

NATIONAL TUBERCULOSIS PROGRAMME  
MYANMAR

ANNUAL REPORT  
2009

December, 2010

## CONTENTS

<b>Sr.No</b>	<b>Items</b>	<b>Page</b>
	abbreviation	i - iii
1.	Introduction	1
2.	Objectives of National Tuberculosis Programme	1
3.	Progress of the stop TB strategy	2
4.	Activities of National Tuberculosis Programme	7
5.	Manpower situation of National Tuberculosis Programme	41
6.	Drugs and laboratory equipment situation of National Tuberculosis Programme	41
7.	Budget and external supports	42
8.	Research	46
9.	Constraints	54
10.	Comments and Recommendations on NTP activities	55
11.	Recommendations & Conclusion	96
12.	Annexes(annex-1 to annex -39)	97

## **Abbreviations**

ACSM	Advocacy communication and social mobilization
AD	Assistant Director
AFB	Acid Fast Bacilli
AIDS	Acquired Immunodeficiency Syndrome
ARTI	Annual Risk of Tuberculosis Infection
AZG	ARTSEN ZONDER GRENZEN
BCG	Bacille Calmette Guerin
BHS	Basic Health Staff
CDR	Case detection rate
CNR	Case notification rate
DD	Deputy Director
DOH	Department of Health
DOT	Directly Observed Treatment
DOTS	Directly Observed Treatment Short Course
DRS	Drug resistant survey
DST	Drug Sensitivity Testing
ELISA	Enzyme-Linked Immuno -solvent Assay
EPI	Expanded Programme of Immunization
EMB	Ethambutol
EQA	External Quality Assessment
FDC	Fixed-dose combination
GDF	Global Drug Facility
GLC	Green Light Committee
GPs	General Practitioners
HIV	Human Immunodeficiency Virus
HA	Health Assistant

IEC	Information, Education, Communication
IHC	Integrated HIV Care
INH	Isoniazid
IOM	Information, Education, Communication
IPT	Isoniazid Preventive Therapy
IUALTD	International Union Against Tuberculosis and Lung Disease
JATA	Japan Anti-Tuberculosis Association
JICA	Japan International Cooperation Agency
KAP	Knowledge Attitude and Practice
LHV	Lady Health Visitor
LQAS	Lot Quality Assurance Sampling
MDR-TB	Multi-Drug Resistant Tuberculosis
MDGs	Millennium Development Goals
MMA	Myanmar Medical Association
MMCWA	Myanmar Maternal and Child Welfare Association
MO	Medical Officer
MOH	Ministry of Health
MWAF	Myanmar Women Affairs Federation
MRCS	Myanmar Red Cross Society
MRTV	Myanmar Radio and Television
MS	Medical Superintendent
MSF	Medecins Sans Frontieres
MWs	Midwives
NAP	National AIDS Programme
NGOs	Non Governmental Organization
NHL	National Health Laboratory
NTP	National Tuberculosis Programme
NTRL	National Tuberculosis Reference Laboratory

OI	Opportunistic infection
PHS II	Public Health Supervisor II
PP	Private Practitioner
PSI	Population Services International
QC	Quality Control
RHC	Rural Health Centre
RIT	Research Institute of Tuberculosis
RMP	Rifampicin
SCC	Short Course Chemotherapy
SM	Streptomycin
SOP	Standard Operating Procedure
S/RTO	State/Regional TB Officer
STI	Sexually Transmitted Infection
STLS	Senior Tuberculosis Laboratory Supervisor
TB	Tuberculosis
TL	Team leader
TOT	Training of Trainers
TSG	Technical Strategic Group
TSR	Treatment Success Rate
TMOs	Township Medical Officers
TV	Television
UTI	Union Tuberculosis Institute
VCCT	Voluntary Confidential Counseling and HIV Testing
WHO	World Health Organization
XDR-TB	Extensively Drug Resistant Tuberculosis
3DF	Three Diseases Fund

# **NATIONAL TUBERCULOSIS PROGRAMME**

## **ANNUAL REPORT (2009)**

### **1. Introduction**

Tuberculosis (TB) is one of the major public health problems in Myanmar. Annual Risk of Tuberculosis Infection (ARTI) was 1.66% (83/100,000 population were sputum smear positive) according to the findings of tuberculin survey conducted in 1972. Sputum positive point prevalence was 104/100,000 population according to Nation-wide survey carried out in 1994. World Health Organization (WHO) estimates the ARTI as 1.5%.

National Tuberculosis Programme (NTP) has been established since 1966. NTP is running with 14 State and Divisional TB Centers with (101) TB teams at district and township levels in 2009.

TB control activities have been integrated with Primary Health Care since 1978. The standard regimen containing injection Streptomycin and Isoniazid was replaced with Short Course Chemotherapy and introduced in 18 townships and 8 State and Divisional TB Centers in 1994. NTP rapidly expanded the townships up to 144 townships in 1995, another 9 townships in 1996 (total 153 townships) and no further expansion in 1997 and 1998. In 1997, NTP adopted WHO recommended Directly Observed Treatment Short Course (DOTS) strategy. In 1999, NTP covered 64.9% of country population in 168 townships and implementing DOTS strategy through primary health care approach, in co-ordination with the other governmental sectors and non governmental organizations such as Myanmar Women Affairs Federation (MWAF), Myanmar Maternal and Child Welfare Association (MMCWA), Myanmar Medical Association (MMA) and Myanmar Red Cross Society (MRCS) etc. In 2000, DOTS coverage extended up to 71% (covered 231 out of 324 townships). In 2001, NTP covered 259 townships (80% out of total townships) and covered 90% of population. In 2002, NTP covered 310 townships (95.7% of total townships) and 95% of population. All 325 townships were covered with DOTS strategy (100% coverage) since the end of 2003.

TB control activities were implemented according to 5-year National TB Strategic Plan and 'Stop TB Strategy' to achieve the global targets within the framework of Millennium Development Goals (MDGs). This annual report aims to record the Myanmar TB situation and to evaluate strength, weakness, opportunity and threat, challenges to overcome for the better achievement.

### **2. Objectives of NTP**

#### **2.1 General objectives**

- To reduce the mortality, morbidity and transmission of TB, until it is no longer a public health problem (2050)
- To prevent the development of drug resistant TB
- To have halted by 2015 and begun to reverse incidence of TB

#### **2.2 Specific Objectives**

The objectives are set towards achieving the MDGs, 2015.

- To reach the interim targets of halving TB deaths and prevalence by 2015 from the 1990 situation. (MDGs, Goal 6, Target 6.C, Indicator 6.9)
- To reach and thereafter sustain the targets - achieving at least 70% case detection and successfully treat at least 85% of detected TB cases under DOTS (MDGs, Goal 6, Target 6.C, Indicator 6.10)

### **3. Progress of the Stop TB Strategy**

The Stop TB Strategy, which was recommended by WHO in 2006 has been initiated in Myanmar since 2007 to achieve the MDGs, 2015.

Activities as planned in 5-Year National Strategic Plan for TB Control (2006-2010) are reviewed and revised to be in line with National Health Plan, new Stop TB Strategy and global plan and drafted the second 5-year National Strategic Plan (2011-2015).

The (2006-2010) plan has being implemented with the support of the government and funding from (WHO, Global Drug Facility (GDF), International facility for the purchase of drugs and laboratory commodities for HIV/AIDS, malaria and tuberculosis (UNITAID), Japan International Cooperation Agency (JICA), Global Fund, Three Diseases Fund (3DF), Japan Anti-TB Association (JATA), United States Agency for International Development (USAID) and Union.

There are 6 components in the **Stop TB strategy**:

1. Pursuing high quality DOTS expansion and enhancement
2. Addressing TB/HIV, MDR-TB and other challenges
3. Contributing to health system strengthening
4. Engaging all care providers
5. Empowering patients and communities
6. Enabling and promoting research

NTP Myanmar is implementing those components and achieved global TB control targets in 2006 and maintained up to now.

#### **(1) Pursue high-quality DOTS expansion and enhancement**

NTP, Myanmar ensures the quality of the 5 components of the DOTS strategy. The government increased the budget for TB control gradually. Case finding activities have been improved by introduction of EQAS (External Quality Assurance System) since 2006. NTP is taking a step to decentralize DOTS unit or microscopy center up to some of the Station Hospitals with quality assurance system. The case finding activities were improved by means of mobile teams, sputum collection points, initial home visit and contact tracing. TB patients are treated with WHO recommended treatment regimens using Fixed Dose Combination (FDC) of first line anti-TB drugs and Patient's kit under close supervision of Basic Health Staff (BHS). The drugs and supplies could be distributed according to schedule without interruption. GDF supports first line anti-TB drugs since 2002 till 2008. Exceptionally, GDF continued the support for one year requirement of the country for 2009 while NTP develop the transitional and sustainability plan for uninterrupted anti-TB drug supplies for the country exceptionally.

The pre-packed patient kit for Category I and III patients was introduced in 2007 in 38 townships and covered the whole country with Cat I & III patient kits since 1<sup>st</sup> quarter of 2010 with the support of Three Diseases Fund (3DF). The Japan's Grant Aid (JGA) will provide the first line anti-TB drugs to fill up the critical gap for 2011. The first line anti-TB drugs will be secured for 4 years from 2012 to 2015 by Global Fund Round 9.

NTP strengthened the program management and supervision activities. Computerized reporting system was introduced with the support of WHO. Standard Operating Procedure (SOP) for drug and supplies management, laboratory external

quality assurance system and guideline for childhood TB management, multi-drug resistant TB (MDR-TB) management were developed. Related trainings for drug and supplies management, laboratory EQA system, childhood TB management and MDR-TB management were provided.

Case holding system was improved by introducing innovative activities: quarterly cohort review meeting and quarterly review meeting at low performance townships with high defaulter rate and counseling training for TB Co-ordinators.

Partner's involvement in Public-Public Mix DOTS (PPM) and Public-Private Mix (PPM) DOTS could enhance the NTP's case finding. The expansion of EQA townships was carried out in phase wise manner and tried to cover private laboratories doing sputum microscopy for AFB.



**H.E Professor Kyaw Myint, Minister for Health, supervised Upper Myanmar TB Laboratory for improving diagnosis of TB**



## **(2) Address TB/HIV, MDR-TB and other challenges**

Human Immuno Deficiency Virus (HIV) co-infection rate for TB patients was provided by National AIDS Programme (NAP) from routine HIV Sentinel Surveillance. HIV sero-positive among new TB patients is 9.15% in 15 sentinel sites in 2009.

Guideline for TB-HIV collaborative activities was developed in 2000 and updated. TB/HIV collaborative activities are conducting with 2 models. One is an Integrated HIV Care for TB patients project (IHC) in collaboration with UNION, funded by Total (Yadana) Oil Company, NAP and NTP. IHC project was started with 5 townships (5 townships in Mandalay district, Mandalay Division) in 2005 and expanded to Patheingyi and Amarapura townships in Mandalay District/Division and Pakkoku township in Magway Division in 2007.

The other model as a minimum package of TB/HIV interim policy and activities is implementing in the area where NAP could provide ART. The technical assistance is provided by WHO. This model is implementing in Myitkyina (Kachin State), Taunggyi (Southern Shan State) and Lashio (Northern Shan State), where Voluntary Confidential Counseling and HIV testing (VCCT) service is providing in TB clinics as well as Co-trimoxazole Preventive Therapy (CPT). NTP and NAP in collaboration with UNION, planned to expand the comprehensive HIV care services to Taunggyi and Lashio townships in 2010 with 3DF funding. Isoniazid Preventive Therapy (IPT) pilot project was implemented in 2009 in collaborative with NAP with the technical support of WHO.

MDR-TB among new and previously treated patients was 4% and 15.5% respectively (2002-03) from country wide drug resistant-TB survey. The second national drug resistant TB survey was conducted in 2007 and results showed 4.2% and 10% of new and previously treatment TB patients were MDR-TB respectively.

The study on drug resistant patterns of Category II failure patients was conducted for the formulation of drug resistant-TB treatment regimen for pilot project. National guideline for management of drug-resistant TB was developed and applied to Green Light Committee (GLC) for second line anti-TB drugs for MDR-TB management in 2007 and approved in 2008.

The MDR-TB management pilot project includes 5 townships each from Yangon Division (Hlaing, Hlaingthayar, Shwepyitha, Insein and Mayangone) and Mandalay Division (Aungmyaythazan, Chanmyathazi, Chanayethazan, Mahaaungmyay and Pyigyitagon). The clinical management of MDR-TB (DR-TB) patients is based at 2 TB hospitals (Aungsan and Patheingyi). DOTS-PLUS pilot project was launched in July, 2009.

TB control activities have been conducted, collaborating with responsible persons from prisons at all levels.

Special activities were set at the Myanmar-Thailand border for improvement of TB control in border area: Myawaddy in Kayin State, Tachileik in Shan State (East) and Kawthaung in Tanintharyi Division. Meeting for proposal development of cross border health activities was held at Tachileik, Shan (East) in July, 2009.

**Table 1. TB/HIV collaborative activities (2009)**

	Mandalay 7 townships	Myitkyina township	Taunggyi township	Lashio township	Pakkoku township	Total
No. of registered TB patients (>14 years)	2991	1043	499	520	460	5513
No. of VCCT accepted & HIV tested	2712	483	301	299	379	4174
% of VCCT tested	91%	46%	60%	58%	82%	76%
No. of HIV sero positive among tested	803	91	40	21	60	1015
% of HIV positive among tested TB patients	30%	19%	13%	7%	16%	24%
No. of TB/HIV patients started on CPT	873	90	60	23	64	1100*
No. of TB/HIV patients started on ART	549	14	0	0	45	608

\* No. of patients on CPT is more than HIV positive detected was due to some patients who tested and positive from other places were included.

Table 1 shows VCCT service provided in TB clinics of 11 townships and about 24% of TB patients above 14 years were HIV positive. Only 12% of the registered HIV positive cases had been referred for TB screening and 44% of referred cases were put on anti-TB treatment. However, the recording and reporting is needed to be improved in this area.

### **(3) Contribute to health system strengthening**

It is cross cutting with other projects. NTP organization structure was expanded as necessary. There was only 7 State/Divisional TB Centers in 1982 and expanded to 14 State/Divisional TB centers in 2007 and covering the 17 States and Divisions. In line with the human resource development plan, NTP is conducting several trainings on "Management of TB at district level" for Township Medical Officer (TMOs), TB Team Leaders and TB coordinators, "Management of TB for Health Facility Staff" for BHS, "Leadership and Management" Training for Township Medical Officers (TMO) and TB team leaders, "Pre-packed patient kit training" for TMO and TB coordinators, new recruit training for sputum smear AFB microscopy and EQA training for laboratory supervisors.

All the township laboratories were equipped with binocular microscopes and sputum microscopy centers were expanded to some station health Units. The facility for culture and drug susceptibility testing (DST) was upgraded in Upper Myanmar TB Laboratory, Mandalay with the support of FIND, USAID, 3DF and UNION.

### **(4) Engage all care providers**

Public-Private Mix DOTS is implementing with Myanmar Medical Association (MMA), Population Services International (PSI) and JICA, Major Infectious Diseases Control Project (MIDCP). Some Private Practitioners (PPs) use the scheme I which educate about TB and refer the TB suspected patients to TB center. Some PPs prefer to use the scheme II, act as a DOT provider. PSI organizes the PPs and running the "Sun Quality Clinics" as a DOT unit. Majority of Private hospitals are not involved under PPM-DOTS schemes yet.

PSI is implementing PPM-DOTS in 145 townships with 136 accredited laboratories (36 private lab. and 100 public lab.). Total (623) PPs are implementing Scheme III.

MMA is implementing mostly scheme I in 26 townships after provision of training to 698 PPs. Public-Private-Mix (MMA, PPM-DOTS project) is implementing DOTS at 698 clinics in 26 townships by using 41 public laboratories and 7 private laboratories. There were total (98) PPs, implementing scheme III.

JICA supported for Scheme I implementation in the MIDC project area which were North Okkalapa and Tarmwe townships in Yangon Division and Pyinoolwin and Pyigyitagon townships in Mandalay division were absorbed by MMA by the end of 2009.

International Organization for Migration (IOM) is implementing PPM-DOTS in 6 townships in Mon State with 6 accredited public laboratories.

Myanmar Maternal and Child Welfare Association (MMCWA) is one of the organizations which involve as a care provider. About 33% of TB patients were directly observed by members of MMCWA.

MRCS trained their members to take part in TB suspected patients referral, case holding as DOT providers and defaulter tracing.

Malteser International trained community volunteers for TB/HIV prevention and control activities in Buthedaung and Maungtaw townships of Rakhine State.

AZG (MSF-Holland) has been implementing DOTS strategy especially for management of TB/HIV co-infected patients. AZG covers patient support and incentives since 2004. AZG was one and only partner involving in preparation of MDR-TB management and implementation of DOTS-PLUS pilot project.

Pact Myanmar trained community volunteers and Advocacy Communication and Social Mobilization activities are conducted for community awareness.

Public-Public Mix DOTS is implementing in 4 hospitals (New Yangon General Hospital (YGH), Thingungyun Sanpya General Hospital, East Yangon General Hospital, West Yangon General Hospital. ISTC (International Standards for TB Care) has been introduced in 2009.

NTP is also coordinating with hospitals under Ministry of Defense, Ministry of Labor, Ministry of Home Affairs and Ministry of Railway.

## **(5) Empower people with TB and communities**

People with TB are not yet organized for their involvement in TB control. JATA supported activities to involve registered TB patients in TB control was started in 6 townships in 2008. TB registered patients served as informers in the communities and referring the TB suspected patients to TB centers for diagnosis.

NTP has conducted nationwide Knowledge, Attitude and Practice (KAP) survey to explore the knowledge, attitude and practice of communities related to TB. Based on the findings of KAP survey, NTP will develop the appropriate Advocacy, Communication and Social Mobilization (ACSM) strategy for the country.

NTP has conducted World TB Day/Week commemoration ceremony and activities every year since 1996. Community involvement was strengthened by providing training for DOT provider who is identified from community volunteers and local NGO members. MMA also trained DOT providers selected from community.

## **(6) Enable and promote research**

Preparation for National TB prevalence survey was carried out in early 2009 and survey was conducted since June 2009, started from Meikhtila Cluster. Total (70) clusters were to be conducted up to April 2010 with funding supports of MOH, WHO, 3DF, JICA, JATA, USAID/PSI, Bill and Melinda gates foundation. Operational researches depending on the problems are conducted as necessary in collaboration with Department of Medical Research and academic Institutions.



**National TB Prevalence Survey conducted at Kyu Inn Village (Phyu Township) and Kyaik Kaw Village (Tha Hton Township)**

## **4. Activities of NTP**

1. Intensification of health education by using multi-media to increase community awareness about TB
2. BCG immunization to all children under one year
3. Implementing Directly Observed Treatment (DOT) up to grass-root level
4. Early case detection through direct sputum microscopy of chest symptomatic patients attending health services and contact tracing
5. Regular supervision and monitoring of NTP activities at all levels
6. Strengthening partnership
7. Capacity building
8. Promotion of operational research

Above activities were adopted in National Strategic Plan for TB control (2006-2010). Those activities are reviewed and revised in National Strategic Plan for (2011-2015) to be in line with the National Health Plan and new STOP TB STRATEGY as WHO recommended. It was drafted in 2008 together with implementing partners with the technical assistance of WHO, reviewed and revised the plan with partners in several meetings of Technical Strategic Group ( TSG) and applied for Global Fund Round 9.

## 4.1 Health education

### 4.1.1 IEC materials dissemination

Community awareness concerning TB was accelerated through promoting health education sessions and conducting advocacy meetings at all levels. The IEC materials: pamphlets (50,000), TB billboards (52), posters (20,000) and World TB Day Tool kits (500) were produced and distributed through state/divisional TB centers to all townships up to grass-root level.

### 4.1.2 World TB Day and week activities, 2009

World TB Day commemoration ceremony was held on 24.3.2009 at central and at all States and Divisions with the support of WHO. In 2009, 28 townships held World TB Day commemoration ceremony with their own effort was reported. The Slogan for the year 2009 was "I am stopping TB". (wD DufpifurBwptcf vWlfwn0efij)



**World TB Day commemoration ceremony (2009)**

**World TB Week activities (2009)**



The central level World TB Day commemorative ceremony was carried out on 24th March, 2009 at the Assembly Hall of Ministry of Health, Nay Pyi Taw. Professor Dr. Mya Oo, Deputy Minister for Health, Ministry of Health delivered the opening speech and Professor Adik Wibowo, WHO Representative to Myanmar, read out the message from the Regional Director of WHO South East Asia Region. The mini exhibitions were presented by NTP, JICA, PSI and MMA. 450 invitees from MOH, DOH, other ministries, WHO and UN agencies and implementing partners attended the ceremony.

The main activities carried out during World TB week were funded by MOH, 3DF and WHO (RB).

- 1) Community based activities such as health education talk about TB at township level up to Rural Health Centers (RHCs) were carried out by BHS. The activity was followed by identification of TB suspects, referral to the Township TB Diagnostic centre, contact tracing and missed dose tracing in their responsible area.
- 2) Dissemination of knowledge about TB was given through mass media: television, news papers and journals. Health education programme as discussion session, interviews with Myanmar Radio and Television (MRTV) and Myawaddy televisions were broadcasted.
- 3) Mobile team activities including health talks during World TB Week were conducted in all States/Divisions.

As a contribution from implementing partners: MIDCP (JICA) supported (20,000) Posters, and World Vision International provided (35) Billboards and (20,000) Pamphlets for NTP. As World TB Week activities, International Organization for Migration (IOM) conducted the active case finding with mobile unit in their functioning area. Pact Myanmar also disseminated the TB information through their out reach workers in Kyaukpadaung, Nyaung U, Magway and Chauk townships. MMA organized the World TB Day ceremony in 26 townships implementing PPM-DOTS. MRCS provided 100 stickers, 100 ballpens, towels, soaps, vitamins and nutrition supports. NTP provided 30,000 Pamphlets and 17 Billboards.



## 4.2 BCG immunization

BCG immunization started in 1951 to those who were tuberculin test negative. In 1963, Freeze Dried BCG Vaccine was introduced and direct BCG vaccination has been implemented since 1969. BCG Vaccination has been integrated into Expanded Programme on Immunization (EPI) and the BCG team of NTP has been integrated into State and Divisional Health Department since 1978. The BCG technicians and BCG supervisors are responsible for training of BHS, supervision and evaluation on immunization activities of BHS in each and every State and Division. BCG coverage increased from 76% in 2005 to 93% in 2009. (Source: EPI programme)

**Table 2. BCG coverage (2005-2009)**

State/Division	2005	2006	2007	2008	2009
Ayeyarwaddy Division	75%	64%	85%	84%	92%
Bago Division (East)	74%	81%	89%	94%	95%
Bago Division (West)	90%	90%	94%	86%	95%
Chin State	99%	119%	93%	63%	79%
Kachin State	89%	108%	95%	89%	95%
Kayah State	81%	83%	83%	96%	94%
Kayin State	60%	63%	85%	85%	82%
Magway Division	85%	89%	90%	92%	93%
Mandalay Division	68%	75%	86%	77%	94%
Mon State	86%	80%	94%	92%	96%
Rakhine State	106%	76%	92%	107%	96%
Sagaing Division	88%	83%	91%	94%	94%
Shan State (East)	42%	38%	85%	83%	89%
Shan State (North)	60%	68%	70%	75%	86%
Shan State (South)	84%	71%	83%	83%	86%
Taninthayi Division	93%	91%	97%	97%	97%
Yangon Division	61%	65%	94%	92%	98%
<b>Union</b>	<b>76%</b>	<b>76%</b>	<b>89%</b>	<b>89%</b>	<b>93%</b>

Data source: EPI

### 4.3. Case detection

WHO estimated the Annual Risk of Tuberculosis Infection (ARTI) for Myanmar as 1.5%. The TB prevalence survey conducted in Yangon Division (2006) showed 229/100,000 population. The incidence was estimated as 171/100,000 population which is 2.26 times higher than the current estimates using for all townships. The national estimate was based on the smear positive national TB prevalence survey conducted in 1994 (104/100,000 population). Therefore, the national estimates should be revised after the technically sound national TB prevalence survey, which was conducted in 2009.

The Case Detection Rate (CDR) of new smear positive cases for 2009 was 95%. 16% of detected new sputum smear positive cases and 17.3% of all TB cases were contributed by other reporting unit apart from NTP. Private sector through franchising approach of PSI contributed 13% of new smear positive TB cases and 11.4% of all TB cases notified to NTP. MMA contributed 1.3% and 1.3% new smear positive and all TB cases reported to NTP respectively. AZG contributed 1.2% of new smear positive cases and 1.5% of all reported TB patients to NTP. Hospitals contributed 1.6% and 2.8% of new smear positive and all TB cases reported to NTP respectively.



#### Active case finding using mobile team

Passive case finding is carried out in the DOTS townships. Chest symptomatic TB suspects from community are referred to the microscopy centers for sputum microscopy. Sputum smear microscopy plays an important role in NTP not only for diagnosis of TB but also to monitor the progress of TB patients during treatment and to determine the cure of TB patients at the end of treatment. Active case finding using mobile teams are also conducted as World TB Week activities.

The diagnosis for TB is mainly done by sputum smear microscopy. Sputum Culture is available only at National TB Reference Laboratory (NTRL, Yangon) and Upper Myanmar TB Laboratory (Mandalay). NTRL could perform Drug Susceptibility Testing (DST) since 2001. After that, new DST laboratory was established at Mandalay in 2008-2009. Essential preparations for DOTS - Plus Project, Nationwide Drug Resistant Survey and National TB prevalence survey were carried out. Case finding activities are strengthened by radiological examination. All State and Divisional TB Centers except Eastern Shan, Kayin and Kayah State, have the X-ray facility. The miniature X-ray machine was installed at each Tuberculosis Diagnostic and referral Centers (one each in Latha TB Diagnostic Center, Union Tuberculosis Institute-Aung San) and the other in Mandalay General Hospital Compound).



#### **4.4. Laboratory performance**

Routinely three sputum specimens are collected for the diagnosis and two specimens are collected for follow-up in all laboratories performing sputum AFB microscopy. Ziehl-Neelsen (ZN) staining was being used in all TB laboratories and Fluorescence microscopy was being used only in Latha and Aung San TB diagnostic and referral centers and Mandalay (Patheingyi) diagnostic and referral center, with high workload. Township laboratory performances are closely monitored by township medical officer and team leader. The AFB microscopy work performed at State and Division are monitored by State and Divisional TB officers, Microbiologists and Senior TB Laboratory Supervisors (STLS).

##### **Maintaining the quality of AFB Microscopy**

In 1999, the NTP developed the framework for the implementation of quality assessment activities using conventional method in which all positive slides and 10% of the negative slides examined were checked. This method induced the increased workload for NTRL and State and Divisional TB Laboratories.

After a pilot study of External Quality Assessment on Lot Quality Assurance System (EQA-LQAS) at Yangon and Mandalay Division, workshops and trainings were given to (20) STLS assigned by Ministry of Health to reinforce this work. The National Guidelines on EQA-LQAS for AFB Microscopy was developed in October 2007 and orientation training was given in February, 2008 to State/Divisional TB Officers, Pathologist/Laboratory Officers from State and Divisional Hospitals and STLS for proper random selection of six slides per month and send to State and Divisional TB Centers for blinded re-checking. Timely reporting to peripheral laboratories and supervisory visits for corrective actions are also important components of this new EQA system. Supervisory visits to State and Divisional TB laboratories are done by Microbiologists once a year. The quarterly supervisory visits are conducted by STLSs. For places showing major errors, either Microbiologists or responsible STLSs must visit those sites.

