



**Good Practices in
Tuberculosis Control Programme in
SAARC Member States**

**SAARC Tuberculosis and HIV/AIDS Centre, Nepal
2016**



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FOREWORD

It is accepted that Tuberculosis is a communicable disease which is the major cause of morbidity and mortality globally and needs a dedicated and innovative approach for the prevention, treatment and control.

On September 2015, the United Nations General Assembly formally adopted the "universal, integrated and transformative" 2030 Agenda for Sustainable Development, a set of 17 Sustainable Development Goals (SDGs). The goals are to be implemented and achieved in every country from the year 2016 to 2030.

The vision of SDG is a world free of TB, 90% reduction in number of TB deaths and 80% reduction in TB incidence rate compared with 2015 for the year 2030 is the target of SDG.

The End TB strategy aims, to end the global TB epidemic, with targets to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035, and to ensure that the number of family is burdened with catastrophic expenses due to TB.

The SAARC TB & HIV/AIDS Centre has been coordinating the efforts of Member States in combating Tuberculosis in the region. Along with the other regular activities, STAC brings out reports and publications regularly in order to disseminate information related to Tuberculosis.

This document is prepared to provide information about good practices on Tuberculosis control in SAARC Member States. Good practices comprise examples of programmes, projects and activities that have been shown to contribute towards making interventions successful. Sharing good practices is important. Only through continuously striving for excellence, and sharing excellent ideas with others, will enable us to reach goals. We have made maximum efforts to collect the available information about "Good Practices" in Tuberculosis control in SAARC Member States.

STAC is grateful to SAARC Member States for their support in this regard.

Dr. Sharat Chandra Verma
Director
SAARC TB and HIV/AIDS Centre,
Kathmandu, Nepal

ABBREVIATIONS

ACSM	Advocacy, Communication and Social Mobilization
ART	Antiretroviral Therapy
ASHA	Accredited Social and Health Activists
BPHS	Basic Package of Health Services
CTB	Child TB
DMC	Designated Microscopy Centre
DOTS	Directly Observed Treatment Short course
DR-TB	Drug Resistance Tuberculosis
DST	Drug Susceptibility Test
EPHS	Essential Package of Health Services
EQA	External Quality Assurance
FDCs	Fixed Dose Combinations
FLD	Fibrotic Lung Disease
FNAC	fine-needle aspiration cytology
GDF	Global Drug Facility
GMSD	Government Medical Store Depot
HIV	Human Immunodeficiency Virus
HRD	Human Resources Development
ICF	Intensified TB Case Finding
JMM	Joint Monitoring Mission
LPA	Line Probe Assays
M&E	Monitoring and Evaluation
MD	Doctor of Medicine
MDG	Millennium Development Goal
MDR	Multi-Drug Resistant
MSTF	Multi Sectoral Task Force
NACP	National AIDS Control Program
NDRS	National Anti-TB Drug-resistance Survey

NRHM	National Rural Health Mission
NSP	New Smear Positive
NTCP	National TB Control Programme
NTP	National Tuberculosis Programme
PAL	Practical Approach to Lung Health
PHC	Public Health Centre
PLHA	People Living With HIV/AIDS
PLHIVs	People are known to be living with HIV
PMDT	Programmatic Management of Drug-Resistant Tuberculosis
PPD	Purified Protein Derivative
PPM	Public-Public and Public-Private Mix
RNTCP	Revised National TB Control Programme
RR-TB	Rifampicin-resistant Tuberculosis
SAARC	South Asian Association for Regional Cooperation
SLD	Second Line Drug
SNRL	Supranational Reference Laboratory
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant Tuberculosis

1. INTRODUCTION

1.1 Introduction of SAARC

The South Asian Association for Regional Cooperation (SAARC) established on 8th December 1985 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 is in Nepal.

1.2 SAARC TB and HIV/AIDS Centre (STAC)

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 (STC) 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 (STAC) 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 SAARC Region by coordinating the efforts of the National Tuberculosis Control Programme and National AIDS Control Programme of the Member States, with the following vision, mission, goal and objective.

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.

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.

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.

Objective

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

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 in the Region. In this regard, the Centre has been preparing and publishing annual SAARC Regional epidemiological reports on TB and HIV/AIDS for all the Member States and other stakeholders working in the field of TB and HIV/AIDS. 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 the Member States, the Government together with its 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, XDR-TB) and of TB associated with HIV/AIDS. The Global Plan of the Stop TB Partnership details the scale at which the six components of the STOP-TB strategy should be implemented in order to achieve the global targets.

2. GLOBAL BURDEN OF TUBERCULOSIS

2.1 Global Epidemiology:

Tuberculosis (TB) is a major global health problem. It causes ill-health among millions of people each year and ranks alongside the human immunodeficiency virus (HIV) as a leading cause of death worldwide. In 2014, there were an estimated 9.6 million new TB cases: 5.4 million among men, 3.2 million among women and 1.0 million among children. There were also 1.5 million TB deaths (1.1 million among HIV-negative people and 0.4 million among HIV-positive people), of which approximately 890 000 were men, 480 000 were women and 140 000 were children. The number of TB deaths is unacceptably high: with a timely diagnosis and correct treatment, almost all people with TB can be cured.

