 2001.<sup>8</sup>

**Table 1 DOTS adoption by SAARC Member Countries**

Country	Year of adopting DOTS strategy
Bangladesh	1993
India	1993
Sri Lanka	1994
Pakistan	1995
Bhutan	1996
Maldives	1996
Nepal	1996

Among the low burden countries, Bhutan has achieved complete population coverage. Maldives achieved and has maintained global targets since 1995.<sup>9</sup> Nepal has implemented DOTS successfully and achieved these targets in mid 2002<sup>10</sup>. According to Country report Sri Lanka achieved over 80% of coverage with Directly Observed Treatment Short-course (DOTS) by end of 2003 and by 2004 it covered over 98% of its population under DOTS<sup>11</sup>



DOTS services are now accessible to about 71% (Table 2 & Figure1)) of the regional population <sup>1</sup>. (Available data from country report suggest approximately 88% of regional DOTS coverage as of end 2004). Under the DOTS strategy a total of 1037419 TB cases (all types) including 465096 (app. 45%) new smear positive cases were notified by this region in 2003 (Annex I). Overall regional treatment success rate of 323384 registered new smear positive TB patients in 2002 was 86% (Table 3 & 4) under programmatic conditions in areas where the strategy has been applied. The quality of diagnosis has been good; however the number of cases detected is still low with only 47 % of the estimated new smear positive cases having been detected in 2003 (Table 5 & 6).

In this region, 1394531 cases of TB (all forms) notified in 2003 represent 56% of the estimated 2494505 new cases (Annex I). In the year 2003, 31.75% of global notified cases were from SAARC member countries. (Global: =4392118, SAARC Region= 1394531).

Over all progress in TB control in the SAARC region is shown in Figure 2.

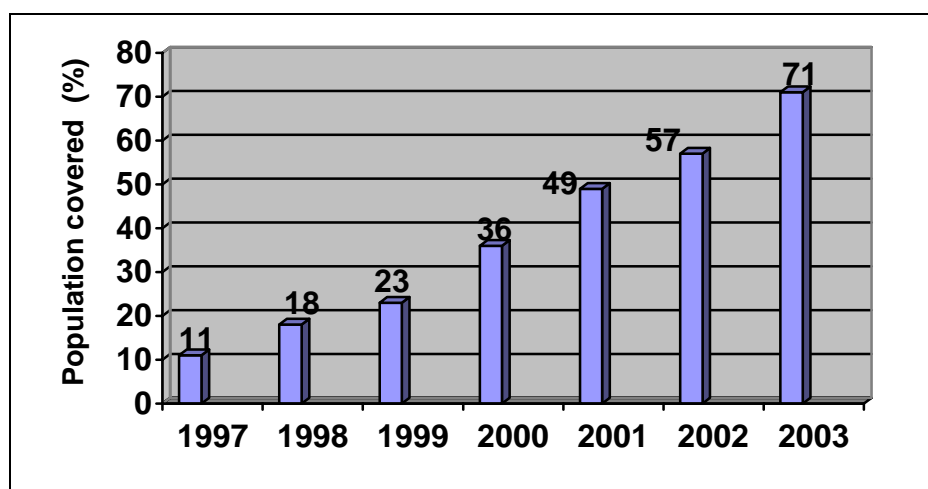
**Table 2 DOTS Population Coverage (%); SAARC Countries, 1997-2003**

<b>Countries</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Bangladesh	80	90	90	92	95	95	99
Bhutan	0	100	100	100	100	100	100
India	2.3	9	14	30	45	52	67
Maldives	100	100	100	100	100	100	100
Nepal	17	17	75	84	84	89	94
Pakistan	0	8	8	9	24	45	63
Sri- Lanka*	94	95	95	64	64	73	74
<b>Regional</b>	<b>11</b>	<b>18</b>	<b>23</b>	<b>36</b>	<b>49</b>	<b>57</b>	<b>71</b>

Source WHO Global TB reports: 1999-2005

\*DOTS coverage (%) trend of Sri Lanka according to information collected from NTP Sri Lanka is given bellow:

year	1997	1998	1999	2000	2001	2002	2003	2004
DOTS coverage (%)	5.2	11.97	25.39	54.3	74.23	74.23	81	98

**Figure 1 DOTS Coverage in SAARC Region, (1997-2003)****Table 3 TB Treatment Success Rate for New SS+ cases Registered in 2002 under DOTS, SAARC Region**

Countries	Registered	Cured (%)	Completed (%)	Treatment Success	
				Rate (%)	#*
Bangladesh	46811	81	3	84	39321
Bhutan	390	78	10	86	335
India	244859	86	1	87	213027
Maldives	60	95		95	57
Nepal	13307	84	2	86	11444
Pakistan	14314	65	13	77	11022
Sri- Lanka	3643	79	2	81	2951
<b>Total</b>	<b>323384</b>	<b>84</b>	<b>2</b>	<b>86</b>	<b>278158</b>

\* # calculated on the basis of the given rate (which has been rounded) and registered cases

**Table 4 Treatment Success Rates, DOTS Area, SAARC Region, Cohort 1996-2002**

Countries	1996	1997	1998	1999	2000	2001	2002
Bangladesh	72	78	80	81	83	84	84
Bhutan	96	85	90	85	90	93	86
India	79	82	84	82	84	85	87
Maldives	93	94	94	94	97	97	95
Nepal	85	87	89	87	86	88	86
Pakistan	--	67	66	70	74	77	77
Sri- Lanka	80	76	76	84	77	80	81
<b>Regional</b>	<b>75</b>	<b>79</b>	<b>81</b>	<b>82</b>	<b>83</b>	<b>85</b>	<b>86</b>

"--" data not available

**Table 5 Case Detection Rates of TB Patients for the Year 2003, SAARC Region**

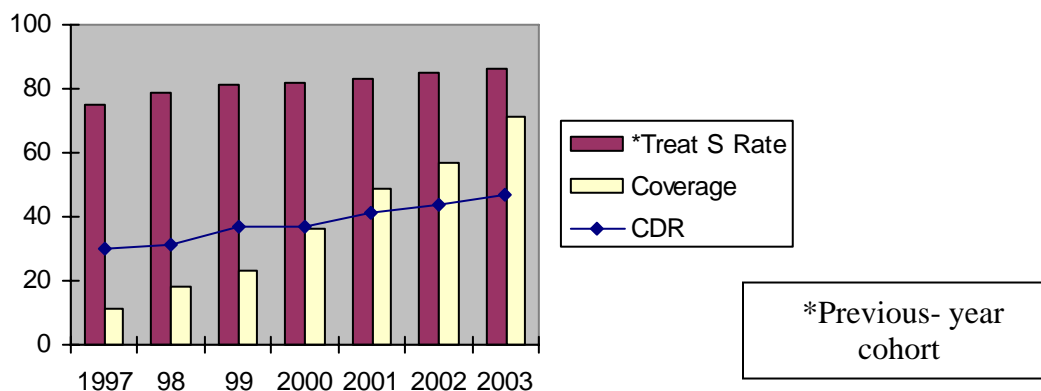
Countries	Population	Notified TB		Estimated TB		Case detection rate (%)	
		all cases	New SS+	all cases	New SS+	all cases	New SS+
Bangladesh	146736000	88158	53618	360767	162331	24	33
Bhutan	2257000	1026	380	2492	1121	41	32
India	1065462000	1188754	433271	1788043	798338	66	54
Maldives	318000	137	68	142	64	96	106
Nepal	25164000	33831	14348	53139	23809	64	60
Pakistan	153578000	73130	20962	278392	125172	26	17
Sri- Lanka	19065000	9477	4321	11530	5187	82	83
<b>Total</b>	<b>1412580000</b>	<b>1394513</b>	<b>526948</b>	<b>2494505</b>	<b>1116022</b>	<b>56</b>	<b>47</b>

Source: Global TB control, WHO report 2005

**Table 6 Case Detection Rate of New SS+ Cases, SAARC Region, 1997-2003**

Country	1997	1998	1999	2000	2001	2002	2003
Bangladesh	25	27	27	26	28	33	33
Bhutan	23	21	24	27	26	31	32
India	34	34	42	42	47	50	54
Maldives	91	82	106	86	88	92	106
Nepal	53	52	61	64	64	66	60
Pakistan	0	12	5	3	10	13	17
Sri- Lanka	71	75	79	87	86	93	83
Regional	30	31	37	37	41	44	47