Laboratory of Mandalay Divisional TB Centre took responsibility for EQA of Kachin State, Sagaing, Magway and Mandalay Divisions. In 2007, those states/divisions took their responsibilities themselves. Feed-back together with comments were sent back from State/Divisional level to township level. Quarterly reports of EQA from all state/divisional TB centers submit to central NTP and copy to Consultant Microbiologist. The INGOs (PSI, AZG and IOM) laboratories performing AFB Microscopy also sent QC slides to either Lower or Upper Myanmar TB laboratories.

Panel slides were sent to State and Divisional TB centers and Hospitals twice a year from National Health Laboratory (NHL) / NTP. Training for newly recruited STLS (5 days) and refresher training for existing STLS (3 days) were provided. For quality performance, of sputum AFB microscopy (5 days) trainings were given to laboratory technicians when they start their job and sputum AFB microscopy (3 days) refresher trainings were given to technicians once in 3 years service. TB laboratory annual evaluation meeting was conducted once a year.

EQA system was successfully established with the technical and financial support of JICA (MIDCP). New EQA has been introduced in 2007 at 53 townships, 2 hospitals and 1 diagnostic and referral center of Yangon, Mandalay, Magway, Bago Division (East), Ayeyarwaddy, Shan State (South) and Mon/Kayin State. EQA expanded to 325 townships in 2008 after orientation training by using the National Guidelines on EQA-LQAS for AFB Microscopy. Technicians from State/Divisional TB centers or Medical Technologists or Laboratory Officers from the State/Divisional General Hospital laboratories are responsible for quality control (QC). Pyapon, Kyaiklatt, Daydaye, Nyaungdone and Bogalay townships of Ayeyarwaddy division sent QC slides directly to National TB Reference Laboratory (NTRL) for their convenience sake. The eastern shan state can not perform EQA due to transfer of STLS .

The quality control results of the whole country were much better if compared to 2008 except Kachin State which decreased down to 92.3% concordance. The concordance of quality control result of Union was (98.3%).

Among errors, **67.4% (246/ 365) of errors were false negative**. It indicated the regular supervisions of STLS and Microbiologists are still needed to closely monitor and visit townships with major errors in time for corrective actions. On-the-job training on sputum AFB microscopy should be provided. In some cases, refresher training on sputum smear microscopy will be needed.



**Conducting refresher and EQA training on sputum AFB microscopy**

**Table 3. Quality Assessment done by National TB Reference Laboratory, Upper Myanmar TB Laboratory and State and Divisional TB Laboratories in (2009)**

State/ Division	Place where Quality Assessment done	No. of Township	No. of slides received	No. of slides examined			Concordance
				True	False		
			Total	all (+ / - )	(+)ve	(-)ve	
Tanintharyi	at NTRL	5	108	108	0	0	100
	at Divisional level	9	368	367	1	0	99.7
	Total		476	475	1	0	99.8
Ayeyarwady	at NTRL	3	204	204	0	0	100
	at Divisional level	26	1852	1828	5	19	98.7
	Total		2056	2032	5	19	98.8
Bago (West)	At NTRL	8	1074	1052	5	17	97.9
	at Divisional level	6	954	942	1	11	98.7
	Total		2028	1994	6	28	98.3
Magway	at NTRL	1	36	36	0	0	100
	at Divisional level	25	1800	1799	-	1	99.9
	Total		1836	1835	0	1	99.9
Yangon	at NTRL	49 sites *	2714	2664	16	34	
Kayah	at State level	6	230	230	-	-	100
Rakhine	at State level	14	1224	1223	-	1	99.9
Mon	at State level	10	648	647	1	-	99.8
Kayin	at State level	7	432	431	-	1	99.7
Shan(North )	at State level	12	682	677	-	5	99.2
Shan (South)	at State level	21	1219	1207	2	10	99.0
Sagaing and Chin	at Divisional level	36	2573	2499	37	37	98.6
Bago (East)	at Divisional level	15	983	963	2	18	97.9
Mandalay	at Upper Myanmar TB Lab	39	2742	2682	6	54	97.8
Kachin	at State level	17	1054	973	43	38	92.3
Shan (East)	at State level	Not done	-	-	-		
Total		309	20897	20532	119	246	98.3

- 49 sites = 35 townships, 1 Station Hospital, 8 General Hospitals, 2 Diagnostic centers, 3 partners (AZG, PSI, Insein Jail)
- Private Laboratories under EQA = 61 ( PSI=42, AZG=12, IOM=7)

## Sputum collection centers

NTP is intended to decentralize the sputum microscopy center to Station Hospitals. Due to lack of laboratory technician posts at peripheral areas, it is not possible to have microscopy services at all station hospitals. NTP identified and established sputum collection centers at rural health centers as the possible solution for this.

Case finding activities were strengthened by setting of sputum collection centers. In 2008, 30 Sputum Collection Centers functioning in 7 States and Divisions were funded by 3DF.

Advocacy meetings were conducted at Township level and one day training was provided to local Basic Health Staff including laboratory technician of selected Sputum Collection Centers. Materials such as table, chair, ice box, ice packs and stationery were supplied. Transportation cost was also reimbursed to assigned messengers who transported sputum specimens to township laboratories.

**Table 4. Sputum collection centers established in (30) sites**

State/Division	Total site	Sputum Collection Centers	
		Township	SH / RHC
Yangon Division	1	Thanlyin	Thapyaykan RHC
Kayah State	2	Demawsoe Farusoe	6 miles RHC Tawkhu RHC
Southern Shan State	6	Hopone Ywangan Loilem Namsam Mongshu Hsiseng	Namkote RHC Myaing SHU Maingpon SHU Kholem RHC Wunsawt RHC Naungmon RH
Magway Division	2	Taungtwingyi Pwintphyu	Satthwar RHC Mezali RHC
Ayeyarwaddy Division	1	Kyonpyaw,	Wegyi RHC
Mandalay Division	3	Patheingyi Patheingyi PyinOoLwin	Dahuttaw RHC Sinywagyi RHC Pyinsa RHC
Sagaing Division	15	Monywa Minkin Kyunhla Banmauk Htigyink Myinmu Wetlet Taze Khamti Wuntho Pinlebu Pale Kalaywa Mawleik Ahyardaw	Nyaungphyupin SH Maukkataw RHC Miepinraung RHC Kyaunglei SH Ahletaw SH Tawchaung SH Moaksoe chone RHC Ywama RHC Kaungmein SH Gyoetaung SH Michaung inn SH Chinpyit RHC Thetkaikyin RHC Panbar RHC Maleba SH
<b>Total</b>	<b>30</b>	<b>29</b>	<b>30</b>

The performance report received at the central NTP was very limited for the Year 2 of 3DF. About 7.6% (10/131) of TB suspected cases reported to central NTP were sputum smear positive and put on anti-TB treatment. This innovative activities needs to evaluate thoroughly on its effectiveness and efficiency. Therefore, annual review meeting on sputum collection centers was conducted in Mandalay on 9.8.2009. It could cover 14% of total population in Sputum Collection Centers assessed. 12% of TB suspects were contributed by Sputum Collection Centers. Sputum positivity rate by Sputum Collection Centers was low (14%) while compared with township level (16%). Early cases might be detected by Sputum Collection Centers because low sputum AFB grading cases were detected by Sputum Collection Centers. High infectious cases can be reduced by Sputum Collection Centers. In both sex, older age group were more utilized on Sputum Collection Centers. It was found that female proportion is higher than male proportion in utilizing Sputum Collection Centers. Gender issue can be explored by Sputum Collection Centers.

### **Human resource situation in TB laboratories**

The human resource at the NTRL and Upper Myanmar TB Laboratory is limited to be able to perform the culture and DST work, quality check, supportive supervisory visits and training as necessary. The NTRL and Upper Myanmar TB Laboratory of Mandalay will need additional 15 laboratory technicians. Those people will be responsible for the routine laboratory work, culture, drug susceptibility testing (DST), quality control (QC) doing the rapid diagnostic tests and the research.

State and Divisional TB Laboratories: Sittwe, Monywa, Myeik, Lashio, Magway, Kyaingtong, Myitkyina and Loikaw have no sanction posts for a Grade I laboratory technician. All State and Divisional level TB laboratories should be appointed at least one Grade I and II laboratory technicians. Those townships with TB team have one Grade II laboratory technician. Townships without TB team use a laboratory technician either from NTP or general health services/ township hospital for sputum for AFB microscopy.

For easy accessibility of TB suspects and follow-up patients for sputum examination, expansion of TB Microscopy services is suggested. Public Health Supervisors II (PHS II) or natives (10th. Standard passed) from that place should be trained for sputum AFB Microscopy. NTP is preparing to establish new diagnostic tools for TB diagnosis at NTRL and Mandalay with support of FIND in 2009.



**STLS Training**



**Laboratory supervision**

## 4.5. Treatment

In 2009, altogether 325 townships were implementing DOTS strategy.

Township Medical Officers (TMOs) and TB coordinators of DOTS townships take all the responsibilities of TB control activities. In townships with TB team, team leaders (Medical Officer or Health Assistant) are serving as TB coordinators and whereas there are no TB teams, Township Medical Officers or assigned health personnel are serving as TB coordinators.

For each and every patient, there is a DOT provider. DOT providers are selected either local BHS or Voluntary Health Workers or members of Non Governmental Organization (NGOs), especially MMCWA, MWAFA, MRCS or family members of the TB patients. All BHS and some pre-selected NGO members are trained when the particular township started the DOTS strategy implementation. DOT providers from community could serve as close to the patient as possible to ensure that patient's adherence to the full course of treatment.

The treatment adherence is aimed to improve when NTP introduced 4-Fixed Dose Combination (FDC) in 2004. BHS are assigned as DOT supervisors and decentralization of the anti-TB drugs is strengthened. Pre-packed patient kits were introduced to 38 townships since 2007. The effective utilization of pre-packed patient kits was evaluated in 2009 for further expansion.

Pediatric formulation for management of TB in children was supported by UNITAID through GDF in 2007 and was distributed in 2008. Standard Operation Procedure for management of TB in children was developed and distributed to TMOs, TB coordinators and pediatricians in trainings at central / State/Divisional levels.



**Directly Observed Treatment at clinic**



**Pre-packed patient kit training**



## **4.6. Supervision, monitoring and evaluation**

### **4.6.1. Supervision and monitoring**

State and Divisional TB Centers are led by State and Divisional TB Officers and they give technical support to the State and Divisional level, district and township level TB control activities. They also give training, on the job training, supervision, monitoring and feed back to improve the TB control activities for the achievement of the NTP's objectives at State and Divisional level. NTP activities are closely supervised by Central Supervisory Committee for prevention and control of TB chaired by Minister for Health, Ministry of Health.

Regular monitoring of patients' progress is carried out at every DOTS township. Desk top monitoring on case finding, sputum conversion and treatment outcomes through quarterly reports is carried out at all levels. Feed-back mechanism from top to bottom using quarterly assessment form is carried out.

Supervisory visits were conducted by Central/State/Divisional and District/Township level supervisors. Laboratory supervision was strengthened by recruiting STLS from general health services.

NTP could conduct 381 supervisory visits to district and township level and 479 visits to either station hospitals or RHC in 2009 with the support of WHO and 3DF. Microbiologists and STLS could supervise 33 townships with major errors according to feed back from laboratory EQA system.



**Supervisory visits to township health centre**

**Table 5. Supervision from State/Divisional Level (2009)**

Sr.No	Supervision from State/ Divisional Level	No. of visit			Remark
		To District	To township	To RHC/ Sub Center	
1	Kachin State	2	14	16	
2	Kayah State	2	6		
3	Chin(N) State		1		Tiddim
4	Chin(S) State	1	3		
5	Sagaing Division	4	15	3	
6	Magway Division	2	19	5	
7	Mandalay Division	4	15		
8	Shan (S) State	2	12	4	
9	Shan (E) State	4	3		
10	Shan (N) State	6	5	1	
11	Kayin State	3	2	1	
12	Tanintharyi Division	3	9	1	
13	Bago (East) Division	12	25	70	
14	Bago (West) Division	15	26	59	
15	Mon State	1	12	15	
16	Rakhine State	4	5	9	
17	Yangon Division	4	21+ 13 (Microbiologist)		
18	Ayeyarwady Division	4	14	6	2(Station)
<b>Total</b>		<b>73</b>	<b>220</b>	<b>190</b>	

**Table 6. Supervision from District Level (2009)**

Sr.No	Supervision from District Level	No. of visits		Remark
		To township	To RHC/ Sub Center	
1	Kachin State	7	12	
2	Kayah State	3	5	
4	Chin(S)State			
5	Sagaing Division	14	2	
6	Magway Division	10	5	
7	Mandalay Division			
8	Shan (S) State	1	0	
9	Shan (E) State	7	2	
10	Shan (N) State	3		
11	Kayin State	1	1	
12	Tanintharyi Division	3	3	
13	Bago (East) Division	12	36	
14	Bago (West) Division	12	36	
15	Mon State	3	1	
16	Rakhine State	8	19	
17	Yangon Division	no report		
18	Ayeyarwady Division	4	4	2(Station)
<b>Total</b>		<b>88</b>	<b>126</b>	



**Table 7. Supervision from Township Level (2009)**

<b>Sr.No.</b>	<b>Supervision from Township</b>	<b>To RHC/ Sub Center</b>
1	Kachin State	18
2	Kayah State	25
4	Chin(S)State	
5	Sagaing Division	
6	Magway Division	
7	Mandalay Division	
8	Shan (S) State	4
9	Shan (E) State	
10	Shan (N) State	2
11	Kayin State	1
12	Tanintharyi Division	10
13	Bago (East) Division	70
14	Bago (West) Division	70
15	Mon State	10
16	Rakhine State	
17	Yangon Division	
18	Ayeyarwady Division	
<b>Total</b>		<b>163</b>

**Table 8. Reported supervisory visits to township laboratories with major error (2009)**

<b>State/Division</b>	<b>Townships</b>
Yangon Division	North Okalapa, UTI (Latha), Thaketa, Dawpon, Taikkyi, Waibergi Infectious Hospital, Insein, Aungsan TB Hospital, Botataung, Thanlyin, Hlaintharyar, Mayangone, Shwepyithar, Hlaing, South Dagon, North Dagon, Dala, Thingangyun, Hlegu
Sagaing Division	Monywa
Mandalay Division	Mandalay TB Diagnostic Centre, Kyaukse, Chanmyathazi, Mahlaing, Meikhtila, Madaya, Aungmyaytharzan, Amarapura, Nahtogyi, Taungtha
Kayah State	Demawsoe
Shan (South)	Hopone, Loilem, Hsiseng

#### **4.6.2. Evaluation**

The half yearly evaluation meetings at States/Divisional Levels, and quarterly evaluation meetings at low performance townships were carried out to assess the TB control activities. Achievement was also evaluated by State/Divisions and townships to identify the problems and constraints facing in different localities at different levels for corrective actions and identified the possible solutions for the future plan.

##### **4.6.2.1. National annual TB evaluation workshop on NTP activities for 2009**

National annual TB evaluation workshop was held at meeting Hall of Ministry of Health, Nay Pyi Taw from **30-10-2009** to **31-10-2009** with the support of WHO/USAID. 120 invitees attended the meeting.

The opening speech was delivered by Dr. Thein Thein Htay, Deputy Director General (Public Health) of Department of Health, emphasizing the achievements of NTP regarding the Stop TB Strategy. It included the continuous supply of quality-assured anti-TB drugs with the support of the government, Laboratory External Quality Assurance System for the quality of TB laboratory Diagnosis, Culture and Drug Susceptibility Testing (DST), establishment of (30) sputum collection centres and expansion of new microscopy centres in some Station Hospitals and mobile team activity in hard to reach areas. She also described monitoring system for TB control activities.

She also mentioned about TB/HIV collaborative activities which conducted in (11) townships and about 2000 TB/HIV co-infected patients receiving ART and expansion of TB/HIV sentinel surveillance sites to 15 sites in 2009. She mentioned about DOTS – Plus Pilot Project for management of MDR-TB patients which will be launched in July, 2009 and more than 100 patients will be put on MDR-TB treatment.

She stressed on the Health System Strengthening activities like manpower and capacity building. She also described about the care providers including PPM-DOTS conducting in 4 hospitals in Yangon. She pointed out that there were about (1500) private practitioners involved in TB control activities via INGO such as PSI, MMA and AZG and the partner's contribution to TB case detection. Regarding Strategy (5) Empower people with TB and community, she described the activities such as Advocacy, Communication and Social Mobilization (ACSM) and Community-based DOTS conducted in some townships. NTP is planning to perform 2 nationwide surveys (National TB Prevalence Survey and Nationwide TB KAP Survey) in 2009. Then she stressed that overall achievement had reached the Global TB target but some States and Divisions had not reached the target yet, and thus she suggested that they should do much efforts in those States/Divisions upon TB control activities.

Finally, she insisted on all participants to discuss the experiences as well as the strength and weakness and concluded by talking to make more efforts in future TB control activities.

Officials from Department of Health, responsible persons from HMIS, Department of Health Planning, NTP central office staff, Medical Superintendent from TB hospitals, State/Divisional Health Directors, State/Divisional TB Officers and District TB team leaders doctors, representatives from WHO and implementing partners attended the workshop.

## **Recommendations of Central Annual TB Evaluation Workshop (2009)**

- (1)** To strengthen human resource development for TB control
  - (a) To fill up important vacancy prioritized as follows
    - (i) MO
    - (ii) X-Ray technician
  - (iii) To upgrade TB team as district TB team led by MO in Myawaddy and Kawthoung
- (2)** To reinforce the coordinating mechanism in TB control at all levels by conducting partners coordinating meeting by annually for central, quarterly for S/D level and monthly for township level
- (3)** To strictly follow the drug supply management at all levels
- (4)** To strengthen the supervision, monitoring and evaluation system for TB control including private sectors
- (5)** To improve case finding by innovative approach using registered TB patients to find and refer another suspect, contact tracing, ACSM, PPM-DOTS
- (6)** To put up for the approval of MOH on jointly developed “Minimum package of TB/HIV collaborative activities for township level”
- (7)** To establish the cross referral system between TB and STD/ HIV teams
- (8)** To strengthen the laboratory EQA system including private laboratory performing sputum AFB microscopy
- (9)** To empower registered TB patients and mobilize them to participate in TB control
- (10)** To increase case detection by providing widespread health talk session by NTP and all partners
- (11)** To conduct proper and systematic recording for MDR-TB management in pilot phase in order to expand in future
- (12)** To do quarterly evaluation meeting of DOTS-Plus pilot project with expert committee and partners
- (13)** To conduct advocacy meeting for specialists on ISTC at central hospitals, S/D hospitals and district hospitals

#### 4.6.2.2. State/Divisional TB evaluation meetings

State/Divisional TB evaluation meetings were carried out at all States/Divisions. The activities were conducted with the support of WHO. It was meant for biannual, however, the budget was inadequate to hold meeting twice.

JICA (MIDCP) also supported for half yearly divisional TB evaluation meeting for Yangon and Mandalay Divisions. JICA also supported Township quarterly evaluation meetings conducted at 10 low performance townships of Yangon and Mandalay Divisions. Some other townships also conducted Township quarterly TB evaluation meetings without cost.

Cohort review meetings were also conducted in 30 low performance townships funded by 3DF and 5 low performance townships in Yangon Division funded by JICA (MIDCP).



TB evaluation meeting at State/Divisional level

Table 9. TB Evaluation meetings at State/Divisional level (2009)

State/Divisional level	Date	No. of participants	Remarks
Kachin State	11.3.2009	45	
Kayah State			No report received
Chin	21.3.2009	13	
Shan State (South)	19.3.2009	40	
Shan State (East)			No report received
Shan State (North)	23.3.2009	45	
Mon State	22.3.2009	25	
Kayin State	11.3.2009	26	
Rakhine State	22.2.2009	38	
Mandalay Division	27.11.2009	77	Conducted with JICA support
Yangon Division	25.11.2009	100	
Sagaing Division	6.3.2009	75	
Magway Division	18.9.2009	59	
Bago Division (East)	20.10.2009	35	
Bago Division (West)	29.10.2009	31	
Ayeyarwaddy Division	7.3.2009	52	
Taninthayi Division	3.3.2009	25	

#### 4.7. Co-ordination and collaboration with other health sectors and NGOs

The NTP co-ordinates with the other health sectors such as Laboratory, Medical Care and AIDS/STD Prevention and Control Programme to accelerate the NTP activities. TB/HIV co-infection has an impact on NTP. The NTP and NAP have been closely collaborated in prevention and control activities of TB and HIV/AIDS since 1998. TB/HIV collaborative prevention and control activities for TB and HIV/AIDS are implementing in Myitkyina, Taunggyi and Lashio with the support of WHO. Voluntary Confidential Counseling and HIV testing is providing at TB centers.

Integrated HIV Care for TB patients (IHC) Project was initiated in Mandalay covering 7 townships (Aungmyaethazan, Chanmyathazi, Chanayethazan, Mahaaungmyay, Pyigyitagon, Amarapura and Patheingyi townships in Mandalay District) and extended to Pakokku township of Magway Division. The project is supported by the Union and Total Yadanar oil company.

State/Divisional TB Officers were trained on TB/HIV prevention and control activities. District TB team leaders were trained together with team leaders from HIV/STD teams. Cross referral between TB and STD/HIV teams are carried out where 3 teams exist in the same township.

NTP also co-ordinates with the NGOs such as, MAAF, MMCWA, MMA and MRCS in DOTS implementation. International NGOs co-operating with NTP are Union, MSF (Holland), PSI, Japan Anti-TB Association (JATA), World Vision, Pact Myanmar, Malteser and IOM. JICA is supporting the NTP activities in some townships as a bilateral co-operation agency. In 2008, we received reports from MDM which is new partner is treating TB patients especially for intravenous drug users.



#### Public Private Mix-DOTS at Bago and Public Public Mix-DOTS at New Yangon General Hospital

MMA referred 6,449 TB suspects and 5,782 (90%) reached the TB centers. Out of which 5,782 (100%) got the feedback from TB centers. Among TB suspect referral who underwent sputum for AFB examination, 1,492 (26%) were smear positive TB and other 3,378 (58%) were put on anti-TB treatment.

MMA Scheme III scaled up activities were done at Yangon Division Dagon (North), South Okkalapa and Thanlyin townships

PPM-DOTS Scheme I was also supported by MIDC Project (JICA) and implementing in North Okkalapa township (started in November, 2006) and PyinOoLwin township, Mandalay Division (started since January 2007). Tamwe township in Yangon Division and Pyigyitagon township in Mandalay Division were extended in 2007.

Population Services International (PSI) started the collaboration with NTP in March 2004. PSI organizes the PPs and running the "Sun Quality Clinics" as a DOT unit. Up till 2009, PSI is implementing PPM-DOTS in 145 townships with 136 accredited laboratories (36 private lab. and 100 public lab.). Total (623) PPs are implementing Scheme III. New TV spot related to TB was also aired every year.

**Table 10. Contribution of MMA PPM-DOTS (2009)**

Sr.No	Townships	No. of TB suspect referred for diagnosis	No. of feedback received	No. of Smear (+) TB patients put on TB treatment		No. of smear (-) TB put on TB treatment			Total TB patients	Total Non TB patients
				Cat I	Cat II	Cat I	Cat II	Cat III		
1	Insein	558	494	102	16	105	4	61	288	206
2	Kyimyindine	160	130	47	3	11	2	20	83	47
3	North Dagon	142	133	26	6	11	1	15	49	84
4	South Dagon	274	204	64	3	54	3	38	163	41
5	South Okkalapa	315	309	79	6	37	8	18	152	157
6	Shwepyithar	224	196	84	1	18	1	13	110	86
7	Thakata	404	335	135	16	32	1	47	240	95
8	Thanlyin	311	284	65	5	57	6	17	142	142
9	Bago	465	405	56	13	89	5	51	223	182
10	Pyay	248	230	52	1	70	0	44	164	66
11	Mawlamyaing	362	350	29	3	36	6	63	140	210
12	Taikkyi	211	206	37	1	3	0	54	90	116
13	Hpa-an	248	199	51	2	90	2	34	184	15
14	Sittwe	73	73	22	2	13	1	12	47	26
<b>Lower Myanmar</b>		<b>3995</b>	<b>3548</b>	<b>849</b>	<b>78</b>	<b>626</b>	<b>40</b>	<b>487</b>	<b>2075</b>	<b>1473</b>
15	Aung Myay Thar Zan	218	215	42	6	42	4	9	103	112
16	Chan Aye Thar Zan	213	184	69	1	56	3	29	158	26
17	Chan Mya Thar Si	347	328	96	8	41	5	14	164	164
18	Mahar Aung Myay	271	266	49	3	44	8	5	109	157
19	Kyaukse	250	247	41	5	41	3	147	237	10
20	Lashio	319	271	63	5	74	1	32	175	96
21	Maggwe	197	172	30	6	16	6	12	70	102
22	Monywa	230	190	40	4	21	6	17	88	102
23	Pakokku	139	138	13	0	15	1	3	32	106
24	Myingyan	148	106	33	3	11	0	18	65	41
25	Muse	28	23	10	0	1	0	7	18	5
26	Kyaukme	94	94	35	3	21	0	25	84	10
<b>Upper Myanmar</b>		<b>2454</b>	<b>2234</b>	<b>521</b>	<b>44</b>	<b>383</b>	<b>37</b>	<b>318</b>	<b>1303</b>	<b>931</b>
<b>Grand Total</b>		<b>6449</b>	<b>5782</b>	<b>1370</b>	<b>122</b>	<b>1009</b>	<b>77</b>	<b>805</b>	<b>3378</b>	<b>2404</b>

**Table 11. Contribution of PSI (2004-2009)**

Years	TB suspected cases screened	Cat I (+)	Cat I (Neg. & EP)	Cat II	Cat III	Total
2004	3530	840	256	199	927	2222
2005	11048	2262	571	396	2311	554
2006	19798	3560	1200	556	4116	9432
2007	17687	3837	1694	589	4023	10143
2008	17051	4137	1921	598	3683	10339
<b>2009</b>	<b>19943</b>	<b>3978</b>	<b>2171</b>	<b>541</b>	<b>4482</b>	<b>11172</b>

PPM-DOTS of PSI contributed 13% of smear positive cases and 11.4% of all registered TB patients nationally. MMA PPM-DOTS project contributed 1.3% of smear positive TB patients and 1.3% of all the townships' registered TB patients. PPM-DOTS (MMA and PSI) contributed 14% and 13% of union total new smear positive and all TB cases.

NTP started collaboration with ARTSEN ZONDER GRENZEN (MSF-Holland) since 2001 in Waingmaw and Moemauk townships in Kachin State. Then Kachin State TB center, NTP supported the Anti-TB drugs to AZG in November, 2004. Currently, AZG is functioning in Kachin, Northern Shan State, Yangon Division and Rakhine State. AZG mainly focused for HIV co-infected TB patients. Thazin clinics provide not only diagnosis and treatment, but also food and patients support during the treatment. AZG contributed 1.2% and 1.5% of union total new smear positive and all TB patients.

Public-Public Mix DOTS has been launched in 4 specialist hospitals (New YGH, East and West YGH, Thingungyun Sanpya General Hospital) in Yangon with the 3DF bridging fund since May 2007. Public-Public Mix DOTS initiative as a pilot phase aims to strengthen the TB control services through establishing a system link between public hospitals and public TB centers. Advocacy meetings were conducted and followed by the training of 53 hospitals staff on TB control and PPM-DOTS. Hospital DOTS Committees were formed for each hospital chaired by Medical Superintendent and members from heads of clinical disciplines. Assistant Medical Superintendent was assigned as a PPM TB-Coordinator. Roles of laboratory technicians, nurses, medical social workers and pharmacist were identified. PPM-DOTS in hospitals had identified four options to implement.