The MDG target of halting and reversing TB incidence by 2015 was achieved globally, in all six WHO regions and in 16 of the 22 high TB burden countries (HBCs).

Globally, the TB mortality rate in 2015 was 47% lower than in 1990: the target of a 50% reduction was almost met. The target was achieved in four WHO Regions (the exceptions were the African and European regions), and in 11 HBCs. The TB prevalence rate in 2015 was 42% lower than in 1990. The target of a 50% reduction was met in three WHO regions and in nine HBCs.

In 2014, there were an estimated 9.6 million incident cases of TB (range, 9.1 million–10.0 million) globally, equivalent to 133 cases per 100 000 population. The absolute number of incident cases is falling slowly, at an average rate of 1.5% per year 2000–2014 and 2.1% between 2013 and 2014. The cumulative reduction in the TB incidence rate 2000–2014 was 18%. The incidence rate was relatively stable from 1990 up until around 2000, and then started to fall, achieving the MDG target far ahead of the 2015 deadline. The MDG target has also been met in all six WHO regions and in 16 of the 22 HBCs.

There were an estimated 13 million prevalent cases (range, 11 million–14 million) of TB in 2014, equivalent to 174 cases per 100 000 population. By the end of 2015, it is estimated that the prevalence rate will have fallen 42% globally since 1990. Among the 22 HBCs, nine are assessed to have met the target of a 50% reduction from 1990 levels.

There were an estimated 1.5 million TB deaths in 2014: 1.1 million among HIV-negative people and 390,000 among HIV-positive people (TB deaths among HIV-positive people are classified as HIV deaths in ICD-10). TB ranks alongside HIV as a leading cause of death from an infectious disease. India accounted for about one third of global TB deaths (both including and excluding those among HIV-positive people).

Globally, the mortality rate (excluding deaths among HIV positive people) fell 47% between 1990 and 2015, narrowly missing the target of a 50% reduction. Between 2000 and 2014, TB treatment alone saved an estimated 35 million lives among HIV-negative people. Among HIV-positive people, TB treatment supported by ART saved an additional 8.4 million lives.

The best estimate of the CDR for all forms of TB globally in 2014 was 63% (range, 60–66%), up from 48–52% in 2005 and 36–40% in 1995 – the year in which the DOTS strategy began to be introduced and expanded. The best estimate of the global gap between notifications (of new episodes of TB i.e. new and relapse cases) and incident cases in 2014 was 3.6 million cases

Globally, the treatment success rate for the 5.4 million new and relapse cases that were treated in the 2013 cohort was 86%. It is impressive that as the size of the global treatment cohort grew from 1.0 million in 1995 to 4.2 million in 2005 and 5.4 million in 2013, the treatment success rate first improved and has subsequently been sustained at a high level. Treatment outcomes in 2013 were worse among HIV positive TB patients compared with HIV-negative TB patients. Further efforts are needed to narrow this gap.

Globally, an estimated 3.3% (95% CI: 2.2–4.4%) of new cases and 20% (95%CI: 14–27%) of previously treated cases have MDR-TB; these levels have remained virtually unchanged in recent years. In 2014, there were an estimated 480 000 (range: 360 000–600 000) new cases of MDR-TB worldwide, and approximately 190 000 (range: 120 000–260 000) deaths from MDR-TB. Among patients with pulmonary TB who were notified in 2014, an estimated 300 000

(range: 220 000–370 000) had MDR-TB. More than half of these patients were in India, China and the Russian Federation. On average, an estimated 9.7% (95% CI: 7.4–12%) of people with MDR-TB have XDR-TB.

There was major progress in coverage of drug susceptibility testing (DST) between 2013 and 2014. Worldwide, 12% of new bacteriologically-confirmed TB cases and 58% of previously treated TB patients were tested for drug resistance in 2014, up from 8.5% and 17% respectively in 2013 (representing proportional increases of 41% and 241%, respectively).

Globally in 2014, 123 000 patients with MDR -TB or rifampicin resistant tuberculosis (RR-TB) were notified, of whom about 75% lived in the European Region, India, South Africa or China. This was equivalent to 41% of the 300 000 notified TB patients who were estimated to have MDR-TB in 2014. The number of notified MDR/RR-TB cases in 2014 was almost the same as in 2013. People with MDR-TB or RR-TB are eligible for second-line treatment with MDR-TB regimens. A total of 111 000 people were started on MDR-TB treatment in 2014, an increase of 14% compared with 2013. Only 50% of patients on MDR-TB treatment were successfully treated, largely due to high rates of mortality and loss to follow-up.

The number of people dying from HIV-associated TB peaked at 570 000 in 2004 and has since fallen to 390 000 in 2014 (a reduction of 32%). In 2014, HIV-associated TB deaths accounted for 25% of all TB deaths (among HIV-negative and HIV-positive people) and one third of the estimated 1.2 million deaths from HIV/AIDS. Between 2005 and 2014, an estimated 5.8 million lives were saved by TB/HIV interventions. 51% of notified TB patients had a documented HIV test result in 2014, a small increase from 49% in 2013.