Source: Global report 2003, 2004 & 2005

**Figure 2 Progress in TB control, SAARC Region**

**COUNTRY PROFILES**

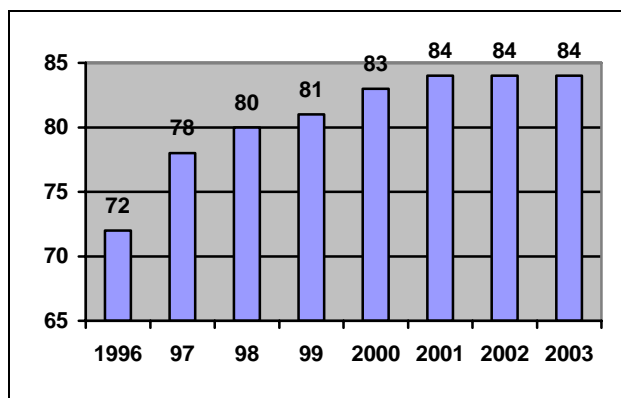
**BANGLADESH: Global Rank by estimated number of cases: 5**

**Estimates, 2003:<sup>1</sup>**

Population:	146 736 131
Number of all new cases of TB:	360767, equivalent to 246 per 100, 000 pop
Number of new smear positive TB cases:	162331 equivalent to 111 per 100 000 pop
Prevalence of all cases per 100 000 population	490
TB mortality (all cases per 100 000 population/year):	57
Percent of adult (15-49 y) TB cases HIV+:	0.1%
% of new cases multi-drug resistant:	1.4%
DOTS population coverage:	99%
Case detection rate (CDR):	33%
DOTS detection rate (DDR):	33%
Smear positive cases treated successfully under DOTS (2002 cohort):	39321 equivalent to 84% treatment success rate (Registered cases in 2002= 46811).

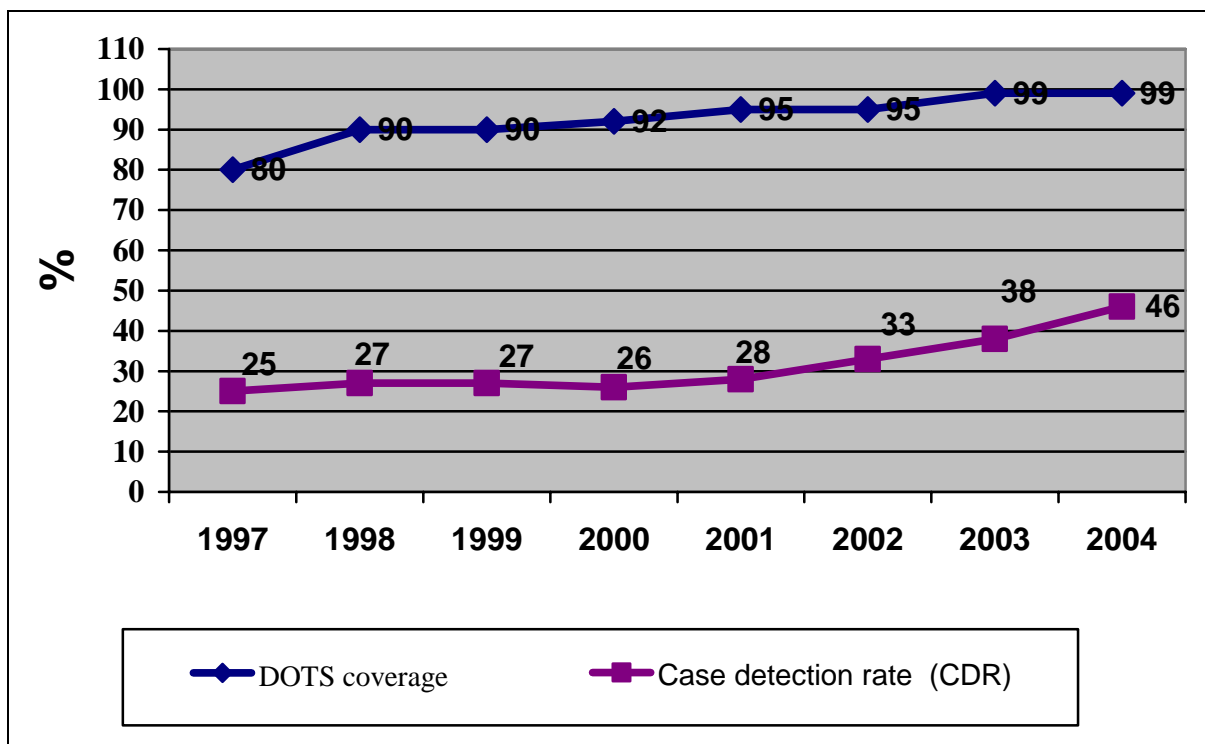
Case detection rate:	$\frac{\text{annual new SS+ notifications (country)}}{\text{estimated annual new SS+ incidence (country)}}$
DOTS detection rate:	$\frac{\text{annual new SS+ notifications (under DOTS)}}{\text{estimated annual new SS+ incidence (country )}}$

Figure 3 Treatment success rate (%) of cohort 1996-20003\*, Bangladesh



\* 2003 figure is from country presentation <sup>12</sup>

Figure 4 DOTS Coverage and Case Detection Rates (%), Bangladesh, 1997-2004



NB: CDR for 2003 from country report varies from (38-41%), ; According WHO report it is 33%. CDR for 2004 preliminary report from country presentation is 46%<sup>12</sup>

### **Current Status of Tuberculosis Control:**

A major sector-wide approach to health reform- the 1998-2003 Health and Population Sector Programme (HPSP) – integrated the national TB Programme as part of the Essential Services Package (ESP). The aim was to improve equity and access to all essential public health interventions, including TB care. The DOTS strategy was introduced in 1993 and since then the NTP has expanded to cover nearly all (99%) of the country. Key components of the strategy have been integrated within the ESP.<sup>1, 12</sup>

The NTP has been recognized as a priority in the revised Health, Nutrition and Population Sector Programme. The long term sustainability of TB has been ensured through direct community participation and through collaboration with national NGOs like Bangladesh Rural Advancement Committee (BRAC) and the Damien Foundation, Belgium (DFB). Prisons and medical college hospitals have introduced DOTS. NGOs have been largely responsible for delivering DOTS services for many years, have had a formal involvement in the NTP since 1994. In fact participation of NGOs in programme delivery continues to be a huge asset, while the government of Bangladesh ensures coordination and sustainability of TB control.

Treatment success rates under DOTS have been consistently high (84% in DOTS areas in 2001 -2003 cohorts) but failed to achieve the target level of 85% mainly due to 7% patients defaulted. Case detection rate was 33% in 2002, 38 % in 2003 and 46% in 2004 (preliminary report) suggesting that it is increasing more rapidly. However, case detection by the DOTS Programme is still low and needs to be improved more. Involving the private health sector in the implementation of DOTS is considered vital, as it is a significant provider of services to those seeking care for TB. The Government has continued to accord TB control services a very high priority and the national TB Programme (NTP) has continued to make good progress in several areas.<sup>1, 8, 12</sup>

### **Major actions taken to expand/sustain DOTS:<sup>1</sup>**

- ◆ Expansion of DOTS and initiation of PPM-pilot projects in Dhaka City
- ◆ Introduction of DOTS in prisons, academic institutions and workplaces
- ◆ Sustained strong collaboration between the government and NGOs
- ◆ Revision of national guidelines, incorporating child-hood TB and new treatment regimens with FDCs
- ◆ Revision of laboratory manuals
- ◆ Expansion of EQA for smear microscopy to most microscopy centres