**Option 1:** Diagnosis of TB cases + prescription of treatment regimen in hospital followed by referral to Health Center for DOT, with clinical follow-up at hospital.

**Option 2:** Same as Option 1 without clinical follow-up at hospital.

**Option 3:** Diagnosis of TB cases + start Directly Observed Treatment (DOT) in hospital followed by referral to Health Center during treatment.

**Option 4:** Diagnosis of TB case and provide full treatment (DOT) at hospital. Currently all hospitals are practicing option 3 and 4. NTP and WHO conducted joint monitoring and supervisory visits regularly. TB hospitals (Aungmye and Patheingyi), Waibagi Specialist Hospital, Specialist Hospital (Mingaladon), and Workers TB hospital under the Ministry of Labor are also collaborating with NTP.



**Table 12. Implementing partners and activities**

<b>NGOs</b>	<b>Area Coverage and activities</b>
<b>MWAF</b>	Case finding, provide health education and provide DOT in all townships
<b>MCWA</b>	Case finding, provide health education and provide DOT in all townships
<b>MMA</b>	PPM-DOTS in 26 Townships, all townships are practicing scheme I, some Private Practitioners from 4 townships are practicing scheme II and scheme III started in 3 townships
<b>MRCS</b>	3 townships in Yangon Division (Thingungyun, Kungyangone, Twantay) 9 townships in Ayeyarwaddy Division (Dedaye, Pyarpon, Kyaiklatt, Maubin, Laputta, Ngaputaw, Mawlamyaingkyun, Bogalay, Pathein) Multiplier Training (Peer Education) for Red Cross Volunteers Comprehensive IEC Campaign Defaulter Tracing Case Detection and Referral Home Based Care and Support World TB Day Celebration
<b>Bilateral agency</b>	<b>Area Coverage and activities</b>
<b>JICA</b>	Support Divisional TB control activities in Yangon and Mandalay Divisions (76 townships)
<b>INGOs</b>	<b>Area Coverage and activities</b>
<b>PSI</b>	Total no. of 623 PPs are functioning in 145 townships of 13 States/Divisions, 36 private and 100 public labs are using for TB control.
<b>Pact Myanmar</b>	Building the commitment to community self-action in health and development Community based TB Case finding and Management System Building the access to resource and service, functioning in dry zone of Myanmar. (Magway Division – Magway, Minbu, Myothit, Salin, Aunglan, Pwintbyu, Chauk, Seikbyu, Mandalay Division – Kyaukpadaung, Myingyan, Sagaing Division – Htigyaik, Pale)
<b>World Vision International</b>	Case finding and provide nutritional support to Childhood TB cases in Hlaingthayar (Yangon Division), Loikaw (Kayah State), Thanphyuzayat (Mon State), Dewei, Myeik (Taninthayi Division).
<b>AZG (MSF- Holland)</b>	Treatment of TB and TB/ HIV patients (Yangon Division, Shan (North), Rakhine & Kachin States)
<b>Malteser</b>	TB case finding and treatment of TB patients in Rakhine state (Buthedaung, Maungdaw townships)
<b>JATA</b>	Support Township TB control activities in 3 Townships from Yangon Division and 3 Townships from Mandalay Division
<b>IUATLD</b>	Support Integrated TB/HIV care in 7 Townships of Mandalay district and Pakkoku township of Magway Division
<b>AHRN</b>	Capacity building, training, IEC materials and support to treatment in Shan & Kachin states, Yangon, Mandalay and Sagaing Divisions.
<b>IOM</b>	Case finding activities with decentralized sputum collection centers in Mon State, 6 townships (76 villages in Mawlamyine, Belin, Ye, Kyaikmaraw, Mudon, Thanbyuzayat townships)
<b>Care Myanmar</b>	Improve case finding and case holding activities , Support for TB/HIV patients esp. home based care, PPM, IEC in Sagaing Chin, Rakhine, Shan (N), Kayah, & Mon states (3DF funded TB control activities were not continued in year 2)



## Capacity building

NTP integrated the TB control activities to primary health care services. Trainings on Management of TB at District level and health facility using the translated and revised WHO modules have been conducted since 2006 with the support of GFATM, JICA and WHO. Those trainings were continued in 2009 with the support of 3DF.

New recruit laboratory technicians and for those needed for refresher training were given as required. Regular training on TB control was given at Universities for nurses and Training Schools of midwives and lady health visitors.

65 courses of "Management of Training for Health Facility Staff (3 days)" could be done with 2304 basic health staff in 2009.

At the end of 2009, Training on Leadership and Management, Laboratory trainings, Township level TB control management trainings altogether 136 trainings were conducted under the funding of 3DF, WHO and JICA. NTP provided total 105 trainings funded by 3DF, 23 trainings by WHO, and 8 trainings by JICA.

Total number of health staff trained for TB in 2009 was 5942.



**Opening session of "Training on TB Data Management"  
conducted at Nay Pyi Taw**

**Table 13. Training Activities of National Tuberculosis Programme (2009)**

Sr. No	Type of training	Date		Partici-pants	Venue	Funding
		from	to			
1	Training for National TB Prevalence Survey, 2009	14.3.09	17.3.09	70	Yangon	3DF
2	Training on TB data management	18.8.09	20.8.09	30	Naypyitaw	3DF
3	Refresher Training on TB data management	23.9.09	27.9.09	32	Naypyitaw	3DF
4	Refresher training course on (District Health Information Software)DHIS	27.10.09	29.10.09	33	Naypyitaw	3DF
5	Management of MDR-TB (3 Days)	25.5.09	27.5.09	23	Yangon	3DF
	II	14.8.09	16.8.09	26	Yangon	3DF
	II	28.8.09	30.8.09	20	Chanmyatharzi	3DF
	II	28.9.09	30.9.09	35	Yangon	3DF
	II	25.10.09	27.10.09	32	Yangon	3DF
sub total				136		
6	Training on MDR-TB patient management for DOTS-Plus supervisor	4.11.09	4.11.09	35	Aungmyaetharzan	WHO/ USAID
	II	6.11.09	6.11.09	35	Chanayetharzan	WHO/ USAID
	II	7.11.09	7.11.09	35	Maharaugnmyae	WHO/ USAID
	II	8.11.09	8.11.09	35	Pyigyitagon	WHO/ USAID
sub total				140		
7	Management of TB at district level for new recruit TMO, TB team leader, TB coordinator (5 Days)	26.1.09	30.1.09	30	Mandalay	3DF
	II	16.2.09	20.2.09	33	Naypyitaw	3DF
	II	20.7.09	24.7.09	28	Yangon	3DF
	II	23.7.09	27.7.09	30	Pathein	WHO (Nargis)
sub total				121		

Sr. No	Type of training	Date		Partici-pants	Venue	Funding
		from	to			
8	Training course on MDR-TB counseling for social workers/ counselors & nurses (3 Days)	4.8.09	6.8.09	32	Yangon	3DF
	II	10.8.09	12.8.09	30	Mandalay	3DF
	II	28.12.09	30.12.09	30	Mandalay	JICA
sub total				92		
9	Management of training for health facility staff (3 Days)	1.1.09	3.1.09	37	conducted one batch only Ann	3DF
	II	1.1.09	3.1.09	26	Hteelin	3DF
	II	4.1.09	6.1.09	60	Longlon	3DF
	II	4.1.09	6.1.09	25	Hteelin	3DF
	II	14.1.09	16.1.09	33	Kyaikhto	3DF
	II	20.1.09	22.1.09	25	Matmum	3DF
	II	21.1.09	23.1.09	20	Putao	3DF
	II	21.1.09	23.1.09	33	Kyaikhto	3DF
	II	26.1.09	28.1.09	23	Taunggyi	3DF
	II	26.1.09	28.1.09	35	Htantabin(Bago)	3DF
	II	7.2.09	9.2.09	45	Bokepyin	3DF
	II	16.2.09	18.2.09	40	Shwekyin	3DF
	II	18.2.09	20.2.09	25	Putao+ Machanbaw	3DF
	II	19.2.09	21.2.09	34	Depeyin	3DF
	II	25.2.09	27.2.09	52	Paletwa	3DF
	II	25.2.09	27.2.09	45	Saytotetayar	3DF
	II	26.2.09	28.2.09	30	Laukkai	3DF
	II	3.3.09	5.3.09	34	Zigone	3DF

Sr. No	Type of training	Date		Partici- pants	Venue	Funding
		from	to			
9	Management of training for health facility staff (3 Days)	4.3.09	6.3.09	38	Matupi	3DF
	II	24.3.09	26.3.09	70	Kyaiklat	WHO (Nargis)
	II	28.3.09	30.3.09	64	Teadiam	3DF
	II	30.4.09	2.5.09	32	Thandaung	3DF
	II	9.5.09	11.5.09	50	Sagaing	3DF
	II	11.5.09	13.5.09	30	Wuntho	3DF
	II	11.5.09	13.5.09	25	Sintgaing	3DF
	II	14.5.09	16.5.09	32	Pinlebu	3DF
	II	17.5.09	19.5.09	47	Kawlin	3DF
	II	18.5.09	20.5.09	25	Sintgaing	3DF
	II	22.5.09	24.5.09	30	Pakoku	3DF
	II	28.5.09	30.5.09	31	Pakoku	3DF
	II	12.8.09	14.8.09	29	Pansan	3DF
	II	23.8.09	25.8.09	30	Yangon	3DF
sub total				1155		
10	Management of training for health facility staff (3 Days)	1.1.09	6.1.09	51	conducted 2 batches Htilin	3DF
	II	19.1.09	24.1.09	65	Ye Oo	3DF
	II	16.2.09	21.2.09	78	Kyaukpadaung	3DF
	II	1.2.09	6.2.09	79	Pauktaw	3DF
	II	18.2.09	23.2.09	87	Mawgyun	WHO (Nargis)
	II	9.3.09	14.3.09	60	Nyaung Oo	3DF

Sr. No	Type of training	Date		Partici-pants	Venue	Funding
		from	to			
10	Management of training for health facility staff (3 Days)	6.4.09	11.4.09	55	Mogoke	3DF
	II	29.5.09	3.6.09	65	Eaime	3DF
	II	2.6.09	7.6.09	60	Thayat	3DF
	II	4.6.09	9.6.09	63	Ayardaw	3DF
	II	8.6.09	13.6.09	60	Nahhtogyi	3DF
	II	8.6.09	13.6.09	86	Taungtar	3DF
	II	12.6.09	17.6.09	60	Pandaung	3DF
	Management of training for health facility staff (6 Days) 2 batch	15.6.09	20.6.09	61	Butalin	3DF
sub total				930		
11	Management of training for health facility staff (9 Days)	14.3.09	22.3.09	105	conducted 3 batches Bogalay	WHO (Nargis)
	II	28.4.09	6.5.09	105	Ngaputaw	WHO (Nargis)
	II	22.5.09	30.5.09	91	Pakokku	3DF
	II	29.5.09	6.6.09	105	Latputta	WHO (Nargis)
sub total				406		
12	Training of Chest X-Ray reading (2 Days)	26.8.09	27.8.09	43	Yangon	3DF
13	Training of trainers on TB counseling (3 Days)	23.8.09	25.8.09	34	Yangon	3DF
14	Workshop on how to improve case detection in 16 townships	19.10.09	20.10.09	32	Yangon	JICA
15	Training on Pre-packed patient Kit Management	22.5.09	22.5.09	46	Kyaukme	3DF
	II	24.5.09	24.5.09	34	Musel	3DF
	II	30.6.09	30.6.09	122	Magway	3DF
	II	3.8.09	3.8.09	93	Sittwe	3DF

Sr. No	Type of training	Date		Partici-pants	Venue	Funding
		from	to			
15	Training on Pre-packed patient Kit Management	28.11.09	28.11.09	62	Mandalay	3DF
	II	4.12.09	5.12.09	88	Yangon	3DF
	II	7.12.09	7.12.09	39	Taunggyi	3DF
	II	9.12.09	9.12.09	40	Lashio	3DF
	II	10.12.09	10.12.09	30	Pyay	3DF
	II	11.12.09	11.12.09	60	Magway	3DF
	II	12.12.09	12.12.09	34	Myitkyina	3DF
	II	13.12.09	13.12.09	39	Sittwe	3DF
	II	14.12.09	14.12.09	30	Bago	3DF
	II	14.12.09	14.12.09	20	Mawlamyine	3DF
	II	15.12.09	15.12.09	20	Myeik	3DF
	II	15.12.09	15.12.09	52	Patheingyi	3DF
	II	15.12.09	15.12.09	12	Hpa-an	3DF
	II	22.12.09	22.12.09	16	Loilek	3DF
sub total				837		
16	Training on sputum microscopy for new recruit Lab: technician	12.1.09	16.1.09	20	Mandalay	3DF
	II	1.11.09	5.11.09	16	Yangon	JICA
	II	7.11.09	11.11.09	16		JICA
	II	1.12.09	5.12.09	16	Yangon	JICA
sub total				68		
17	Training course on IPT for PLHIV	5.5.09	5.5.09	31	Mandalay	3DF

Sr. No	Type of training	Date		Partici-pants	Venue	Funding
		from	to			
17	Training course on IPT for PLHIV	7.5.09	7.5.09	39	Lashio	3DF
sub total				70		
18	Training on MDR-TB management for Hospital staff	22.6.09	27.6.09	46	Mandalay	3DF
19	Training on DOTS-Plus Provider/treatment supported	7.11.09	7.11.09	20	Aungmyaetharzan	WHO
	II	9.11.09	9.11.09	20	Chanayetharzan	WHO
	II	10.11.09	10.11.09	20	Maharaungmyae	WHO
	II	11.11.09	11.11.09	20	Chanmyatharzi	WHO
	Training on DOTS-Plus Provider/treatment supported	12.11.09	12.11.09	20	Pyigyitagon	WHO
sub total				100		
20	Refresher training on Sputum microscopy for Lab: technician	26.1.09	28.1.09	23	Magway	3DF
	II	3.2.09	5.2.09	25	Sagaing	WHO
	II	3.3.09	5.3.09	25	Magway	3DF
	II	6.4.09	8.4.09	25	Pathein	WHO (Nargis)
sub total				98		
21	KAP Survey training	2.10.09	4.10.09	14	Sagaing	WHO
	II	21.11.09	23.11.09	14	Sittwe	WHO
	II	6.12.09	7.12.09	10	Sittwe	WHO
	II	9.12.09	11.12.09	10	Mawlamyine	WHO
	II	12.12.09	14.12.09	14	Dawei	WHO
	II	30.12.09	30.12.09	21	Magway	WHO
sub total				83		
22	Training on Cohort review meeting	29.1.09	29.1.09	80	Hlaingbwe	3DF

Sr. No	Type of training	Date		Partici -pants	Venue	Funding
		from	to			
22	Training on Cohort review meeting	30.1.09	30.1.09	55	Moehyin	3DF
	II	30.1.09	30.1.09	126	Hpa-an	3DF
	II	30.1.09	30.1.09	84	Ye	3DF
	II	18.2.09	20.2.09	25	Moehyin	3DF
	II	27.2.09	27.2.09	40	Winemaw	3DF
	II	27.2.09	27.2.09	33	Pharkant	3DF
	II	31.2.09	31.2.09	55	Moehyin	3DF
	II	31.2.09	31.2.09	33	Pharkant	3DF
	II	31.2.09	31.2.09	25	Tanine	3DF
	II	25.3.09	25.3.09	48	Kyaukme	3DF
	II	26.3.09	26.3.09	51	Laishio	3DF
	II	27.3.09	27.3.09	31	Muesal	3DF
	II	30.4.09	30.4.09	126	Hpa-an	3DF
	II	30.4.09	30.4.09	40	Winemaw	3DF
	II	15.5.09	15.5.09	84	Ye	3DF
	II	29.5.09	29.5.09	80	Hlaingbwe	3DF
	II	29.5.09	29.5.09	80	Hlaingbwe	3DF
	II	23.6.09	23.6.09	25	Tanine	3DF
	II	30.6.09	30.6.09	55	Moehyin	3DF
	II	3.7.09	3.7.09	33	Pharkant	3DF
	II	31.7.09	31.7.09	24	Tanine	3DF
	II	31.7.09	31.7.09	40	Winemaw	3DF



Sr. No	Type of training	Date		Partici-pants	Venue	Funding
		from	to			
22	Training on Cohort review meeting	31.8.09	31.8.09	126	Hpa-an	3DF
	II	31.8.09	31.8.09	84	Ye	3DF
sub total				1483		
23	Health leadership and management training for TMO & team leader	10.8.09	14.8.09	38	Bago	3DF
24	Advocacy & Refresher training of private practitioners (2 Days)	13.1.09	14.1.09	28	Yangon	3DF
25	Training for Lab tech: from newly expand microscopy center	1.9.09	5.9.09	9	Yangon	JICA
26	EQA training on sputum AFB microscopy for STLS	18.5.09	22.5.09	9	Yangon	JICA
	II	13.8.09	17.8.09	6	Yangon	JICA
sub total				15		
Grand total				6129		

**Table 14. International trainings/meetings/Workshops attended by NTP staff (2009)**

Sr.	Name and Designation	Duration	Country	Attended training/ workshop/ meeting
1	Dr. Win Win Mar, AD(NTP)	4.3.09 to 6.3.09	India New Delhi	Regional workshop on research priorities in communicable disease
2	Dr. Bo Myint , DTBO, Mandalay	23.3.09 to 25.3.09	Brazil	Third Stop TB Partners' forum
3	Dr. Moe Zaw, AD(NTP)	2.11.09 to 5.11.09	India New Delhi	Regional Meeting of National TB Programme Managers
4	Dr. Nay Winn Lyinn, District TB TL, Hpa-an district	6.5.09 to 1.8.09	Japan	Stop TB action training course
5	Dr. Si Thu Aung, MO (NTP)	4.5.09 to 15.5.09	Philippines Manila	International course on advanced epidemiology
6	Dr. Wint Wint Nyunt MO(Microbiology), NTP	23.3.09 to 3.4.09	Thailand Bangkok	Training on Anti- TB drug susceptibility testing
7	Dr. Thandar Lwin, DD (TB)	4.5.09to 6.5.09	India New Delhi	Mock review on Global Fund Proposal,
8	Dr. Win Win Mar, AD(NTP)	8.8.09 to 9.8.09	Indonesia Bali	TB/ HIV Meeting
9	Dr. Lay Lay Khine, MO Yangon Divisional TB Center	9.9.09to 12.9.09	China Beijing	Regional Conference on TB Control
10	Dr. Thwe Thwe Sein, MO, Myitkyina, Kachin State TB center	7.9.09 to 2.10.09	Thailand Bangkok	International Border Health
11	Dr. Thandar Lwin, DD(TB) Dr. Tin Mi Mi Khaing, STBO Yangon Divisional TB Center	3.12.09 to 7.12.09	Mexico Cancun	40 <sup>th</sup> Union World Conference on Lung Health
12	Dr. Thandar Lwin, DD(TB) Dr. Aye Thein, Sagaing TB Officer Sagaing Divisional TB Center Dr. Hninn Wai Lwin Myo, MO Yangon Divisional TB Center	20.7.09 to 24.7.09	India Bangalore	Regional Workshop on TB Surveillance and Programme Monitoring and Evaluation
13	Dr. Yu Yu Wai, Patheingy TB hospital Dr. Khin Aye Win, MO, Aungsan TB hospital U Than Naing Oo, social worker Patheingy TB hospital Daw Sandar Shwe, social worker Aungsan TB hospital	5.10.09 to 9.10.09	Philippines Manila	MDR- TB Training
14	Dr. San San Shein, TB specialist Yangon Divisional TB center Dr. Thin Le Swe, MO, NTRL Dr. Ei Ei Chaw, MO (Team Leader), Pakokku District TB Center	16-3-09 to 20-3-09	Indonesia Jakarta,	Infection Control Training & Workshop,
15	Dr. Kyi Kyi Myint, MO Mon State TB center	6-6-09 to 18-6-09	Thailand	Training Course on TB Control Programme,
16	Daw San San Myint, B.C, NTP (central)	4-10-09 to 16-10-09	India New Delhi	Training on public administration and management in developing countries

## 4.9. Special occasions

### 4.9.1. Three Diseases Fund (3DF)

Following the withdrawal of GFATM in August, 2005, a consortium of donors (Australia, European Countries, the Netherlands, Norway, Sweden and the United Kingdom) agreed to work together and developed the concept of the Three Diseases Fund (3DF) and offered Myanmar to continue the critical activities related to three diseases. Coordinating Body (CB) and Technical Strategic Groups (TSG) were organized and developed the 3-year operational plan and Expression of Interest in line with 5-year national strategic plan together with implementing partners.

Total funding for TB under Bridge fund 3DF (2007) was 257,155 USD for NTP component and 347,570 USD for WHO component altogether 604,725 USD received for critical TB control activities.

Bridge Fund (3DF) supported capacity building of lab. technicians and BHS working at the grass root level which is the basic needs for quality of DOTS implementation. The software and data management training was an essential input for central NTP to be able to manage the programme. The support on local drug transportation cost was helpful for the uninterrupted drug supply to the end users. The low performance townships were focused to improve both case detection and case holding by introducing mobile team activities, initial home visits and contact tracing, sputum collection centers, quarterly township cohort review meetings, quarterly evaluation meetings. Community involvement activities were started in Myawaddy at Thailand-Myanmar border, Public-Public Mix DOTS initiated in 4 tertiary hospitals in Yangon. The guideline on childhood TB management, draft guideline for counseling for TB, national framework to manage MDR-TB were also developed and printed/distributed. For MDR-TB management, upgrading of Upper Myanmar TB Laboratory, Mandalay was completed and 2<sup>nd</sup> drug resistant survey was initiated. TB/HIV sentinel surveillance started. As supplies and equipment: training aids, computers and accessories for X-ray units were also supported.

3DF bridging fund was followed by the first year full funding started from (1-9-07) to (31-8-08). The TB control activities funded by 3DF covered all 325 townships. Total 3DF funding for TB control was 1.8 million USD, out of which NTP received 1.08 million USD, MMA received 0.5 million USD and WHO received 0.22 million USD **for Year 1**. The funding for **Year 2** was the same as Year 1.

3DF also supported 270,000 USD for National TB Prevalence Survey and 3 million USD (**Round 3**) for First Line Anti-TB Drugs to cover the year of 2010. 3DF provided total 3,613,178 USD for **year 3 and 4** for implementation of NTP activities.



**Cat I & III Patient Kit**  
supported by 3 DF ( Round 3)  
for 2010



**Cat. II Patient Kit**  
supported by 3 DF ( Round 3)  
for 2010

**Table 15. TB control activities under 3DF (September, 2008 to August, 2009)**

Activities under NTP component	Target	Achievement
<b>Purpose 1: To sustain and improve the quality of DOTS services to reach all TB patients</b>		
<b>TRAINING</b>		
Training on TB counselling for social workers/counsellors/nurses	Yangon Mandalay	100%
Training on management of TB at District level for new recruit TMO, TB team leaders and TB coordinators	Naypitaw Mandalay Shan (South) Yangon	100%
Training on TB data management of TB at District level	Yangon Naypyitaw	100%
Training on management of TB at health facility level for BHS at RHC	86 courses	84 courses (97%)
Training on sputum microscopy for new recruit lab. Technician	Yangon Mandalay	100%
Refresher training on sputum microscopy for Grade II lab. Technician	Magway Sagaing	100%
Training on cohort review meeting for TMO, TB coordinators	Yangon Mandalay	100%
<b>ADDITIONAL TRAININGS &amp; MEETINGS</b>		
Training on management of patient kits for BHS in PPM-DOTS scheme III implementing township	10 courses	9 courses (90%)
TOT on TB counselling (State/Divisional TB officers & District Team leaders)		1
Training on management of MDR-TB for physicians		1
Trainig course on IPT for PLHIV (Mandalay, Lashio and Tachileik)		3
Training for GPs on MMA PPM-DOTS		1
Meeting for SCCs at Mandalay		1
Trainig of X-Ray reading for TB team leaders by radiologists		2
ISTC implementation 2 seminars at upper and lower Myanmar	2	1(Naypyitaw)
Leadership and management training (Bago Division)	1	1
<b>SUPERVISION, MONITORING &amp; EVALUATION</b>		
Supervisory visits from State/Divisional level to Township (1 visit/yr to 260 townships)	260 visits	109 visits (42%)
Quarterly cohort review meeting in low performance townships (4 meetings/year in selected 30 townships)	120	49 (41%)
<b>COMMUNITY BASED DOTS ACTIVITIES</b>		
Sputum collection points	30 sites	6 sites reported
DOTS activities in 2 border townships (Myanmar - Thai border) Myawady & Tachileik		
Initial Home Visit & Contact tracing	500 visits	209 visits (42%)
Annual Evaluation Meeting	2	1(50%) Myawady
Quarterly border health committee meeting	8	0 (0%)
Supervision & Monitoring for central/state level to 2townships(2 times/year)	4	1(25%)

Activities under NTP component	Target	Achievement
Quarterly supervision from township to RHC	8	0 (0%)
Drugs and Supplies procurement	All treatment units	100%
First line anti-TB drugs	All treatment units	100%
Transport of Global Drug Facility supported anti TB drugs to townships (4-transports/year to 325 townships)	325 townships for 4quarters	100%
Maintenance of NTRL Yangon & Mandalay lab.	2 laboratories	
<b>Purpose 2: To improve the treatment success rate among all detected TB patients including those with TB/HIV and MDR-TB</b>		
<b>DOTS-PLUS project</b>		
Training on MDR TB counselling for social workers / counsellors/nurses	Yangon Mandalay	100%
Training on Management of MDR-TB for TB hospital Staff/programme staff	Yangon Mandalay	Mandalay (50%)
Training on MDR patient management for DOTS Plus Supervisors	Yangon Mandalay	100%
MDR-TB patients support cost (nutrition/Travel allowance) for 75 MDR TB patients)	75	75
Travel cost for social workers, DOTS supervisors	75	75
Fees for laboratory investigations either at private lab. or cost sharing hospital labs.	75	75
Specialized services & injection fees for 75 MDR TB Patients (10000 Kyats/month x 6 months)	75	0
Allowance for DOTS-Plus provider for social support network	75	0
Bi-annual evaluation meeting for DOTS-Plus pilot at TB hospitals	2	2(100%)
Car rental for DOT-Plus pilot at TB hospitals	2	1(50%)
<b>Purpose 3: To maintain the case detection rate of estimated new smear positive TB patients above 70%</b>		
<b>Public-Public Mix DOTS</b>		
Incentive for assigned TB focal persons and social workers to coordinate between hospital and township TB centers (30000 Kyats/month for 3 persons) and TA (20000 Kyats/month for 2 persons)	8	50%
Quarterly supervision from Divisional TB center	16	
Quarterly evaluation meeting : refreshment	16	8(50%)
To provide stationary & miscellaneous to PPM DOTS units at 4 hospitals		
Annual Evaluation Meeting on PPM DOTS	1	1(100%)
<b>Purpose 4: To measure both progress with programme implementation and the impact of intervention towards more accurately determining progress towards the MDGs</b>		
<b>TB and TB/HIV SURVEY</b>		
Sentinel surveillance for HIV prevalence among TB patients (Blood glucose testing and transport fees)	15 sites	15 sites (100%)

## 5. Manpower situation of NTP

NTP has 101 vertical TB teams under the 14 State/Divisional TB centers. 47 District TB teams (40 are led by Team Leader medical doctors and 7 led by Health Assistant) and 54 Township TB teams (led by team leader Health Assistants) are implementing TB control activities as well as providing technical support, supervision and monitoring, evaluation of TB control activities at township level.