In 2014, coverage of antiretroviral therapy (ART) for notified TB patients who were known to be co-infected with HIV reached 77% globally. Further efforts are needed to reach the target of 100%. This is especially the case given that the number of HIV positive TB patients on ART in 2014 represented only 33% of the estimated number of people living with HIV who developed TB in 2014. Coverage of co-trimoxazole preventive therapy (CPT) among HIV-positive TB patients remains high, and increased slightly to 87% and the number of people living with HIV who were treated with isoniazid preventive therapy (IPT) reached 933 000 in 2014, an increase

of about 60% compared with 2013. However, provision of IPT was reported by just 23% of countries globally.

Preventing TB deaths among HIV-positive people requires intensified scale-up of TB prevention, diagnosis and treatment interventions, including earlier initiation of ART among people living with HIV and those with HIV-associated TB. Increased efforts in joint TB and HIV programming could facilitate further scale-up and consolidation of collaborative TB/HIV activities.

2.2 The End TB Strategy at a glance (2016-2035)

VISION	A WORLD FREE OF TB - zero deaths, disease and suffering due to TB			
GOAL	END THE GLOBAL TB EPIDEMIC			
INDICATORS	MILESTONES		TARGETS	
	2020	2025	SDG 2030 ^a	End TB 2035
Reduction in number of TB deaths compared with 2015 (%)	35%	75%	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	20% (<85/100 000)	50% (<55/100 000)	80% (<20/100 000)	90% (<10/100 000)
TB-affected families facing catastrophic costs due to TB (%)	0	0	0	0
PRINCIPLES				
<ol style="list-style-type: none"> 1. Government stewardship and accountability, with monitoring and evaluation 2. Strong coalition with civil society organizations and communities 3. Protection and promotion of human rights, ethics and equity 4. Adaptation of the strategy and targets at country level, with global collaboration 				

PILLARS AND COMPONENTS

1. INTEGRATED, PATIENT-CENTRED CARE AND PREVENTION

- A. Early diagnosis of TB including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups
- B. Treatment of all people with TB including drug-resistant TB, and patient support
- C. Collaborative TB/HIV activities, and management of co-morbidities
- D. Preventive treatment of persons at high risk, and vaccination against TB

2. BOLD POLICIES AND SUPPORTIVE SYSTEMS

- A. Political commitment with adequate resources for TB care and prevention
- B. Engagement of communities, civil society organizations, and public and private care providers
- C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control
- D. Social protection, poverty alleviation and actions on other determinants of TB

3. INTENSIFIED RESEARCH AND INNOVATION

- A. Discovery, development and rapid uptake of new tools, interventions and strategies
- B. Research to optimize implementation and impact, and promote innovations

3. BURDEN OF TUBERCULOSIS IN SAARC REGION

3.1 SAARC Epidemiology

The SAARC region, with an estimated annual incidence of 3.1 million TB cases, carries 32% 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 23 % of the world's TB cases. Among 3.1 million incident TB cases, 2.1 million are notified new and relapse cases.

Table: Estimates of the burden of diseases caused by TB in the SAARC Region 2014

Country	Population ('000)	Incidence		Prevalence (Including HIV)		Mortality (Excluding HIV)	
		Number ('000)	Rate*	Number ('000)	Rate*	Number ('000)	Rate*
Afghanistan	32000	60	189	110	340	14	44 (32-50)
Bangladesh	159000	360	227	640	404	81	51 (37-68)
Bhutan	745 ^a	1 ^a	164	0.196 ^a	190	.072	12(5.2-15) ^a
India	1295000	2200	167	2500	195	220	17 (13-28)
Maldives	352	0.15	41	0.2	56	<0.01	2 (1.9-2.8)
Nepal	28000	44	158	60	215	4.9	17 (13-25)
Pakistan ^a	185000	508	275	632	342	49	27 (6.5-61)
Sri Lanka ^a	20571	13	66	21	103	1.2	5.9 (4.7-7.3)
Total	1720668	3186	185	3963	230	370	22

Source: ^a data and report sent by Member States, NTP and Global Tuberculosis Report 2015

* Rates are per 100 000 population

In 2014, there were an estimated 3.1 million incident cases of TB, equivalent to 185 cases per 100 000 population. This carries 31% of the global burden of TB incidence. The absolute number of incident cases is falling slowly, from 2000 to 2014. The incidence rate was relatively

stable from 1990 up until around 2000, and then started to fall, achieving the MDG target far ahead of the 2015 deadline.

There were an estimated 3.9 million prevalent cases of TB in 2014, equivalent to 230 cases per 100 000 population. At the end of 2014, the prevalence rate had met the target of a 50% reduction from 1990 levels.

There were an estimated 0.37 million TB deaths in 2014. TB ranks alongside HIV as a leading cause of death from an infectious disease. India accounted for about one third of global TB deaths (both including and excluding those among HIV-positive people).