### **Major planned activities:<sup>1</sup>**

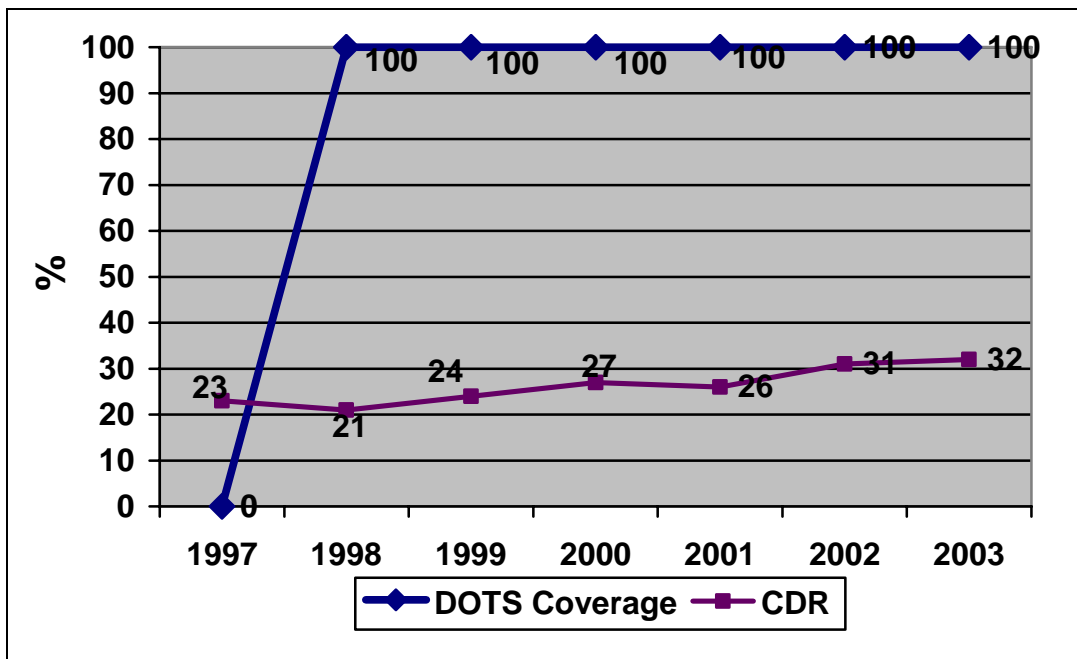
- ◆ Strengthening quality assurance mechanisms and establishing drug resistance surveillance
- ◆ Capacity building through providing basic training for newly appointed technicians and refresher training for all laboratory staff
- ◆ Capacity building in respect of supervision and monitoring.
- ◆ Implement activities according to GFATM project proposal , in order to improve case detection

**BHUTAN: Global Rank by estimated number of cases: 113 (2003)**

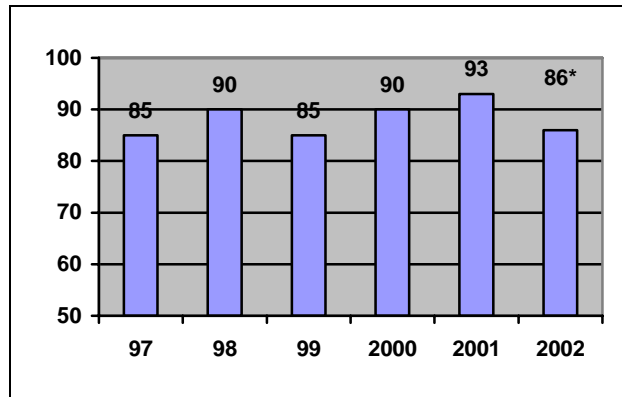
**Estimates, 2003: <sup>1</sup>**

Population: 2 257 000	
Number of all new cases of TB 2492, equivalent to 110 per 100, 000 pop	
Number of new smear positive TB cases: 1121 equivalent to 50 per 100 000 pop	
Prevalence of all cases per 100 000 population including HIV+ = 4378 , (excluding HIV+ = 4377)	
TB mortality (all cases per 100 000 population/year): 21	
Percent of adult (15-49 y) TB cases HIV+: <0.1	
% of new cases multi-drug resistant: no data	
DOTS population coverage:	100%
Case detection rate (CDR):	32%
Smear positive cases treated successfully under DOTS (2002 cohort): 335 equivalent to 86% treatment success rate (Registered cases in 2002= 390).	

**Figure 5 DOTS Coverage and Case Detection Rates, Bhutan, 1997-2003**



*(When population coverage is 100% CDR and DDR are equal)*

**Figure 6** Treatment success rate (%) of cohort 1997-2002, Bhutan

\* 91 according to Data Presented in TB/HIV co-infection workshop 6-8 July 2004, Kathmandu

**Table 7** TB Status in Bhutan 2001 -2002<sup>13</sup>

Year	Pulmonary		Extrapulmonary	Total cases	Death (CFR)
	SS positive	SS negative			
2001	387	482	344	1213	51 ( 4.2%)
2002	388	370	293	1051	41 (3.9%)

CFR= case fatality rate

### Current Status of Tuberculosis Control:

Countrywide coverage by DOTS was achieved by 1997. Because of its hilly terrain, Bhutan has utilized a strategy of hospitalization during the intensive phase of treatment throughout the country. Most smear positive patients are admitted in the district hospitals for the initial two months; anti TB drugs are provided at the basic Health Units in the respective district during the continuation phase. Diagnostic facilities, except culture, have been established at all district hospitals. There is a relatively high proportion of smear negative and extra pulmonary cases. In recent years, an increasing proportion of smear positive cases (37% in 2003)\* has been diagnosed, and cure rates have been improving consistently with a success rate of 93% (2001 cohort). Treatment success rate of 2002 cohort has come down to 86%, still more than 85%, the TB control target. Detection rate of sputum smear-positive cases (37% for 2003) is low and progressing slowly<sup>1, 13</sup>

\* During country visit in May 22-29, 2005 Bhutan's country data shows 70% CDR in 2004 based on projected population.



Cure rates have been relatively low (78% for 2002 cohort: Table 3, same as 2001 cohort) possibly because follow up smear examinations were not uniformly undertaken and reporting from the districts has been incomplete. The challenges posed by the terrain are reflected in the difficulties to coordinate efforts at the district level. Due to the growing economy, Bhutan attracts many workers from neighboring countries; management of cross-border migrants may become crucial to the success of the DOTS programme in the country.<sup>2, 12</sup> Other identified constraints are inadequate technical manpower, inadequate supply of diagnostic facilities at the Basic Health Unit (BHU) level and infrequent supervision because of resource limitation.<sup>15</sup>

**Future actions needed to expand/sustain DOTS are to:**

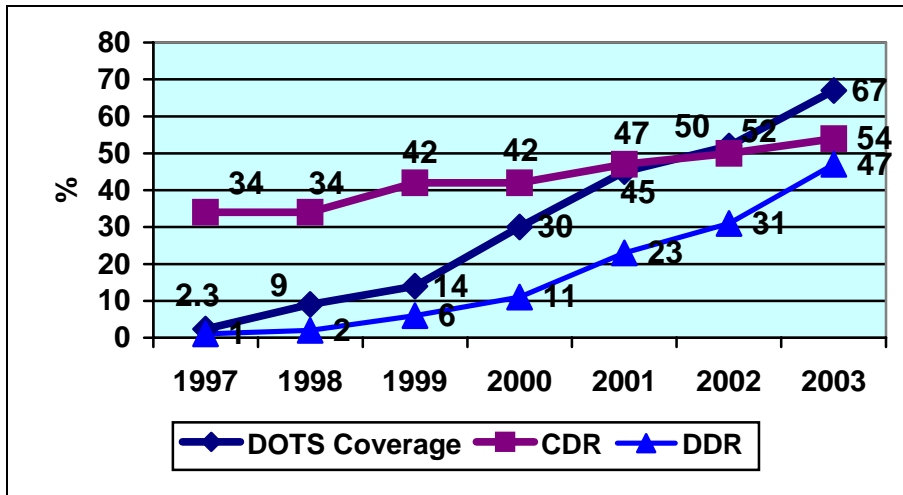
- ◆ Establish regular recording and reporting from the district to the central level
- ◆ Provide in-service training of larger numbers of health personnel for DOTS implementation
- ◆ Develop strategies for better health seeking behavior and improved utilization of services
- ◆ Follow through bilateral and multilateral agreements to address the issue of cross-border migration
- ◆ Optimize DOTS delivery in remote areas
- ◆ Intensify case detection activities
- ◆ Strengthen the laboratory network and establish quality control mechanisms for microscopy services throughout the country
- ◆ Reduce treatment completion rate and improve treatment success rate
- ◆ Enhance management and supervisory capacity of the NTP.
- ◆ Strengthen coordination with HIV/AIDS Programme.

