

NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS PREVENTION, CARE AND CONTROL

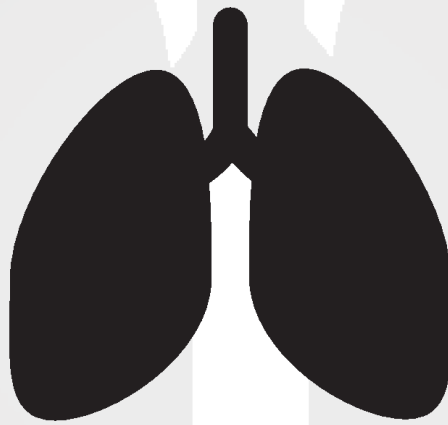


2016 – 2021



Government of Nepal
Ministry of Health
Department of Health Services
National Tuberculosis Centre

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Message

National Tuberculosis Program, with its onerous responsibility for the control of Tuberculosis in Nepal, is playing a leading and catalytic role in the management of Tuberculosis throughout the country. It feels good to note that patients are now getting treatment for tuberculosis free of cost through all government health facilities across the country. Since Tuberculosis continues to prevail as a public health problem, the Government of Nepal has recognized the Tuberculosis Control Program as priority number one health program.

The National Tuberculosis program, that is to ensure a continued supply of medicines to the patients through health facilities in their own locality or neighborhood, has never failed in the uninterrupted supply of medicines in any kind of natural disaster or humanitarian crisis, however harsh it may be. This is, indeed, the most challenging and at the same time the most praiseworthy task on the part of the National Tuberculosis Program.

The National Tuberculosis Program, on the stewardship of dispensing and managing treatment of Tuberculosis free of cost through Health Posts, Primary Health Care Centers and Hospitals, along with the treatment and management of Drug Resistance (DR) TB cases, is now moving forward facing new challenges of TB/ HIV co-infections (Co-morbidity), Childhood TB Management, including the cases of TB /Diabetes Mix. Cognizance of the fact that the initiatives of the government or the National Tuberculosis Program alone, towards ending tuberculosis epidemic in the country can't suffice yield to desired outputs, necessarily calls for a coordination and collaboration across private sectors; hospitals and health facilities, medical colleges, nursing homes, polyclinics, pharmacies and, in the same way with community; patients and their families, social workers, intellectuals and so on.

With a vision to End TB by 2050, I do hope that present Strategic Plan which is devised to meet the goals set by the National Tuberculosis Program, by extending systematic and effective tuberculosis care services to private sectors and communities that are vulnerable but out of the coverage or missed in any way by the health system, will definitely help achieve the vision of TB Free Nepal. I, hereby, extend my best wishes to all concerned.

Dr Kiran Regmi
 Secretary



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Forward

The National Tuberculosis Program has played an outstanding role in controlling tuberculosis which still remains as one of the major public health problem in Nepal. The National Tuberculosis Program has always been at the forefront to optimize uptake of innovative tools, policies, operational plans and programs as recommended by the World Health Organization.

But, with new challenge from halting and reversing the disease to Ending TB, there is still a lot to be done. It is estimated still that nearly 10,000 cases are being missed by the program every year is still a major concern requiring focused and tailored interventions.

The National Strategic Plan of tuberculosis is developed for the period of every 5 years reviewing the progress made in the former years, results of the earlier strategies and proceeds intensifying the activities to be executed in the coming years with a specification list of the priority areas and, by virtue of which, I am convinced that this National Strategic Plan (NSP) will certainly contribute to make the forthcoming enterprises of the National Tuberculosis Program more competent, accomplished and strengthened.

I wish National Tuberculosis Program a grand success in its attempts to erase tuberculosis from the list of the public health concern by 2035 and push down the TB incidence rate to 1 per 1,000,000 and realize its vision of Tuberculosis Free Nepal by the year by 2050, by way of aggressive extension of tuberculosis service delivery and strengthening prevention and patient care to the high risk and out of the coverage populations. I would like to extend my warm wishes to all involved with this lofty mission. I would also like to congratulate National Tuberculosis center and its leadership to have developed this document with new aspiration of our new constitution and address TB in federal context.

Best wishes,

Dr. Rajendra Prasad Pant
 Director General



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Preface

Tuberculosis still remains a major public health concern in Nepal with huge socio-economic burden to the country. Considering this fact, the government of Nepal has recognized the National Tuberculosis Program as priority one health programs in Nepal. National Tuberculosis Program is operational in Nepal following the WHO recommended treatment regimen, diagnostic methods adopting innovative technologies, treatment management guidelines and frameworks, and the outstanding achievements it has achieved so far is a well-known fact to all .

Now, even with much intervention, it is estimated that the TB program is still missing to diagnose nearly 10,000 cases ever. There is a need to catch these missing cases and also a need to scale up the quality and newer diagnostic services together with better treatment approaches in days to come. There is also need to have a meaningful engagement of private sector in TB control program and community's engagement in TB care.

In view of the fact that Nepal has always been at the forefront in the implementation of the novel, updated and timely interventions advocated by the World Health Organization, National Tuberculosis Program is now fully committed and making remarkable advancements to meet the global TB elimination target by 2050, in line with the goals, targets and milestones of End TB Strategy as recommended by the WHO. This **5-year National Strategic Plan (NSP)** has been framed from 2016 to 2021 to realize the same aforementioned goal. This NSP aims to decreasing TB incidence by 20% by 2021. This will be done by identifying and managing 20,000 more TB cases by 2021 compared to 2015 with meaningful engagement of private sector and community in TB care. This document addresses TB in federal context and is in alignment with Nepal Health Sector Strategy (2015-20) and has taken its aspirations and guidance from, END TB strategy, National Health Policy 2014 and Constitution of Nepal.

I would sincerely like to thank the core working team led by Mr. Anil Thapa and supported by International consultant Dr. Paul Nunn, National Consultant Dr. Sushil Baral and other partners; WHO, Save the Children, LHLLI, Damien Foundation, JANTRA and all those involved in this document preparation. Their support was invaluable for NTP to develop this document.

Thanking you all once again.

Dr Kedhar Narshingh K.C.
Director



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ABBREVIATIONS

ACSM	Advocacy, Communication and Social Mobilization
AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Treatment
DHO	District Health Office/Officer
DM	Diabetes mellitus
DoHS	Department of Health Services
DOTS	Directly Observed Treatment Short Course
DPHO	District Public Health Office
DRS	Drug Resistance Survey
EDP	External Development Partner
EHCS	Essential Health Care Service
FCHV	Female Community Health Volunteer
GFATM	Global Fund against AIDS, Tuberculosis and Malaria
GoN	Government of Nepal
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
LHLI	LHL International Tuberculosis Foundation (of Norway)
LMD	Logistics Management Division
MDG	Millennium Development Goal
MoH	Ministry of Health
NCASC	National Centre for AIDS and STD Control
NHSP	Nepal Health Sector Program
NHTC	National Health Training Centre
NPHL	National Public Health Laboratory
NSP	National Strategic Plan
NTC	National Tuberculosis Centre
NTP	National Tuberculosis Program
PAL	Practical Approach to Lung Health
PHCC	Primary Health Care Centre
PLHA	Person(s) living with HIV/AIDS
PLHIV	People Living With HIV
PMDT	Programmatic Management of Drug resistant TB
TB	Tuberculosis
WHO	World Health Organization



EXECUTIVE SUMMARY

The government of Nepal recognizes its responsibility of tuberculosis control by increasing the availability of quality access to health care among the people and community. National Strategic Plan (NSP) is an effort that aims to fulfill this responsibility. This Strategic Plan attempts to incorporate the sentiments of the Constitution of Nepal, the current health policies, international commitments to the tuberculosis control activities as well as the rights of the people and community affected by tuberculosis. The implementation of this strategy will involve the tuberculosis control program under central, federal and local context, strengthening the health services agencies at all levels as envisioned by the Constitution of Nepal thus increasing the access to tuberculosis diagnosis and treatment services.

National Tuberculosis Control Program (NTP) has set an ambitious goal of eliminating tuberculosis by 2050. The NSP has been developed to achieve the targets of reducing tuberculosis incidence by 20% by 2021 in comparison to 2015 and identifying additional new 20000 patients with tuberculosis. When compared with the WHO estimation of annual case burden and the annual caseload registered under the NTP, it becomes clear that still, around 10000 patients with tuberculosis are out of reach of the program every year. The principal challenge of the NTP is, therefore, to identify these patients timely and bring within NTP treatment framework.

Over the next 5 years, more than 1.9 million people with tuberculosis will be treated successfully with treatment success rate of over 90%, out of which 13500 will be children and more than 5000 will be HIV positive. Similarly, 3360 of them will be treated for MDR TB and 116 will be treated for XDR TB. During this time period, sputum samples of 2.2 million people will be tested for pulmonary tuberculosis by sputum smear examination and that of 290000 by culture. There will be 2600 drug susceptibility testing (DST) performed and 570000 people will be tested for tuberculosis by GeneXpert MTB/Rif assay. These targets will be met through more than 4000 health posts and 581 microscopy centers. The implementation of the NSP is estimated to cost 105 million US dollars, out of which potential funding sources have been identified for 59.4 million US dollars while the process is underway to find the sources for the remaining amount.

Failure to increase the case-notification rate since last few years has been a great problem and challenge to the NTP. The case-notification rates have been relatively lower in hilly and mountainous as compared to those in Terai regions. This NSP also incorporates the National TB Prevalence Survey to determine the prevalence of tuberculosis in Nepal.

In order to increase the case-notification rate, it seems necessary to improve the organizational structure, capacity and leadership development as well as creating positions for and managing additional work force at and under National TB Center. It is imperative that both government and private organizations extend their joint efforts and develop better partnership for more effective outcomes in TB control program. For this, result oriented initiatives will be taken using existing infrastructure and health care network through formal contracts and coordination with private sectors.

To increase the health care access of yet unreached but at-risk population in the community, programs like community-based DOTS will be strengthened by working in coordination with the community based organizations, civil society groups, female community health volunteers (FCHVs) and other volunteering organizations in order. The sputum smear testing activities of the families with sputum smear positive patients will be carried out more efficiently under the aegis of the NTP.

Similarly, the patients presenting with signs and symptoms of respiratory (or other) illnesses in the OPDs, will be screened for rigorously and evaluated appropriately to identify tuberculosis and manage accordingly. For this, focal persons will be identified in major health facilities at the central, provincial and local level hospital for the early diagnosis and management of TB. High-risk groups like families and contacts of sputum positive patients, patients living with HIV, malnourished children and patients with diabetes will be identified and measures will be taken for prompt diagnosis and management of TB among these groups as well. In addition, addressing of the discriminations and stigma against those affected by TB will be given a high priority while emphasizing the community-based DOTS services.



The NTP will work closely with the child health specialists and the children centered programs like Integrated Management of Childhood Illness (IMCI) of the Child Health Division with an aim to increase the case notification rate among the children by two-fold.

The NTP will be expanded in such a way that among the patients diagnosed with tuberculosis by 2021, all the patients with MDR TB will be identified and treated as per the NTP protocol. Programs will be implemented with an aim to progressively reduce the financial burden on the patients and their families incurred due to tuberculosis. Also, arrangements for the psycho-social counseling to the patients with Tb and their families will be made in all of the drug resistant TB treatment centers and sub-centers.