In the SAARC region, the mortality rate (excluding deaths among HIV positive people) had achieved the target of 50% reduction from 1990 levels.

A total 2.2 million cases were notified in 2014 in the SAARC region. The overall case detection rate in the region in 2014 for all types of TB cases was 63 % (53 to 89%) and treatment success rate of 89% (84 to 93%).

Table: Case detection (2014) and Treatment outcomes, New Smear Positive Cases (2013), SAARC Region

Country	Population ('000)	Incidence		Notified New and Relapse	Case Detection Rate, All forms (%)	Treatment Success rate (%)
		Number ('000)	Rate*			
Afghanistan	32000	60	189	31746	53	88
Bangladesh	159000	360	227	191166	53	93
Bhutan ^a	745	1	164	1080	85	91
India	1295000	2200	167	1609547	74	88
Maldives	352	0.15	41	131	89	84
Nepal	28000	44	158	35277	79	91
Pakistan ^a	185000	508	275	308417	62	93
Sri Lanka ^a	20571	13	66	9305	66	85
Total	1720668	3186	185	2186669	69	89

Source: ^a data and report sent by Member States, NTP and Global Tuberculosis Report 2015

* Rates are per 100 000 population

A remarkable progress has been made for DOTS since its inception in 1993 in the SAARC Region. By 1997 all Member States started DOTS strategy for TB control. DOTS coverage within the SAARC region has steadily increased since 2000. Population coverage in 1997 was 11%, since then it has increased and reached 99% in 2006 and since 2007 it is 100% (Figure 04). Regarding treatment success, the target was achieved in 2005. In 2014, case detection rate for all types of TB cases was 69%.

The MDR TB cases in the region range from less than 1-4% among new TB cases and it ranges from less than one to almost 35 percent among the retreatment TB cases. In 2014 Pakistan has 4.3% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 24,000 new MDR-TB cases among notified pulmonary TB cases. In case of retreatment Bhutan has 35% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 47,000 MDR-TB cases among retreatment TB cases.

In 2014, almost 1 million TB patients with known HIV status has tested in which 44,707 (4%) tested TB patients are HIV-positive among them 92% and 90 % have started CPT and ART in the SAARC region. In the SAARC region, India accounts for highest TB patients with known HIV status followed by Pakistan and Afghanistan. Around 93% of HIV-positive TB patients started CPT and 90% started ART in India at the end of 2014. However Bangladesh, Bhutan and Pakistan have 100 % HIV-positive TB patients started ART. In 2014, Afghanistan, Nepal and Sri-Lanka have initiated HIV-positive people provided with IPT.

The estimated population of SAARC region in year 2014 was 1.72 billion which 24% of global populations. In 2014, there were 3.1 million estimated incidence of TB cases, which carries 32% of global burden of TB diseases. However, the estimated prevalence of TB in the SAARC region was 3.9 million, which is 30% of global, also an estimated deaths due to TB in the region was 0.37 million, which is 33% of global deaths due to TB in year 2014

4. Good Practices in TB control activities in SAARC Region

A) Good Practices on Health System strengthen

- ❖ National Stop TB Partnership was established in 2008 with Three sub-national partnerships were developed later with the objectives of the Stop TB Partnership include eliminating TB as a public health problem in Afghanistan. The partnership envisages that every TB patient in Afghanistan should have access to effective diagnosis, treatment, and cure. It supports wider implementation of the National Stop TB Strategy with an emphasis on advocacy communication and resource mobilization.
- ❖ The TB Control Programme is fully integrated into the general health services with the majority of activities decentralized to the districts in Bhutan
- ❖ In India Decentralized diagnosis through a network of more than 13 000 quality assured sputum microscopy laboratories; to ensure quality of sputum microscopy, EQA is being routinely conducted throughout the country as per a standardized protocol based on international guidelines (on site evaluation, panel testing and blinded crosschecking). Treatment services were decentralized through a network of more than 640 000 DOT centres/providers using patient-wise boxes both for adults and paediatric patients.
- ❖ Upgradation/Refurbishment of Warehouses in Pakistan-One of the main activity in TB Control activity is the up gradation/refurbishment of warehouses at national/ provincial/ regional/ district level for the appropriate drug storage throughout the country. This challenging task was completed and now all the districts TB stores and provincial warehouse has been uniformly upgraded/ refurbished across the country
- ❖ In Pakistan, under health system strengthening: (i) Capacity building both in public & Private sector. (ii) Development of TB training materials (desk guides, guidelines & modules) and R & R tools in line with WHO recommended revised reporting and recording framework-2014. (iii) A robust surveillance system at national, provincial & district levels for data verification & validation (since 2005)
- ❖ Reorganization of TB control activities in Colombo District , Sri Lanka by establishing two sub chest clinics and Implementing TB infection control activities in chest clinics.
- ❖ Development of infection control policy and strategy in Nepal

- ❖ In a workshop “TB-India Vision 2020”, RNTCP has developed strategies for intensified TB control activities for achieving 2020 TB targets
- ❖ Guidelines on management of TB have been revised and trainings conducted for medical doctors involved in TB control activities in Bangladesh
- ❖ First edition of national guidelines and operational manual on PAL at PHC level and participants’ module on PAL, Bangladesh and guidelines on PAL for nurse/HA/FWA/paramedics in Bangla and TB infection control operational guidelines published.
- ❖ Construction of communicable Disease Hospital by support of Japanese government. (56 bed for Multi Drug Resistance patients) in Afghanistan.