Currently, one Senior Consultant Microbiologist and one Junior Consultant Microbiologist are vacant. One attached State TB Officer in Kayah State is also vacant after recently filled up of State TB Officer post for Eastern Shan State. 10 team leaders (H.A), 16 trained nurses, 1 radiographer and 55 Grade II Lab. technicians are vacant **(For detail, please see in Annex 3)**.

Post graduated course on TB and Chest Diseases (Dip.Med.Sc) has trained 59 doctors in the period of 1998-2009. Majorities are posted in NTP and some are working in TB hospitals.

One postgraduate candidate is studying in Prince of Songkla University, Hat Yai, Thailand for MPH (Epidemiology) 2 years course to strengthen the Monitoring & Evaluation Section of Central NTP.

## 6. Drugs and laboratory equipment situation of NTP

Drugs, laboratory supplies and equipment for National Tuberculosis Programme are mainly supplied by WHO, GDF, 3DF and Ministry of Health. Quarterly drug distribution system is using in NTP. Central TB medical store, Yangon distributes to Upper and Lower Myanmar stores according to case load. Upper Myanmar store has to distribute nine State and Divisional TB Centers (Mandalay, Magway, Shan (S), Shan (E), Shan (N), Kayah, Chin, Kachin and Sagaing) and Lower Myanmar store distributes seven State and Divisional TB Centers (Yangon, Ayeyarwaddy, Mon, Kayin, Bago, Rakhine and Tanintharyi). Upper and Lower Myanmar stores distribute to State and Divisional level according to case load of their quarterly reports. The State and Divisional level distributes to townships quarterly according to their case load of previous quarter. At township level, TMOs distribute monthly to RHC level. Implementing partner: PSI collects drugs from Lower Myanmar TB store, Yangon and distribute to their PPM Scheme III clinics and AZG (MSF-Holland) collects drugs from the either State/Divisional level or township level where they are implementing.

Standard Operating Procedure (SOP) for Drug and supplies management was developed and conducted training on drug and supplies management for TMOs and TB coordinators in 2008. Drug transportation cost were provided by 3DF (from airport warehouse to central TB store, central store to Upper/Lower Myanmar stores, Upper/Lower Myanmar stores to State/Divisional level TB stores and up to township level). Laboratory equipment like slides, slide boxes and stains are distributed from State and Divisional TB Centers to DOTS townships. 5 Binocular microscopes were supported by JICA in 2009.

GFATM supported 2 X-ray machines (500mA) and 11 X-ray machines (63-200mA) which are installed at all states and divisional TB Centers except Shan East State (Kyaington) TB Centre. X-ray machines at Kachin state and Bago (East) were not functioning for about one year. 14 new desktop computers/printers were supported by 3DF and distributed to State/Divisional TB centers and central NTP office to facilitate the data management.

## 7. Budget and external technical support

### 7.1. Budget

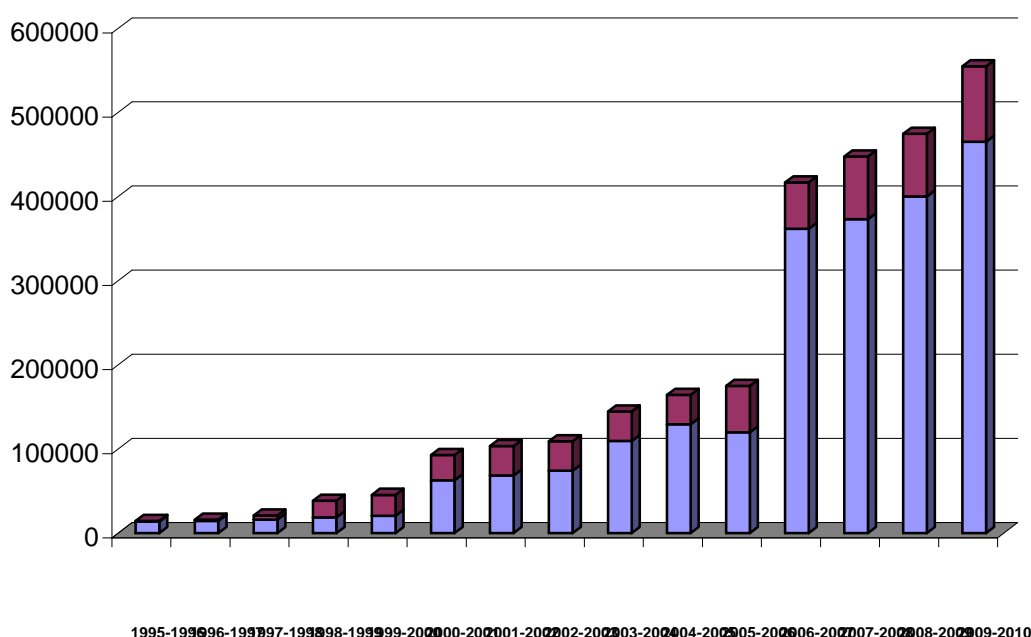
#### 7.1.1. Government budget for NTP

Government budget was only 14 million Kyats in 1995-1996, and it increased to (555.19) Million Kyats in 2009-2010. 90 Million Kyats were used for drugs purchase in 2009-2010, which increased from only 0.78 million Kyats in 1995-1996.

**Table 16. Government budget for NTP**

<b>Year</b>	<b>Regular Budget (Kyats in thousands)</b>	<b>Drugs purchase (Kyats in thousands)</b>	<b>Total (Kyats in thousands)</b>
1995-1996	13,711	782	14,493
1996-1997	14,527	1,614	16,141
1997-1998	16,017	5,000	21,017
1998-1999	18,777	19,600	38,377
1999-2000	20,509	25,000	45,509
2000-2001	62,747	30,000	92,747
2001-2002	68,470	35,000	103,470
2002-2003	74,349	35,000	109,349
2003-2004	109,667	35,000	144,667
2004-2005	129,300	35,000	164,300
2005-2006	119,955	55,000	174,955
2006-2007	361,974	55,000	416,974
2007-2008	373,126	74,700	447,826
2008-2009	400,146	74,700	474,846
2009-2010	465,190	90,000	555,190





**Figure 1. Government contribution for NTP (1995 – 2009)**

### 7.1.2. External Financial Support

Up to the end of year 2009, GDF provided FLD (2 Million USD) for Exceptional 7<sup>th</sup> year. The NTP has planned to get FLD for the year 2010 by conducting partners meeting. 3DF will provide 1 year supply of FLD (3.1 Million USD) for the year 2010.

For Nargis affected areas, CERF and JGA provided FLD for some extent in 2008-2009. UNITAID provided Pediatric formulation (Pediatric HRZ and Pediatric HR) for 3 years (2008-2010).

Management of MDR-TB was supported by USAID, WHO and 3DF. The establishment of Biosafety Level 3 laboratory with rapid diagnostic test at NTRL and Upper Myanmar TB Laboratory was supported by Expand<sub>x</sub> TB Programme.

**Table 17. External Financial support for NTP, Myanmar (2009)**

2009	Govt.	WHO (Nargis)	UNITAID	GDF	JICA	JATA	3DF	Union	USAID	CERF	FIND	Total
First line TB drugs	90,000		519871	2,000,000			3,061,024		48,000			5,718,895
Staff working for TB control	403,557	25500				2100	16,200		90,000			537,357
Routine programme management and supervision activities		62442			145,752	8198	505,865		85,000			807,257
Lab. supplies and equipment for smears culture and DST					40,000		274,438		137,000		900,000	1,351,438
PAL												-
PPM							13,951					13,951
Collaborative TB/HIV activities		6500					9,132	200000				215,632
Second line drugs for MDR-TB			245549									245,549
Management of MDR-TB							153,840		105,000			258,840
Community involvement		3411					53,550			264,565		321,526
ACSM									25,000			25,000
Operation research			4,300		4,300							4,300
Surveys									10,000			10,000
Other technical assistant												-
<b>Total</b>	<b>493,557</b>	<b>97,853</b>	<b>765,420</b>	<b>2,000,000</b>	<b>190,052</b>	<b>10,298</b>	<b>4,088,000</b>	<b>200,000</b>	<b>500,000</b>	<b>264,565</b>	<b>900,000</b>	<b>9,509,745</b>

## 7.2. External technical support

Technical support was provided by WHO and JICA/JATA for NTP, Myanmar.



Technical assistance from JICA

**Table 18. International visitors in 2009**

S.N	Name and Designation	Duration	Remarks
1.	Dr. Rajeswari Ramachandran	21.1.09 to 22.1.09	Expert from SEARO for MDR-TB training modules
2.	Dr. Gulshan Rai Khatri	7.1.09 to 10.1.09	Expert from WHO on PPM-DOTS activities
3.	Dr. Grigory V. Volchenkov	13.1.09 to 14.1.09	TB Laboratory Expert
4.	Prof. Phillip Hopewell	4.3.09 to 5.3.09	Expert on ISTC from WHO for Adoption of ISTC
5.	Dr. Ikushi Onozarki	14.3.09 to 16.3.09	TB Survey Expert from WHO Headquarter for Survey Training
6.	Dr. Punnet Dewan	5.5.09 to 8.5.09	Medical Officer (TB), SEARO for IPT Project
7.	Dr. C. N. Paramasivan	6.5.09 to 7.5.09	TB Laboratory Expert
8.	Mr. Somsak Rienthong	23.6.09 to 25.6.09	Laboratory Expert from Supranational Lab (Thailand)
9.	Dr. Toru MORI	18.7.09 to 25.7.09	Expert for Research from JICA
10.	Prof. Amie De Muynck	18.9.09 to 30.9.09	Epidemiologist from SEARO
11.	Mrs. Norah Joy Stoops	26.9.09 to 30.9.09	Expert For District Health Information Software (DHIS) training
12.	Dr. Michael Voniatis	1.10.2009 to 31.12.2009	Medical Officer (TB), WHO
13.	Mr. Hiroaki YAMAZAKI	17.11.09 to 20.11.09	Laboratory Expert from JICA for EQA on sputum AFB smear microscopy
14.	Dr. Hidetoshi IGARI	15.12.09 to 18.12.09	Radiologist from JICA for X-Ray reading on TB Prevalence Survey

## 8. Research

NTP conducted several researches and presented in internal and international research congress. The abstracts of the presented posters, published paper are recorded.

### 8.1. Research in progress

#### 8.1.1. National TB Prevalence Survey

NTP is currently conducting National TB Prevalence Survey in (70) clusters since June 2009. The funding was supported by MOH, WHO, PSI, 3DF, JICA, JATA, Bill and Melinda Gates Foundation. It is a 2-year project and will be completed by the end of December, 2010.

A proposal of National TB Prevalence survey was submitted to MOH by the NTP and it was approved in December 2008. Ethical committee from DOH was approved in February 2009. The procurement of survey equipments was started in December 2008. The X-Ray training for National TB Prevalence Survey was conducted from 23.2.2009 to 24.2.2009 and overall training for Survey Team was also carried out from 14.3.2009 to 17.3.2009. Pre testing/field testing was carried out at Singu Ward, Insein township, Yangon Division. Survey Steering Committee was organized and 1<sup>st</sup> meeting was conducted on 26.11.2009.

Total (70) clusters were selected in November 2008. The cluster distributions were (20) townships in States and (50) townships in Divisions. The first cluster was started in June 2009 at Meikhtila Township, Mandalay Division and survey data collection period will be over 1 year, up to early 2010.

As TB prevalence is one of the indicators of the Millennium Development Goal and the Global Plan to stop TB, this National TB Prevalence Survey is one of the most effective tools to monitor the impact of National TB Programme. Based on the National TB Prevalence Survey findings, revision of the estimation of TB epidemiology in the country will be carried out. An evidence based approach is essential for NTP to develop control strategies to provide quality care for TB patients across the country. The results from this quality TB prevalence survey will also lead to appropriate national and international investments for TB control in Myanmar.



**Conducting National TB Prevalence Survey**

### 8.1.2. Nationwide KAP Survey

Country wide " Knowledge, Attitude and Practice Survey" was conducting in 50 clusters in 2009. A cross-sectional study using both quantitative and qualitative methods was conducted in rural and urban areas of (50) selected townships in 2009-2010 to assess knowledge, attitude and practice of community on TB. It also explored stigma, perceived problem for TB and opinion and suggestion of community members for TB control.

Face-to-face interview with (7519) community members and (28) Focus Group Discussions were conducted. About (30.6%) of community member had high knowledge; (42.5%) had median knowledge; and (27%) had low knowledge scores about TB. There were more respondents in rural (32.5%) than in urban (16.2%) who got low knowledge score. Only (18%) responded germ and (38%) mentioned smoking as causes of TB respectively. About (65%) knew anti-TB drugs were free of charge and (86.9%) knew that TB was curable. Nearly half (45.9%) of respondents have heard about DOTS. The most common ways to prevent TB were isolation of TB patients (47.4%), avoidance of smoking (26.9%) and avoidance of sharing dishes (22.9%). Some (45.1%) said that they would not invite TB patients to their social events. Only (3.3%) would conceal TB status of their family members. Majority (71%) perceived TB as a public health problem for their locality. Initial actions if one suspected contracting TB were going to doctor (82%), going to drug shop (3%) and self medication (3%). Participants from FGD suggested providing health message regarding prevention about TB by using appropriate communication channels for their localities.

Based on the research findings, Advocacy, Communication and Social Mobilization (ACSM) materials for TB control will be developed for better TB control. The community awareness on availability of anti-TB drugs free of charge will be raised and ACSM activities will be promoted through appropriate ACSM strategies.



**Conducting Nationwide KAP Survey in Myanmar**



### 8.1.3. Other Research Grant

"Drug Resistant Patterns among Category II Failure Patients attending different TB Centers, Myanmar (2008-2009)", supported by WHO Research and Training in Tropical Diseases (TDR) was completed and final report was submitted to Department of Health.

Department of Medical Research, Lower Myanmar is conducting the research on " Strengthening Township level coordination for PPM-DOTS in selected townships, Myanmar: Utilization focus evaluation (2009)" collaborating with the NTP, supported by WHO TDR reentry grant.

## 8.2. Abstracts of research conducted and presented

### Second National anti-tuberculosis drug resistance survey, 2007- 08, Myanmar

T.Ti<sup>#</sup>, T.Lwin<sup>#</sup>, T.T.Mar<sup>#</sup>, W.W.Nyunt<sup>#</sup>, W.Maung<sup>#</sup>, H.H.Kluge<sup>\*</sup>, A.Wright<sup>\*\*</sup>

<sup>#</sup> National Tuberculosis Programme, Myanmar. <sup>\*</sup> World Health Organization, Yangon, Myanmar.

<sup>\*\*</sup> World Health Organization, Geneva, Switzerland.

---

**SETTING:** Forty Townships of Myanmar.

**OBJECTIVES:** To determine the prevalence and trend of drug resistance to anti-tuberculosis(TB) drugs in new and previously treated pulmonary TB cases taking treatment under National Tuberculosis Programme, Myanmar.

**DESIGN:** A cross-sectional study. Culture was done at National Tuberculosis Reference Laboratory (NTRL) Yangon and Mandalay Divisional TB Laboratory of Mandalay. Drug susceptibility testing was tested by proportion method only at the National Tuberculosis Reference Laboratory, Yangon.

**RESULTS:** Of the 1617 TB patients from 40 sites, 1370 isolates were obtained from individual patients. (1100 from new cases and 299 from previously treated cases) were tested for susceptibility to four primary anti-tuberculosis drugs. Of 1100 isolates tested from new TB patients, 6.4% were resistant to any one of the anti-tuberculosis drugs, 5.2% to isoniazid (INH), 4.9% to rifampicin and (RMP) and 4.2% were multidrug-resistant(MDR). Of the 299 isolates tested from previously treated TB patients, 13% were resistant to any one of the anti-tuberculosis drugs, 11.7% to isoniazid (INH), 10.7% to rifampicin and (RMP) and 10% were multidrug-resistant(MDR).

**CONCLUSION:** Comparing to results of previous nationwide drug resistance survey conducted in Myanmar MDR among new TB cases increased from 4% to 4.2%, whereas among the previously treated TB cases, MDR decreased from 15.5% to 10 %. Resistant to 4 drugs is 0.5% and 0.9% respectively for new patients and previously treated cases in first survey but in this survey it is 3.4% and 7.4% respectively. In the first survey, resistant to 2 drugs (INH and SM) is common.

**KEY WORDS:** second national drug resistance survey, MDR TB, Myanmar

The findings of this quantitative research was presented as a poster in 41<sup>st</sup> Union World Conference on Lung Health (2010), held in Berlin, Germany.

**Table 19. Drug resistant patterns among sputum smear positive culture positive pulmonary TB patients**

<b>Drug resistant patterns</b>	<b>New patients n = 1071 (%)</b>	<b>Previously treated patients n = 299 (%)</b>
Fully susceptible	1002 (93.6)	260 (87.0)
MDR	45 (4.2)	30 (10.0)
Resistance to any anti-TB drug	69 (6.4)	39 (13.0)
Any INH resistance	56 (5.2)	35 (11.7)
Any RMP resistance	52 (4.9)	32 (10.7)
Any ETB resistance	36 (3.4)	22 ( 7.4)
Any SM resistance	59 (5.5)	33 (11.0)
Mono-resistance	11 (1.0)	5 (1.7)
to INH	1 (0.1)	2 (0.7)
to RMP	4 (0.4)	1 (0.3)
to ETB	0	0
to SM	6 (0.56)	2 (0.7)
Poly-resistance	18 (1.7)	7 (2.3)
2-drug resistance	10 (0.9)	3 (1.0)
SM + INH	5 (0.5)	3 (1.0)
RMP + INH	3 (0.3)	1 (0.3)
RMP + SM		
3-drug resistance	4 (0.4)	5 (1.7)
RMP + INH + SM	4 (0.4)	5 (1.7)
Resistant to all anti-TB drugs INH + RMP + ETB + SM	36 (3.4)	22 (7.4)



## **Defaulter Reasons in tuberculosis treatment in Myanmar**

Tin Mi Mi Khaing<sup>1</sup>, Thin Thin Yee<sup>1</sup>, Myat Myat Moe<sup>1</sup>, Tin Maung Swe<sup>1</sup>,  
Si Thu Aung<sup>1</sup>, Kosuke Okada<sup>2</sup>, Win Maung<sup>1</sup>

<sup>1</sup>: National Tuberculosis Programme, Department of Health, Ministry of Health, Myanmar.

<sup>2</sup>: The Research Institute of Tuberculosis (RIT), Japan Anti-Tuberculosis Association (JATA)

**Setting:** Study was conducted in selected townships of Mandalay, Ayeyarwaddy and Bago divisions and Shan state of Myanmar.

**Objectives:** The study aims to "To describe factors for defaulting TB treatment among new pulmonary TB patients in selected 4 townships in Mandalay, Ayeyarwaddy, Bago division and Shan State in Myanmar from September 2007 to February 2008."

**Design:** The cross-sectional descriptive study using qualitative approach was conducted. Key Informant Interview (KII) and In-Depth Interview (IDI) by using guidelines. In-depth Interviews were conducted with 11 defaulted TB patients. 18 Key Informant Interviews were conducted with Township Medical Officers, TB Coordinators, Midwives and General Practitioners.

**Results:** Most common reasons for defaulting TB treatment among pulmonary TB patients were getting adverse side effects of anti TB drugs, relief of symptoms, move to other township without informing to respective health staff, weak supervision, little understanding of patient's perception about TB and TB treatment and stopping of TB treatment by specialists.

**Conclusion:** It was obvious that the factors for defaulting anti TB treatment were multi-factorial and related with each other. Based on the findings and round table discussion with Project Manager and researchers from Department of Research (Lower Myanmar), pretreatment health education was a key factor to reduce the defaulter. Therefore, it was the possible intervention as well as starting point for action.

**Key words:** Myanmar, Tuberculosis, Defaulter

The findings of this qualitative research was presented as a poster in 40<sup>th</sup> World conference on Lung Health (2009), Cancun, Mexico and Myanmar Health Research Congress (2009).

## **Success and challenges of Public-Private Mix DOTS initiatives in Myanmar:**

### **A process evaluation**

Saw Saw<sup>1</sup>, Thida<sup>2</sup>, Thandar Lwin<sup>3</sup>,  
Tin Mi Mi Khaing<sup>3</sup>, Bo Myint<sup>3</sup>, Khin Sandar Oo<sup>1</sup>, Cho Cho Myint<sup>1</sup> and Thandar Min<sup>1</sup>,

1. Health Systems Research Division, DMR (Lower Myanmar)
2. Epidemiology Research Division, DMR (Upper Myanmar)
3. National Tuberculosis Programme, Department of Health

### **Abstract**

The study was conducted in three townships in which Public-Private Mix DOTS (PPM-DOTS) was implemented by three partners—Myanmar Medical Association (MMA), Population Services International (PSI) and Japanese International Cooperation Agency (JICA). It aimed to describe the process of implementing PPM-DOTS by the partners and to elicit their opinions on PPM-DOTS in order to take necessary actions. This study was a process evaluation which included desk review, opinion survey, in-depth interviews, key informant interviews and participation and observation of advocacy meeting and training on PPM-DOTS. Initiations of PPM-DOTS by each partner were different although all coordinate with National Tuberculosis Programme (NTP). More than half (54.3%) general practitioners (GPs) had moderate level and (34.3%) GP had very high recognition and acceptance of the need for partnership. For development of clarity and realism of purpose for partnership, (54.3%) have high score. Most GPs convinced that their previous practices were not in line with NTP guidelines. Majority pointed out that proper advocacy for PPM-DOTS was crucial for success of future activities. Most respondents were aware many GPs needed to be involved especially GPs who were very good general practice known as “GP kings”. Almost all respondents highlighted that if there are fewer burdens for paperwork, more GPs would get involved in PPM-DOTS. Majority mentioned existing good personal relationship as success factor for PPM-DOTS. They also expressed trust building could be obtained by sharing information through regular contacts among each others. Based on the research findings, coordination mechanism among the partners in two pilot townships is initiated.

**This paper was presented at Myanmar Health Research Congress 2009 and won Best Paper Award (1<sup>st</sup> prize) for Health Systems Research. The full paper was published in Myanmar Health Science Research Journal.**

## **Current TB control practices in selected hospitals and private clinics in Myanmar**

Moe Zaw<sup>1</sup>, Thandar Lwin<sup>1</sup>, Tin Mi Mi Khaing<sup>1</sup>, San San Shein<sup>1</sup>, Si Thu Aung<sup>1</sup>, Myint San<sup>1</sup>,  
Ohnmar Myint<sup>1</sup>, Hans Kluge<sup>2</sup>, Tin Maung Cho<sup>3</sup>

<sup>1</sup>National TB Programme; <sup>2</sup>World Health Organization; <sup>3</sup>Department of Chest Medicine;

**Setting:** Before the introduction of International Standards for TB Care (ISTC) in Myanmar, assessment survey was conducted in 20 selected sites involving general hospitals (8), Universities of Medicine (2), private clinics (6) and township health departments (4).

**Objective:** To assess current TB control practices of medical doctors in different settings.

**Method:** A cross sectional survey by using open ended structured questionnaires was conducted.

**Findings:** Total of 98 doctors, 48 from General Hospitals, 27 from University of Medicine, 15 Private Practitioners and 8 from Township Health Department were interviewed. Fifteen percents of doctors from hospitals defined TB suspect with cough for 4 weeks and above. For the diagnosis of Extra Pulmonary TB, 50% were taking biopsies for histopathology. Forty-five percents of doctors determined sputum smear negative TB with positive CXR. In area of diagnosis of TB in symptomatic children, 69% of doctors forgot to ask history of exposure to an infectious TB patient. Forty-two percents were not done follow up sputum examination to the pulmonary TB patients. For the monitoring of progress during treatment, 22 out of 98 were using CXR. Only 46% of doctors initiated TB patients to do VCCT. Majority of doctors were not being asked a contact history for likelihood of DR-TB. Only 48% of doctors are familiar with DR-TB treatment. Only 53% of doctors are being done contact evaluation.

**Conclusion:** Some of the important international standards are differing from the real practices. Adoption, dissemination and provision of training on ISTC to care providers are crucial in TB control in Myanmar.

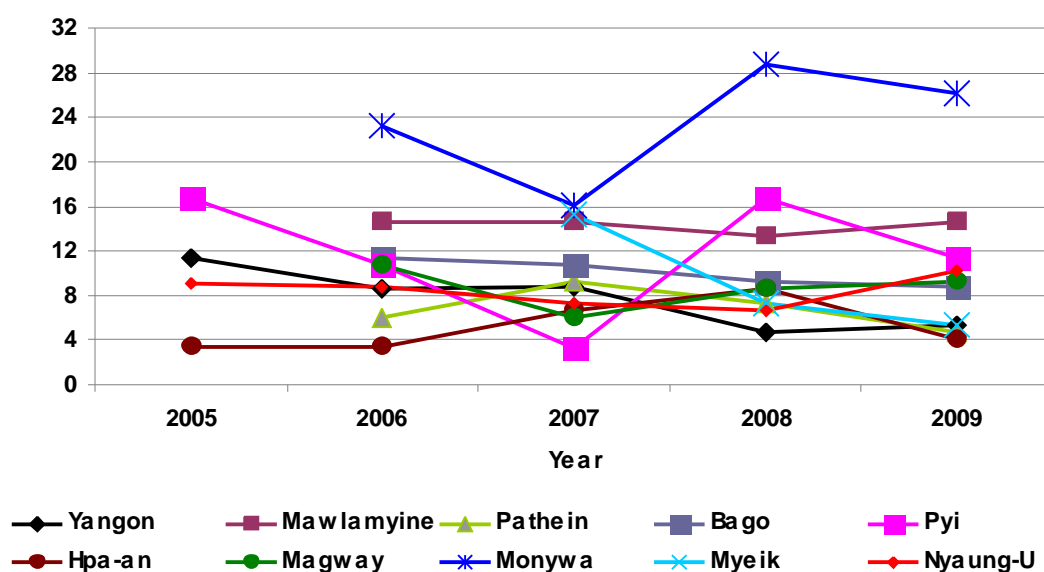
**The findings of this assessment survey for introduction of ISTC in Myanmar context was presented as a poster in 41<sup>st</sup> Union World Conference on Lung Health (2010), held in Berlin, Germany.**

## 8.2. HIV prevalence among new TB patients

It was reported from the routine sentinel surveillance of NAP conducted in 15 selected sites according to the schedule. The intake period for serum collection among new TB patients was up most 3 months and collected 150 serum specimens from new TB patients in 2009.

**Table 20. HIV prevalence among new TB patients, sentinel surveillance (2005- 2009)**

Sr. No	Sentinel sites	2005	2006	2007	2008	2009
1	Yangon	11.30%	8.70%	8.70%	4.67%	5.3%
2	Pyay	16.70%	10.70%	3.30%	16.67%	11.3%
3	Bago		11%	10.70%	9.33%	8.7%
4	Hpa-an	3.30%	3.30%	6.70%	8.67%	4%
5	Nyaung U	9%	9%	7.30%	6.67%	10.2%
6	Magway		1%	6%	8.67%	9.3%
7	Monywa		23%	16.10%	28.77%	26.1%
8	Myeik			15.30%	7.33%	5.3%
9	Pathein		6%	9.30%	7.33%	4.7%
10	Mawlamyine		15%	14.70%	13.33%	14.7%
11	Tachileik					14.7%
12	Sittway					3.3%
13	Loikaw					2%
14	Hinthada					6.8%
15	Pyinmana					13.4%
<b>Total</b>		<b>10.30%</b>	<b>10.90%</b>	<b>9.80%</b>	<b>11.10%</b>	<b>9.15%</b>



**Figure2. HIV prevalence among new TB patients (2005-2009)**

The findings are supportive for both NAP and NTP to focus on scale up of TB/HIV collaborative activities where HIV prevalence among TB patients is high. Monywa and Mawlamyaing districts need to have routine surveillance and TB/HIV preventive and control activities. NTP is planning to conduct in 5 additional sentinel sites for 2010. The new sites are Meikhtila, Dawei, Bamaw, Myingyan and Taunggoo townships.