For the successful implementation of these programs, a modern TB laboratory network with latest technologies, trained and motivated work force and efficient monitoring and evaluation system is a must. The uninterrupted availability of the provisions, chemicals, and equipment, for the functioning of the laboratory with efficient procurement and supply chain management, is the cornerstone for the successful implementation of the program. The mechanisms for sputum collection, transport and testing will be made more efficient with expansion and accessibility of Rapid diagnostic tests like GeneXpert MTB/Rif at the local levels and culture and drug susceptibility testing services to each of the provinces and central level

The mechanism to manage the program and patient data - Electronic Individual TB patient Tracker, will be implemented for effective monitoring and evaluation activities. The review meetings at national, provincial and local levels will be made more analytical and effective and the conclusions and the recommendations of such meetings will be incorporated into the program to address any local level issues. These activities will be progressively incorporated into the existing HMIS and DHIS systems.

An approach will be made to identify the TB patients among the high-risk groups. Priorities will be given to those who are more vulnerable to develop TB like families and contacts of sputum positive patients, HIV positive patients, malnourished children, patients with diabetes, women, marginalized population, poor. Access of TB services will be expanded to reach to population at large and measures will be taken for the prompt diagnosis and initiation of TB treatment when needed. This will increase the treatment success rates thus, further strengthening the program. This Strategy will be revised and implemented as and when new information and knowledge becomes available.



PART 1: BACKGROUND

1.1 INTRODUCTION

The Constitution of Nepal has established free essential health services as the basic fundamental rights of the citizens. It is the responsibility of the state to take effective TB control measures by increasing the access of quality TB care services to the affected individuals and communities. With an aim to fulfill this responsibility, Government of Nepal has been developing and implementing 5 yearly plans for TB control program since 1995 based on the past experiences and available facts. From 1995 through 2005, it was emphasized mainly on the directly observed treatment short-course (DOTS) for TB treatment. From 2006 through 2015, the NTP conducted its programmatic activities in line with the Stop TB Strategy. At present, Nepal has adopted the END TB Strategy formulated by the WHO as its strategic plan for TB control.

In addition, the policies, strategies and activities of the NTP have been formulated in accordance with the Government's National Health Plan 2014, Nepal Health Sector Program-1 (2004 – 2010) and Nepal Health Sector Program-2 (2010 – 2015). It has imbibed the sentiments of the National Health Plan 2014 and the objectives of Nepal Health Sector Strategy 2015 – 2020 as its guiding principles. It has also incorporated the Nepal Health Sector Strategy 215 – 2020 currently in practice and the federal organizational structures as envisioned by the Constitution of Nepal.

In accordance with the changing political context of Nepal, change in the global and local healthcare developments and trends, the NTP has also focused on strengthening the participation of multiple stake holders for the quality TB service delivery. It has escalated the efforts to the timely diagnosis of TB among high risk groups, prompt initiation of treatment and management of drug sensitive and drug resistant forms of TB as well as rehabilitation of the patients with TB and their families.

1.2 NATIONAL STRATEGIC PLAN 2016 – 2021 OF THE NATIONAL TUBERCULOSIS CONTROL PROGRAM

This National Strategic Plan (NSP) is the key guiding document for the management and implementation of the National Tuberculosis Control Program. It has formulated various goals, objectives, strategic interventions and implementation modalities to achieve the vision set by National TB control in Nepal for next 5 years. It has recognized the needs in TB control activities on the priority basis and identified effective ways to address those needs. It has also formulated the indicators to measure the implementation and outcome of the Strategy in the next 5 years.

This Strategy will be implemented with the partnerships between the government and non-government sectors as well as the active participation of patients affected with TB, their families and the community. This Strategy will be effective for addressing the health needs and answerable to the general population. This Strategy will also emphasize on the effective implementation of the program to ensure the maximum utilization of the available resources.

While embarking on the Universal Health Coverage (UHC), this Strategy has realized that all the targets set by TB control program may not be met within the duration of this Strategic period of 5 years. Nevertheless, this Strategy has presented a clear projection of the currently available financial resources and the resources that will be needed in the future, Therefore, this is an important document for the identification and mobilization of the government resources and those from the external development partners (bilateral and multilateral) for TB control program.

1.3 NATIONAL STRATEGIC PLAN FORMULATION PROCESS

The National Tuberculosis Center (NTC) and the Ministry of Health (MoH) had the leading role in preparing this National Strategic Plan. Steering committee, technical committee and writing committee were set up to formulate this Strategic Plan. During the process of formulation of this Plan, Strengths, Weakness, Opportunities and Threats (SWOT) analysis of the Program was made at the Central, regional and district levels. Various stake holders like service providers, regional and district TB and Leprosy coordinators, District Public Health Officers, National Centre for AIDS and STD Control (NCASC), patients with TB and their families, community partners and representatives, and non-government and private organizations were interacted with. Also, technical experts on Tuberculosis,



finances and social scientists were consulted. For additional information, the physicians at private healthcare centers, representatives from medical colleges, private hospitals, and staffs from government organizations like Hospitals, Primary Health Care Centers, Health Posts, and Female Community Health Volunteers and TB patients were also consulted. Appropriate solutions to the issues identified in these consultations have been incorporated in the Strategy for easy access to the quality TB diagnostic, preventive and treatment services. Furthermore, this Strategy has incorporated the NTP evaluation reports, WHO strategy for TB control as well as other relevant documents.

1.4 POPULATION, GEOGRAPHY AND ECONOMY OF NEPAL

According to the 2011 census, Nepal had 26.4 million population with 48% of them being male and 52% female. The population growth rate has decreased from 2.34% in 2002 to 1.28% in 2009. It has however, increased from 1.42% in 2010 to 1.82% in 2014. The Crude Birth Rate in 2014 was 21.7 per 1000 which was 33.83 per 1000 in 2000. The average life expectancy which was 57.84 years in 2002, has increased to reach 67.19 years in 2014. Due to increasing and unregulated urbanization, poorly organized settlements have been increasing that has resulted in growing number of homeless and urban-poor populations.

The eco-terrain of Nepal can be divided into Terai, Hills and Mountains. 50.3% of the total population live in Terai while 43% live in Hills and 6.7% live in Mountains. Recently, in line with the federal restructuring of the country according to the new Constitution, Nepal has been divided into 7 provinces and 756 local administrative units. Among these 744 units, 6 are Metropolitan cities, 11 are Sub-Metropolitan cities, 246 Municipalities and 481 village administrative units.

Over the last 7 years, Nepal has succeeded in reducing the population with income of less than 1.25 US Dollars by half. The population below poverty line has reduced from 53% in 2003-2004 to 24% in 2010– 2011 and there has been progressive improvement still ongoing. Nevertheless, the indicators of financial growth do not reflect the equitable progress across all eco-terrains. Most of the people below poverty line (42%) live in mountains with around 24% in Terai and hills.

1.5 HEALTH SECTOR AND HEALTH SERVICES IN NEPAL

The Ministry of Health in Nepal consists of Department of Health Services, Department of Drug Administration and Department of Ayurveda. National TB Center is one of the 5 centers under the Department of Health Services. At present, there are 110 government hospitals, of which 6 are central hospitals, 3 are regional, 3 are sub-regional, 10 are zonal, 52 are district and 23 are community hospitals. There are 5 regional health training centers, 5 regional medical stores, and 1 regional TB center. However, these organograms are likely to change in the event of ongoing process of state restructuring.

At present, there are 49 district health offices and 26 district public health offices which manage the district level TB control activities. Altogether, 202 Primary Health Care Centers, 3,803 Health Posts, 12,660 Primary Health Care Outreach Clinics, 16,134 EPI Clinics and 52,416 Female Community Health Volunteers providing different health services in the country..

In addition to these modern medicine healthcare facilities, the government of Nepal also has 1 Ayurveda hospital, 14 zonal Ayurveda dispensaries, 71 Ayurveda Health Centers and 305 Ayurveda dispensaries as well as other facilities providing alternative medicine services. While there is significant presence of the government health institutions in the rural areas, for-profit healthcare facilities are largely concentrated in the urban areas. Non-government organizations also have presence in healthcare delivery system in a sizeable proportion.

Nepal has made important progresses in the health sector over the last two decades. The average life expectancy of 40 years in 1990 has improved to reach 70 years in 2015. The child mortality rate of under 5-year population has decreased from 162 per 1000 in 1960 to 54 per 1000 in 2015. Similarly, the maternal mortality ratio of 539 per 100,000 in 1990 has been reduced to 170 per 100,000 in 2012 and the total fertility rate of 5 in 1990 to 2.6 in 2012. The national indicators show progress overall but clearly there are wide variations among different population when social, economic, geographical and gender based stratifications are made. As of yet, 60% of the total households are reported to be still facing difficulties in accessing the essential health services when needed. There has been difficulty in ensuring continued presence of the skilled human resource in the health facilities. 70.7% of the population living in the Mountain face this problem while those with this problem are 62% in Hills and 57.6% in the Terai.



1.6 NATIONAL TUBERCULOSIS CONTROL PROGRAM IN THE FEDERAL CONTEXT

National Tuberculosis Control Program is a priority one program in context of health in Nepal. The National TB Center formulates the policies and strategies, program implementation guidelines at the central level, sets the quality standards, develops planning, budgeting, monitoring and supervision, capacity building of healthcare workers, logistics procurement and supply chain management, research activities as well as coordination among those concerned. It also houses the National TB Reference Laboratory which will continue to function at central level under the federal system as well. The currently under-construction central chest hospital will be run and managed centrally as a tertiary separate central level hospital also in federal context. The National TB Center will help in the technical aspects and capacity building in the planning, program implementation, monitoring and evaluation at the provincial and local levels.

Based on the health structure at the provincial level, there will be National TB Control Program at each provincial level also, which will be created under the federal system. The program will carry out need assessment, planning, identification and mobilization of the resources, capacity building activities, monitoring and evaluation, research activities, coordination with partner organizations as well as record keeping and data management at provincial level. At the local level, a focal person will be identified, who will be responsible for the facilitation of the overall TB Control activities like need assessment, priority setting, planning and implementation, monitoring and evaluation at the municipal level. A high level provincial TB laboratory will be established in each of the provinces to increase the access to the quality TB diagnostic services.

The existing TB diagnostic and treatment centers will continue their services under the federal system as well which will be expanded at the key strategic locations so as to increase its accessibility. During this expansion process, priority will be given to the vulnerable and high risk populations and those without the access to TB care services. To facilitate this process, an active participation will be sought at the community level which will identify the needs and issues at the local level, develops plans and activities which will be implemented.

According to the annual report of 2016, a total of 4,321 TB treatment centers, 96 urban health centers, 581 microscopy centers and 27 GeneXpert centers have been providing the TB services in the country. Similarly, treatment services for the drug resistant TB have been provided through 14 drug resistant TB treatment centers and 81 sub-centers. For those DR TB patients needing inpatient facilities (for various reasons including accessibility to treatment centers/sub-centers for daily DOT), there is provision of 7 DR TB hostels throughout the country, which will be gradually incorporated into the hospitals and communities. At the central level, the culture and drug susceptibility testing services have been provided by the TB reference laboratories at the National TB Center, Bhaktapur and GENETUP/NATA, Kathmandu.

All necessary commodities for TB control program will be procured, supplied and managed in integrated approach in line with the integrated health service delivery system in the federal context. The NTP reorganization process will be closely linked to the state level framework and their roles and responsibilities. The NTP will continue to incorporate the experiences and the lessons learned in the past and will continue to strive for the universal access to the quality TB care services.