B) Good Practices on Planning, Monitoring and Evaluation

- ❖ In Afghanistan Revision of National Strategic Plan for years of 2014-2018 has developed.
- ❖ In Bangladesh Revised Strategic Plan for National Tuberculosis Control Programme (2015–2020) has developed.
- ❖ National monitoring and evaluation plan for tuberculosis control (2011–2015) and MDR-TB expansion plan (2012–2017) published in Bangladesh
- ❖ In India, During 2014, central internal evaluation of the programme performance and implementation status of RNTCP was conducted every month in two districts in a state on a one-to-one basis along with review of their activity plans to improve programme performance
- ❖ A draft national strategic plan for the control of TB and National guideline on “Practical Approach to Lung Health” in Maldives has developed (2015-2020)
- ❖ In Nepal Revision of NTP general manual (with introduction of Child TB management section) was done
- ❖ In Pakistan under planning, monitoring and evaluation: (i) Orchestration of a National TB Strategic Plan “Vision 2020” in pursuant to provide insight & sensitization to policy makers and further identification of resources for further TB demands in country context. (ii) Country monitoring & Evaluation plan based on Monitoring & Evaluation System strengthening Tool (MESST) exercises. (iii) National Guidelines for Diagnosis and

Management of Tuberculosis in Pakistan (January 2015) has been revised. Also Revised Recording & Reporting Tools.

- ❖ The National Strategic Plan for TB Control in Sri Lanka was revised for the period of 2015-2020 in accordance with the WHO end TB strategy.
- ❖ A Joint Monitoring Mission was held to review the TB Control activities in Sri Lanka
- ❖ Development of National Media Strategy in Pakistan

C) Good Practices on PPM and Inter-sectoral Coordination Activities

- ❖ **Public-Public and Public-Private Mix (PPM) in Afghanistan**-PPM a substantial part of TB control strategy has been initiated since 2007 to engage private and non-BPHS & EPHS health facilities in TB care and services. So far NTP has engaged a considerable numbers of private physician and private hospitals and succeeded to involve some public health facilities out of BPHS & EPHS and non MoPH. Basically, there are two models; one is to form PPM-unit which mainly aims to involve private practitioners, private pharmacies, and private laboratories while other aims to involve PPM-DOTS in public. NTP Involved 11 national hospitals for diagnosis and treatment of TB patients and for each Health Facility, NTP trained more than four people such as Nurse, lab technician and pharmacists and 5 Hospital as referral centres in TB control Program where regular supervision and quarterly review meetings are conducted.
- ❖ In Bangladesh, further expansion of public-private mix for TB control with involvement of knitwear manufacturers and exporters association to provide TB control services programme in knitting industries.
- ❖ In Bhutan There is strong collaboration between NTP and partners, including the military hospitals. All military hospitals are involved in delivering TB services
- ❖ In India, Successful involvement of 330 medical colleges, 2569 NGOs, 13 150 private practitioners and over 150 corporate sector health units was achieved.
- ❖ Revised RNTCP guidelines and schemes for involvement of NGOs and private providers in RNTCP activities have been implemented in India

- ❖ In Sri Lanka collaboration between non-NTP public care providers and private care providers strengthen.
- ❖ TB Cross Border Coordination has been launched between Afghanistan and Pakistan.
- ❖ Public private Mix & inter-sectoral coordination Activities in Pakistan:
 - Successful implementation of four basic models in the country, PPM-1 (GP Model), PPM-2 (NGO's Model), PPM-3 (Private Hospital Model) & PPM-4 (Parastatal Hospital)
 - Engagement of Private labs under coverage of external quality assurance (EQA)

D) Good practices on Human Resource Development

- ❖ SAARC Workshop on Experiences and Best Practices on Pediatric TB/TB-Diabetes-Colombo, Sri-Lanka was conducted by SAARC TB and HIV/AIDS Centre in year 2014
- ❖ In Pakistan, desk guide for Doctors and Training Module for Doctors (Revised: February 2015) have been published.
- ❖ In Nepal TB orientation programme for parliament members were organized.