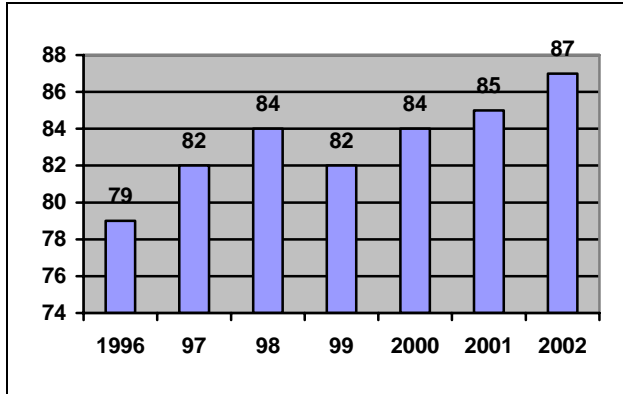
**INDIA:** Global Rank by estimated number of cases: 1(2003)

**Estimates, 2003:** <sup>1</sup>

Population:	1 065 462 000
Estimated all new cases of TB:	1788043 equivalent to 168 per 100, 000 population
Estimated new cases of smear positive TB:	798338 equivalent to 75 per 100 000 population
Prevalence of all TB cases per 100 000 pop:	290
TB mortality per 100 000 pop:	33
% of adult (15-49 y) TB cases HIV +:	5.2
% of new cases multi-drug resistant:	3.4
DOTS population coverage:	67%
Case detection rate CDR:	54 %
DOTS detection rate (DDR):	47%
Smear positive cases treated successfully under DOTS (2002 cohort):	213027 equivalent to 87% treatment success rate (Registered cases in 2002= 244859).

**Figure 7 DOTS Coverage and Case Detection Rates, India, 1997-2003**



**Figure 8** Treatment success rate (%) of cohort 1996-2002, India**Current Status of Tuberculosis Control:**

Through the Revised National Tuberculosis Control Programme (RNTCP) introduced by the Government of India in 1997, DOTS expansion increased from 2% of the population in 1997 up to 67% in 2003, making India the fastest DOTS expansion-country in the world. According to country report India covered nearly 90% of its population and has planned to cover the whole country under DOTS by October 2005. Consistently high treatment success rate under DOTS has been maintained and for 2002 cohort it was 87%. Case detection needs to improve from the current 54% (2003 data).<sup>1</sup>

**Major achievements<sup>1</sup>**

Major steps have been taken to sustain the high performance of the programme continuing with its expansion.

- Expansion of DOTS to cover an additional 250 million population during 2003
- Treatment success has exceeded global target
- Scaling up of PPM DOTS project in 12 sites
- GFATM round 1 activities started and round 2 management signed
- Involvements of medical colleges through national, sub national and state task forces
- Involvement of health facilities under other ministries
- Publication of new guidelines on EQA and development of a DRS protocol for two states
- Development of protocol for management of paediatric TB.

**Major planned activities:<sup>1</sup>**

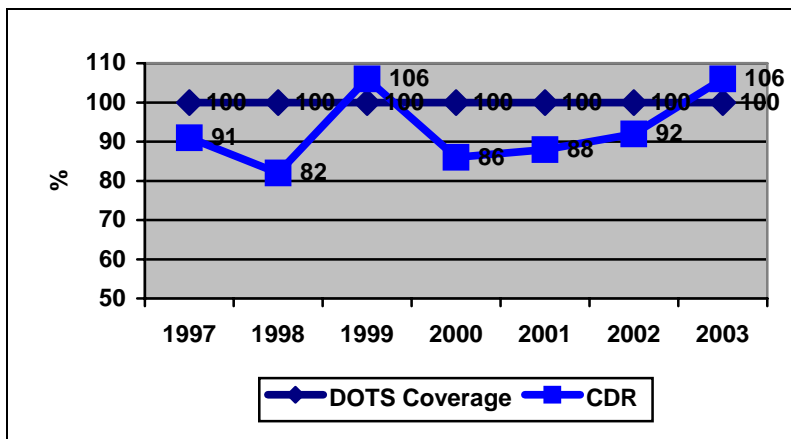
- ◆ Prepare for DOTS expansion in remaining states ( laboratories, human resource, procurement)- entire country to be covered by October 2005
- ◆ Sustain quality of existing DOTS services by implementing a revised supervision and monitoring strategy .
- ◆ Continue human resource capacity building through revision of all training material

**MALDIVES:** Global Rank by estimated number of cases: 167 (2003)

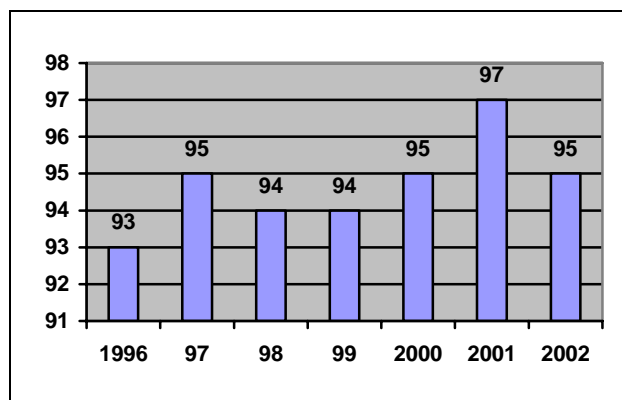
**Estimates, 2003:** <sup>1</sup>

Population:	318 000
Estimated all new cases of TB:	142 equivalent to 45 per 100, 000 population
Estimated new cases of smear positive TB:	64 equivalent to 20 per 100 000 population
Prevalence of all TB cases per 100 000 pop:	39
TB mortality per 100 000 pop:	2.1
% of adult (15-49 y) TB cases HIV +:	0.3
% of new cases multi-drug resistant:	
DOTS population coverage:	100%
Case detection rate CDR:	106 %
DOTS detection rate (DDR):	106%
Smear positive cases treated successfully under DOTS (2003 cohort):	57 equivalent to 95% treatment success rate (Registered cases in 2002= 60).

**Figure 9 DOTS Coverage and Case Detection Rates, Maldives, 1997-2003**



*(When population coverage is 100% CDR and DDR are equal)*

**Figure 10. Treatment success rate (%) of cohort 1996-2002, Maldives**

According to data received by STC <sup>8</sup>

Period 01 January to 31 December 2003 cases Registered

No. of TB Patients all types = 137

No. of SS+ TB cases = 71

TB patients reported to have HIV infection = 00

SS+ TB patients reported to have HIV infection = 00

In 2004 a total number of 119 TB cases were notified, among them 71 were sputum positive and 48 were sputum negative.<sup>16</sup>

### **Current Status of TB Control:**

The right to health of all citizens is the guiding principle which has shaped the health policy in the Maldives. Priority has been accorded to improve accessibility, affordability and quality of care in order to meet the increasing demand for health services by the rapidly growing population. TB is still one of the major public health problems. The TB Control programme was established in 1962 (*Situation of TB in Maldives, paper prepared by NTP Manager, Maldives and shown during country visit*). The country adopted the DOTS strategy in 1994 and achieved 100% population coverage in 1996. Actually from the beginning of TB control Programme Maldives was providing Anti TB treatment under direct supervision (*informed at a discussion during visit to Maldives for observation of TB and HIV/AIDS control activities*). The private sector has been well integrated with the TB Control programme.

Facilities to perform mycobacterial cultures were made available at Indira Gandhi Memorial Hospital in 1997 and microscopy centres have been established at all regional hospitals. Maldives was the first country in the Region to reach global targets. Treatment success rate has been sustained at around 95%, and for 2001 cohort it was 97%. The case detection target was reached in 1996. No case of drug resistance has been reported since 1997.<sup>17</sup>