1.7 FINANCIAL MANAGEMENT OF THE NATIONAL TB PROGRAM

The total budget of the NTP was 15.6 million US Dollars in 2015/16, out of which around 7 million US Dollars was managed from the domestic government sources and the rest 86 million US Dollars was obtained from different external sources.

At present, sputum smear examinations for diagnosis of TB and anti-TB medications are being provided for free within Government health service delivery units and also through some non-government and private organizations.. In addition, the diagnosis and treatment of drug resistant TB has also been made available free of cost by The Government of Nepal. Nevertheless, the other costs incurred have to be borne by the patient and/or their families. Therefore, the NTP does not have accurate data that reflects the total cost involved in the care of patients with TB. It seems necessary that well designed studies be carried out to gather more accurate data regarding all the costs involved. It is necessary to devise and implement appropriate measures which will try to mitigate the catastrophic costs incurred to patient and/or family, during the process of getting diagnosed up to completion of treatment to zero.



1.8 THE ACHIEVEMENTS OF THE NATIONAL STRATEGIC PLAN 2010-2015

The main goal of the National Strategic Plan 2010-2015 was to stop tuberculosis to remain a public health problem. The other objectives were to reduce the new TB cases by 2015, to decrease the new and old TB cases as well as TB deaths by half in comparison to 1990, to achieve the case detection rate of 82% and treatment success rate of 90%.

TABLE 1: ACHIEVEMENTS OF NATIONAL STRATEGIC PLAN 2010-2015

TARGETS	ACHIEVEMENTS
To improve TB diagnosis: The microscopy centers will be increased by 125 over the next 5 years.	By 2016 August, 91 diagnostic centers have been added to achieve the total of 581 centers which will provide free TB diagnostic services
Female Community Health Volunteers will be mobilized to identify TB patients and to establish communication with their families	Though orientation sessions for the Female Community Health Volunteers were carried out, their activities have not been recorded
High quality DOTS: 75 more treatment centers will be added besides the diagnostic centers	So far, 4,321 treatment sub-centers have been dispensing TB medications for free
Laboratory Network: The laboratory at the National TB Center will obtain affiliation to function as a TB reference Laboratory and will be upgraded to obtain Liquid Culture Medium. The culture facilities will be expanded to 3 regions.	<p>The TB laboratory at the National TB Center has acquired an affiliation from the Supranational TB Reference Laboratory in Gauting, Germany.</p> <p>The solid culture facilities are available at National TB Center and GENETUP.</p> <p>Liquid culture services are not yet available on a regular basis.</p> <p>Laboratory set up for culture has been established at 2 regions but yet to commence the services</p>
Practical Approach to Lung Health (PAL): This initiative will be expanded to 29 districts of the country by 2015 and all types of respiratory illnesses will be diagnosed and treated	Though implemented, further expansion has been halted due to poor outcomes (See 4.4)
A chest hospital will be established within Kathmandu Valley by 2014	At the phase of building construction
The TB/HIV Collaboration activities will be expanded to 35 districts and the morbidity due to TB/HIV coinfection will be reduced	<p>Combined TB/HIV plan and strategy has been formulated in coordination with the National Center for AIDS and STD Control and is being implemented.</p> <p>Around 2,000 health workers have been trained for coordinated actions against TB and HIV</p> <p>44 cross referral centers (that refer the patients from DOTS centers to VCT centers and vice versa) have been established</p>
The MDR TB treatment centers and sub-centers will be expanded to 80 locations nationwide and efforts will be made to increase the accessibility for people below the poverty line	<p>By 2015 July, more than 2,347 MDR TB patients have been registered in the NTP for TB treatment</p> <p>The treatment services for Pre-XDR TB and XDR TB have been started and 150 patients have been registered for treatment by 2015 July</p> <p>Much needed hostels (total 8) have been established for the MDR TB patients</p>

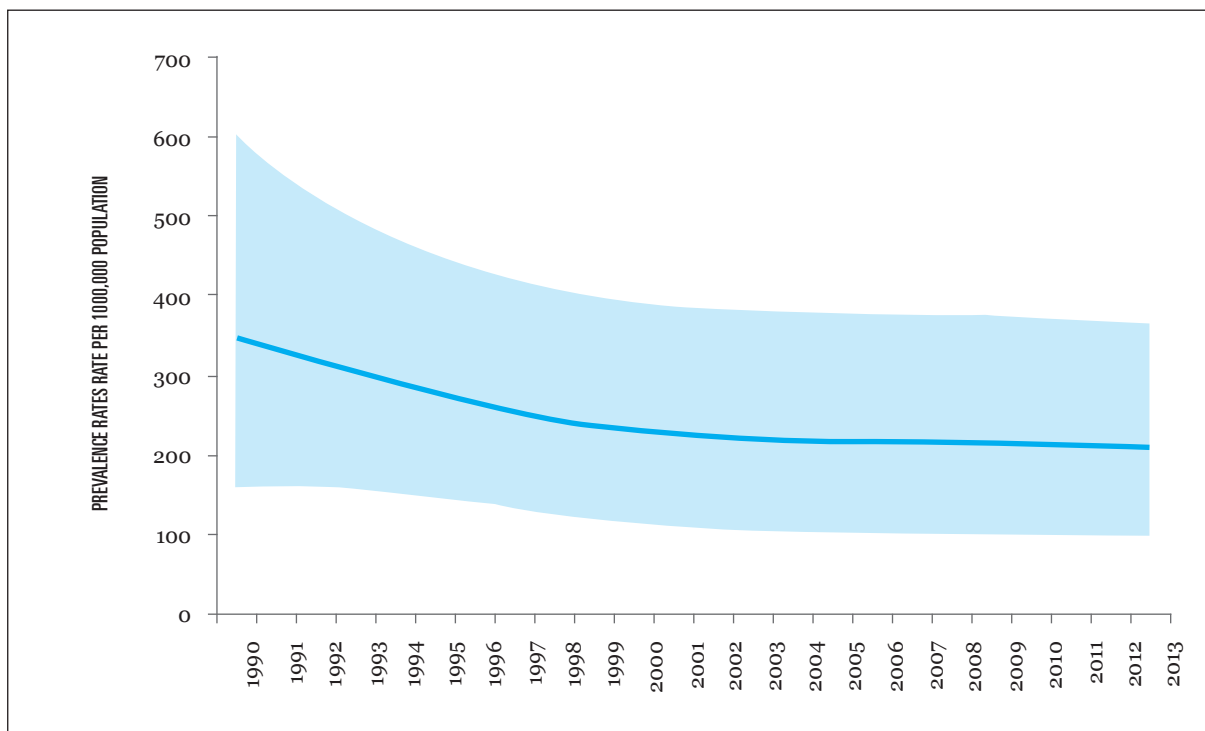


PART 2: EPIDEMIOLOGY OF TUBERCULOSIS AND ITS CHALLENGES

2.1 TB PREVALENCE RATE

According to the estimates by the World Health Organization, the prevalence of TB was 211 per 100,000 population. However, there are limitations and uncertainties in this estimation. In 2013, around 59,000 people with active TB were identified. This rate seems to be declining slowly since 1990 and it has been mostly static since 2000. Therefore, in order to determine the true burden of TB disease in the population, NTP has planned to carry out the National TB Prevalence Survey.

FIGURE 1: TB PREVALENCE RATES (INCLUDING HIV POSITIVE PATIENTS) FROM 1990 TO 2015 (SOURCE: WHO). THE BLUE LINE SIGNIFIES THE UNCERTAINTIES IN THE PREVALENCE RATES

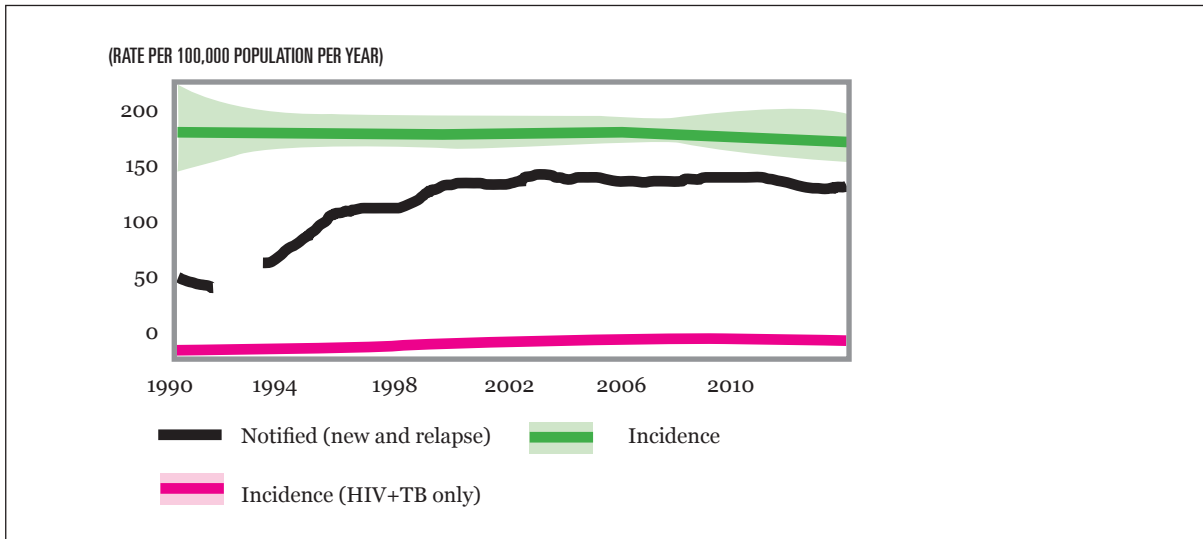


2.2 TUBERCULOSIS CASE NOTIFICATION RATE

The incidence rate of TB has been static in Nepal since last 23 years. In 2013, WHO had estimated the incidence rate of TB to be 156 per 100,000 population. The TB incidence rate, prevalence rate, mortality rate as well as case notification rate are all estimated based on the number of patients registered under the NTP for treatment every year. This modeling is, however, may be less dependable way to determine the real picture of disease status.



FIGURE 2 : CASE NOTIFICATION RATES IN NEPAL FROM 1990 TO 2013. (SOURCE: WHO) THE GREEN LINE SIGNIFIES THE UNCERTAINTIES IN THE CASE NOTIFICATION RATE



2.3 IDENTIFICATION OF TB PATIENTS AND TB CASE NOTIFICATION RATE

After NTP Nepal adopted the new WHO Stop TB Strategy in 2006, the case notification rate increased comparatively in 2008/2009 (Figure 3). This Case Notification Rate, however, remained static till 2012/2013 and dropped further to the lowest value since last decade in 2014/2015.

Over last 8 years, the Case Notification Rate of sputum smear positive patients has remained almost static at 68 to 72 per 100,000 population and that of the sputum smear negative TB has dropped from 36 per 100,000 population in 2010/2011 to 23.4 per 100,000 population in 2014/2015. However, the Case Notification Rate of extra-pulmonary TB has been increasing progressively to 31 per 100,000 population in 2014/2015.