E) Good Practices on TB Laboratory services

- ❖ Establishing Culture facilities in National Reference laboratory and 2 Reference laboratories in Afghanistan
- ❖ In Bhutan, the Public Health Laboratory (PHL) has been linked to the Regional Supranational Reference Laboratory in Bangkok, Thailand, and accredited for culture and first line DST. Also established Liquid Culture & DST at the Public Health Laboratory to speed up the diagnosis of MDR-TB and conducted Laboratory assessment visit by the SNRL (Established Liquid Culture & DST at the Public Health Laboratory to speed up the diagnosis of MDR-TB.
- ❖ Expansion of Gene Xpert technology in several districts and development of national algorithms for their use in Nepal
- ❖ Completion of upgrading National TB Reference Laboratory to Bio safety level 3 in Sri Lanka
- ❖ TB Laboratory Services in Pakistan:

- Expansion of microscopy network (more than 1500) to cater for mounting patient load.
- External quality assurance EQA for microscopy network is in place.
- Gene Xpert machines have been installed and operational at fifty two (52) high burden sites across the country.
- Up-gradation of state of the art Bio safety level 2 (TB culture labs) & Bio safety Level -3 (TB DST labs). Currently, NTP has successfully concluded up gradation of six (06) TB culture (BSL-2) and Six (06) TB DST (BSL-3) labs.
- Liaison with Supranational Reference Laboratory Network SNRL- Antwerp and regular participation in annual Scheme for DST EQA organized by SNRL.

F) Good Practices on Control of MDR TB

- ❖ **DR-TB Counseling Project in India**-Launched in May 2014 in collaboration with Population Services International under Project Axshaya, this project provides facility and home based counseling to DR-TB patients across 28 locations districts with the help of 30 DR-TB counselors. The compliance and adherence related issues in the treatment of DR-TB are being primarily addressed by counseling at every contact, capacity building of care providers and linkages with psychosocial support systems etc.
- ❖ **Drug Sensitivity Testing (DST)-guided Treatment Regimen –in India:**To improve the efficacy of treatment prevent augmentation of drug resistance due to effective mono-drug therapies due to unknown resistance and improve treatment outcomes there was a felt need for DST-guided treatment regimen in the country. With support from WHO Country Office in India a workshop to build consensus on DST-guided treatment regimen a Workshop was conducted by Central TB Division.
- ❖ **National Anti-TB Drug-resistance Survey (NDRS)(MDR) in India:**A national representative anti-TB drug survey was launched by Honorable Health and Family Welfare, Minister on 6th September 2014. This is first NDRS globally to test drug resistance to drugs other than Rifampicin and Isoniazid, was conducted in collaboration with CDC Atlanta, WCO-India and Supra National Reference Laboratory, Belgium.
- ❖ In Nepal hostels (accommodation) for MDR-TB patients has been provided free of charge.

- ❖ Drug Management & Multi Drug Resistant MDR –TB in Pakistan:
 - Drug Management information System DMIS: A timely reporting mechanism in the form of DMIS is in place in more than 80 % districts in Pakistan
 - NTP has up-graded warehouses from national to sub national and district level keeping in view the recommended standards/practices regarding drug storage practices.
 - Enrolment of MDR patients in twenty nine (29) sites on the lines of programmatic management of drug resistant TB (PMDT)
 - Successful up gradation of twenty seven (27) PMDT sites on the principles of TB infection control for prevention of airborne transmission.
- ❖ Improvement of management of MDR-TB through establishment of site committees for each MDR-TB patients which provided opportunity to address social and economic aspects other than clinical management in Sri Lanka.
- ❖ Guidelines for community-based MDR-TB which has already been piloted in four sites of four districts in Bangladesh with implementation support by the partner.
- ❖ In India, most MDR- TB cases including from private sector are being treated in designated DR- TB center, Mobile injection facility for DR- TB patients in remote areas has been provided.

G) Good Practices on Improvement of TB Case Detection and Case holding

- ❖ In 2012, a case based electronic data recording and reporting system named Nikshay was introduced with the aim of capturing patient level information from both public and private sectors for better program delivery as well as individual TB case management in India.
- ❖ The Government of India declared TB as a notifiable disease through a Gazette notification dated 7th May 2012. All public and private health providers are now required to notify TB cases diagnosed and/or treated by them to the District nodal officer. The number of health facilities (including private sector) that have registered for notification has been growing steadily.
- ❖ Electronic registration of TB data using e-TB Manager software is running in 210 sites in Bangladesh.

- ❖ Government of Bangladesh has decided to conduct a TB prevalence survey with technical support from CDC Atlanta, RIT Japan, SNRL of Antwerp, Belgium and WHO. Major Accomplishment so far: field testing was conducted from 15-17 January 2015, a total of 249 respondents participated; two pilot surveys were carried out prior to final kick off of the survey to identify weakness and to assess overall capacity of the team. The pilot survey in urban setting was conducted in 2015 at Boro Moghbazar, Dhaka. A total of 742 respondents took part in the survey. The rural pilot survey was conducted at Suapur Village, which is situated at Suapur Mouza at Suapur Union at Dhamrai Upazila of Dhaka district. A total of 772 respondents took part in the survey; The supra National Reference Lab (SNRL) is ensuring the quality of laboratory service. Four biosafety cabinets at NTRL were tested and certified by technical experts.
- ❖ In Bhutan, follow up of patients has been strengthened using mobile technology.