## **9. Constraints**

### **9.1. Pursuing high-quality DOTS expansion and enhancement**

- Limitation of human resource development
- Weak in timely implementation of planned activities and reporting
- Inadequate access to TB services
- Not following NTP guidelines
- Not following SOP for Drug and supplies management
- Limitation in supervision
- Limitation in reaching the un-reach
- Constraints in ensuring patient support

### **9.2. Addressing TB/HIV, MDR-TB and other challenges**

- Limited funding to scale up TB/HIV and MDR-TB management
- Limited funding for Infection Control for health facilities and staff

### **9.3. Contributing to health system strengthening**

- Limitation in health financing
- Limited service delivery in hard to reach area
- Weak coordination mechanism at State/Divisional level and below

### **9.4. Engaging all care providers**

- Limited skills of health care providers outside the NTP
- Limitation to scale-up PPM-DOTS
- weak mechanism on monitoring of PPM-DOTS especially date verification at township level

### **9.5. Empowering people with TB, and communities**

- Low community awareness
- Weak initiation of community involvement in TB control
- No SOP, guideline for community involvement
- Lack of appropriate materials for ACSM
- Weak technical assistance in new areas (eg. ACSM)

### **9.6. Enabling and promoting research**

- Insufficient Operational Researches
- Weak in identifying other health care providers to involve in TB control

## 10. Comments and Recommendations on NTP activities for 2009

This annual report was based on the State and Divisional TB Centre annual reports and quarterly reports from DOTS townships received during 2009 and reports from other reporting units.

### 10.1. Case finding and case notification

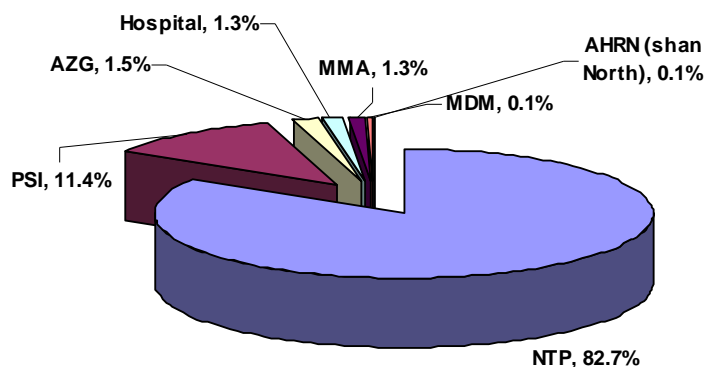
NTP targeted to achieve 70% case detection of estimated new smear positive patients in the community. In 2009, NTP covered 59,934,088 populations in 325 DOTS townships. These townships were estimated to have 43,645 new smear positive TB patients. The estimated new smear positive TB patients and all smear positive TB patients were modified for Yangon Division according to the findings of Yangon Divisional TB prevalence survey conducted in 2006. For the other States/Divisions and Union estimates, we calculated the estimated new smear positive TB patients as 75/100,000 population and only Yangon Division was revised as 170/100,000 population based on the survey results.

NTP detected 47,877 smear positive cases including 41,389 new smear positive cases. NTP achieved **case detection rate of new smear positive cases 95% from 316 townships in 17 States and Divisions**.

The Case Detection Rates (CDRs) were high above target in 10 States/Divisions. Low CDR were found in 7 States/Divisions. [See Annex 4]

There are 23,239 reported all TB cases from **other reporting units** as Aung San TB Hospital, Patheingyi TB Hospital, Mingaladon Special Disease Hospital, Waibargi Special Diseases Hospital, Defense Hospital (Pyin Oo Lwin), 1000 bedded General Hospital (Nay Pyi Taw), New Yangon General Hospital, Thingungyun Sanpya General Hospital, Yangon General Hospital (East), (West) and INGOs: PSI, AZG, AHRN, MMA and Medecins du monde. Out of them, 7,037 were new smear positive TB patients.

However, Case Detection Rate of new smear positive increased from 79% (only NTP) to **95%** after adding the case finding of other reporting units.



**Figure 3. Number of all forms of TB patients contributed by NTP and other reporting units**

**Table 21. Case Detection Rate of States and Divisions for 2009**

State and Division	CDR for 2009	
	NTP only	NTP + other reporting Unit
Kachin State	122	150
Kayah State	60	60
Chin State	40	40
Sagaing Division	61	70
Magway Division	67	80
Mandalay Division	64	82
Southern Shan State	49	51
Eastern Shan State	90	90
Northern Shan State	56	71
Kayin State	92	97
Tanintharyi Division	72	75
Bago East Division	82	103
Bago West Division	105	114
Mon State	114	129
Rakhine State	87	91
Yangon Division	85	110
Ayeyarwaddy Division	92	102
<b>Union of Myanmar</b>	<b>79</b>	<b>95</b>



## National Tuberculosis Programme

Yangon Division detected (24.2%) of new smear positive cases out of total new smear positive cases, followed by Ayeyarwaddy Division (13.1%), Mandalay Division (9.8%).

Out of all notified smear positive TB cases, new smear positive contributed 86% and 10% of smear positive pulmonary TB cases were relapse cases. Treatment after default contributed 1.2% of smear positive TB patients and treatment after failure 2.8%.

38% of total notified TB cases were contributed by smear negative TB cases. Extra-pulmonary TB cases were also treated and contributed 23.6% of all notified TB cases. Childhood TB cases (32,258) contributed 24% of all notified TB cases.

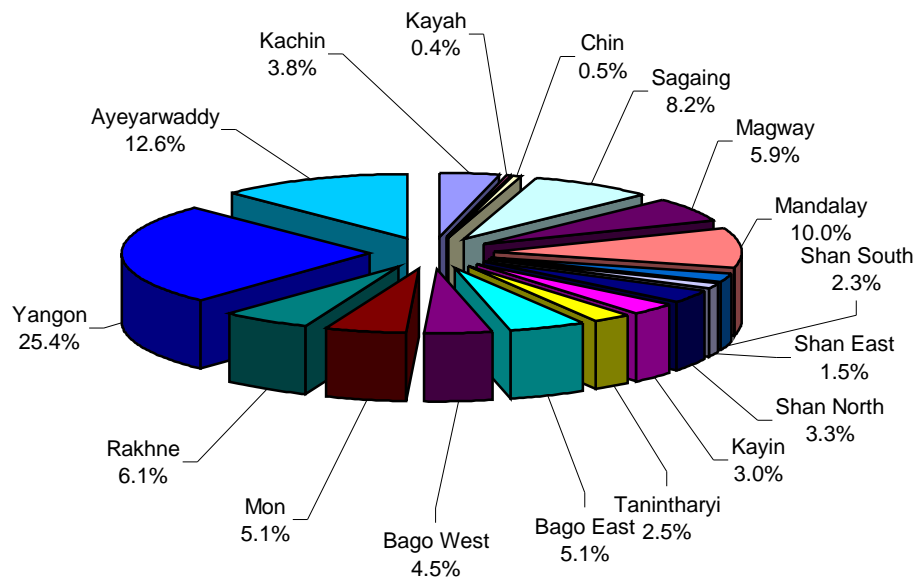
**Table 22. Proportions of state and divisional new sputum smear positive and smear positive TB patients out of NTP total (2009)**

Sr. No.	State / Divisions	% of DOTS covered Townships in each State / Division	% of new smear (+) patients out of total new smear (+) TB cases	% of smear (+) patients out of total smear (+) TB cases
1	Kachin State	18/18=100%	3.0%	3.2%
2	Kayah State	7/7=100%	0.3%	0.3%
3	Chin State	9/9=100%	0.4%	0.4%
4	Sagaing Division	37/37=100%	7.0%	6.8%
5	Magway Division	25/25=100%	5.0%	4.8%
6	Mandalay Division	31/31=100%	8.1%	8.3%
7	Southern Shan State	21/21=100%	1.9%	1.9%
8	Eastern Shan State	10/10=100%	1.2%	1.2%
9	Northern Shan State	24/24=100%	2.8%	2.7%
10	Kayin State	7/7=100%	2.6%	2.4%
11	Tanintharyi Division	10/10=100%	2.1%	2.1%
12	Bago Division (East)	14/14=100%	4.3%	4.2%
13	Bago Division (West)	14/14=100%	3.8%	3.7%
14	Mon State	10/10=100%	4.2%	4.2%
15	Rakhine State	17/17=100%	5.3%	5.0%
16	Yangon Division	45/45=100%	20.1%	21.0%
17	Ayeyarwaddy Division	26/26=100%	10.9%	10.4%
<b>Union of Myanmar</b>		<b>325/325=100%</b>	<b>100%</b>	<b>100%</b>

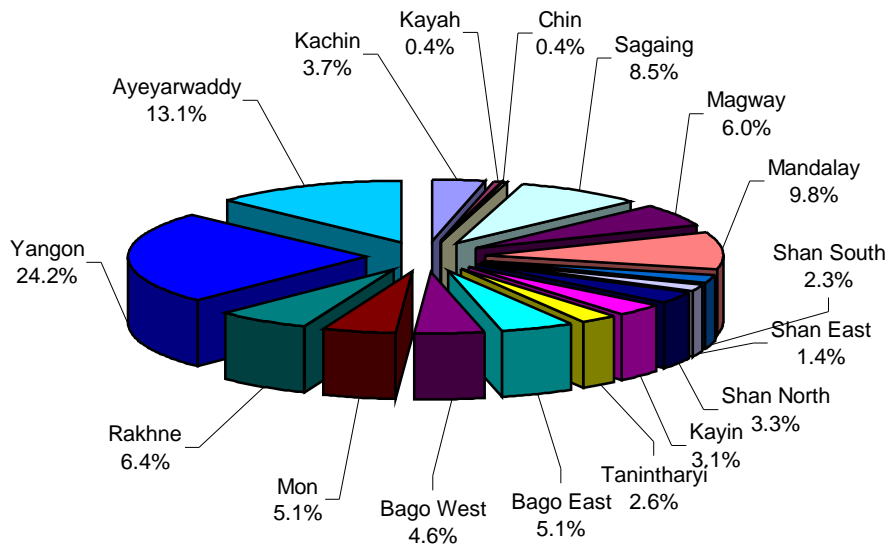
**Table 23. Categories of case detection rates in States and Divisions (2009)  
NTP+ other reporting Units**

CDR					Total
= 70%	60-69%	50-59%	40-49%	<40%	
Kachin	Kayah	Shan (S)	Chin		
Shan (E)					
Kayin					
Tanintharyi					
Bago (E)					
Bago (W)					
Shan (N)					
Mon					
Rakhine					
Yangon					
Sagaing					
Magway					
Mandalay					
Ayeyarwady					
14	1	1	1		17

**Figure 4. Proportion of State and Divisional all smear positive TB cases out of union total smear positive TB cases (2009)**



**Figure 5. Proportion of all State and Divisional all new smear positive TB cases out of union total new smear positive TB cases (2009)**



**Table 24. Categories of Township CDR by States and Divisions (2009)**

Sr. No.	States and Division	No. of township with CDR					Total no. of township	No. of townships not sent report received
		= 70%	60-69%	50-59%	40-49%	<40%		
1	Kachin State	10	0	0	1	4	15	3
2	Kayah State	4	0	0	0	3	7	
3	Chin State	1	0	1	3	4	9	
4	Sagaing Division	13	6	7	6	5	37	
5	Magway Division	12	3	2	4	4	25	
6	Mandalay Division	15	4	5	3	4	31	
7	Southern Shan State	4	1	5	3	8	21	
8	Eastern Shan State	6	1	0	0	2	9	1
9	Northern Shan State	7	3	1	2	6	19	5
10	Kayin State	5	0	0	1	1	7	
11	Tanintharyi Division	3	1	2	0	4	10	
12	Bago Division (East)	12	1	1	0	0	14	
13	Bago Division (West)	14	0	0	0	0	14	
14	Mon State	9	1	0	0	0	10	
15	Rakhine State	13	1	1	2	0	17	
16	Yangon Division	28	6	5	2	4	45	
17	Ayeyarwaddy Division	22	2	1	1	0	26	
<b>Total</b>		178	30	31	28	49	316	
		(50%)	(9%)	(10%)	(9%)	(16%)	(100%)	9

In 2009, CDRs of 316 townships were evaluated and 49 townships (16%) had CDRs less than 40% and 178 townships (50%) achieved the target (=70%).

The case notification rate of **all forms of TB cases and new smear positive TB cases from 316 townships plus other reporting units** were 240/100,000 population and 77/100,000 population.

As State and Divisional wise, the case notification rates of **all TB cases** were high in Kayah State (407/100,000 population), Yangon Division (391/100,000 population), Kachin State (376/100,000 population), Tanintharyi Division (370/100000), and Mon State (314/100,000 population).

The case notification rate of **new smear positive cases** was high in Yangon Division (174/100,000 population), Kachin State (111/100,000 population), however, Chin State (39/100,000 population) and Southern Shan State (42/100,000 population) had low case notification rate for new smear positive cases.

**Table 25. TB case notification rates by States and Divisions (2009)**

Sr. No.	States / Divisions	Case notification rates of new smear (+) TB patients notified to NTP	Case notification rates of all smear (+) TB patients notified to NTP	Case notification rates of all TB patients notified to NTP
1.	Kachin State	91/100,000 pop.	111/100,000 pop.	376/100,000 pop.
2.	Kayah State	45/100,000 pop.	54/100,000 pop.	407/100,000 pop.
3.	Chin State	30/100,000 pop.	39/100,000 pop.	239/100,000 pop.
4.	Sagaing Division	46/100,000 pop.	51/100,000 pop.	128/100,000 pop.
5.	Magway Division	50/100,000 pop.	57/100,000 pop.	193/100,000 pop.
6.	Mandalay Division	48/100,000 pop.	57/100,000 pop.	172/100,000 pop.
7.	Shan State (South)	37/100,000 pop.	42/100,000 pop.	119/100,000 pop.
8.	Shan State (East)	68/100,000 pop.	82/100,000 pop.	212/100,000 pop.
9.	Shan State (North)	42/100,000 pop.	48/100,000 pop.	139/100,000 pop.
10.	Kayin State	69/100,000 pop.	76/100,000 pop.	256/100,000 pop.
11.	Tanintharyi Division	54/100,000 pop.	61/100,000 pop.	370/100,000 pop.
12.	Bago Division (East)	62/100,000 pop.	71/100,000 pop.	175/100,000 pop.
13.	Bago Division (West)	78/100,000 pop.	88/100,000 pop.	245/100,000 pop.
14.	Mon State	86/100,000 pop.	98/100,000 pop.	317/100,000 pop.
15.	Rakhine State	66/100,000 pop.	72/100,000 pop.	200/100,000 pop.
16.	Yangon Division	144/100,000 pop.	174/100,000 pop.	391/100,000 pop.
17.	Ayeyarwaddy Division	69/100,000 pop.	76/100,000 pop.	177/100,000 pop.
<b>Population of 316 townships = 50,907,881</b>		<b>81/100,000 pop.</b>	<b>94/100,000 pop.</b>	<b>263/100,000 pop.</b>

The proportion of sputum smear positive pulmonary TB cases to all pulmonary TB cases was 48% and the ratio of new sputum smear positive TB cases to new sputum smear negative TB cases was 0.5:1.

Proportion of sputum smear positive pulmonary TB cases of all pulmonary TB cases was high above 65% in Sagaing Division, however Kayah, Chin, Kayin, Taninthayi, Bago (West) and Mon State treated more sputum smear negative pulmonary TB cases and found (<40%) of reported all pulmonary TB cases were smear positive.

Ratio of new smear positive to new smear negative cases and EP cases were less than national figure (0.5:1) in Kayah, Chin, Taninthayi, Magway, Mandalay, Kayin, Mon and Kachin States.

## 10.2. Age and sex distribution of new sputum smear positive TB cases

The age and sex distributions of new sputum smear positive TB cases reported to the NTP in 2009 showed that 46% of them were in 25-34 age group and 35-44 age groups. Male to female ratio of those patients was 1.9:1.

0.7% (282/41389) of new sputum smear positive TB patients was in the age group of (0-14), and male to female ratio of those patients was 0.71:1.

Case notification rate of total new smear positive male TB cases was 92/100,000 and case notification rate of total new smear positive female TB cases was 46/100,000.

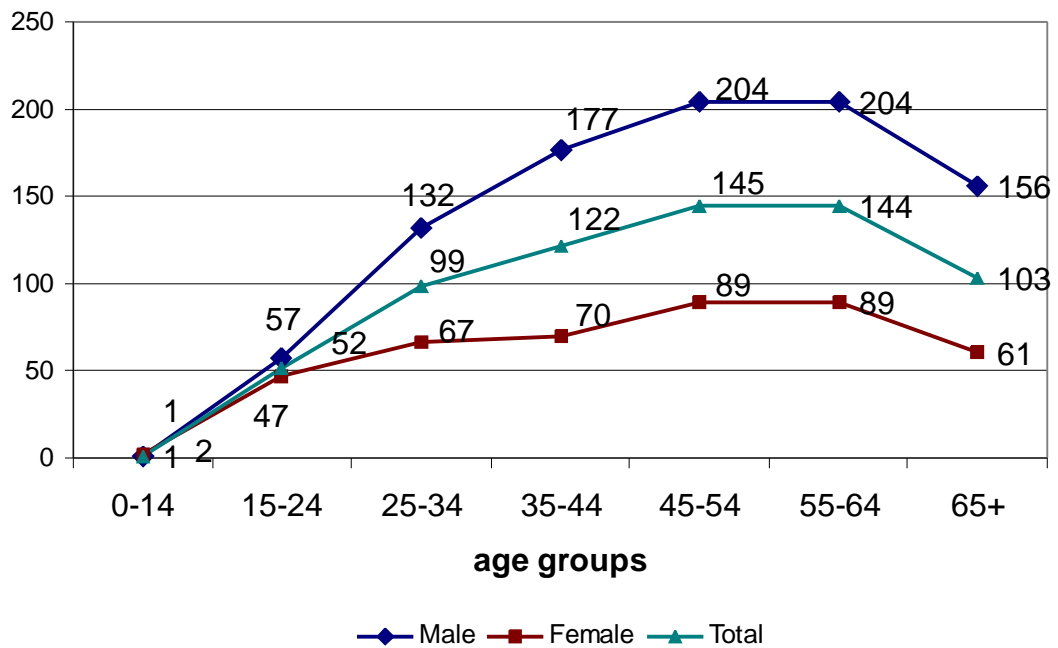
**Table 26. Case notification rates of new smear positive cases according to age and sex (2009)**

Age groups	Total		Male		Females	
	TB patients / pop. *	CNR / 100,000	TB patients / pop. **	CNR /100,000	TB patients / pop. ***	CNR / 100,000
1-14	282 / 19595	1	118 / 9948	1	164 / 9646	2
15-24	5822 / 10995	53	3263 / 5629	58	2559 / 5366	48
25-34	9667 / 96493	100	6370 / 4795	133	3297 / 4853	68
35-44	9370 / 76123	123	6629 / 3723	178	2741 / 3888	70
45-54	7784 / 53348	146	5321 / 2591	205	2463/ 2743	90
55-64	5117 / 35371	145	3435 / 1668	206	1682 / 1869	90
65+	3347 / 32084	104	2250 / 1429	157	1097 / 1778	62
<b>Total</b>	<b>41389 / 59934</b>	<b>69</b>	<b>27386 / 29787</b>	<b>92</b>	<b>14003 / 30146</b>	<b>46</b>

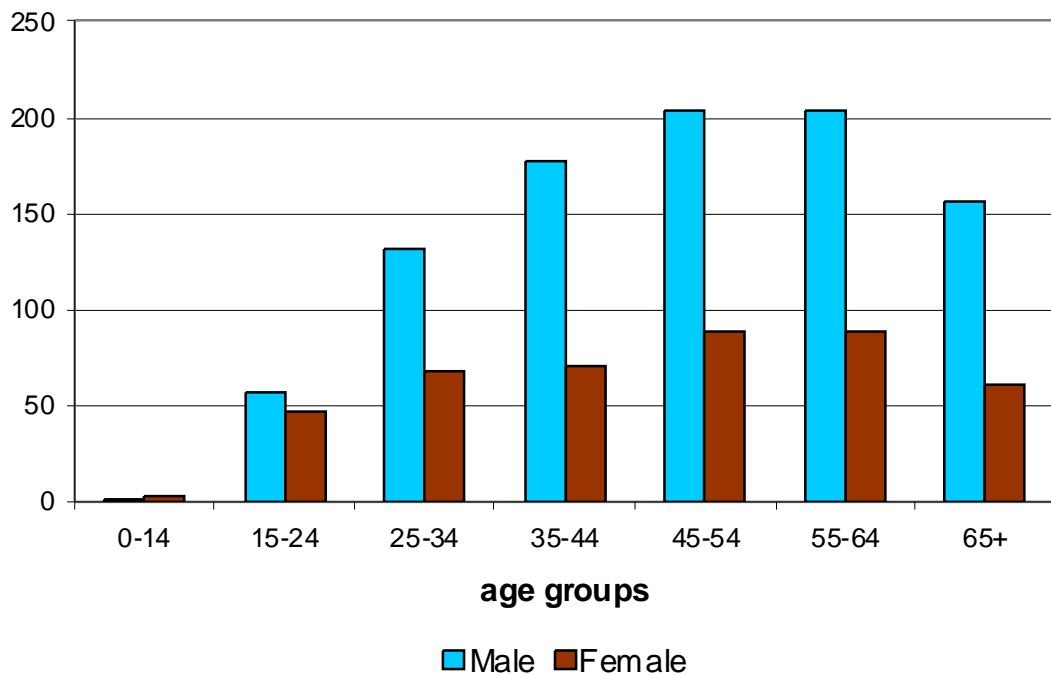
Case notification rate of new smear positive TB patients was highest in (55-64) years age group in male but highest in (45- 54) years age group for total patients. It was highest in (55-64) years age group and (45- 54) years age group in female patients.

For patients with primary complex, the number notified to NTP was reduced to 22676 from 24,038 in 2008. For childhood TB including primary complex, hilar lymphadenopathy and TB meningitis (<15 Years), it was also greater than notified patients in 2008 (33,867 vs 27,662). Among notified patients with primary complex (98%) was <15 years age and among TBM 50% was <15 years. The childhood TB in (0-4) year age group in this year was 25.2% (8,521 / 33,867).

**Figure 6. New smear positive TB case notification rate/100,000 population by age and sex groups (2009)**



**Figure 7. New smear positive TB case notification rate/100,000 population by age and sex groups (2009)**





### 10.3. Categories of Treatment regimen

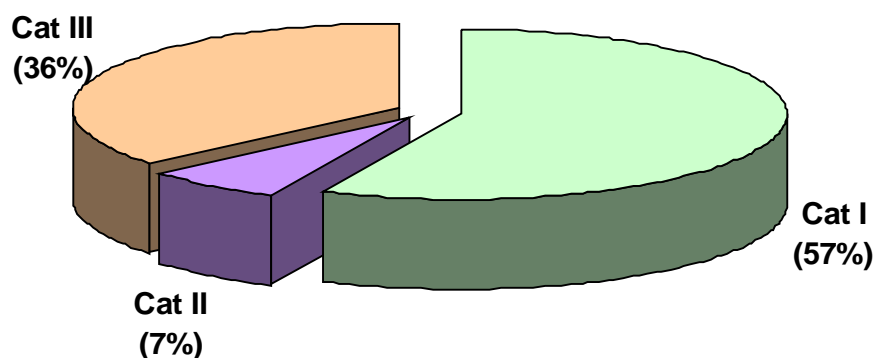
The reported total TB patients were (134,023) in TB 07 - block - 1, but altogether (137,329) patients were treated and reported in TB 07, block 3 after counting transferred in cases and others cases.

According to reports, 57% of reported cases were treated with Category I regimen, 7% with Category II regimen and 36% with Category III regimen. 22% and 7% of Category I patients were new sputum smear negative and extra pulmonary cases respectively.

Among those treating with Category II regimen, 47% were relapse cases, 6% were treatment after default, 13.4% were treatment after failure, 33% were others cases. 3.5%, 0.4%, 9.8% and 2.4% of total patients were relapse cases, treatment after default, treatment after failure and others cases respectively. Out of 137,329 reported TB cases in block 3, 23.7% was extra-pulmonary TB patients.

Yangon, Mandalay, Magway, Sagaing, Ayeyarwaddy Divisions and other reporting units treated more extra-pulmonary TB cases compared to other States/Divisions.

High proportions of relapse cases were contributed by Yangon, Mandalay, Ayeyarwaddy, Sagaing, Magway and Rakhine State and Divisions. Other reporting units also contributed about 17% of notified relapse patients.



**Figure 8. Proportions of treatment regimens (2009)**

**Table 27. Categories of Treatment Regimens**

Years	Cat. I				Cat. II					Cat. III			Total  Cat. I + II + III	Proportion  of relapse among smear (+) total	Proportion  of failure among smear (+) total
	Sputum  smear positive	Severe form		Total	Relapse	Treatment  after default	Treatment  After failure	Other	Total	Less severe form		Total			
		Smear negative	EP							Smear negative	EP				
2000	16923	2608	313	19844	2600	907	386		3893	6157	1962	8119	31856	13	2
2001	20697	4604	485	25786	3072	1042	363		4477	9166	3383	12549	42812	13	2
2002	24203	8063	866	33132	3661	1242	697		5600	10796	9866	20662	59394	13	2
2003	27295	13537	1693	42525	4453	1454	964		6871	12179	16185	28364	77760	13	3
2004	31551	21098	2938	55587	4820	1293	1522		7635	13627	23267	36894	100116	13	4
2005	38598	23164	6234	67996	4817	976	2024		7817	13309	26158	39467	115280	11	4
2006	40742	30031	5620	76393	5229	1007	2852		9088	13924	29141	43065	128546	11	6
2007	43230	29177	6602	79009	4750	757	1208	2795	9510	13077	33986	47063	135582	9.5	3
2008	41839	27725	6364	75928	4509	633	1140	2954	9236	17306	28897	46203	131367	9.1	2.4
2009	42122	29744	6479	78345	4753	606	1349	3323	10031	22865	26088	48953	137329	9.6	2.8

#### 10.4. Laboratory performance

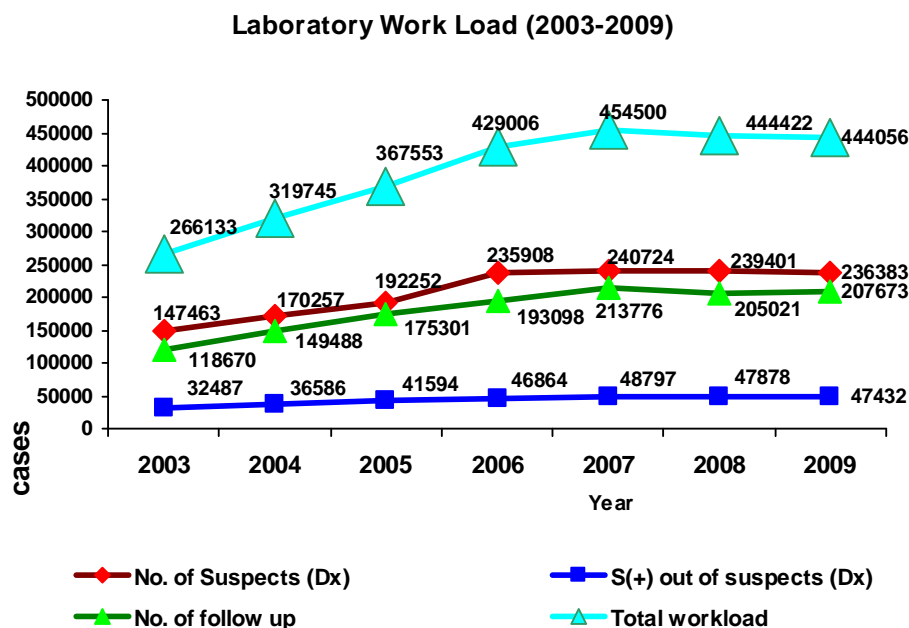
There were 236,383 TB suspects were examined for sputum microscopy and 20% of them were sputum smear positive (47,432/236,383) in 2009.