FIGURE 3: CASE NOTIFICATION RATES OF TB PATIENTS IN NEPAL FROM 2005/2006 TO 2014/2015

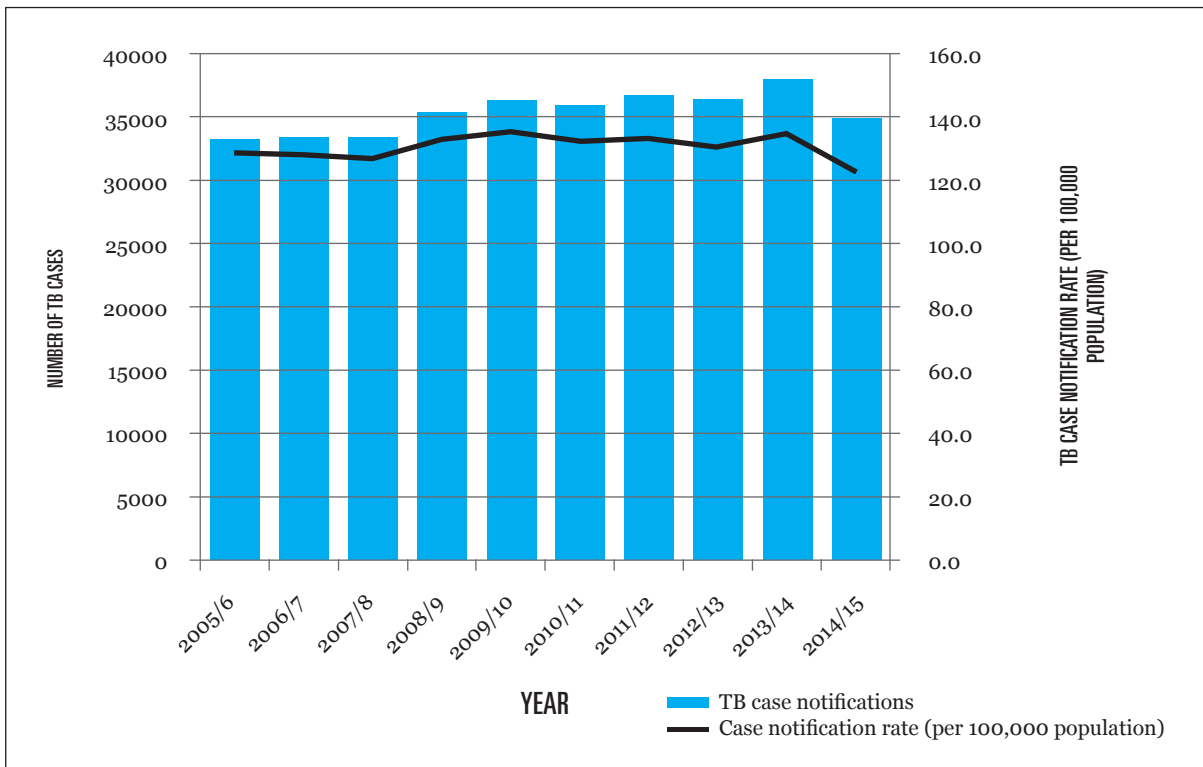
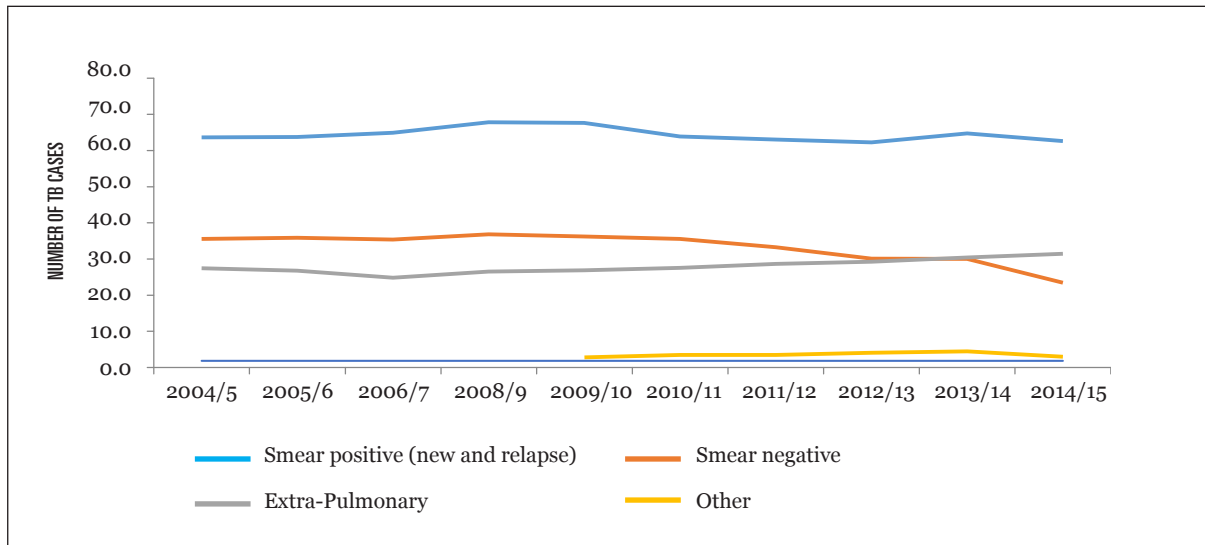




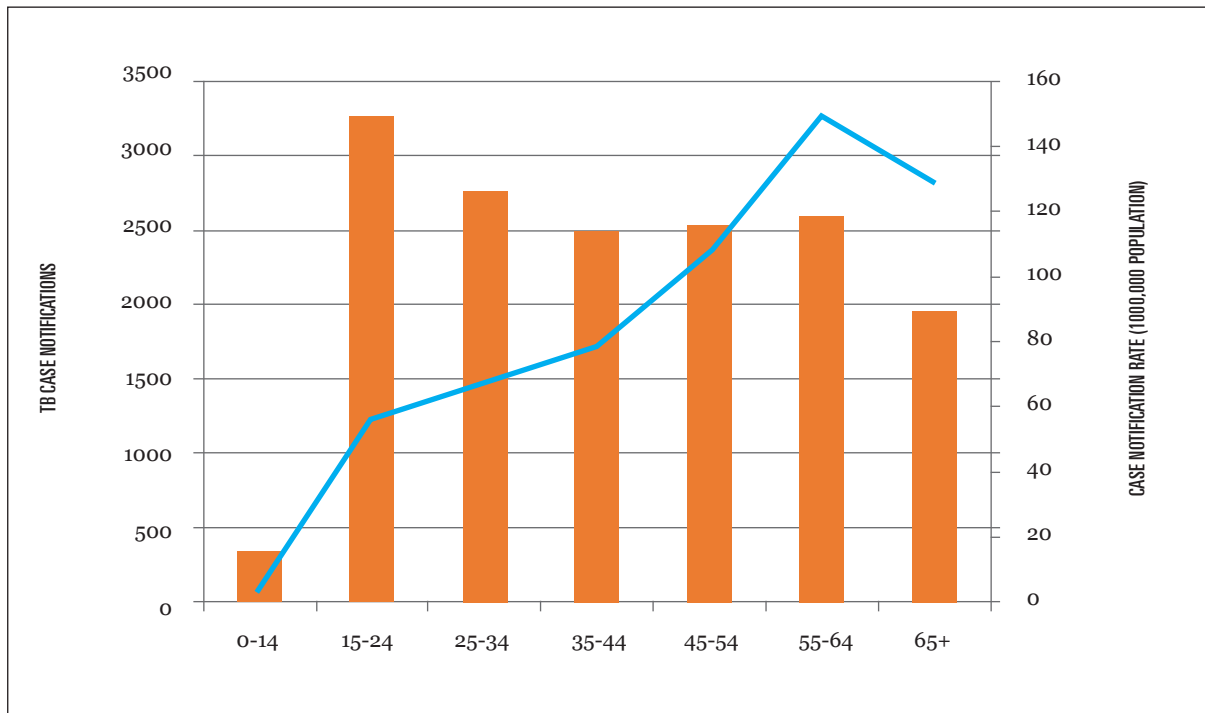
FIGURE 4: SITE OF TB IN THE PATIENTS REGISTERED UNDER THE NTP FROM 2005/2006 TO 2014/2015



When the changes in TB case notification rates are looked into carefully, most of the changes are confined within the limit of 10%. Similarly, the male to female ratio among the TB patients has also changed only minimally (1.8:1). There have been fewer patients for TB retreatment than new TB patients.

Most of the patients of TB belong to the productive age group (Figure 5). Nevertheless, with increasing age, the odds of developing TB disease increase progressively. Therefore, the TB disease burden has been found to be increasing in the more than 55-year old population.

FIGURE 5: AGE DISTRIBUTION OF THE NEW TB PATIENTS FROM 2010/2011 TO 2014/2015.

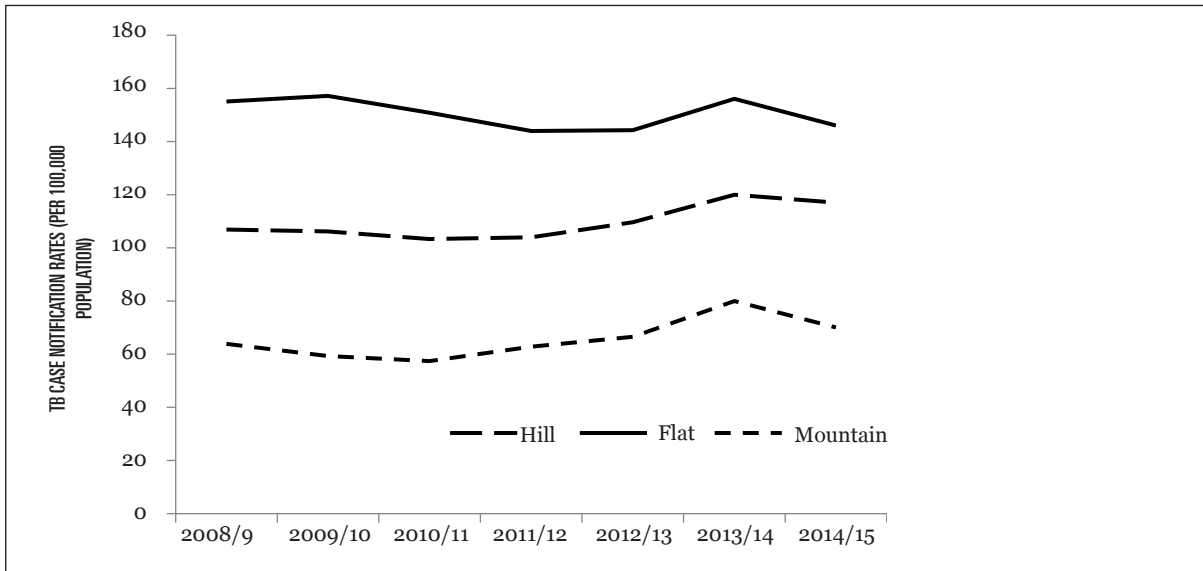




2.4 STATUS OF TB DISEASE ACCORDING TO THE GEOGRAPHICAL DISTRIBUTION

The Case Notification Rate of TB is the highest in Terai region, followed by Hills and then by the Mountains. In 2011/2012 the Case Notification Rate of Terai, Hills and Mountains were found to be 144, 110 and 66 per 100,000 population respectively (Figure 6).