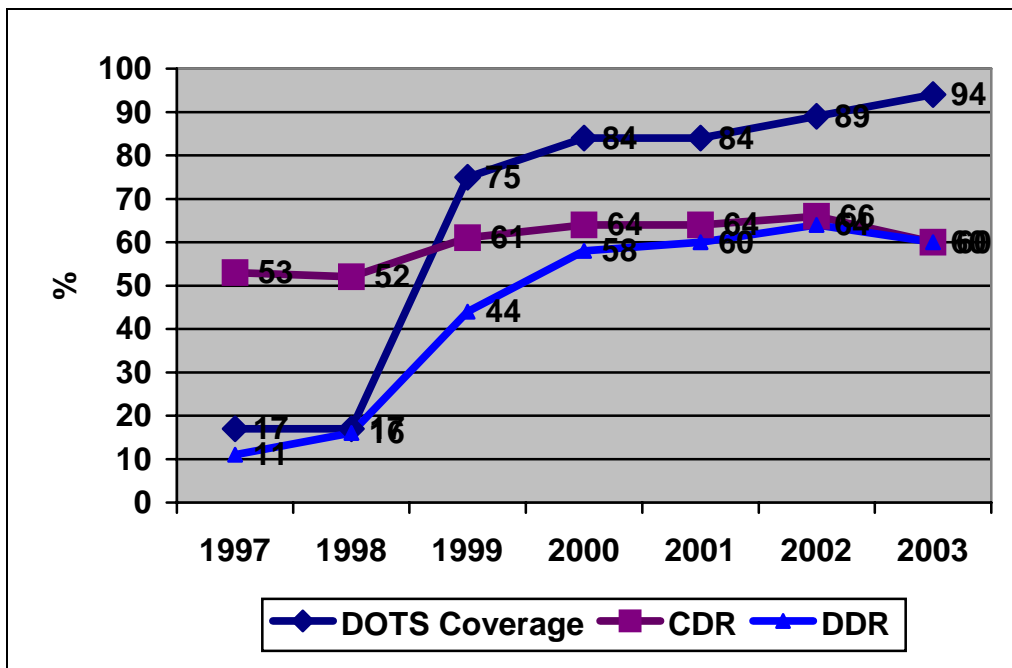
The main thrusts of the TB Control Programme in the current 5-year plan is infrastructure and human resource development for intensified case finding, early case detection, strengthening the microscopy network so as to improve access to diagnostic services and social mobilization for increased community involvement and utilization of available services.

NEPAL: Global Rank by estimated number of cases:27

**Estimates, 2003: <sup>1</sup>**

Population:	25164 249
Estimated all new cases of TB:	53139 equivalent to 211 per 100, 000 population
Estimated new cases of smear positive TB:	23809 equivalent to 95 per 100 000 pop
Prevalence of all TB cases per 100 000 pop:	318
TB mortality per 100 000 pop:	29
% of adult (15-49 y) TB cases HIV +:	2.9
% of new cases multi-drug resistant:	1.0
DOTS population coverage:	94%
Case detection rate CDR:	60%
DOTS detection rate (DDR):	60%
Smear positive cases treated successfully under DOTS (2003 cohort):	11444 equivalent to 86% treatment success rate (Registered cases in 2002= 13307).

**Figure 11 DOTS Coverage and Case Detection rates, Nepal 1997-2003**



NB. DOTS coverage in 2002= 89%, July 2003= 94% (Source Annual Report 2002/2003, NTP Nepal)

According to Annual Report 2003/2004, NTP, Nepal, the country has expanded the DOTS strategy to all the districts by July 2001 and now in the process of expansion of DOTS in each and every health institution. The programme has achieved the TB control targets of case detection and treatment success; as of July 2004 the case detection rate was 71%. The cure rate and the success rate for the previous Year's (2003/2004) were 86% & 87% respectively.<sup>18</sup>

### **Current Status of TB Control:**

Following a review of the national tuberculosis programme in 1994, DOTS demonstration sites were established in April 1996. Impressive achievements have been made since then. The NTP has rapidly expanded the DOTS strategy from 1.7% in 1996 to 94% by July 2003.<sup>10</sup> In fact, by July 2001, the DOTS strategy has been expanded to all the districts of Nepal. <sup>18</sup> DOTS is now ( July 2004) running through the integrated general health services in 384 treatment centres and 1872 sub centres throughout the country. <sup>18</sup> Now almost all diagnosed TB patients are getting treatment under DOTS strategy with more than 85% treatment success rate. The high treatment success rate of new smear positive cases has been sustained from the very beginning. The defaulter rate is declining now (3.6% in this year Vs 5% in the last fiscal year).<sup>18</sup>

Further expansion of the programme 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 hill and mountain districts. A strong community base for DOTS has been achieved through the establishment of district and village DOTS committees that have been set up involving people outside the health sector. The NTP has coordinated with private sector, local government bodies, NGOs, social workers and other sectors of society to expand DOTS and sustain the present appreciable results achieved by the programme. <sup>18</sup>

### **Future actions needed to expand/sustain DOTS are to:**

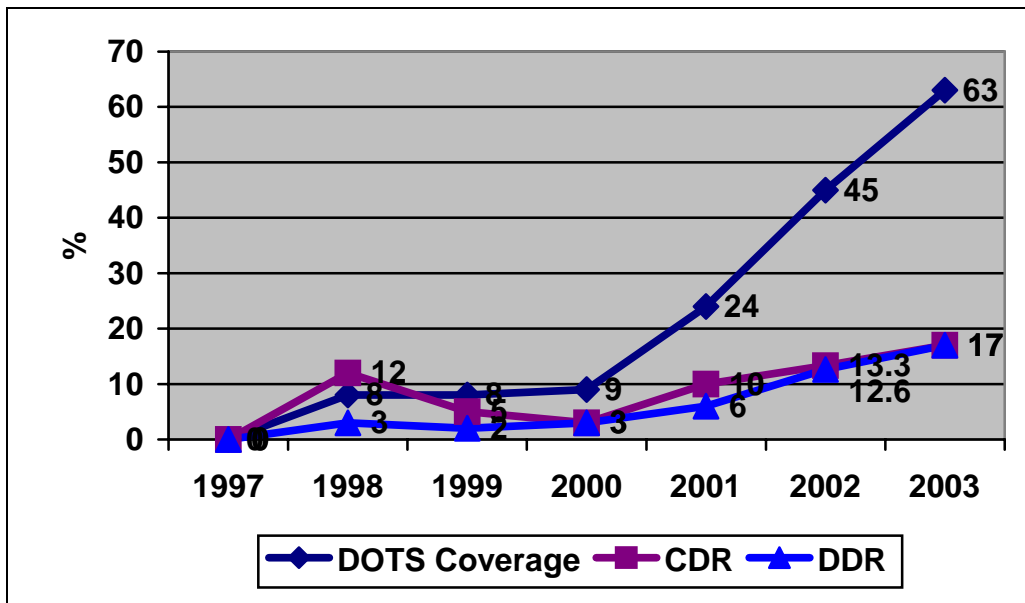
- ◆ Secure adequate external resources from donor countries and from NGOs.
- ◆ Ensure full staffing at all health facilities (especially at microscopy centres).
- ◆ Establish quality control for regional laboratories.
- ◆ Strengthen partnership with the private sector, medical schools and industry to further enhance DOTS implementation.
- ◆ Evaluate the impact of HIV/AIDS on the TB epidemic.
- ◆ Increase access to DOTS in the hard-to access mountainous regions.
- ◆ Establish, through bilateral and multilateral consultations, cross-border disease control services including DOTS in the border districts.

**PAKISTAN:** Global Rank by estimated number of cases: 6 (2003)

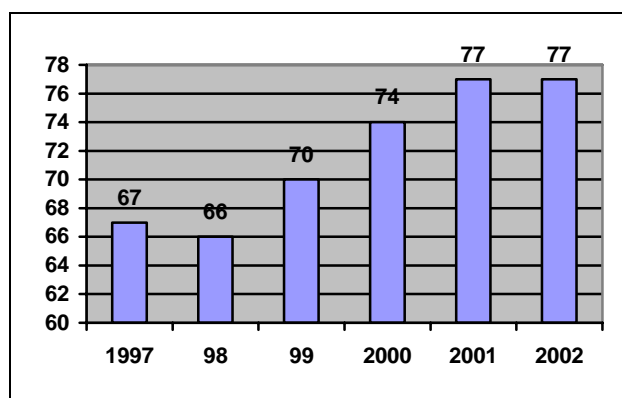
**Estimates, 2003:** <sup>1</sup>

Population:	153,577,900
Estimated all new cases of TB: 278392 equivalent to 181 per 100, 000 population	
Estimated new cases of smear positive TB: 125172 equivalent to 82 per 100 000 population	
Prevalence of all TB cases per 100 000 pop:	359
TB mortality per 100 000 pop:	43
% of adult (15-49 y) TB cases HIV +:	0.6
% of new cases multi-drug resistant:	9.6
DOTS population coverage:	63%
Case detection rate CDR:	17 %
DOTS detection rate (DDR):	17%
Smear positive cases treated successfully under DOTS (2002 cohort): 11022 equivalent to 77% treatment success rate (Registered cases in 2002= 14314).	