18% of TB suspected cases and 16.2% of sputum positive cases were contributed by other reporting units.

In States/ Divisions, sputum positive rates were ranged from 6% to 38%. Sputum positivity rates of Shan (North), Rakhine States, Bago (East), Bago (West), Yangon, Ayeyarwaddy, Tanintharyi and Mandalay Divisions were high  $\geq 20\%$ .

In Yangon, Sagaing and Mandalay Division, more TB suspects were examined. However, TB suspects notification rates for **Chin, Sagaing, Magway, Mandalay, Shan (South), Shan (North), Tanintharyi, Bago (East), Bago (West), Rakhine and Ayeyarwaddy** were lower than 400/100,000 population. It is noted the Union TB suspect examination rate was increased from 437/100,000 population in 2008 to 464/100,000 population in 2009. It is needed to improve the identification of more TB suspects and referral for TB diagnosis by all means.

The following graph shows there were a decrease in laboratory performance in 2009 for both diagnosis and follow-up examinations. It also affected the total number of sputum smear positive detected.



**Figure 9. Laboratory performance (2000-2009)**

### 10.5. Sputum conversion rate of new smear positive pulmonary TB cases

Sputum conversion rate for 2009 cohort was **88%**. Sputum conversion rate of other reporting units was low as 83%. Sputum conversion rates were lower than 85% in Kachin (84%), Chin (83%), Shan East (83%) and Shan North (83%).

### 10.6. Treatment outcomes of TB patients (2008 cohort)

Treatment outcomes of the TB patients (2008 cohort) were evaluated from 316 townships (NTP). The cure rate and treatment success rate of new sputum smear positive TB patients were 78% and 85% for 2008 cohort (NTP). When treatment outcome of new smear positive TB patients were analysed according to known HIV status, cure rate and treatment success rate of HIV positive TB patients were 50% and 63% respectively for 2008 cohort.

**Table 28. Categories of township TSR of new smear positive cases (2008 cohort)**

Sr. No.	States and Division	No. of township with TSR					Total no. of township	No. of townships not sent report received
		= 85%	75-84%	60-74%	50-59%	<50%		
1	Kachin State	5	4	4		2	15	3
2	Kayah State	4	1	2			7	
3	Chin State	8	1				9	
4	Sagaing Division	23	14				37	
5	Magway Division	18	3	4			25	
6	Mandalay Division	21	10				31	
7	Southern Shan State	14	3	3		1	21	
8	Eastern Shan State	4	3	1		1	9	1
9	Northern Shan State	9	4	4	1	1	19	5
10	Kayin State	2	4	1			7	
11	Tanintharyi Division	4	4	2			10	
12	Bago Division (East)	11	3				14	
13	Bago Division (West)	7	7				14	
14	Mon State	8	1	1			10	
15	Rakhine State	10	5	2			17	
16	Yangon Division	37	6	1		1	45	
17	Ayeyarwaddy Division	21	5				26	
<b>Total</b>		<b>206</b>	<b>78</b>	<b>25</b>	<b>1</b>	<b>6</b>	<b>316</b>	
		<b>(65.2%)</b>	<b>(24.7%)</b>	<b>(7.9%)</b>	<b>(0.3%)</b>	<b>(1.9%)</b>	<b>(100%)</b>	<b>9</b>

In 2008 cohort, 316 townships reported case finding in 2009. NTP received reports from 316 townships, out of which (206 – 65.2%) townships achieved treatment outcome target of TSR (= 85%) and (1) townships (0.3%) got less than 50% of TSR. Chin, Magway, Mandalay, Sagaing, Shan South, Bago (East), Bago (West), Ayeyarwaddy, Yangon, Rakhine and Mon States achieved 85% treatment success rate.

**Table 29. Categories of townships' cure rates of new sputum smear positive TB patients by States/Divisions (2008 cohort)**

Sr. No.	States and Division	No. of township with CR					Total no. of township	No. of townships not sent report received
		= 85%	75-84%	60-74%	50-59%	<50%		
1	Kachin State	2	5	4	2	2	15	3
2	Kayah State	0	1	2	2	2	7	
3	Chin State	3	3	1	0	2	9	
4	Sagaing Division	11	10	13	2	1	37	
5	Magway Division	13	1	8	1	2	25	
6	Mandalay Division	12	10	8	1	0	31	
7	Southern Shan State	12	3	3	1	2	21	
8	Eastern Shan State	0	1	6	1	1	9	1
9	Northern Shan State	5	2	7	1	4	19	5
10	Kayin State	0	5	2	0	0	7	
11	Tanintharyi Division	2	5	2	1	0	10	
12	Bago Division (East)	3	7	4	0	0	14	
13	Bago Division (West)	5	6	3	0	0	14	
14	Mon State	1	7	1	1	0	10	
15	Rakhine State	4	5	5	0	3	17	
16	Yangon Division	24	15	5	0	1	45	
17	Ayeyarwaddy Division	10	10	6	0	0	26	
<b>Total</b>		<b>107</b>	<b>96</b>	<b>80</b>	<b>13</b>	<b>20</b>	<b>316</b>	<b>9</b>
		(33.9%)	(30.4%)	(25.3%)	(4.1%)	(6.3%)	(100%)	

**Table 30. Categories of State/Divisional CR and TSR of new sputum smear positive TB patients (2008 cohort)**

= 85%		75-84%		60-74%		50-59%		<50%	
CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR
	Chin	Sagaing	Kachin	Kachin					
	Sagaing	Magway	Kayah	Kayah					
	Magway	Mandalay	Shan (E)	Chin					
	Mandalay	Shan (S)	Shan (N)	Shan (E)					
	Shan (S)	Kayin	Kayin	Shan (N)					
	Bago (E)	Bago (E)	Tanintharyi	Tanintharyi					
	Bago (W)	Bago (W)		Rakhine					
	Mon	Mon							
	Rakhine	Yangon							
	Yangon	Ayeyarwaddy							
	Ayeyarwaddy								
0	11	10	6	7	0	0	0	0	0

**Defaulter rate for new smear positive TB cases** reduced to 5% from 9% of 2003 cohort and also 5% defaulter rate in TB/HIV patients.

**Case fatality rates (CFR) of new smear positive cases** were 5% for HIV status unknown TB patients and 27% for TB/HIV co-infected patients. CFRs during treatment were high above 5% in Kachin (6%), Sagaing (8%), Mandalay (7%), Magway (6%), Shan (South) (7%), Bago Division (West) (8%), Mon (6%), Rakhine State (6%) and Ayeyarwaddy Division (6%).

**Treatment failure rates** were 3% for new smear positive cases with unknown HIV status and 2% for HIV co-infected TB patients.

**Treatment failure rates of new smear positive TB cases** in Kachin, Kayah, Sagaing, Shan East and Yangon was higher than 2%.

**Defaulter rates of new smear positive cases** were high above 5% in Kachin State (10%), Kayah (7%), Shan (E) State (8%), Shan (North) State (11%), Kayin State (8%), Tanintharyi Division (9%) and Bago (East) (6%).

**Transferred out rate** was high only in Taninthayir Division (7%).

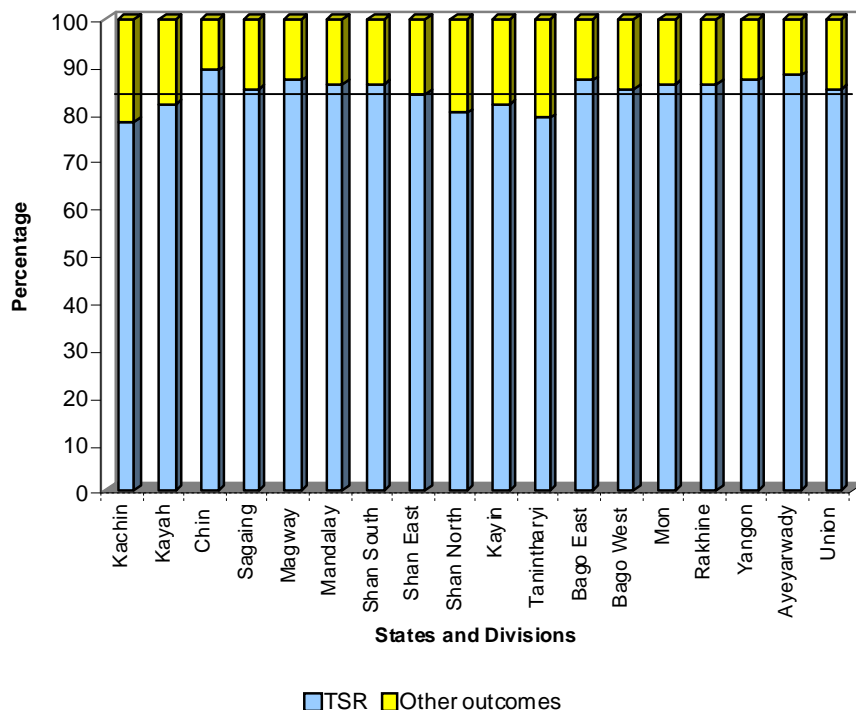
**Table 31. Treatment outcomes of TB patients with HIV status (2008 cohort)**

Type of TB patients		Total no. evaluated	Cured	Completed	Deaths	Failure	Defaulter	Transferred out	Total no. evaluated
New (+)	HIV (+)	1273	640	166	338	22	69	38	1273
	Unknown HIV status	39984	31427	2944	2038	1043	1907	625	39984
	Total	41257	32067	3110	2376	1065	1976	663	41257
Smear (-)	HIV (+)	2565		1671	632	28	149	85	2565
	Unknown HIV status	38181		31953	2351	179	2859	839	38181
	Total	40746		33624	2983	207	3008	924	40746
Relapse	HIV (+)	157	70	32	45	4	3	3	157
	Unknown HIV status	4115	2745	470	387	203	209	101	4115
	Total	4272	2815	502	432	207	212	104	4272
Other	HIV (+)	303	4	172	106	4	12	5	303
	Unknown HIV status	2330	243	1481	274	46	188	98	2330
	Total	2633	247	1653	380	50	200	103	2633
PC	HIV (+)	247		191	48		7	1	247
	Unknown HIV status	22410		21030	223		907	251	22410
	Total	22657		21221	271		914	252	22657
TBM	HIV (+)	17		7	7		2	1	17
	Unknown HIV status	419		310	65		33	11	419
	Total	436		317	72		35	12	436
TAD	HIV (+)	26	7	4	12	0	2	1	26
	Unknown HIV status	585	306	98	64	21	73	23	585
	Total	611	313	102	76	21	75	24	611
TAF	HIV (+)	42	12	5	18	0	6	1	42
	Unknown HIV status	1073	589	86	99	152	102	45	1073
	Total	1115	601	91	117	152	108	46	1115
EP	HIV (+)	1337		1024	227	3	47	36	1337
	Unknown HIV status	6618		5809	313	24	353	119	6618
	Total	7955		6833	540	27	400	155	7955
Hilar	HIV (+)	36		26	7	1	1	1	36
	Unknown HIV status	4794		4562	44	2	155	31	4794
	Total	4830		4588	51	3	156	32	4830
Total	HIV (+)	6003	733	3298	1440	62	298	172	6003
	Unknown HIV status	120509	35310	68743	5858	1670	6786	2143	120509
	Total	126512	36043	72041	7298	1732	7084	2315	126512

For **other reporting units** : AHRN (Shan North) reported high failure rate (25%). Mingaladon Special Disease Hospital has highest case fatality rate (36%) and Aung San TB Hospital has highest defaulter rate (22%) of new smear positive TB patients. Reported failure rates of AZG (Shan North), AZG (Yangon), Aung San TB Hospital, 1000 Bedded Hospital (Nay Pyi Taw), New YGH, AZG (Kachin) and PSI were 15%, 11%, 9%, 6%, 6%, 6% and 4% respectively. Medecins du monde (MDM) reported in this year and found defaulter rate as 14%. Case fatality rate of other reporting units was 6%, however, it was high in Waibargi hospital (31%), AZG (Rakhine) (25%), MDM (24%) and AZG (Yangon) (13%) where HIV co-infected TB patients were treated.

As mentioned in table 31, NTP could evaluate 126,512 TB patients registered in 2008. Total completion rate and failure rate were 57% and 1.4% respectively. However, CFR and defaulter rates were high as 5.8% and 5.6% respectively. It is needed to be recognized by all supervisors at all levels to be able to maintain the current achievement of treatment outcome, which could be more affected by HIV co-infection if TB/HIV prevention and control activities are not adequate.

**Figure 10. Treatment success of new positive TB patients (2008 cohort)**



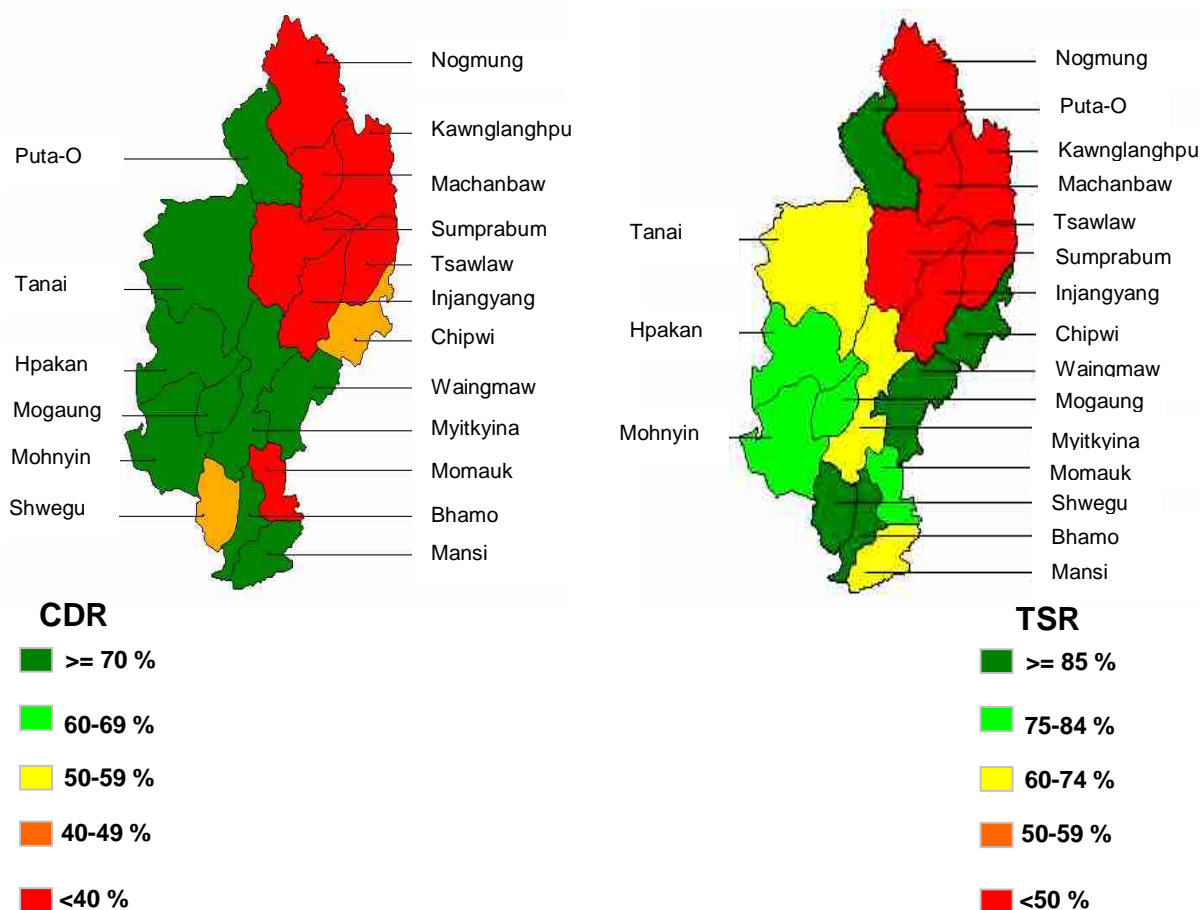


## 10.8. Evaluation of State/ Divisional and township TB control activities

NTP, Myanmar achieved the global TB control targets of CDR and TSR as 95% and 85% in 2009. The achievement of 2008 was maintained. The performance of State/Divisional level was evaluated and Sagaing, Yangon, Mandalay, Bago (East), Bago (West), Magway and Ayeyarwaddy Divisions, Mon and Rakhine States achieved the targets. Among 316 townships reported, 94 townships achieved the TB control targets in 2008. (8) States/Divisions did not achieve TB control targets.

### 10.8.1. Kachin State

Kachin State TB center covers 4 districts with 18 townships of Kachin State. The NTP did not received reports from 4 townships (N'ginyan, Hsawlaw, Naungmun, and Khaunglanbu). One township, Sumprabum reported to NTP this year. Therefore, reporting efficiency was 78% (14/18). CDR for 2009 was 122% and when added other reporting units like AZG, CDR increased to 150%. The CR and TSR were 73 and 78% respectively. In Kachin State, there was three townships achieved the NTP targets namely Bamao, Waingmaw and Putao townships. 4 townships (Moemauk 39%, Nogmon 12%, Machanbaw 0%, and Sumprabum 0%) had low CDR where as Chipway had high CR with low CDR. Defaulter rate for Kachin State was 10%. Defaulter rate was high in 7 townships: Mansi (22%), Karmaing (17%), Tanai (18%), Myitkyina (12%), Mokaung (11%), Monyin (10%), and Putao (8%). Treatment failure rate was high above 5% in Karmaing (6%) and Mogaung (6%). Failure rate was higher in other reporting units (6 to 16%). In Kachin State, high CDR, TB/HIV problems, transportation difficulties and human resource shortage were the problems to be solved for better performance. TB/HIV collaborative activities were started in 2007 and the treatment outcomes of the detected TB/HIV patients were reported to both NTP and NAP.

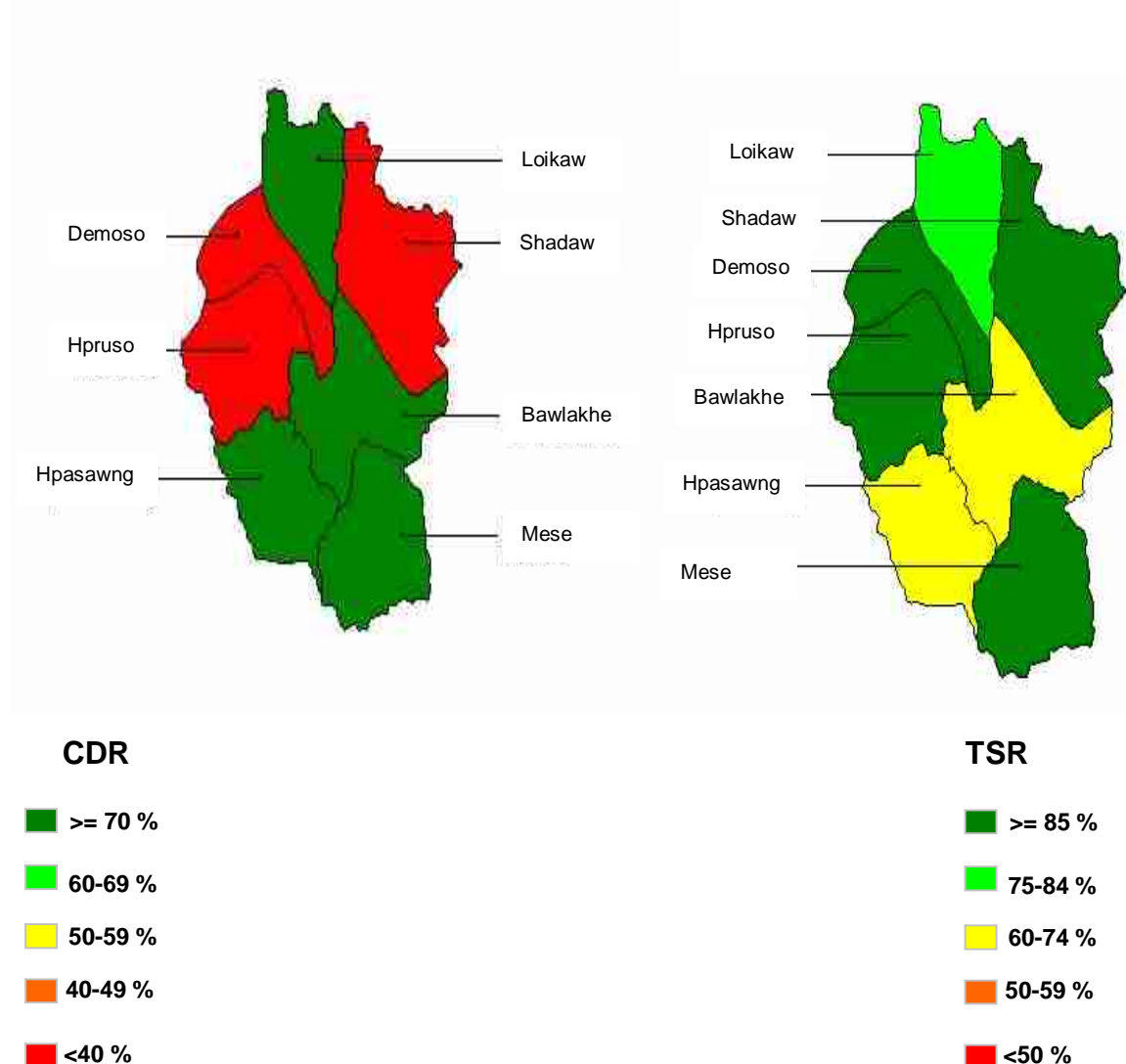


**Table 32. Treatment outcome of TB/HIV patients in Myitkyina township (2008 cohort)**

Type of patients	Cured	Completed	Died	Failure	Defaulted	Transferred out	Total
Smear positive	10	2	4	0	8	2	26
Smear negative		30	20	0	9	7	66
EP		17	6	0	5	1	29
Relapse	1	0	1	1	0	1	4
Other	0	3	2	0	1	0	6

### 10.8.2. Kayah state

Kayah State has 7 townships. The CDR was 60%, CR 63% and TSR 82%. Reporting efficiency was 100%. Masae achieved the TB control targets. Demawsoe, Phruso and Shadaw townships had low CDR less than 40% and Phasaung Township had low CR (18%). Defaulter rate was 7% in Kayah State. 2 townships (Bawlake 33%, Loikaw 8%) out of 7 townships had high defaulter rate. Failure rate and CFR of the State were 4%. Main constraint is vacancy in State TB Officer post.



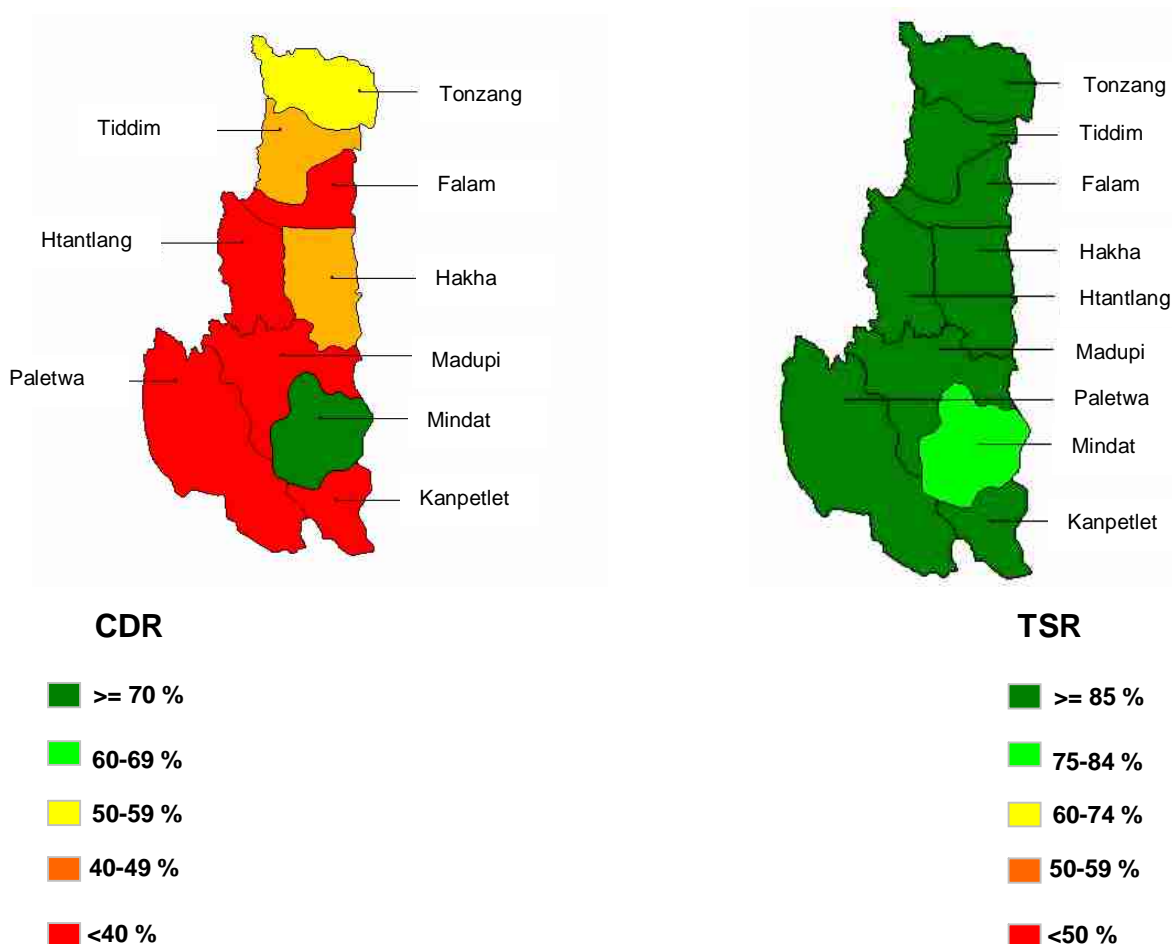
### 10.8.3. Chin state

Chin State has 3 districts with 9 townships. Its population was 5.1 lakhs. 6 townships from Northern Chin State is covered by Sagaing Divisional TB Officer. Palatwa township and Kanpetlet and Matupi townships from Southern Chin State is covered by Rakhine State TB Officer and Magway Divisional TB Officer respectively. The CDR was 40%, CR was 71% and TSR 90%. Reporting efficiency was 100%.

There was no township in Chin State which did not achieve the TB control targets. Out of 9 townships in Chin State, except Mindat township, 6 townships had low CDR. 3 townships with high cure rate were Falam, Hakha and Htantlang townships. The remaining 6 townships had low CDR less than 80%.

Defaulter rate was 3%. 2 townships (Palatwa 8%, Tiddim 7%) out of 9 townships had high defaulter rate. Failure rate and CFR of the State were 2% and 4% respectively.

Main constraint is no sanction of State TB Officer post.