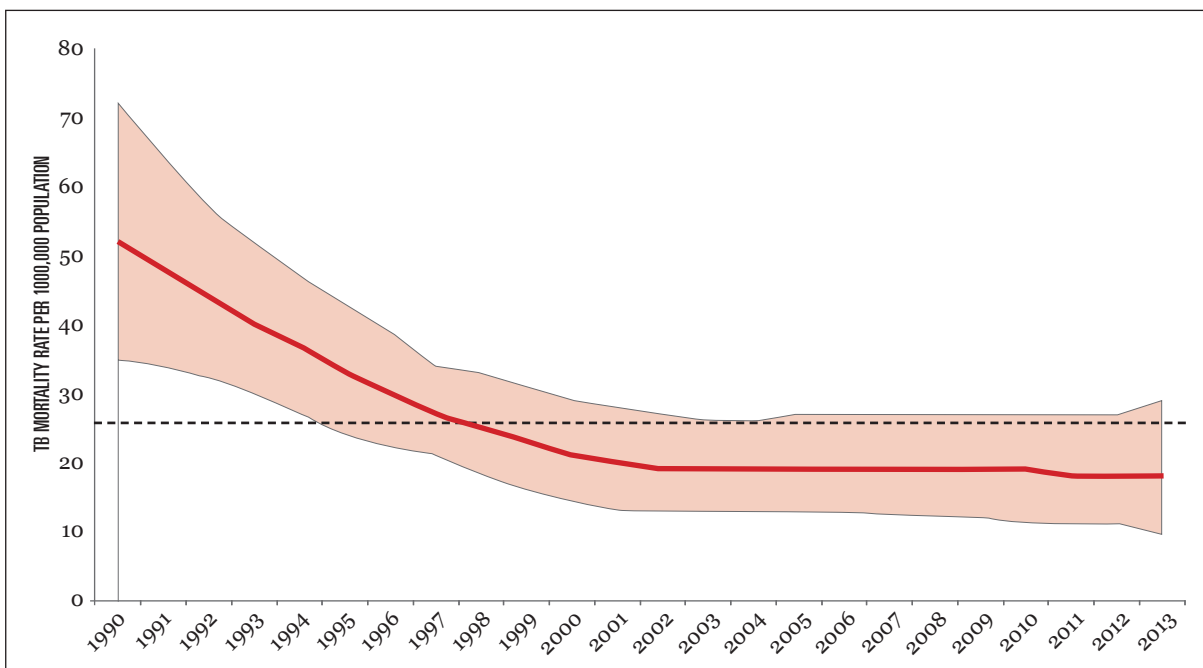
FIGURE 6: CASE NOTIFICATION RATE ACCORDING TO THE GEOGRAPHICAL DISTRIBUTION.



2.5 TB MORTALITY RATE

Since vital registration system to report the exact cause of death is poorly developed in Nepal, it becomes imperative that the number of deaths due to TB and its trend be estimated (Figure 7). The Millennium Development Goal and the Stop TB Strategy has set the target of reducing TB related deaths by 50% from 1990 to 2015, which has been achieved by NTP in 1998.

FIGURE 7: DEATHS DUE TO TB IN NEPAL FROM 1990 – 2013 (EXCEPT TB/HIV COINFECTION) (SOURCE: WHO) THE RED RIBBON SIGNIFIES THE UNCERTAINTIES OF THE DEATH RATES WHILE THE BLACK LINE SIGNIFIES THE TARGETED 50% REDUCTION IN DEATH RATE AS COMPARED TO 1990 DEATH RATE.





2.6 TREATMENT OUTCOMES

NTP has achieved and maintained the global target of 85% treatment success rate since 2006 (Figure 8) and it has remained 90% from 2009/2010 to 2013/2014. The reduction of TB death rate from 5.1% in 2006/2006 to 3% in 2012/2013 is a marker of successful treatment outcomes (Figure 9). But 3% of the patients have been lost to follow-up. There has been an improvement in the treatment success rate of pulmonary and extra-pulmonary TB (Figure 10).

FIGURE 8: TB TREATMENT OUTCOMES.

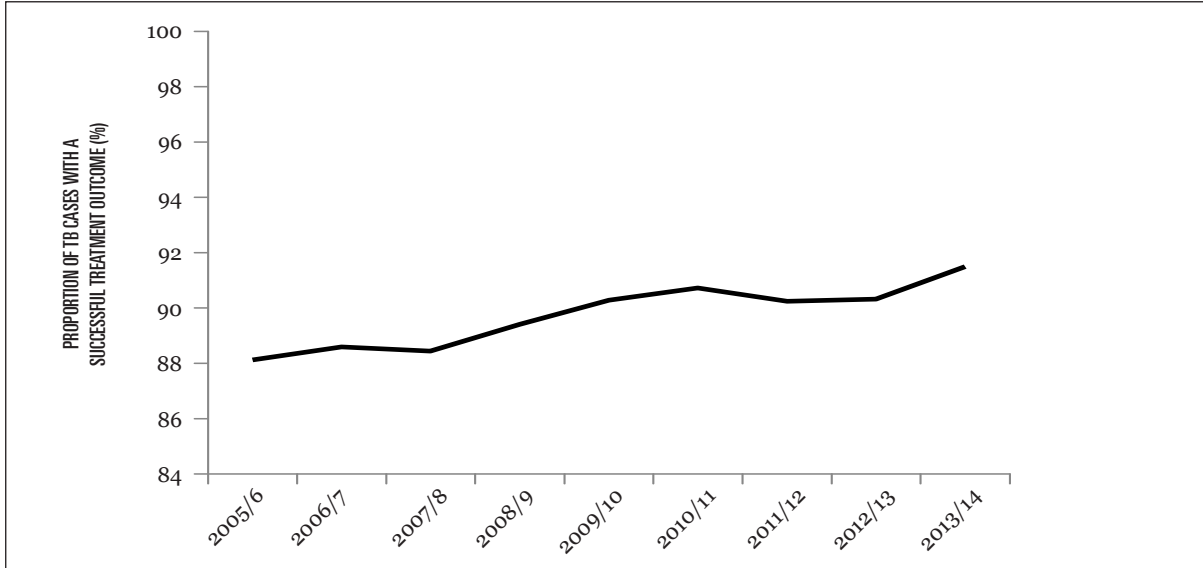


FIGURE 9: RESULTS OF FAILED TB TREATMENT

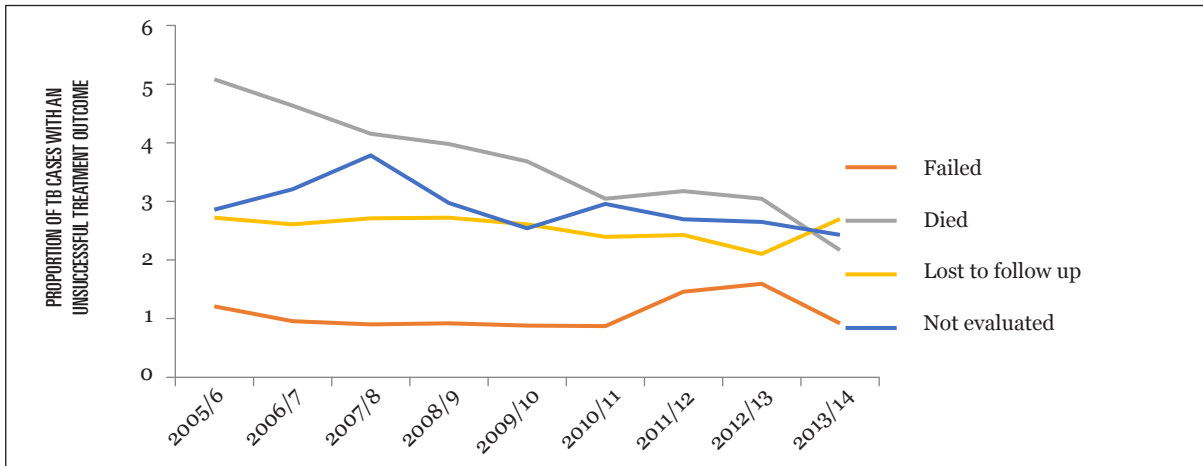
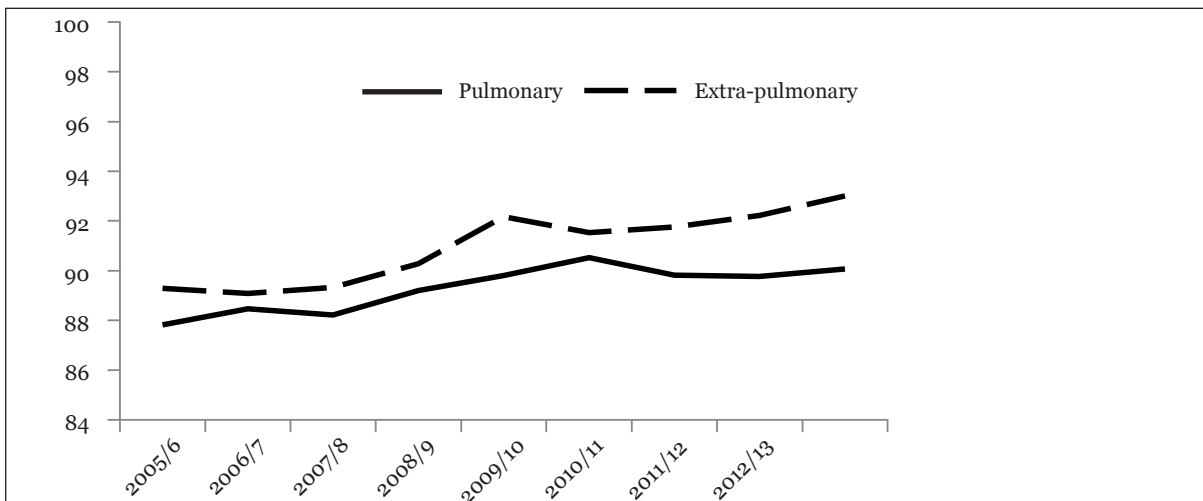


FIGURE 10: TREATMENT SUCCESS RATE FROM 2006/2006 TO 2013/2014 FOR DIFFERENT TB PATIENT POPULATIONS.





2.7 STATE OF CHILDHOOD TB

Adequate data are not available to estimate the burden of TB disease among the children. The only data available on childhood TB estimates are from age distribution of sputum smear positive patients which alone does not reflect the true burden of the disease, since childhood TB is mostly extrapulmonary or sputum smear negative (Table 2). On 2014/2015, less than 14-year old children with TB was around 6.9%.

TABLE 2: PROPORTION OF LESS THAN 14-YEAR OLD CHILDREN WITH SPUTUM SMEAR POSITIVE TB

FISCAL YEAR	UP TO 14 YEARS OF AGE	ALL AGE GROUPS	PERCENTAGE
2011/2012	470	15058	3.1
2012/2013	409	15099	2.7
2013/2014	345	15947	2.1

2.8 TB AND HIV

The TB/HIV sentinel survey of 2012 showed that 2.4% of TB patients have HIV as well and 11.2% of HIV patients have been infected with TB as well. Though the policy has been to screen for TB in all PLHIV and for HIV in all TB patients, only 11% of the patients with TB were tested for HIV in 2013/2014 and only 8% of TB patients could be tested for HIV in 2014/2015.

It has been seen that there were cross referrals between the healthcare facilities for TB and HIV services but significant improvements in the program is necessary along with the efficient recording and reporting systems. Despite the availability of TB preventive therapy for PLHIV, the program hasn't been able to make it accessible to all of them..

2.9 DRUG RESISTANT TB STATUS

The 5 drug resistance surveys conducted between 1996/1997 to 2010/2011 reveal that 1.1 to 3.7% of new TB patients have MDR TB while 12.5 to 17.2% of retreatment TB patients have MDR TB (Table 3).