**Figure 12 DOTS Coverage and Case Detection rates, Pakistan, 1997-2003**





**Figure 13 Treatment success rate (%) of cohort 1997-2001, Pakistan****Current Status of TB Control:**

Pakistan adopted the DOTS strategy in 1995 and started DOTS demonstration activities in some areas. DOTS coverage has increased rapidly since 2000, reaching 63% in 2003.<sup>1</sup> DOTS is continuing to expand, and the overall TB control system is steadily improving. The NTP has a strategic plan for DOTS expansion for 2001-2005, and trying to achieve nationwide DOTS coverage by end of 2005.

The smear positive case detection rate under DOTS is increasing; it was 2.8% in 2000 and reached 17% in 2002.<sup>1</sup>

The treatment success rate under DOTS is also increasing, though slowly and reached 77% for the cohort of 2001 and 2002.<sup>1</sup> The main reason for the low treatment success is high default rate (14%).<sup>1</sup> Another point to be noticed ; 13% of treated patients, who were counted as successfully treated, completed treatment without evidence of smear conversion (Table 3).

Pakistan has been highly successful in mobilizing financial support for TB control from the international community, and this has given impetus to the programme. A laboratory referral network has been established. Pakistan has one national, four provincial and two regional reference laboratories. The national laboratory and three of the provincial laboratories have facilities for culture and drug susceptibility testing.

<sup>1</sup>

Pakistan has a national TB/HIV coordinating body, and there is an HIV surveillance system among TB patients.<sup>9</sup>

**Major Achievements<sup>1</sup>**

- Rapid DOTS expansion to cover a total of 94 out of 121 districts
- Provincial and district capacity building to improve monitoring and supervision
- Establishment of the National Pakistan Stop TB Partnership to increase TB awareness and political commitment of local authorities

**Major planned activities<sup>1</sup>**

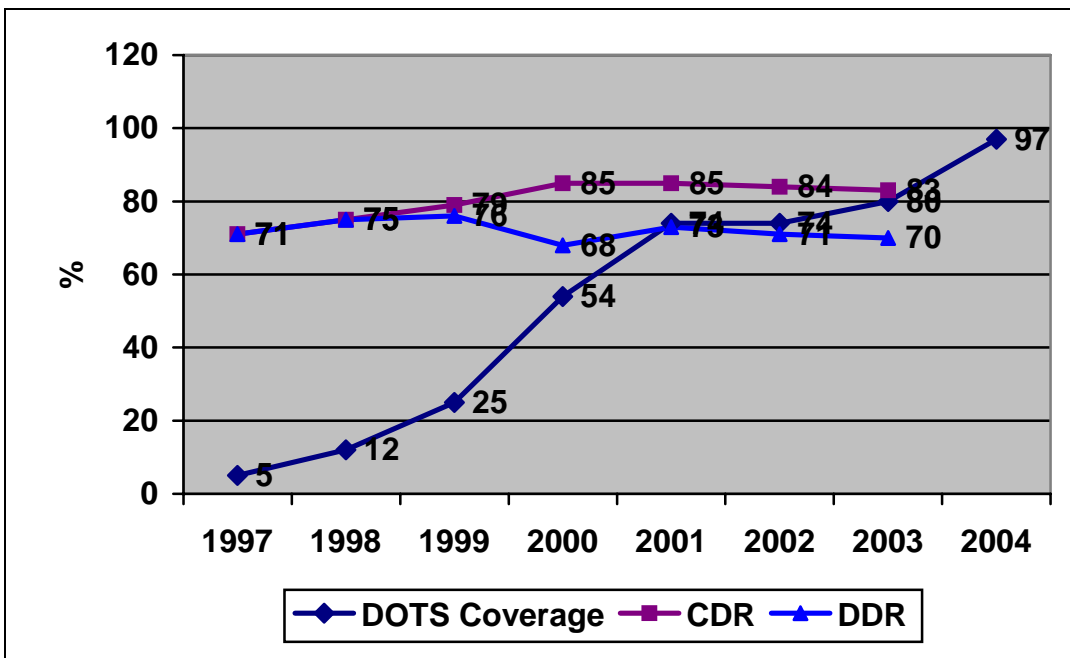
- Expand DOTS to cover all districts by 2005
- Develop external quality assurance system for smear microscopy
- Implement PPM-DOTS through FIDELIS and GFATM
- Launch communication strategies to improve TB awareness among health care providers and the public.

SRI LANKA: Global Rank by estimated number of cases: 73 (2003)

**Estimates, 2003:** <sup>1</sup>

Population:	153,577,900
Estimated all new cases of TB: 11530 equivalent to 60 per 100, 000 population	
Estimated new cases of smear positive TB: 5187 equivalent to 27 per 100 000 pop	
Prevalence of all TB cases per 100 000 pop:	89
TB mortality per 100 000 pop:	8.8
% of adult (15-49 y) TB cases HIV +:	0.2
% of new cases multi-drug resistant:	1
DOTS population coverage:	74%
Case detection rate CDR:	83 %
DOTS detection rate (DDR):	70%
Smear positive cases treated successfully under DOTS (2002 cohort): 2951 equivalent to 81% treatment success rate (Registered cases in 2002= 3634).	

**Figure 14 DOTS Coverage (according to country report) & Case Detection rates (according to Global TB Reports), Sri Lanka, 1997-2002**



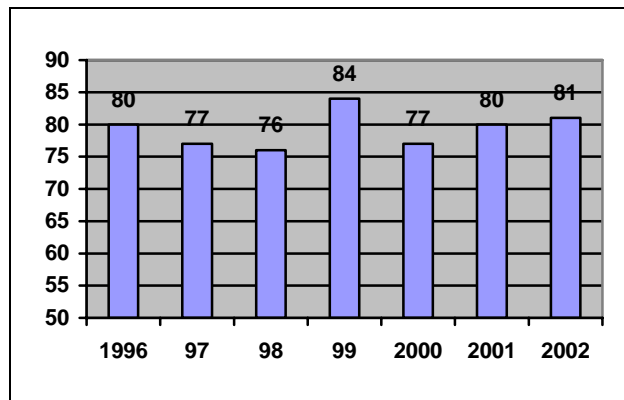
DOTS coverage trends according to WHO global report and NTP are given below:

**Table 8**

DOTS coverage (%) trend of Sri Lanka according to WHO global report and according to information presented by NTP Director of Sri Lanka at Regional Managers' meeting 2004, 9-11 Feb 2005 at New Delhi, India

source	1997	1998	1999	2000	2001	2002	2003	2004
WHO Report	94	95	95	95	64	73	74	
NTP, Sri Lanka	5	12	31	53	74.73	74.73	80.65	97.61

**Figure 15 Treatment success rate (%) of cohort 1996-2002, Sri Lanka**



### Current Status of TB Control: <sup>8,1</sup>

After adoption of DOTS strategy in 1994 Sri-Lanka has made considerable progress with DOTS expansion. DOTS has been made available to over 97% of the population by 2004 (according to NTP data ref New Delhi). The National Programme for Tuberculosis Control and Chest Diseases (NPTCCD) is a decentralized unit headed by the Director/NPTCCD and functions under the Deputy Director General Public Health Services (DDGPHS 1) since 2001.

The NPTCCD carries its function through a network of District Chest Clinics, Branch Chest Clinics, Chest Hospitals and Chest wards in close coordination with the general health services giving high priority for TB control activities.

With the devolution of health services to the district level in 1989, TB Control activities were adversely affected for several reasons. Improvements in the quality of DOTS services are now being planned through infrastructure development, strengthening of the technical capacity both at the central level and at the district chest clinics, developing an effective microscopy network and including other health facilities and providers not previously involved in DOTS implementation. The treatment success rate reported for

smear-positive cases notified in DOTS areas in 2001 was 80% and it has increased by 1% for the cases registered in 2002. The default rate is high; it was 13% and 12% for the cohort of 2001 and 1002 respectively. Improvement in infrastructure, strengthening of the staffing pattern and technical capacity at the central unit and at the district chest clinics, full coverage with ambulatory DOTS, ensuring completeness of reporting and improvements in the ways to undertake default tracing among internally displaced and urban populations have been planned.

**Table 9: Latest (2004) available data from country report/information**

Country	Population covered by DOTS		Treatment success rate (%) cohort	Case detection rate (%)
	#	%		
Bangladesh		99	84	46
Bhutan		99	89	73
India	947 million	87	86	72 (DOTS area)
Nepal (July 03)			86.1	71
Sri Lanka		97.61	80.7	93.5

## **5. SAARC / STC Support in the (SAARC) Region:**

The South Asian Association for Regional Cooperation (SAARC) comprises Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. SAARC is an association based on the consciousness that in an increasingly independent world, the objectives of peace, freedom, social justice and economic prosperity are best achieved in the South Asian region by fostering mutual understanding, good neighbourly relations and meaningful cooperation among the Member States which are bound by ties of history and culture<sup>19</sup>.