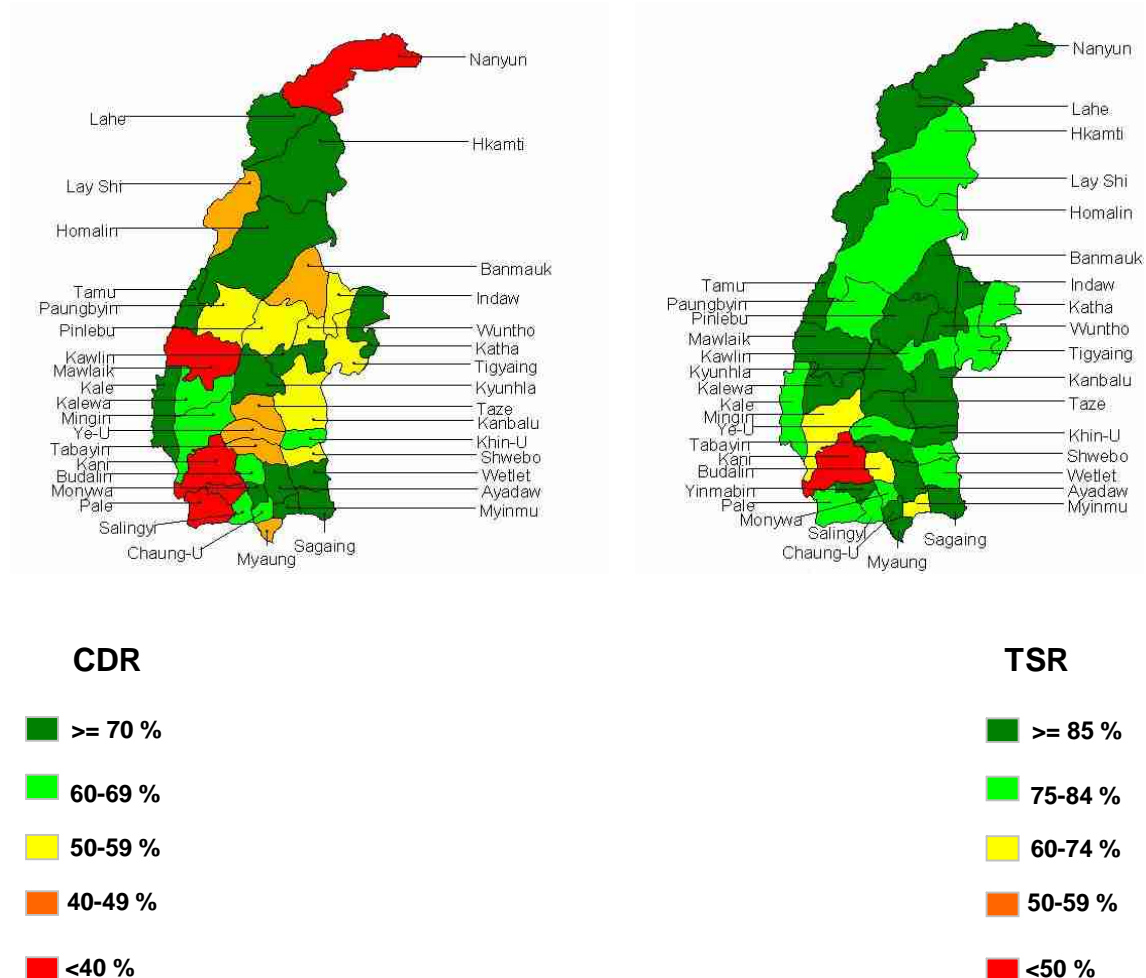


#### 10.8.4. Sagaing Division

Sagaing Divisional TB Centre covers 6 districts with 37 townships in Sagaing Division and 5 townships in Northern Chin State. Population of Sagaing Division was 6.3 millions. Sagaing Division achieved CDR 61%, CR 78%, TSR 85% in 2009. CDR was increased to 70% when contribution of other partners was added. Reporting efficacy was 100%.

4 townships (Myinmu, Kyunhla, Tamu and Lahel) out of 37 townships in Sagaing Division. CDR was higher than 100% in Khamti and Tamu townships.

Low CDR less than 40% was reported in 5 townships: Kani (35%), Pale (33%), Yinmarbin (33%), Mawlaik (24%) and Nanyun (7%). Low CR (=50%) was reported in Kyunhla (44%) and Lashi (50%) townships. Nanyun, Kani, Pale and Mawleik townships was fall in the category of low CDR and low CR.



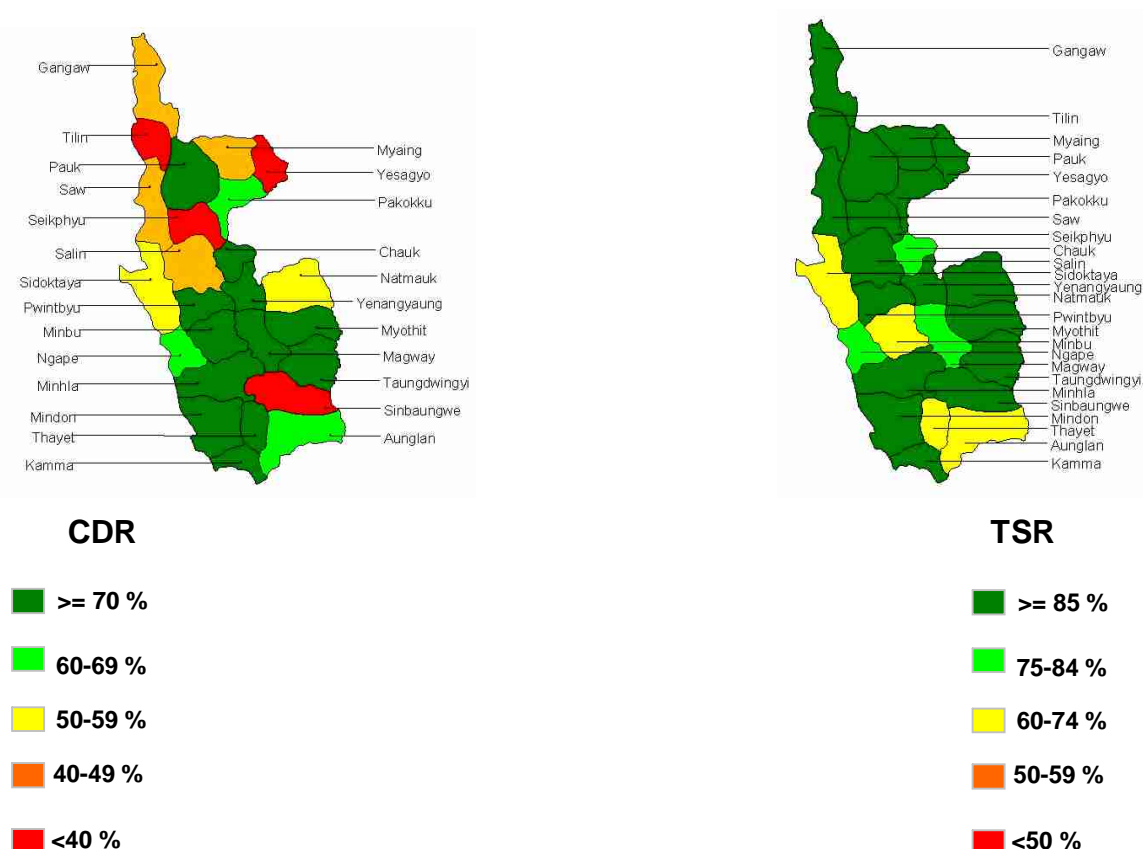
In 2008 cohort, Defaulter rate was 3%, case fatality rate was 8% and treatment failure rate was 3% for Sagaing Division. Defaulter rates were high above 10% only in 1 township in Sagaing Division (Lahel 10%). CFR was high above 10% in Nanyun (14%), Pinlebu (15%), Kawlin (15%), Wetlet (13%), Mongywa (13%), Kyunhla (11%), Salingyi (11%), Paungpyin (11%) and Homalin (10%) townships.

The defaulter rate is decreased from 5% in 2007 cohort to 3% in 2008 cohort in Sagaing Division.

Major problems of Sagaing Division were identified as transportation difficulty for supervision and delay in reporting, human resource shortage and frequent turn over of trained staff, increase work load on divisional TB laboratory for Quality Control.

#### 10.8.5. Magway Division

Magway Divisional TB Centre covers 5 districts with 25 townships in Magway Division. Its population was 4.1 millions. Divisional TB Officer is responsible for 2 townships in Chin State (South). Magway Division achieved CDR 67% and CR 76% and TSR 86%. CDR increased to 80% when contribution of other reporting units was added. Reporting efficiency was 100%.



In Magway Division, 7 townships (Taungdwingyi, Myothit, Yenanchaung, Pauk, Minhla, Kanma and Mindon) achieved the TB control targets. CR of Myaing township was low (47%) and very low in Saytoketayar township (21%). CDR was lower than 40% in 4 townships (Hteelin 33%, Yesagyo 32%, Seikphyu 30% and Sinpaungwe 19%)

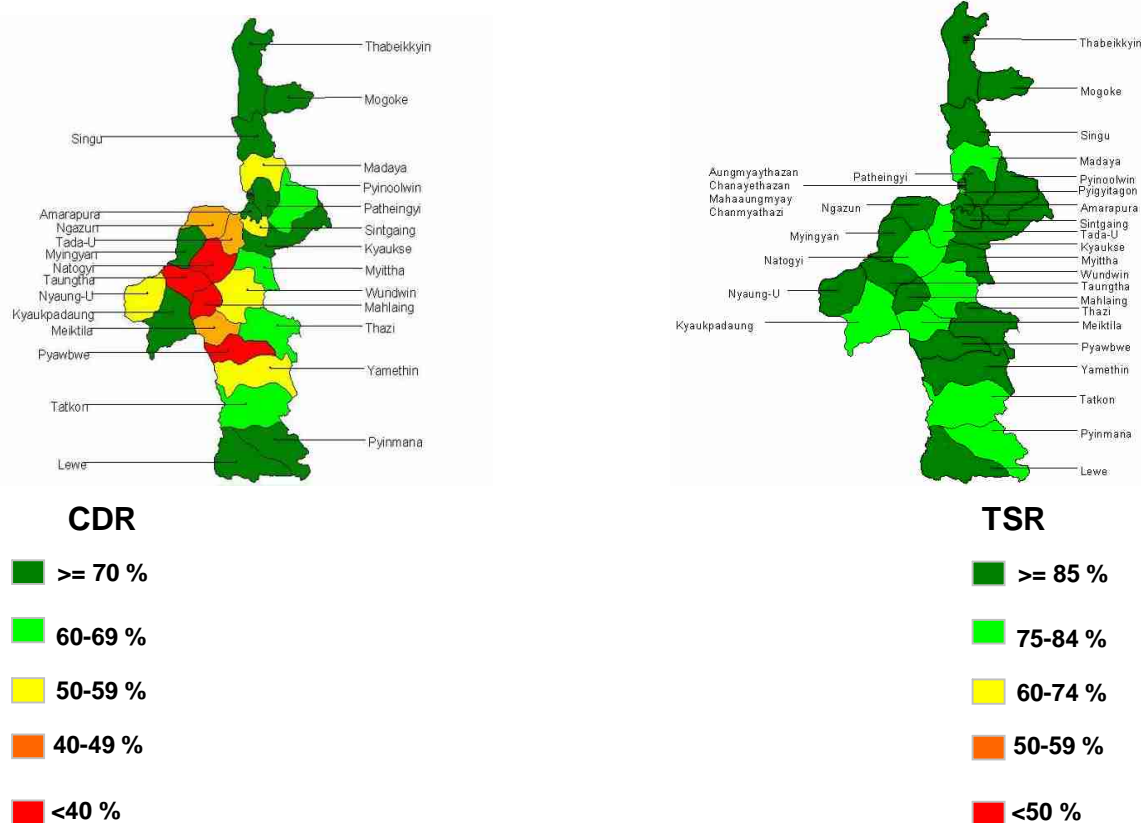
Defaulter rate of Division was 4%. High defaulter rate was in Thayet (16%), Saytoketayar (13%) and Chauk (10%).

CFR for the Division was 6% and it was high in Aunglan (18%), Ngape (13%), Hteelin (13%) and Kamma (10%).

Low community awareness, poor accessibility, transport difficulties, low motivation of staff and geographical terrain were identified as problems for Magway Division.

### 10. 8. 6. Mandalay Division

Mandalay Divisional TB Centre covers 7 districts with 31 townships of Mandalay Division. Its population was 7 millions. Mandalay Division achieved 64% CDR, 81% CR and 86% TSR. Reporting efficacy was 100% in Mandalay Division. If the other reporting units were added CDR increased to 82%.



8 townships out of 31 townships achieved the TB control targets. 6 townships got CDR less than 40% (Meikhtilar, Mahlaing, Natogyi, Taungtha, Pyawbwe, Tadaoo).

Defaulter rate of the Mandalay Division was 3%, however it was high above 10% in Pyinmana township. Failure rate was high above 5% in Madayar. Case fatality rate was 7% for Mandalay Division. CFR high above 8% in Meikhtila, Pyinmanar, Yamethin, Madayar, Kyaukpadaung, Myingyan, Wundwin, Tadaoo and Pyigyidagon townships. Meikhtila township had a high transferred out problem ( $>5\%$ ).

Problems were identified as frequent turn over of trained staff, human resource shortage and inconsistent population data to be used for target setting and monitoring purpose.



**Table 33. Performance of Tuberculosis Diagnostic Centre, Mandalay in 2009**

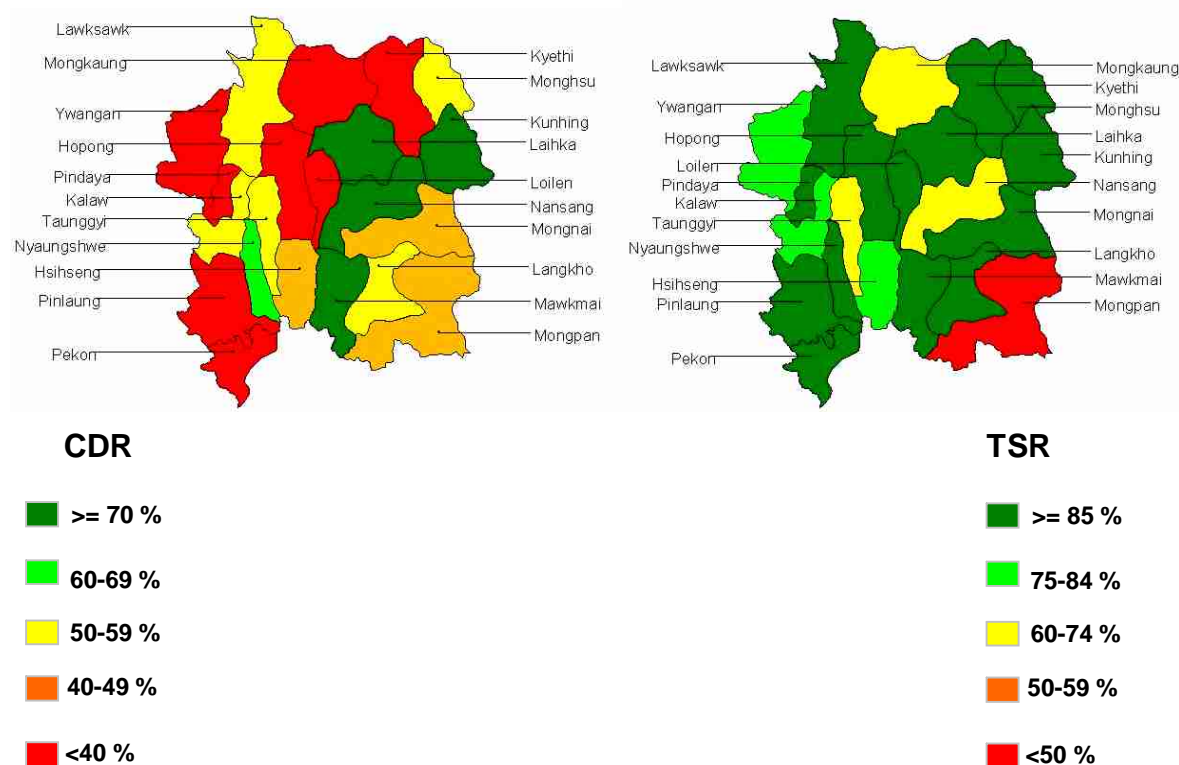
Month	New cases			Follow-up	Total
	0-14 year	>15 above	Total		
January	50	369	419	533	952
February	64	415	479	738	1217
March	91	450	541	829	1370
April	75	326	401	532	933
615May	91	401	492	481	973
June	107	468	575	615	1190
July	187	394	581	711	1292
August	147	403	550	741	1291
September	156	420	576	782	1358
October	120	393	513	729	1242
November	113	377	490	641	1131
December	69	390	459	659	1118
<b>Total</b>	<b>1270</b>	<b>4806</b>	<b>6076</b>	<b>7991</b>	<b>14067</b>

Mandalay District is implementing the "Integrated HIV care" Project with the support of MoH (NTP and NAP together with Medical Care unit of Mandalay General Hospital), Union and Yadana oil company.

### 10.8.7. Shan State (South)

Shan State (South) TB Centre covers 2 districts with 21 townships of Southern Shan State. Its population was 2.1 millions. Southern Shan State achieved **49%** CDR, 76% CR and 86% TSR. Reporting efficacy was 100%. If the other reporting units were added CDR increased to 51%.

In Southern Shan State, only Maukmae, Kunhein and Laikha townships achieved the TB control targets. Out of 21 townships 8 townships were lower than CDR 40% (Loilem, Kyeethi, Mongkaing, Hopone, Hpekon, Pindaya, Pinlaung and Ywangan townships). Out of them, only Mongkaing township had treatment success rate lower than 80%. Defaulter rate was 5% for Southern Shan State. It was high in 6 townships namely, Loilem, Mongkaing, Namsan, Taunggyi, Hpekone and Hsiseng townships. Case fatality rate was 7% and it was higher than 8% in Maukmae, Hopone, Hsiseng, Kalaw, Yaksauk and Ywangan townships. Failure rate was 2% for Shan State (South). Problems identified in Southern Shan State were low case detection rate, high case fatality rate, high defaulter rate, vacancies of laboratory technicians, transport difficulties and language barriers.



Taunggyi Township is implementing the TB/HIV collaborative activities. TSR of HIV positive, new smear positive TB patients was 57%.

**Table 34. Treatment outcomes of TB/HIV patients**

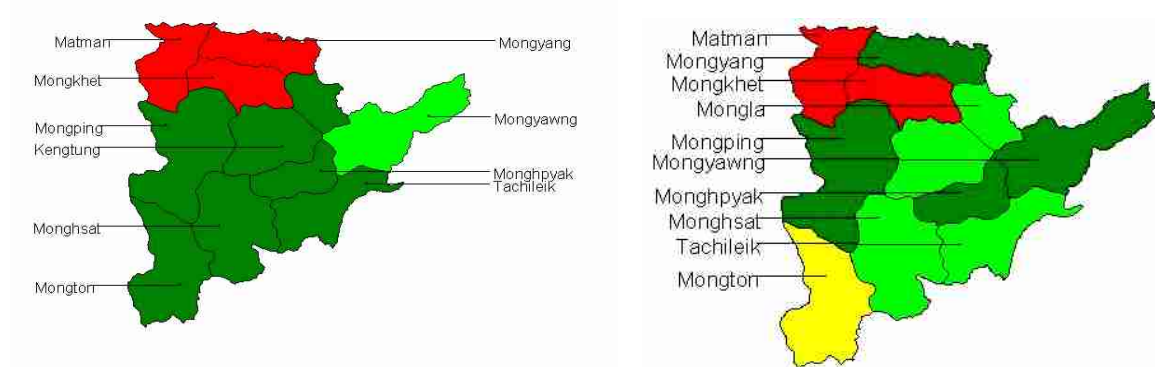
Type of Patients	Cured	Completed	Died	Failure	Defaulted	Transferred out	Total
Smear positive	3	1	3	0	0	0	7
Smear negative		8	0	0	9	0	23
EP		3	1	0	0	0	4



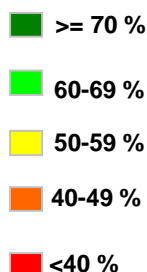
### 10.8.8. Shan State (East)

Shan State (East) TB centre covers only Shan State (East) and it has 4 districts and 10 townships. Total population of the State was 7.1 lakhs. It achieved CDR 90%, CR 70% and TSR 84%. Reporting efficacy was 90%. There was no report from Matman. CDR was increased to 90% when contribution of other reporting units was added.

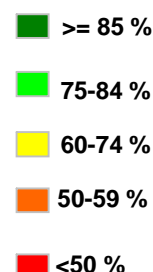
Two townships (Mongping and Monpyak) achieved the NTP targets. Number of townships achieved the targets was reduced from 4 townships to 2 townships compared to 2008. Mongkhat and Mongyan townships got CDR less than 40%.



#### CDR



#### TSR

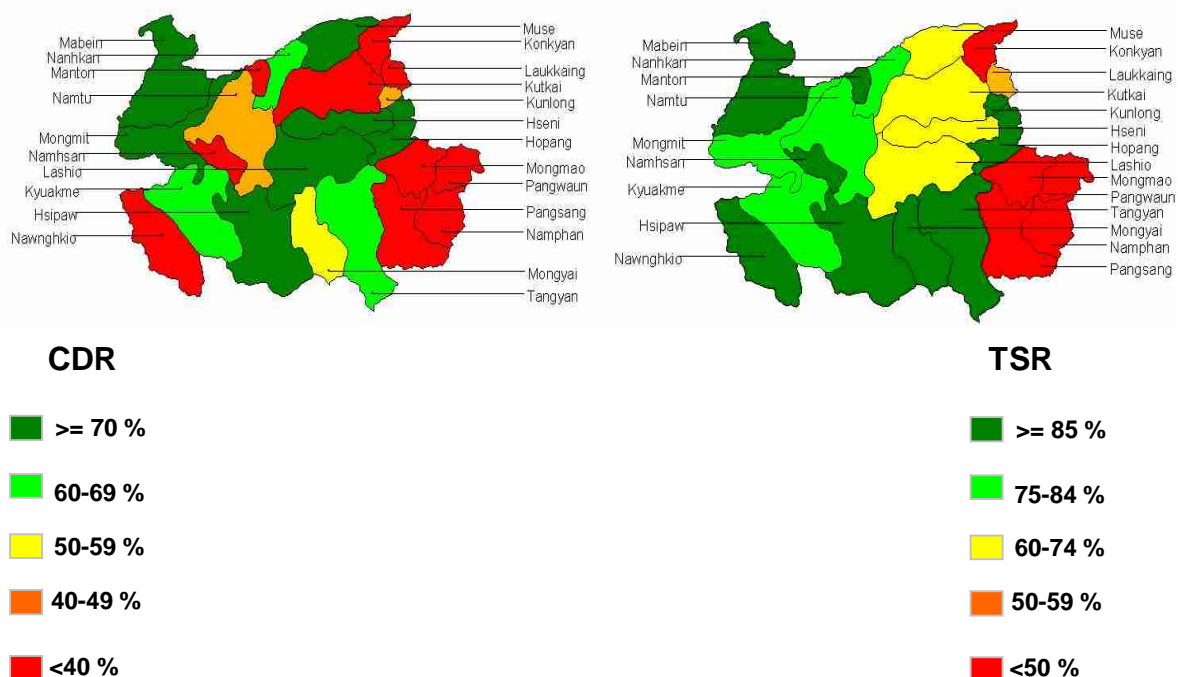


Defaulter rate of the State was 8% and it was higher than 10% in Mongpying (12%), Mongton (29%) and Mongyaung (14%) townships. Case fatality rate of the State was 3%.

Problems identified were shortage of human resources, weak in case finding and case holding, frequent transfer of health staff, language barrier, difficulties in transportation, low community awareness about TB and narrow drug store and lack of X-ray machine for State TB center.

### 10.8.9. Shan State (North)

Shan State (North) TB Centre covers 5 districts with 24 townships of Shan (North) State. Its population was 2.7 millions. It achieved CDR 55%, CR 69% and TSR 80% in 2007 cohort. The CDR increased to 80% when contribution of other reporting units was added. Reporting efficiency was 79% (19/24). NTP did not receive the reports from Kongyan, Panwine, Mongmaw, Manphant and Narphant townships.



Hopan, Hsipaw and Mabein townships achieved the TB control targets. Only Pangyan township was identified as low CDR and low CR township. There were 5 townships (Naungcho 35%, Namsam 35%, Kutkai 28% and Mantong 27%) having low CDR.

Defaulter rate was 11% for the whole State. The defaulter rate was high =10% in 7 townships ( Pangyan 55%, Laukkaing 27%, Lashio 23%, Kutkai 18%, Muse 17%, Namkham 15% and Theinni 14% ) Case fatality rate for the state was 5% and CFR was high above 10% in Namtu (13%) and Theinni (11%) townships.

The main problems were low CDR, low CR and high defaulter rates.

TB/HIV collaborative activities were started in 2007 and the treatment outcomes of the detected TB/HIV patients were reported.

**Table 35. Treatment outcomes of TB/HIV patients**

Type of Patients	Cured	Completed	Died	Failure	Defaulted	Transferred out	Total
Smear positive	6	0	1	2	5	0	14
Smear negative		8	2	0	7	0	17
EP		2	0	0	0	0	2

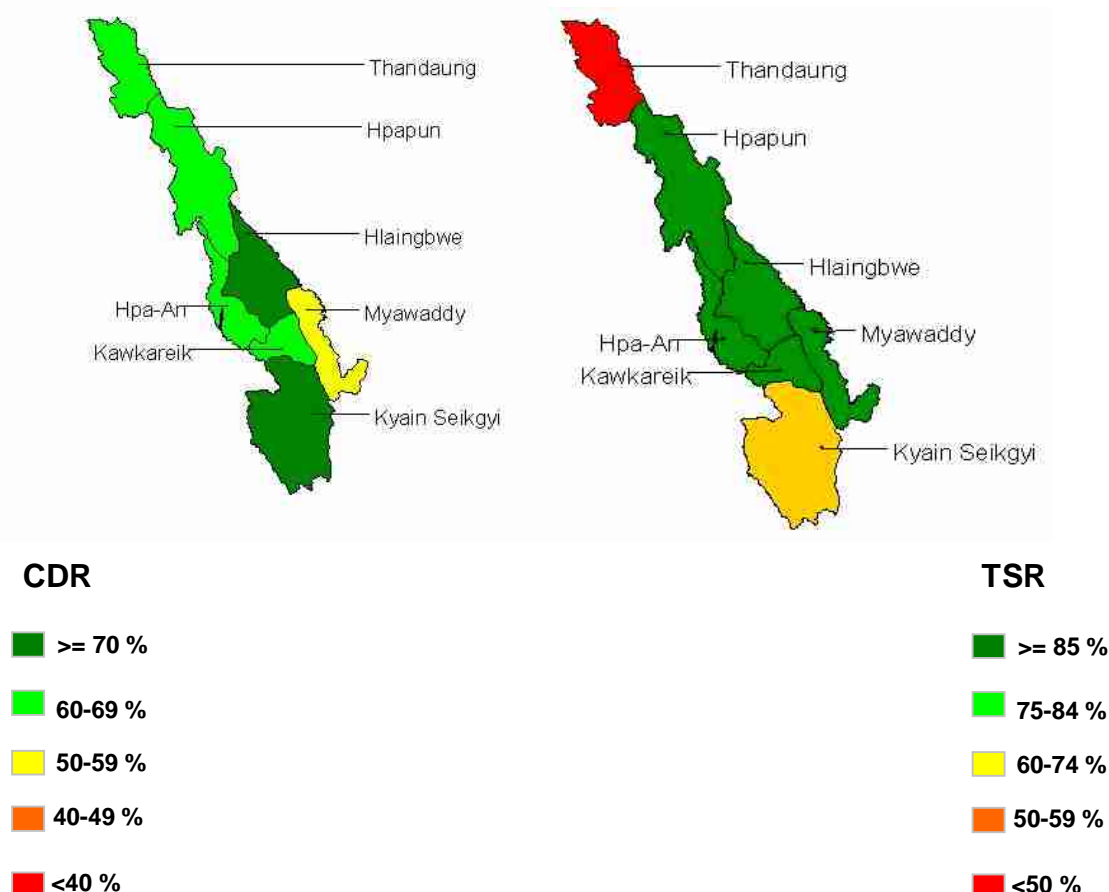
### 10.8.10. Kayin State

Mon State TB Centre covers Mon State and Kayin State: 2 districts in Mon State with 10 townships and 3 districts in Kayin State with 7 townships. Therefore, DOTS is implementing in 17 townships. The population of Kayin State was 1.5 millions.