TABLE 3: MDR TB AMONG NEW AND RETREATMENT TB PATIENTS

YEAR	MDR TB IN NEW TB PATIENTS	MDR TB IN RETREATMENT TB PATIENTS
1996/1997	1.1%	Not available
1998/1999	3.7%	12.5%
2001/2002	1.3%	20.5%
2006/2007	2.9%	11.7%
2010/2011	2.2%	17.2%

The XDR TB survey conducted by GENETUP on 2012 showed that among MDR TB patients, 28% had Pre-XDR TB and 8% had XDR TB. It is also estimated that about 2% of the patients among registered MDR-TB had resistance against the second line injectable of anti TB medication.

2.10 FACTORS AFFECTING TB AND PATIENTS AT HIGH-RISK FOR TB

The major risk factors for Tuberculosis are changing economic status (increases in Gross Domestic Product-GDP & Gross National Income-GNI), wealth redistribution (as measured by Gini coefficient), population parameters, effectiveness of healthcare delivery systems, status of HIV infection and the impact of TB control activities. Other factors that put people at increased risk of TB disease are poor nutritional status, Diabetes, Alcohol consumption, smoking as well as indoor air pollution (Table 4).

Globally, the population at high risk of TB has been recognized as people who come under direct contact with a TB patient, PLHIV, people living in slums and densely populated urban settings, people living in congregate settings like factories, prisons, camps, refugees, and people with diabetes, children and malnourished population. The NTP has implemented the TB control activities with these vulnerable groups in consideration. Appropriate program activities will be proposed so as to identify the high-risk groups at the local level itself for more effective and result oriented interventions.



TABLE 4: RISK FACTORS FOR TUBERCULOSIS

RISK FACTOR	PROPORTION OF GENERAL POPULATION WITH THE RISK FACTOR
HIV (2013)	0.2% (15-49 years age group)
Status of nutrition in less than 5-year- old children (2011)	41% had lesser height for age 19% had lesser weight for height 29% had lesser weight for age
Diabetes (2014)	4.6% (20-79 years age group)
Alcohol Intake (2010)	1.5% (more than 15 years old population)
Smoking (2011)	52% of male and 13% of female population

Source: WHO, UNAIDS, UNDP

2.11 CHALLENGES FACED BY THE NTP

The WHO has estimated that there will be 44,000 new TB patients every year in Nepal. It is also estimated that there are 59,000 new as well as old TB patients in the country. The data show that around 35,000 new patients have been registered with the NTP and received treatment. This shows that still, there are around 10,000 TB patients out of reach of the NTP. Therefore, the main challenge of the NTP is to identify these missing 10,000 cases and bring them under the NTP treatment framework. The other challenges of the NTP are discussed below:

MANAGEMENT OF TB PATIENTS

- ▶ Inadequate identification and testing of the presumptive TB cases among those presenting with symptoms and signs of respiratory illnesses
- ▶ Lack of effective coordination among the outpatient and inpatient departments, laboratory and X ray units in hospitals
- ▶ Lack of timely collection at and dispatching of sputum samples of the presumptive TB cases from the health facilities and community centers where laboratory services for TB diagnosis are not yet available
- ▶ Lack of institutionalization of the screening program for those at high risk of developing TB disease like HIV, diabetes, malnourished state, among others.
- ▶ Lack of effective mechanisms to identify the high-risk groups and determine their number and distribution which has resulted in difficulties in the timely diagnosis of TB and prompt initiation of treatment
- ▶ Inadequate patient friendly TB services to the patients at the healthcare facilities
- ▶ Despite free diagnostic and treatment facilities for TB under the NTP, still there are financial burden incurred to the TB patients and their family due to TB disease. The challenge is to progressively minimize these burden to zero.

LABORATORY MANAGEMENT

- ▶ Most of the TB diagnostic services and laboratories are not present at the geographically accessible locations. Many of these diagnostic laboratories do not function throughout the year and have caseload that is disproportionate to their capacities hence compromising on the specified standards. All these have hampered the TB diagnostic services.
- ▶ About 40% laboratories are not functioning regularly, mainly because of lack of human resource, inadequate infrastructures and lack of regular supervision and monitoring
- ▶ Significantly huge number of the presumptive TB cases are screened and diagnosed by private laboratories which are not affiliated nor function under NTP quality assurance system for Laboratories.
- ▶ Limited availability of GeneXpert MTB/Rif facilities in the country. Those facilities which are functioning are also concentrated mostly in urban settings, making access to the rural population very limited.
- ▶ Limited partnerships of NTP with private pharmacies and drug stores, where a huge number of TB patients are expected to seek to make contact and treated.
- ▶ Lack of mechanism for regular recording/reporting of the TB patients managed by private sectors.
- ▶ Majority of the patients are still undergoing TB treatment at the health facilities under direct supervision which is less practical at changing present-day scenario and poses significant problems to the patients and their families. Limited availability of effective alternative approaches in patient friendly health facilities
- ▶ Lack of patient privacy, proper and adequate information, communication and counselling to the TB patients and their families and proper engagement of patient and the families in TB care.

PARTICIPATION OF PRIVATE SECTORS AND COMMUNITIES IN THE NTP

- ▶ Lack of effective mechanisms to ensure the active participation of the local communities in the planning, resource tapping, and allocation process of the NTP



- ▶ Though about 25% of TB patients are estimated to be managed by private sector, there is minimal coordination between the NTP and private sectors.
- ▶ Lack of development and institutionalization of the mechanism to ensure identification, referral and follow up of TB patients at the local level by due to poor community engagement in TB control program.
- ▶ Lack of effective community participation in assisting the TB patients for social rehabilitation, income generation to earn a livelihood and minimizing the discrimination of these patients through awareness programs

TB/HIV COLLABORATION

- ▶ Lack of effective coordination between the National TB Control Program and the National AIDS and STD Control Program
- ▶ Inadequate cross referral between TB treatment centers and ART centers for mandatory testing for TB in all PLHIV and vice versa and INH preventive therapy (IPT)

PROGRAMMATIC MANAGEMENT AND MONITORING AND SUPERVISION

- ▶ Poor access to TB services due to non-strategic location of TB service delivery units. . Where every the services are available they are mostly not patient friendly and most of district level and above hospitals lack TB expert and specialized care.
- ▶ Though around 1,000 MDR TB patients are estimated annually, NTP is able to identify only around 400 out of estimated. Among those identified also, only a limited number of MDR TB patients are enrolled in treatment programs, and those who are enrolled, there is, increasing number of them being lost to follow up.
- ▶ Even though NTP is a priority one program of The Government of Nepal, it is heavily reliant on the external partner and donor agencies for its funding

For the effective implementation of the program and result oriented outcomes, it is necessary to conduct relevant operational research in various areas and the evidences thus generated should guide the policy and strategy of the NTP

- ▶ Poor achievements of the quarterly and yearly review meetings under the NTP; lack of concrete conclusions and recommendations after the situation analysis as well as responsibility assignments
- ▶ Lack of enough research activities in the NTP
- ▶ The NTP has been functioning with the workforce as provisioned in 1990 for implementation of DOTS strategy which is not sufficient to address the current technical and programmatic needs; especially there is lack of skilled and sufficient human resource in the areas like Childhood TB, PPM, CSS, etc. which has curbed in implementation of these major program areas
- ▶ Lack of clear job description and responsibility assignments among the various units of the National TB Center which has resulted in poor coordination and therefore difficulties in planning and monitoring and supervision
- ▶ Lack of efficient coordination with the HMIS system has resulted in huge burden to the NTP and also poor data quality and timely availability of the data;
- ▶ Lack of result oriented and effective monitoring, supervision and evaluation systems and institutionalization of these mechanisms

MANAGEMENT OF DRUG RESISTANT TB

- ▶ Management of Pre-XDR TB and XDR TB is yet another challenge to the NTP
- ▶ The currently available evidence suggests that 26.4% of MDR TB patients and 8% of XDR TB patients are resistant to fluoroquinolone group of antibiotics while 2 % of the patients registered for MDR TB treatment are resistant to second line injectable anti-TB medications. There are limited number of facilities for diagnosis and treatment of drug resistant forms of TB and inadequate support mechanisms for social rehabilitation of drug resistant TB patients
- ▶ Inadequate skilled human resource for proper management of drug resistant TB at the central, provincial and local levels
- ▶ Poor expansion of the effective and rapid TB diagnostic tests like GeneXpert MTB/Rif assays and culture & drug susceptibility testing facilities (Solid/Liquid cultures & DST, LPA)
- ▶ Lack of infection control policy, program and mechanisms at TB treatment centers and also, lack of awareness about the same

CHILDHOOD TB

- ▶ Difficulty in timely identification and diagnosis of TB in children, lack of national guidelines on childhood TB
- ▶ Lack of coordination between the NTP and other child centered programs for targeted approaches for TB diagnosis and treatment among malnourished children



PART 3: MAJOR PLANS 2016-2021

3.1 VISION AND GOAL

VISION

TB Free Nepal by 2050: “Ending TB” Nepal has set an ambitious vision of ending TB in Nepal by 2050 in accordance with the National Health Policy 2014 and under the strategic direction of the worldwide initiative to end TB – the End TB Strategy. The ending of TB has been defined as less than 1 TB patient per 1,000,000 population. It is believed that a gradual expansion of the quality TB care services leading to increased access and effective implementation of the program through responsible and integrated health system will help achieve the vision.

GOAL

To decrease the TB Incidence Rate by 20%, from 2015 to 2021 i.e. to identify additional 20,000 new TB cases by next 5 years. It may not only be difficult but may even be impossible to measure the part of the goal. Nevertheless, the prevalence survey to be conducted will provide a true picture on the burden of TB disease for the first time which will also be used to measure the achievement of the goal.

It seems there significant changes are required in the NTP to achieve these goals. Focus will be given more on programs and activities with significant and measurable outcomes. More accountable, equitable and quality service delivery approach will be taken to make TB services universally accessible and patient centered

3.2 OBJECTIVES

Objective 1: To increase case notification through improved health facility-based diagnosis; increase diagnosis among children (from 6% at baseline, to 10% of total cases by 2021); examination of household contacts and expanded diagnosis among vulnerable groups within the health service, such as PLHIV (from 179 cases at baseline to over 1,100 cases in 2020/21), and those with diabetes mellitus (DM).

Objective 2: To maintain the treatment success rate of 90% for all forms of TB (except drug resistant TB) by 2021

Objective 3: To provide DR TB diagnose services to 50% of the presumptive MDR TB patients by 2018 and 100% by 2021 and to successfully treat at least 75% of those diagnosed.

Objective 4: To expand case finding by engaging providers for TB care from the public sector (beyond MoH), medical colleges, NGO sector, and private sector through results based financing (PPM) schemes, with formal engagements (signed MoUs) to notify TB cases

Objective 5: To gradually scale up Community System Strengthening Program (CSS) at 60% of the local administrative units by 2018 and to 100% of the administrative units by 2021. It will help in creating a patient friendly ambience in the health facilities, advocacy for TB patients regarding their rights which will, in turn, contribute to the diagnosis and management of TB cases

Objective 6: To contribute to health system strengthening through HR management and capacity development, financial management, infrastructure, procurement and supply management in TB

Objective 7: To develop comprehensive Monitoring and Evalutaion system

Objective 8: To develop plans so that NTP can function even at times of crises like natural disasters or public health emergencies.