- ❖ **Innovative approaches to find missing cases in Bhutan**

To find missing cases, symptomatic screening of the vulnerable populations are being conducted at various level such as in monastic institutions, mining sites, mega hydro project sites and construction sites (to screen migrants and labors). Contact tracing for those close contacts of NSP and MDR-TB cases are conducted to screen symptomatic and missing cases among the vulnerable groups of the population. The introduction of Gene-Xpert machines in four identified sites is aimed towards improving the diagnosis of more number of missing cases with a focus to high and low-risk group populations.

- ❖ **Community work for improving access of promoting adherence in Bhutan**

The engagement of community groups, such as village health workers, MSTF members and community action group would be good approach for TB control towards, improving access and adherence to treatment. With the adoption End TB Strategy, their engagement is very crucial as they have direct link with TB or MDR –TB patients in the communities. Going beyond the health sector in supporting patients will go a long way for the benefits of patients and their families and will help in controlling TB.

- ❖ **Finding India's missing TB cases using technology-enabled services for private providers and patients**

An innovative approach for engaging the private sector is being piloted in three diverse setting in Patna in Bihar, Mumbai in Maharashtra and Mehsana in Gujarat State. These projects have been successfully eliciting TB notifications, enabling better surveillance and improved quality of care.

Private provider notifications are attracted by offer of convenient, free TB drug vouchers for notified TB patients when a TB case is diagnosed, the doctor or an assistant makes a toll free call to a call centre, where operators collect TB notification information and general e-vouchers for standard first line TB medicines. Patients show the code received on their mobile phone through a short text message to an enrolled pharmacy, which validates and issues TB medicines without any charge. The call centre contracts the patient by phone and verifies the receipt of free TB medicines. The local TB officer signs off on payments every few days, and confirmation of each e-payment is sent to the pharmacy by a text message. Notification is the gateway to monitoring treatment adherence. The patients adherence is ensured via an escalating algorithm of reminders, alerts, self reporting and if required, contacting family members and a visit by a programme staff.

Until September 2015, the total TB case notification rate (annualized) doubled, relative to the same quarter one year earlier. Proportion of contribution to TB notification from the private sector was 46% in these three districts compared with 9% overall in the country; with stable TB notification from the public sector. This project also shows for the first time in India the feasibility of adherence monitoring and support to the large number of privately treated TB patients. This model is showing that with innovation, India's TB programme can tackle the problem of missing TB cases in the private sector.

❖ **Pediatric TB Project in India**-India started a project for better diagnosis of childhood TB in the four urban sites with financial support from USAID and technical partnership with FIND. Under this project, upfront Xpert MTB/RIF testing in respiratory and extra pulmonary specimens, as recommended by WHO, was used. Gene X-pert MTB/RIF testing was offered to all pediatric (0-14 years) presumptive TB cases (both pulmonary and extra-pulmonary) seeking care at public and private health facilities.

Under this pilot project, 8370 pediatric presumptive TB and presumptive DR-TB cases have been tested so far. Overall, 9149 specimens were tested, of which 4445 (48.6%) were non-sputum specimens. Of the 8143 presumptive TB cases enrolled, 517 (6.3%) were bacteriologically confirmed. TB detection rates were two-fold higher with Xpert MTB/RIF compared with smear microscopy. Further, a total of 60 Rifampicin resistant TB cases were detected, of which 38 were detected among 512 presumptive TB cases while 22 were detected among 227 presumptive DR-TB cases tested under the project. With the success demonstrated in this project, the programme is expanding the use of GeneXpert in diagnosing childhood TB in India.

- According to, fifth Joint Monitoring Mission (JMM) of the Revised National Tuberculosis Control Programme (RNTCP). India, A "Gate pass" is issued to factory workers on DOTS so they can attend their respective centers during working hours

without risking their jobs, DMC/DOTs centers are opened in large factories bringing TB services to the workplace in Himachal Pradesh,

- According to JMM, India, Online portal for recruitment of staff and e-transfer of payments of salary to staff and honorarium for DOT providers, local procurement of drugs- online system- through GMSD or TNMSC

- ❖ In Nepal, intensified case-finding addressed to various marginalized and vulnerable groups has started (contacts, HIV-infected, slum dwellers, migrants, prisoners, residents of mountainous districts)

- ❖ Enhancing active case detection by door-to-door mobilization of mothers' groups; and Conducted microscopic camps in all the districts in Nepal.

- ❖ All preparatory work for the Prevalence Survey has been completed. Accordingly in 2015, NTP conducted an Epi-appraisal with technical support from WHO and some of the recommendations of the appraisal have been addressed in the coming year's FY budget and programme, which includes piloting of tracking referral childhood TB cases from the national child hospitals located in Kathmandu as well as tracking and enrolling the primary lost to follow up TB cases on treatment

- ❖ In Sri Lanka, strengthened active case detection among high-risk categories such as prisoners, drug addicts, estate population and Integration of TB surveillance and control activities into the primary health care settings(Medical Officer of Health System) have been started.