SAARC Tuberculosis Centre (STC) is a Regional Centre of eminence working for prevention and control of TB and HIV related Tuberculosis disease (also HIV and AIDS as mandated later on) in the region by coordinating the efforts of the National TB Control Programme (NTPs) of Member Countries and functioning since 1992.

The Centre has provided a platform for interaction to member countries for exchange of information and experiences, to identify areas of common interest, weak areas in the programme those can be strengthened by mutual cooperation and collective wisdom. The centre has helped member countries in formulating regional strategy with country specific action plan, independent evaluation of the programme performance and supported NTPs in terms of Training, Research, Management capability, IEC , Quality assurance in diagnosis and getting support from other agencies like WHO, UNAIDS, ASEAN, CIDA etc.

The NTP managers find an opportunity of regular meeting since most of them (NTP managers) are the members of the Governing Board of STC, which meets at least once in a year. “Exchange of information about NTP of Member Countries” is a common agenda of discussion in the Governing Board meetings. Once, the Board felt the need to hold a formal meeting of NTPs with the objective to formulate a regional strategy for TB control to identify priority areas in the programme for strengthening by regional cooperation. According to the recommendations STC has been providing support to member countries on the following areas.

- Implementation and expansion of successful DOTS
- Training and Research
- Collection and Dissemination of Information & Experience
- TB and HIV co-infection
- Involvement of other in TB control such as private sector, medical colleges etc.
- Emergence of MDR-TB
- Community Participation in TB control
- Quality assurance of sputum microscopy through Reference Laboratory Network

Since the beginning till December 2004 STC conducted several regional trainings, Seminars, meetings and workshops involving SAARC member countries. Those trainings were on different subjects e.g., TB control, TB Bacteriology, IEC for TB & HIV/AIDS and data management for durations varying from 2 days to 2 wks.

Assistance was provided to member countries to develop network of laboratories for smear microscopy and quality assurance in diagnosis, and epidemiological networking. Through SAARC Canada Regional TB and HIV/AIDS project, Computers with necessary peripherals including Internet service facilities have been provided to all the member countries.

One of the major functions of STC is to disseminate update information on TB, HIV/AIDS and TB/HIV co-infection. In this regards, as of end 2003 STC published 8 Booklets/brochure and 12 issues of six- monthly News letters. During the year 2003 the centre published 18 different documents including 2 issues of six-monthly News Letter. Among these, 10 documents were published in collaboration with Canadian International Development Agency (CIDA). The list of Published documents in the year 2003 is given in Annex II a.

During the year 2004 STC published 15 different documents including 2 issues of six-monthly News Letter. The list of Published documents in the year 2004 is given in Annex II b.

The Year 2004 was observed as “SAARC Awareness Year for TB and HIV/AIDS”. The STC organized various activities to observe the year 2004. And among them i) Special publications on TB, and HIV/AIDS ii) Audiovisual Documentary on TB & HIV/AIDS incorporating all the members countries’ situation and response and iii) Regional Essay Competition among school students on “role of school students in control and prevention of TB & HIV/AIDS are remarkable.

In addition to that SAARC TB centre also organized First SAARC Regional Conference on Tuberculosis, HIV/AIDS and Respiratory Diseases.

References:

1. WHO report 2005, Global TB control, Surveillance, planning, financing; communicable diseases, WHO, Geneva.
2. Treatment of Tuberculosis: Guidelines for national programmes, 3<sup>rd</sup> edition, WHO, Geneva 2003, p11.
3. World Health Organization, Fight AIDS, fight TB , fight now information pack, 2004, distributed in Stop TB Partners' Forum, New Delhi, 25 March 2004
4. Information Folder, World TB Day, 24 March 2005, WHO, SEARO, New Delhi. India
5. SAARC TB Centre, (January 2002), gender differences among TB patients in NTPs within SAARC member countries.
6. Ahlburg D. The economic impacts of tuberculosis. Geneva, WHO, 2000 (document WHO/CDS/STB/2000.5, <http://www.stoptb.org/conference/ahlburg.pdf>)
7. TB in India 2001. RNTCP Status Report, Central TB division, DGHS, MoH&FW, Nirman Bhavan, New Delhi 110011, p7.
8. SAARC TB Centre, (October 2004), Tuberculosis in the SAARC region, an update 2004
9. WHO report 2004, Global TB control, Surveillance, planning, financing; communicable diseases, WHO, Geneva
10. Annual Report 2002/2003, NTP, Nepal
11. Country presentation (Sri Lanka ) at regional Managers' meeting 2004, 9-11 Feb 2005, New Delhi)
12. Country presentation (Bangladesh ) at regional Managers' meeting 2004, 9-11 Feb 2005, New Delhi)
13. Country report, Bhutan, presented in trainers training on TB control Programme management, 10-19 May 2004, Dhaka.
14. Tuberculosis in the South –East Asia Region- An Update. WHO, SEARO, New Delhi, November 2002
15. Country presentation (Bhutan ) at regional Managers' meeting 2004, 9-11 Feb 2005, New Delhi)
16. Country presentation (Maldives ) at regional Managers' meeting 2004, 9-11 Feb 2005, New Delhi)
17. Country Report, Maldives, Presented during Work shop on TB drug management and Guidelines for MDR-TB , 29-31 July,2004, Kathmandu
18. Annual Report 2003/2004, NTP, Nepal
19. SAARC- A Profile, SAARC Secretariat, Kathmandu. Updated: July 2003, Published by Media, Publications and Human Resources Development Division, SAARC Secretariat, P.O. Box 4222, Kathmandu, Nepal. P-1



## Annex I

## Country Information:

## TB notification, detection and DOTS coverage, SAARC region ,2003

## Annex1a: TB notification and case Detection, SAARC region, 2003

Countries	Population	Notified TB				Estimated TB				Case detection rate (%)	
		all cases		New SS+		all cases		New SS+		all cases (c/g)	New SS+ (e/i)
		#	rate (c/b)	#	rate (e/b)	#	rate (g/b)	#	rate (i/b)		
Bangladesh	146736 000	88158	60	53618	37	360767	246	162331	111	24	33
Bhutan	2257 000	1026	45	380	17	2492	110	1121	50	41	32
India	1065462 000	1188754	112	433271	41	1788043	168	798338	75	66	54
Maldives	318 000	137	43	68	21	142	45	64	20	96	106
Nepal	25164 000	33831	134	14348	57	53139	211	23809	95	64	60
Pakistan	153578 000	73130	48	20962	14	278392	181	125172	82	26	17
Sri- Lanka	19065 000	9477	50	4321	23	11530	60	5187	27	82	83
<b>Total</b>	<b>1412580 000</b>	<b>1394531</b>	<b>99</b>	<b>526948</b>	<b>37</b>	<b>2494505</b>	<b>177</b>	<b>1116022</b>	<b>79</b>	<b>56</b>	<b>47</b>
a	b	c	d	e	f	g	h	i	j	k	L

## Annex1b: DOTS coverage and DOTS detection, SAARC region, 2003

Countries	Population	DOTS coverage		DOTS Notifications				DOTS detection rate (New Sm+)		
		Population	% (c/b)	All cases		New SS+		Estimated	Notified	DDR
				#	rate(e/b)	#	rate(g/b)			
Bangladesh	146736 000	145268640	99	88156	60	53618	37	162331	53618	33
Bhutan	2257 000	2257000	100	1026	45	360	16	1121	360	32
India	1065462 000	713859540	67	836768	79	372088	35	798338	372088	47
Maldives	318 000	318000	100	137	43	68	21	64	68	106
Nepal	25164 000	23654160	94	30925	123	14348	57	23809	14348	60
Pakistan	153578 000	96754140	63	73100	48	20962	14	125172	20962	17
Sri- Lanka	19065 000	14108100	74	7307	38	3652	19	5187	3652	70
<b>Total</b>	<b>1412580 000</b>	<b>996219580</b>	<b>71</b>	<b>1037419</b>	<b>73</b>	<b>465096</b>	<b>33</b>	<b>1116022</b>	<b>465096</b>	<b>42</b>
a	b	c	d	e	f	g	h	i	j	k