3.3 STRATEGIES

Different strategies have been formulated in order to achieve the goals and objectives of National TB Program. These strategies of the NTP are in line with the targets set by Nepal Health Sector Strategy 2016- 2020.



TABLE 5: THE INITIATIVES UNDERTAKEN BY THE NATIONAL STRATEGIC PLAN OF THE NTP WITH THE AIM TO ACHIEVE THE TARGETS SET BY THE NATIONAL HEALTH SECTOR STRATEGY

NEPAL HEALTH SECTOR STRATEGY OUTCOMES	THE EFFORTS MADE BY THE NSP OF THE NTP
Outcome 1: Rebuilt and strengthened health systems: Infrastructure, HRH management, Procurement and Supply chain management	Strengthening of the TB diagnostic and treatment network throughout the country; Decentralized centers for the management of MDR TB patients with well-organized logistics management system (Objectives 1, 2 & 3) Management of the organization & human resource of the NTP (Objective 6)
Outcome 2: Improved quality of care at point-of-delivery	The more sensitive tests to diagnose TB like GeneXpert MTB/Rif assays will be expanded throughout the country in adequate numbers. The courier system to transport the sputum samples will be well managed. By 2021, all of the patients with TB will be tested for MDR TB with improvement of SLD(Objectives
Outcome 3: Equitable utilization of health care services	Widespread availability of care throughout the country, free of charge at the point of need. (Objectives 1-6).
Outcome 4: Strengthen decentralized planning and budgeting.	The central, Provincial, local level TB network will be strengthened by improved M&E and focused analysis and problem solving at province and local levels aimed at improved local planning. (Objectives 6 & 7)
Outcome 5: Improved sector management and governance	Substantial HR improvements in the NTC combined with more transparent regular reviews of performance will improve leadership, management and organization of the TB programme and increase accountability (Objectives 6 & 7).
Outcome 6: Improved sustainability of health sector financing	The escalated investments by the government of Nepal to the NTP will add to the sustainability and effectiveness of the Program; the donor agencies will help in infrastructure development (Objectives 1 through 7)
Outcome 7: Improved healthy lifestyles and environment	Coordinated activities will be undertaken between TB and diabetes as well as other chronic illnesses and the importance of healthy lifestyle will be further emphasized (Objective 4)
Outcome 8: Strengthened management of public health emergencies	This Strategy will prepare a necessary guideline to ensure the continued functioning of the NTP even at times of national disasters (Objective 8)
Outcome 9: Improved availability and use of evidence in decision-making processes at all levels	The TB network at the central, provincial and local levels will be strengthened by improved M&E and focused analysis and problem solving at local, provincial as well as at the Centre level. ; The human resource will be trained even at local levels, to analyze and use the data ,in order to strengthen the decision making capacity at the local level itself (Objectives 6 & 7)

Strategic interventions for objective 1

To increase case notification through improved health facility-based diagnosis; increase diagnosis among children (from 6% at baseline, to 10% of total cases by 2021); examination of household contacts and expanded diagnosis among vulnerable groups within the health service, such as PLHIV (from 179 cases at baseline to over 1,100 cases in 2020/21), and those with diabetes mellitus (DM)..

The NTP urgently needs to do significantly more to find and diagnose the “missing cases”. These include those TB suspects attending health facilities within the health system to seek care, especially in the OPDs, that are currently missed to be screened for TB. Besides this others are children, diabetics, and all HIV positive cases of TB. Access to care for cases in remote places will be improved by developing an improved courier based sputum transport system, and expanding community based patient friendly care (See 5 below).

IMPROVED AND SUSTAINED HEALTH FACILITY BASED TB CASE FINDING

It is necessary that the health workers are more alert in recognizing for signs and symptoms of TB among the



patients presenting with respiratory illnesses for early screening and test them for TB, for the achievement of high case detection levels. For this, TB focal point(s) will be appointed in large public hospitals (i.e. central, regional/ sub-regional, zonal) for establishing timely diagnosis and early management of TB..

STRENGTHEN AND EXPANSION OF TB DIAGNOSTIC SERVICES

The existing laboratory network will be strengthen and some will be strategically relocated on the basis of geography and population distribution to increase its accessibility and utilization. The binocular microscopes at the microscopy centers with high caseload will be replaced with LED microscopes and the use of highly sensitive diagnostic tools like GeneXpert MTB/Rif assays will be expanded so as to test all the presumptive TB cases by 2021.

CASE NOTIFICATION RATE AND DIAGNOSIS OF TB AMONG CHILDREN

This Strategy aims to increase the Case Notification Rate among children from the current rate of 6.9% of total cases to 10% by 2021. This will be ensured by establishing a childhood TB unit at the NTC and addressing the childhood TB issues in the policies and implementation guidelines of the NTP. Collaborations will be made between the NTC childhood TB unit and the hospital based pediatricians, and with those in the private sector (sees Section 4). Combined efforts will be launched in close coordination with the Child Health Programs.

ACTIVE TB CASE NOTIFICATION

This strategy will focus on the vulnerable groups like close/household contacts of index TB cases, PLHIV, diabetes etc. Evidence shows that these groups are at high risk of developing TB disease and pose a significant challenge to the NTP. Targeted interventions will be introduced, to identify and management in these groups.

COLLABORATION FOR TB-HIV INFECTION

This Strategy will implement the WHO recommended 12 point policy package for TB/HIV collaborative activities in collaboration with the NCASC (Table 9 below).

TABLE 6: WHO TB/HIV COINFECTION POLICY

A. Establish and strengthen the mechanisms for delivering integrated TB and HIV services
A.1. Set up and strengthen a coordinating body for collaborative TB/HIV activities functional at all levels. The national level coordination committee will be strengthened.
A.2. Determine HIV prevalence among TB patients and TB prevalence among people living with HIV
A.3. Carry out joint TB/HIV planning to integrate the delivery of TB and HIV services
A.4. Monitor and evaluate collaborative TB/HIV activities
B. Reduce the burden of TB in people living with HIV and initiate early antiretroviral therapy
B.1. Intensify TB case-finding and ensure high quality anti-tuberculosis treatment
B.2. Initiate TB prevention with Isoniazid preventive therapy and early antiretroviral therapy
B.3. Ensure control of TB Infection in health-care facilities and congregate settings
C. Reduce the burden of HIV in patients with presumptive and diagnosed TB
C.1. Provide HIV testing and counselling to patients with presumptive and diagnosed TB
C.2. Provide HIV prevention interventions for patients with presumptive and diagnosed TB
C.3. Provide co-trimoxazole preventive therapy for TB patients living with HIV
C.4. Ensure HIV prevention interventions, treatment and care for TB patients living with HIV
C.5. Provide antiretroviral therapy for TB patients living with HIV

Strategic interventions for objective 2

To maintain the treatment success rate of all forms of TB at 90% patients (except for DR TB) by 2021

Ensure and strengthen uninterrupted supply and storage of quality assured TB drugs for all TB patients

This intervention seeks to continue the routine procurement, storage and supply of drugs by strengthening inventory and supply management through strengthening the existing Logistic Management Information System (LMIS)



PROMOTE PSYCHOSOCIAL SUPPORT SYSTEM FOR TBPATIENTS

Social support mechanisms for poor TB patients in terms of financial support for transport & food, diagnostic procedures and follow up visits, have been found to be very effective in ensuring treatment success in several countries. It is necessary that a psychosocial support and vocational training program be prepared and introduced in a phase-wise manner in coordination with the community based organizations. For this, community based organizations will be identified by a specified mechanism and responsibility assignment will be done. A psychosocial support system for TB patients will be developed and expanded and provisions will be made for their regular monitoring and supervision.

Strategic interventions for objective 3

To provide DR TB diagnose services to 50% of the presumptive MDR TB patients by 2018 and 100% by 2021 and to successfully treat at least 75% of those diagnosed.

The health facilities for managing MDR-TB in Nepal will be strengthened and made accessible to the local communities. Increased diagnosis of Rifampicin resistant patients will be done largely through expansion and use of GeneXpert MTB/Rif assay to also include the vulnerable groups such as prisoners, health care workers, migrants and refugees. Culture and Drug Susceptibility Testing services will be done for those cases strongly suspected of having TB, but who tested negative at GeneXpert MTB/Rif assays. Expansion of second-line drug testing through LPA will help identify the pre-XDR and XDR cases. The sputum courier system will be developed (see 1.2) to increase an access to GeneXpert MTB/Rif assays.

MDR-TB treatment will be expanded along with the expanded diagnostic services and the DR TB hostels will be phased out in synchrony with the expansion of DR TB treatment centers. Electronic recording and reporting for PMDT will be introduced for updated and efficient record keeping and data management. The private sector's contribution in DR TB case diagnosis and management will be strengthened. Specialist groups will be identified and developed in coordination with the medical colleges and training will be provided with an aim to increase the capacity of physicians to manage DR-TB.

ESTABLISHMENT AND OPERATIONALIZATION OF FORMAL STRUCTURES FOR DR TB

A DR TB unit in NTC will be established in collaboration with the head of laboratory services, which will be headed by a clinically qualified DR TB manager. The existing TB manual, national guidelines for MDR- TB management and training manuals will be revised. An expert group (consisting of 3 – 5 members) will be set up to support the clinical case management of DR TB cases at the central, provincial and DR TB Treatment Center levels.

EXPANSION OF DR TB TREATMENT SERVICES

The NTP will add 14 additional MDR-TB treatment centers and 52 treatment sub-centers in the next 5 years. By the end of 5 years there will be 31 DR TB treatment centers and 135 sub-centers. By 2017, the NTP will ensure that each of the DR TB treatment centers have access to GeneXpert MTB/Rif assay testing facility (See 1.2).

The NTP will introduce community based DR TB management in 49 health posts during this NSP period with greater involvement of community health workers and DR TB patients as well as their family members. The NTP will also provide vocational training, psycho-social support and counselling to DR TB patients and their family members to support for their transportation and nutrition. A palliative DR TB care center will also be established.

Supply of second line TB drugs will be managed by the Logistic management Division of Ministry of Health which will be aligned into overall TB drug management system under the (Logistic Management Information System) LMIS. The short-course regimen recommended by the WHO will also be introduced to shorten the treatment duration. Bedaquiline and Delamanid will be gradually introduced in order to improve the treatment outcomes for XDR-TB cases.

Infection control will be improved at all DR TB treatment centers and sub-centers based on the interventions described in the NTP's proposed infection control guidelines.

CAPACITY BUILDING OF SERVICE PROVIDERS

The NTP will ensure that healthcare providers at all levels are trained in the new diagnostic algorithms and changed roles. Enough well-trained staff will be allocated for managing MDR-TB through provision of intensive



initial training for all staff involved in MDR-TB activities and the capacity building will be further enhanced during supportive supervisions. A MDR TB expert pool will be developed at the national and provincial levels which will train and empower the maximum number of service providers.

Strategic interventions for objective 4

To expand case finding by engaging providers for TB care from the public sector (beyond MoH), medical colleges, NGO sector, and private sector through results based financing (PPM) schemes, with formal engagements (signed MoUs) to notify TB cases

The Case Notification Rate will be increased by forming collaborations with the medical colleges, non- government organizations, and private service providers that is based on the results based Private Public Mix (PPM) financing scheme. Under this approach, provision will be made so that the patients undergoing TB treatment at both public and private institutions will be reported to the NTP. This will also contribute in monitoring if the TB patients have been receiving the treatment for free and the health facilities supported by the NTP have been providing the services as per the criteria laid by the NTP.