H) Good Practices on Treatment Services

- ❖ In Bangladesh, The NTP has introduced fixed-dose combination drugs (FDCs), and has procured them through Global Drug Facility (GDF) replacing single drug formulations for first-line treatment for both adult and pediatric cases.

- ❖ In India, the National Expert Committee for Diagnosis and Management of TB has approved 100 district pilot for daily regimen with fixed dose combinations (FDCs) of 4 drug and 3 drug for Intensive phase and continuation phase, respectively and universal access to free

anti-TB drugs pilot projects launched in three sites, Patna in Bihar, Mehsana in Gujarat and Mumbai in Maharashtra .

- ❖ In Nepal, community DOTS in 11 districts has been introduced.
- ❖ In Pakistan, the Drug management unit with the support of MSH has developed .1st line and 2nd Line Anti TB Drug management guidelines and dispensing Manual has developed. Also a TB Drug Management & Regulation committee has been notified by ministry of health to manage and regulate TB Drugs related affairs.

I) Good Practices on TB-HIV Co-Infection

- ❖ In Nepal, collaboration with the National Centre for AIDS & STD Control to implement IPT in ART clinics and conducting evaluation;
- ❖ Screening of all HIV-positive cases for active TB is in place in collaboration with the HIV programme since 2003 and all TB-positive cases for HIV began treatment from 1 December 2011 onwards in Maldives.
- ❖ In Pakistan, Strengthening of Seventeen (17) sentinel sites through collaborative efforts with other partners & programs for screening, care and support of TB-HIV Co-co infected patients.
- ❖ **Innovative intensified TB case finding and treatment at high burden antiretroviral therapy (ART) centres in India**

An innovative project was started as a comprehensive strategy to reduce the burden of TB among people living with HIV AIDs (PLHA) for early diagnosis of TB and appropriate treatment. With technical support from the World Health Organization, RNTCP and NACP have joined hands for the implementation of this innovative, intensified TB case finding and appropriate treatment at selected 30 high burden ART centres in India. This project was launch on 24 March 2015. The key features of the project are single window service delivery to HIV positive individuals through provision of TB services at ART centres by intensified TB case finding (ICF) by deployment of Gene Xpert. This rapid molecular diagnostic is used as a primary diagnostic tool in 30 identified ART centres. The diagnosed TB patients receive quality daily first line anti TB drugs in FDC. Treatment adherence support to patient includes use of information communication technology. In the last 6 months of implementation of the project, 21523 PLHIVs were tested with Gene X-pert MTB Rif for TB; 2620 (12%) TB, including 73 Rif resistant TB cases, were diagnosed and placed on treatment.

- ❖ A national framework for TB-HIV collaborative activities was implemented nation-wide, with “intensified TB/HIV package” implemented in all 35 states in India.

J) Good Practices on ACSM

- ❖ **Advocacy work by NCTP/partners in Bhutan**-As a part of advocacy, sensitization and educational activities are being carried out in the monastic institutions including schools and colleges by all 20 districts across the country. Similar activities are planned to be conducted during this fiscal year to migrant/mine workers, monastic institutions and other vulnerable populations. The NCTP also airs TB messages through radio and TB programmes on a periodic basis. Every year, sensitization and educational programmes are being conducted during observation of world TB day in all 20 districts focusing on reaching all population groups and the community at large.
- ❖ The gold standards for TB care in India were released on World TB Day 2014. This is India’s bold step towards Universal access to quality TB care. On one side these standards propagate best practices in TB control in the private sector at the same time these also challenge the national TB program to raise the bar and provide highest quality TB care under the program. These standards envisages daily treatment regimen in high risk groups, DST-guided treatment regimen to tackle the menace of DR-TB, more patient friendly DOT systems including family DOT and ICT enabled support systems and psychosocial support systems, etc.
- ❖ Mumbai launched a massive awareness campaign: “Mumbai Mission for TB Control Awareness campaign” with famous film star Mr. Amitabh Bachchan as campaign ambassador.
- ❖ Good practices on Advocacy, communication & Social Mobilization in Pakistan:
 - Commemoration of annual world tb day and conduction of seminarts at National, sub national and district level to disseminate TB awareness in general public focusiong and highlighting velnerable group.
 - Memorandum of understanding between NTP and famous international fast food chain McDonald’s under which all the outlets aid in TB awareness.

K) Good practices on other areas

Hospital DOTS Linkage intervention: In Pakistan, to capture “missing” cases within the hospital DOTS Linkage intervention is in place since 2008.

TB legislation: In Pakistan, the TB notification act has been passed by Sindh & Khyber Pakhtunkhwa assembly for mandatory notification of all TB cases to TB control programme.

Operation Research: In Pakistan, following good practices under operation research are noted

- Conduction of population based national tuberculosis prevalence survey among adults (>15 years) in Pakistan, 2010-2011.
- NTP conducted national anti-tuberculosis drug resistant survey to determine the proportion of patients with multidrug-resistant TB (MDR-TB) and to compare the performance of Xpert MTB/ RIF with conventional phenotypic drug susceptibility testing (DST)-2015.

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