Source: Global TB control, WHO report 2005

## **Annex IIa**

### **Documents Published by SAARC TB Centre in the year 2003:**

1. Articles on Tuberculosis and HIV/AIDS in the SAARC Region, Vol. I
2. Report on HIV/AIDS in the SAARC Region
3. Report on Commercial Sex Workers in SAARC Region
4. Report on Detail Situation Analysis on QA on Sputum Microscopy in Nepal
5. Report on Gender Issue in Tuberculosis and HIV/AIDS in the SAARC Region
6. Report on Tuberculosis in the SAARC Region
7. Report on TB and HIV/AIDS Co-epidemic in the SAARC Region
8. Articles on TB and HIV/AIDS in the SAARC Region Vol. II
9. Report of 1st Round of External Proficiency Testing of Sputum Smear Microscopy in National TB Reference Lab in SAARC Region
10. Situation Analysis of TB, HIV/AIDS and TB/HIV Co-infection in SAARC Region
11. Report on World TB Day 2003
12. SAARC Guidelines for Partnership with Schools in Prevention & Control of Tuberculosis
13. SAARC Guidelines for Partnership with Media in Prevention & control of Tuberculosis
14. SAARC Newsletters (both numbers)
15. Annual Report 2002
16. Directory of TB Institutions and Specialists in SAARC Member Countries.
17. Information about TB (Pamphlet) (Nepali & English version)

NB. Serial No. 1-10 were published in collaboration with Canadian International Development Agency (CIDA) and the rest by SAARC TB Centre alone.

## **Annex IIb**

### **Documents Published by SAARC TB Centre in the year 2004:**

1. SAARC TB Centre an introduction – a pamphlet
2. SAARC Guidelines for Partnership with Pharmacists in Prevention and Control of Tuberculosis
3. What is TB, What we should know about it
4. HIV/AIDS: What every one should know about it
5. TB in SAARC Region – an update 2004
6. HIV/AIDS in the SAARC Region – an update 2004
7. SAARC Journal of TB & Lung Diseases and HIV/AIDS Vol. 1, No. 1.
8. Both volume of STC Newsletter
9. STC Annual Report 2003
10. Book of Abstracts ( First SAARC Conference on TB, HIV/AIDS & Respiratory Diseases held in Dec. 14-17, 2004, Kathmandu)
11. SAARC Regional Strategy for TB/HIV Co-infection
12. Situation Analysis of Quality Assurance of Sputum Microscopy in Bhutan
13. Gender Difference Among TB Patients in National TB Control Programmes with SAARC Countries
14. Report of Second Round External Proficiency Testing of Smear Microscopy in National TB Reference Laboratories in SAARC Region

### Annex III

#### Definitions of Tuberculosis Cases:

1. **Case of tuberculosis:** A patient in whom tuberculosis has been bacteriologically confirmed, or has been diagnosed by a clinician.  
Note: Any person given treatment for tuberculosis should be recorded.
2. **Definite case:** patient with positive culture for the *Mycobacterium tuberculosis* complex. In countries where culture is not routinely available a patient with 2 sputum smears positive for acid-fast bacilli (AFB+) is also considered a definite case.
3. **Smear-positive pulmonary case:** At least two initial sputum smear examinations (direct smear microscopy) AFB+, or one sputum examination AFB+ and radiographic abnormalities consistent with active pulmonary tuberculosis as determined by the treating medical officer; or one sputum specimen AFB+ and culture positive for *M. tuberculosis*.
4. **Smear-negative pulmonary case:** Pulmonary tuberculosis not meeting the above criteria for smear-positive disease. Diagnostic criteria should include: at least 3 sputum smear examination negative for AFB; and radiographic abnormalities consistent with active pulmonary TB; and no response to a course of broad-spectrum antibiotics; and decision by clinician to treat the patient with full course of anti-tuberculosis therapy; or positive culture but negative AFB sputum examination.
5. **Extra pulmonary case:** Patient with tuberculosis of organs other than the lungs e.g. pleura, lymph nodes, abdomen, genito-urinary tract, skin, joints and bones, meninges. Diagnosis should be based on one culture positive specimen or histological or strong clinical evidence consistent with active extra pulmonary disease followed by a decision by a clinician to treat with full course of anti-tuberculosis chemotherapy. Note: a patient diagnosed with both pulmonary and extra pulmonary tuberculosis should be classified as a case of pulmonary tuberculosis.
6. **New case:** Patient who has never had treatment for tuberculosis, or who has taken anti-tuberculosis drugs for less than 1 month.
7. **Relapse case:** Patient previously declared cured but with a new episode of bacteriologically positive (sputum smear or culture) tuberculosis.
8. **Retreatment case:** Patient previously treated for tuberculosis whose treatment failed, who defaulted (treatment interrupted, see definitions of treatment outcomes), or who relapsed.
9. **Chronic case:** Patient who is sputum positive at the end of a retreatment regimen.

## Annex IV

### Definitions of Treatment Outcomes:

1. **Cured:** initially smear-positive patient who has a negative sputum smear in the last month of treatment, and on at least one previous occasion.\*
2. **Completed treatment:** Patient who has completed treatment but does not meet the criteria for cure or failure.
3. **Died:** Patient who died during treatment, irrespective of cause.
4. **Failed:** Smear-positive patient who remained smear-positive, or became smear-positive again, at least 5 months after the start of treatment.
5. **Interrupted treatment (defaulted):** Patient who did not collect drugs for 2 months or more at any time after registration.
6. **Transferred out:** Patient who was transferred to another reporting unit and for whom treatment results are not known.
7. **Successfully treated:** The sum of cases that were cured and that completed treatment (expressed as a percentage of the number registered in the cohort).\*\*

\* Some European countries define cure in terms of culture conversion, rather than sputum smear conversion.

\*\* A cohort is a group of patients diagnosed and registered for treatment during a given time period, usually one quarter of a year.





**Treatment Regimen used by NTP in SAARC Member States**

		Bangladesh		Bhutan		India		Maldives		Nepal		Pakistan		Sri-Lanka	
		<i>I</i>	<i>C</i>	<i>I</i>	<i>C</i>	<i>I</i>	<i>C</i>	<i>I</i>	<i>C</i>	<i>I</i>	<i>C</i>	<i>I</i>	<i>C</i>	<i>I</i>	<i>C</i>
Cat I		2HRZE	4(HR) <sub>3</sub>	2(3)SHRZ	6HE	2H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub> E <sub>3</sub>	4H <sub>3</sub> R <sub>3</sub>	2HRZE	5HRE	2HRZE	6HE	2HRZE	6HE	2RHZE	4RH
Cat II		2HRZES 1HRZE	5(HR) <sub>3</sub> E <sub>3</sub>	2SHRZE/ 1(2)HRZE	5RHE	2S <sub>3</sub> H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub> E <sub>3</sub> 1H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub> E <sub>3</sub>	5H <sub>3</sub> R <sub>3</sub> E <sub>3</sub>	2SHRZE +1HRZE	5HRE	2SHRZE +1HRZE	5HRE	2SHRZE +1HRZE	5HRE	2SRHZE 1RHZE	5RHE
Cat III	Adult	2HRZ	4(HR) <sub>3</sub>	2HRZ	6HE	2H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub>	4H <sub>3</sub> R <sub>3</sub>	2HRZE	5HRE	2HRZ	6HE	-	-	-	-
	Child	2HRZ	4(HR) <sub>3</sub>	2HRZ	4HR	-	-	-	-	2HRZ	4RH	-	-	2HRZ*	4HR*

\* Child below 6 years

Standard code for TB Treatment Regimens:

H = Isoniazid, R = Rifampicin, Z= Pyrazinamide, E=Ethambutol, S= Streptomycin

- TB treatment regime consists of two phases: an initial phase (*I*) and continuation phase (*C*)
- The number before the letter is the duration of that phase in months.
- Letters within ( ) indicate combination of drugs. e.g. (HR)
- A subscript number (e.g. <sub>3</sub>) after a letter or letters indicates the number of doses of that drug per week. If there is no subscript number, treatment is daily

Cat I: new sputum smear-positive PTB, newly diagnosed seriously ill patients with severe forms of TB

Cat II: relapse, treatment failure, return after default (interrupted treatment)

Cat II: new smear negative PTB with limited parenchymal involvement, extra pulmonary TB (less severe forms)