In the first phase, the results based PPM financing scheme will be introduced in 3 districts to gain experience with non-state service providers. Incorporating the experiences thus gained, it will be gradually expanded to 60% of the private service providers which will cover at least 100 municipalities by 2021.

ESTABLISHMENT AND OPERATIONALIZATION OF FORMAL STRUCTURES FOR PPM

The National TB Center will establish a PPM task force under the Ministry of Health and form a PPM Policy document in line with the Nepal Health Sector Strategy. This task force will be the executing body carrying out the day to day functions and will have at least three technical staff positions and will also include the representatives from all the stake holders including medical colleges, the Department of Drug Administration, National Public Health Laboratory as well as non-government organizations. This will also be implemented at the provincial levels. A TB surveillance officer with dedicated role in PPM (basic criteria - medical doctor with public health knowledge) will be positioned in each of the high burden municipalities or district structures. The interface agency will be supported through results-based financing for mapping and coordination with the private sectors as guided by the PPM policy document and schemes. The results-based financing to the involved health care providers or pharmacies will be as per the PPM scheme.

ENGAGEMENT OF MEDICAL COLLEGES AND THEIR TEACHING HOSPITALS

The NTP will formally engage all the licensed and running medical colleges by collaboration for efficient TB diagnostic and treatment services, planning and policy making, developing operational guidelines, as well as conducting training and research activities.

A separate guideline will be prepared to form partnerships with the medical colleges and hospitals. A National Task Force will be formed with one member from each of the medical colleges and representatives from the NTP, WHO, and international experts to guide the medical college engagements. Annual meeting with the participation of the representatives from the medical colleges will prepare the work plan and will review and monitor the performance of each of the medical colleges. A workforce of trainers will be developed with at least one faculty in each medical college trained as a national level trainer.

At medical college level, a core committee will be established comprising of 4 - 6 key departments like Pulmonology, Internal Medicine, Pediatrics, Microbiology, Community Medicine etc. The core-committee will meet on trimester basis to review the progress of the planned activities. The trained faculty will conduct the training sessions at the medical college level for the other faculty, residents, and interns.

Every medical college will conduct half day orientation session for interns (future doctors) for TB control guidelines. All the TB patients diagnosed/started on TB treatment will be notified and referred to other centers with use of online referral system for faster communication. Medical colleges will be motivated to conduct operational research and PG residents to undertake theses on priority areas of TB program to support updating of program policy and guidelines. The TB program activities undertaken by medical colleges will be supported through results based financing (RBF) and PPM schemes.



Strategic interventions for objective 5

To gradually scale up Community System Strengthening Program (CSS) at 60% of the local administrative units by 2018 and to 100% of the administrative units by 2021.

It will help in creating a patient friendly ambience in the health facilities, advocacy for TB patients regarding their rights which will, in turn, contribute to the diagnosis and management of TB cases. In addition to the organizations working in the area of TB at the community levels, the NTP will extend collaborative alliances through the ENGAGE-TB approach with various nongovernmental organizations (NGOs), civil society organizations (CSOs) and community-based organizations (CBOs) that are active in community-based development activities, particularly in primary health care, HIV infection and maternal and child health, but have not yet included TB in their priorities which will expand the community based DOTS services and contribute in timely diagnosis and initiation of TB treatment.

ADVOCACY AND COMMUNITY BASED ACTIVITIES

The lack of adequate information about TB and NTP activities is an important factor contributing to low case detection levels. Under this strategy, the NTP will significantly scale up its advocacy and communication activities through the implementation of a comprehensive TB information and education package including hoarding-boards, posters and pamphlets as well as mass media mobilization activities including television and radio.

Strategic interventions for objective 6

To contribute to health system strengthening through HR management and capacity development, financial management, infrastructure, procurement and supply management in TB.

- **Human Resource Management**

Significant reinforcement is required to the NTP (from community level to as far as NTC) to provide sufficient skilled staff, and improvement of management processes. A human resource development plan will be prepared for all staff within the NTP, which will include specific job descriptions and responsibilities for all the staffs. Additional staffing needs (number and categories) are listed in Table 10.

TABLE 7: POSITIONS NEEDED IN THE NTP

PROPOSED POST	AREA (UNIT OR SECTION)	DURATION	REMARKS
Epidemiologist 1 Data manager 1	Monitoring & Evaluation Section	5 years	
Childhood TB Expert 1	Childhood TB	5 years	Senior Pediatrician with a background of Public Health
DR TB Expert 1 Infection Control Officer (Senior Nurse) 1	MDR TB	5 years	For PMDT
IT Officer 1			
Clinical Expert for PPM 1 PPM Management Expert 1 PPM Program Officers (for 7 Provinces) Community System Strengthening Officer 1	PPM & CSS Units	5 years (Full-time)	A unit should be established ECSS Officer should have an experience of collaborations with CSOs/CBOs

- **Capacity building of all levels**

All the training activities will be coordinated and organized under a central training plan. Appropriate trainings will be provided to the health workers at all levels as per need. The NTP will develop revised training materials based on the updated NTP Manual using the WHO TB Training Modules as models.

- **Infrastructure development**

National Chest Diseases Hospital is being constructed on the NTC site at Bhaktapur. This will be a 50 bedded, specialist, tertiary referral hospital for difficult cases of TB and other respiratory diseases, and will be developed as a “center for excellence” at the national level.



Strategic interventions for objective 7

To develop comprehensive Surveillance, Monitoring and Evaluation system

This objective is addressed in detail in the accompanying M & E Plan

Strategic interventions for objective 8

To develop plans so that NTP can function even at times of crises like natural disasters or public health emergencies.

Develop a plan based on the national risk assessment for the prompt resumption of any interrupted TB services. The strategy is to develop an emergency preparedness plan(s) following WHO guidance and to revise existing post-disaster needs assessment tools in Nepal in order to include TB control activities as well.

3.4 FINANCIAL MANAGEMENT

ANALYSIS OF FUNDING SOURCES

This Strategy has aimed to treat 191,000 new as well as old TB patients over the 5 year duration of this Plan (2016 to 2021) including the MDR TB patients. It is estimate that a total of 105,142,115 US dollars will be required to implement this Strategic Plan with each of the of the TB patient (including DR TB patients) needing 550 US dollars (Table 11). A large proportion of the budget will be expended for the diagnosis of TB that includes the expansion of the GeneXpert MTB/Rif assay network, establishment of culture capable TB laboratories and referral centers.

DR TB management program will be the second most resource consuming area which will see the increasing reliance on expensive medicines. The programmatic management & monitoring and evaluation sector will come as the third most resource consuming area that will require 14% of the total budget. This will also include the upgrading of DR TB Treatment Centers as well as medical stores.

Community participation and training are another area that consumes a lot of resources. Community based financial incentives will be provided in order to enhance the case finding at the community level. 8.6% of the total budget will be spent on the much needed area of training of the staff for the enhanced performance.

There is minimal funding gap for the implementation of the first 2 years of the Plan (3.8 million US Dollars for 2016 & 6.7 million US Dollars for 2017 – Table 12). Since it is not yet clear about the contributions from the Global Fund and other donor agencies, the funding gap for the next 3 years seems more. (Table 12)

Nepal Government will contribute 48 million US Dollars during the duration of the Plan. Nepal Government has allocated 18.2 million US Dollars in 2016 which has to be increased to 23.6 million US Dollars by 2021. By this analysis, it seems that there is a funding gap of 45.8 million US Dollars during the duration of the plan.

It seems that the budget required for the first year of the Plan cannot be managed; however the funding gap will be fulfilled by the second year's budget. From the third year onwards, it depends on how much resources the Government of Nepal can manage from the Global Fund and other donor agencies.

TABLE 8: SUMMARY OF NSP COST BY ACTIVITY AREA (IN US DOLLARS)

ACTIVITIES	2016	2017	2018	2019	2020	TOTAL	%
1.1 Improving diagnosis	2903572	4405450	5060264	5441798	5965862	23776945	22.61%
1.2 High risk groups	351	0	0	0	0	351	0.00%
2.1 Patient support	1242536	1298703	1396760	1501018	1554473	6993490	6.65%
2.2 First-line drugs procurement and management	1547765	1672691	1496566	1549954	1664621	7931596	7.54%
2.3 Collaborative TB/HIV activities	88997	79760	93299	91708	100510	454275	0.43%
3.1 MDR-TB drugs and management	2348723	2923455	3775357	4939127	5536503	19523166	18.57%
4.1 Involving all care providers: PPM/ISTC	268605	395155	520565	895775	1271405	3351504	3.19%
5.2 Community involvement	805500	1611000	2013750	2013750	2013750	8457750	8.04%
6.1 HRD: Staff	1009167	1050267	1050267	1058267	1058267	5226236	4.97%
6.2 HRD: International technical assistance	204980	61067	370380	59067	57067	752560	0.72%
6.3 HRD: Training	1682286	1800505	2599015	1272556	1649649	9004012	8.56%
6.4 Infection control	110222	110200	112246	112630	114849	560146	0.53%
6.5 Operational research	7500	5000	5000	7500	12500	37500	0.04%
7.1 M&E	2171746	1246534	492281	136391	141725	4188678	3.98%
7.2 Program management and supervision	3806632	3140909	2426785	3079946	2429634	14883906	14.16%
TOTAL	18,198,582	19,800,697	21,412,534	22,159,488	23,570,814	105,142,115	100.00%

TABLE 9: SUMMARY OF NSP COSTS BY SOURCE FROM 2016 TO 2021 (IN US DOLLARS)

PARTICULARS	2016	2017	2018	2019	2020	TOTAL
Total costs for TB control	18,198,582	19,800,697	21,412,534	22,159,488	23,570,814	105,142,115
Government, central / national*	7,920,543	8,712,597	9,583,857	10,542,243	11,596,467	48,355,707
Government, intermediate / provincial						\$ -
Government, local / district						\$ -
Loans						\$ -
Global Fund**	6,412,768	4,402,889				10,815,657
USAID						\$ -
Other Grants***	38,000	38,000	38,000	38,000	38,000	190,000
Estimated / Available	14,371,311	13,153,486	9,621,857	10,580,243	11,634,467	59,361,364
Funding Gap	\$3,827,271	\$6,647,211	\$11,790,677	\$11,579,245	\$11,936,347	\$45,780,751

TABLE 10: SUMMARY OF NSP COSTS BY SOURCE FROM 2016 TO 2021 (IN US DOLLARS)

PARTICULARS	2016	2017	2018	2019	2020	TOTAL
Total costs for TB control	18,198,582	19,800,697	21,412,534	22,159,488	23,570,814	105,142,115
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Government, intermediate / provincial						\$ -
Government, local / district						\$ -
Loans						\$ -
Global Fund**	6,412,768	4,402,889				10,815,657
USAID						\$ -
Other Grants***	38,000	38,000	38,000	38,000	38,000	190,000
Estimated / Available	14,371,311	13,153,486	9,621,857	10,580,243	11,634,467	59,361,364
Funding Gap	\$3,827,271	\$6,647,211	\$11,790,677	\$11,579,245	\$11,936,347	\$45,780,751

Note:

* Figures for 2016 are as per approved budget. For all future years, it is assumed to increase the allocation by 10% annually.

** Figures as per the existing Global Fund budgets till 2017 only.

*** LHL budget for 2016 has been assumed to continue for next 5 years.

NEXT STEP

Detailed activities for each strategic intervention will be found in the Operational Plan under the numbering system of this Core Plan.

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