Kayin State achieved CDR 92%, CR 76% and TSR 83%. Reporting Efficacy was 100% in both States. CDR of Kayin State increased to 97% when contribution of PPM –DOTS was considered.

For Kayin State, no township reached the TB control targets. 4 townships (Kawkareik, Kyarinnseikkyi, Hlaingbwe and Thandaung townships) had low CDR. Defaulter rate of Kayin State was 4% and high above 10% in only one township in Thandaung (13%).

The main problem of Kayin State was low case detection rate. Special attention should be provided to Myawaddy, Kawkareik and Thandaung townships of Kayin State to improve the overall performance of Kayin State.



### 10.8.11. Tanintharyi Division

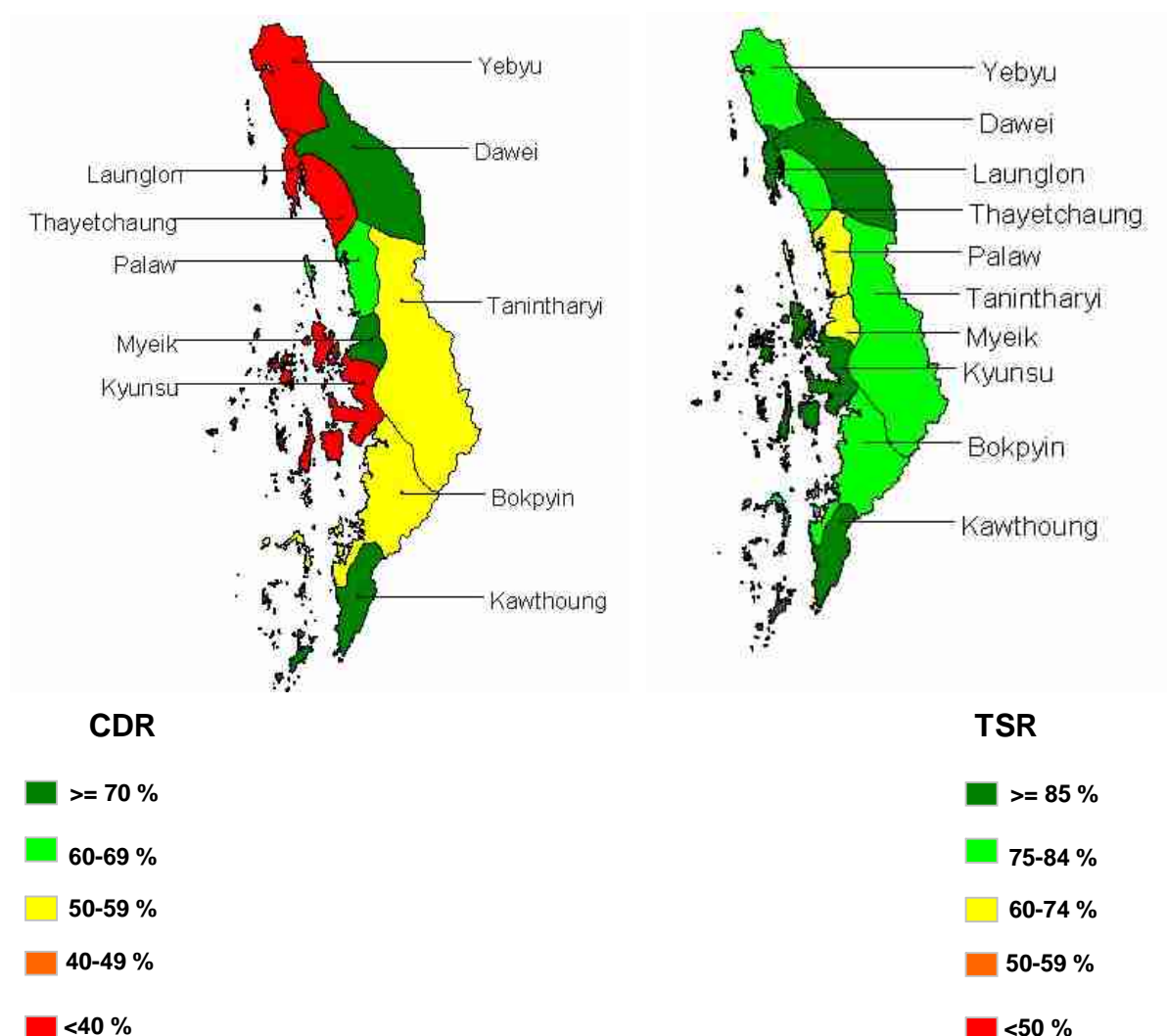
Tanintharyi Divisional TB Centre covers only 3 districts with 10 townships of Tanintharyi Division and its population was 1.6 millions. It achieved CDR 72%, CR 74% and TSR 79%. CDR was increased to 75% when contribution of other reporting units was added. Reporting Efficacy was 100%.

Dawei and Kawthaung townships achieved the TB control targets. Longlon, Thayetchaung, Yebyu and Kyunsu townships were identified as low CDR townships. CR was low below 55% only in Palaw township.

Default rate was 9% for the division and Palaw ( 26%), Bokepyin (15%) and , Thayetchaung (11%) were having defaulter rate =10%.

Transfer out rate in Taninthayi division was 7% and the highest transfer out rate 15% was only in Myeik.

The main problems of Taninthayi Division were low community awareness, low CDR, CR and high defaulter rate.



### 10.8.12. Bago (East) Division

Bago Divisional TB Centre covers Bago (East) and (West) Divisions totally 28 townships.

Divisional TB Officer is responsible for 4 districts in Bago (East) and Bago (West) with 14 townships in each division.

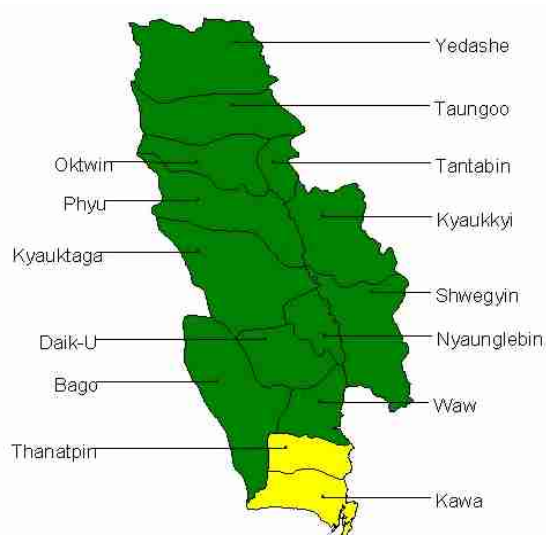
Total population was about 2.8 millions in Bago (East) Division.

It achieved CDR 82%, CR 78%, and TSR 87%. Reporting efficacy of the division was 100%. CDR of Bago (East) Division was increased to 103% when other reporting units were added .

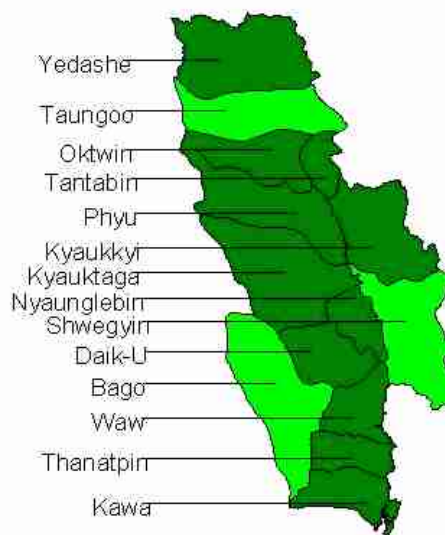
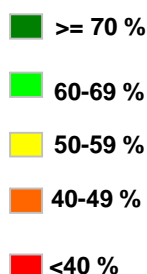
Seven townships ( Daik U, Kyauktagar, Thanapin, Waw, Kyaukkyi, Phyu and Yedashe) from Bago (East) Division were achieved the TB control targets. There was no township with low CDR and low CR in Bago (West) Division.

Defaulter rate was 6% in Bago (East) division. It was higher than 10% in Shwekyin township (11%). Case fatality rate was 5% in Bago (East) Division and it was 11% in Oktwin.

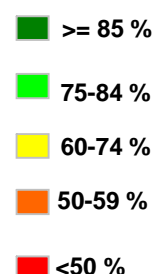
Bago (East) division identified transfer of trained health staff, poor motivation of health staff, low community awareness about TB and TB treatment and transport difficulties for supervision as problems.



**CDR**



**TSR**



### 10.8.13. Bago ( West) Division

Bago Divisional TB Centre covers Bago (East) and (West) Divisions totally 28 townships.

Divisional TB Officer is responsible for 4 districts, 2 each in Bago (East) and 2 each in Bago (West) with 14 townships in each division. Total population was 2 millions in Bago (West) division.

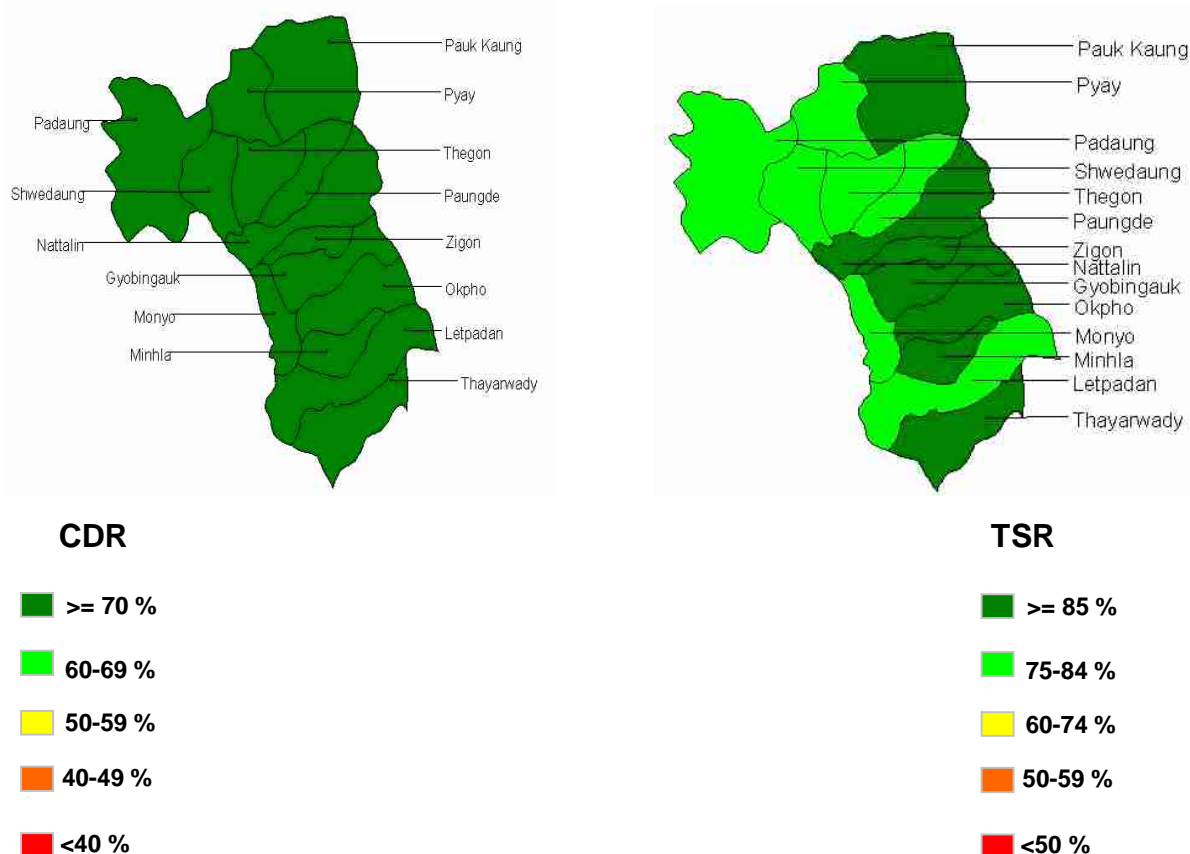
Only District TB Centre is located in Bago (West) division and has 2 districts with 14 townships. It achieved CDR 105%, CR 80%, and TSR 85%. Reporting efficacy of the division was 100%. CDR of Bago (West) Division was 105% for NTP and increased to 114% when other reporting units were added .

Seven townships (Paukkaung, Tharyarwaddy, Zegone, Minhla, Okkpo, Gyobinkyauk and Nattalin) from Bago (West) Division were achieved the TB control targets.

There was no township with low CDR and low CR in Bago (West) Division.

Defaulter rate was 3% Bago(West) division. It was higher than 10% in Thegon township (11%). Case fatality rate was 8% in Bago (West) Division and it was about and above 10% in Pyay, Paukkaung, Paungde, Padaung, Shwedaung and Moenyo Townships.

Bago (West) Division identified transfer of trained health staff, poor motivation of health staff, low community awareness about TB and TB treatment and transport difficulties for supervision as problems.





#### 10.8.14. Mon State

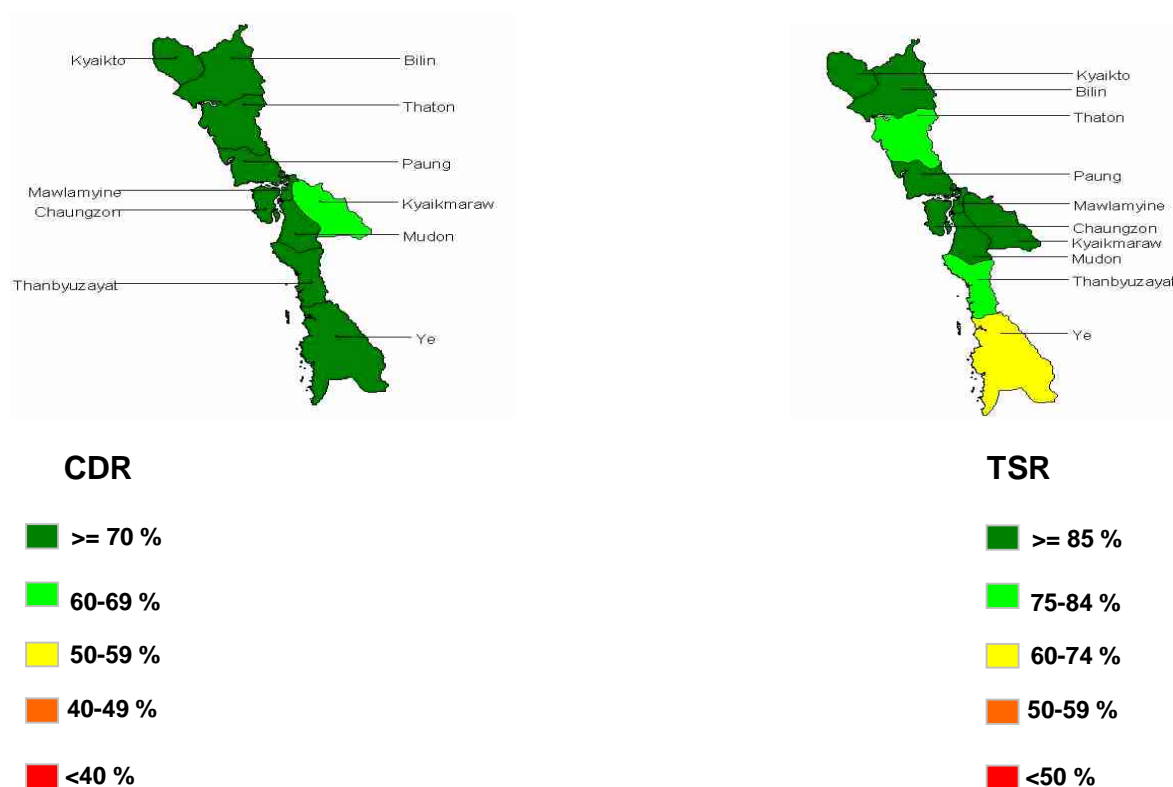
Mon State TB Centre covers Mon State and Kayin State: 2 districts in Mon State with 10 townships and 3 districts in Kayin State with 7 townships. Therefore, DOTS is implementing in 17 townships. The population of Mon State was 1.5 millions.

Mon State achieved CDR 114%, CR 81% and TSR 85%. CDR of Mon State increased to 129% when contribution of PPM –DOTS was considered.

6 townships (Mawlamyaing, Chaungzon, Mudon, Belin, Kyaikhto and Paung) from Mon State achieved the TB control targets. Defaulter rate of Mon State was only 5%. Case fatality rate of Mon State was 6%. Case fatality rate over 10% is found in Ye township only (11%).

The main problem of Mon State was high case fatality rate. Special attention should be provided to Ye, Kyaikmaraw and Thanphyuzayak townships.

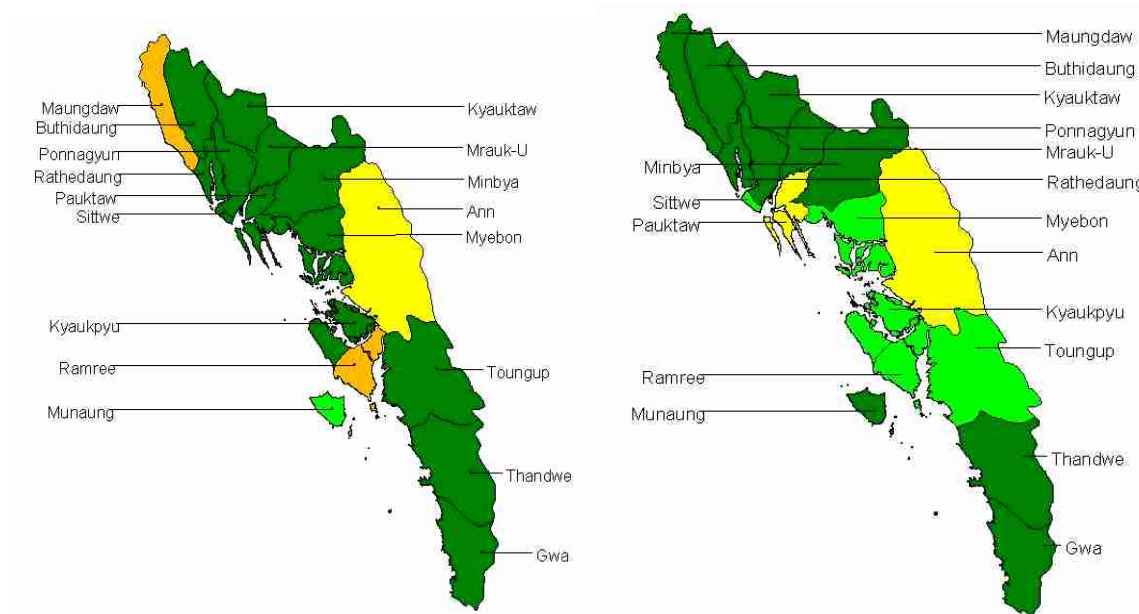
The new X-ray machine funded by GFATM has been installed and now it is well functioning in Mon State.



### 10.8.15. Rakhine State

Rakhine State TB Centre covers Rakhine State and DOTS is implementing in 17 townships. It achieved CDR 87%, CR 74% and TSR 86%. Reporting efficacy was 100%. CDR was increased to 91% when the contribution of partners was added.

8 townships (Buthetaung, Rathedaung, Kyauktaw, Minbya, MyaukU, Ponnagyun, Thandwe and Gwa) out of 17 townships achieved TB control targets.



**CDR**

**TSR**

Defaulter rate of Rakhine State was 5%. There were high defaulter rate above 10% in 3 townships: Pauktaw (33%), Ann (27%) and Myebon (15%). Case fatality rate was 6% in Rakhine State and over 5% case fatality rate was observed in 8 townships: Kyaukphyu, Yanbye, Maungdaw, Buthidaung, Sittwe, MyaukU, Myaybon, Thandwe and Taunggup townships. Although failure rate of Rakhine State was 2%, failure rate over 2% was found in 3 townships: Yambye, Maungdaw and Sittwe townships.

The main problem of Rakhine State was high defaulter rate, high case fatality rate and high failure rate. Special attention should be provided to Yambye, Maungdaw, Pauktaw and Ann townships. Rakhine State TB Officer is also responsible for Palettwa township of Chin State.

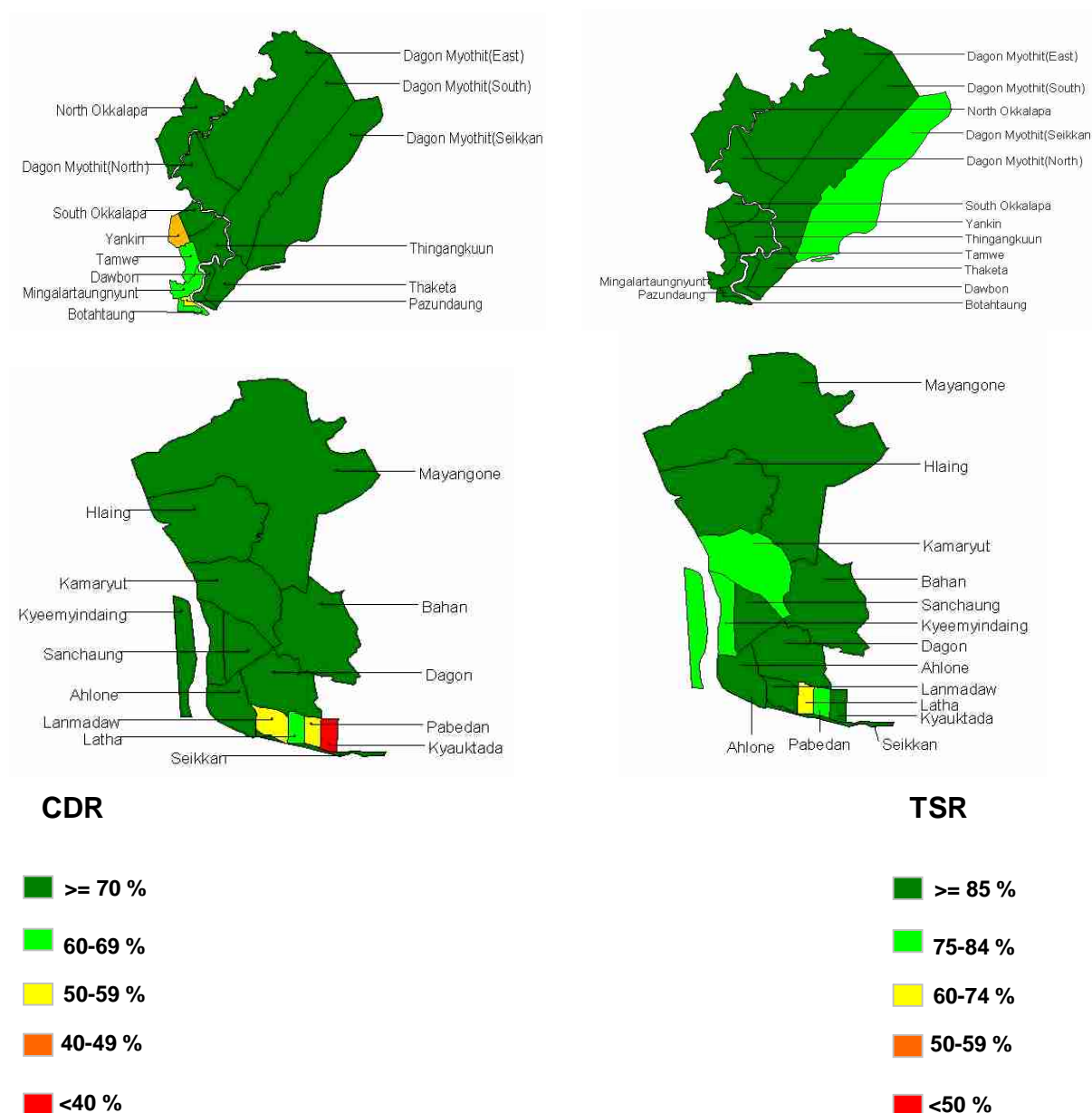


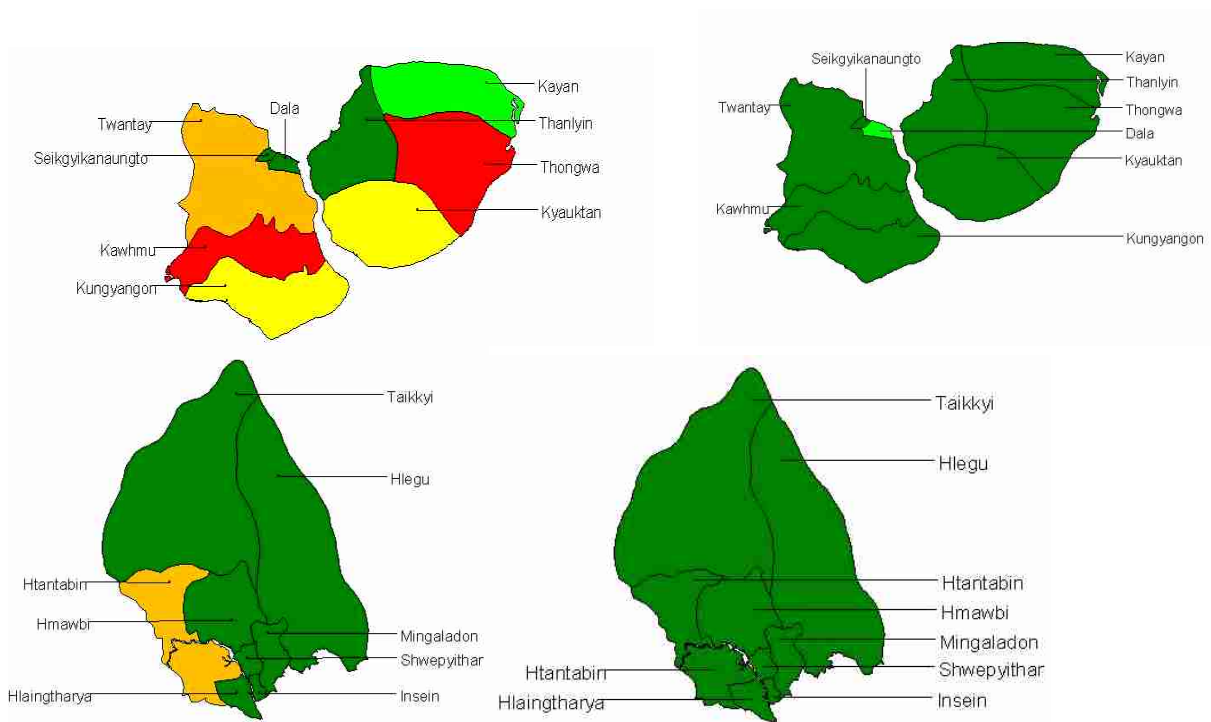
### 10.8.16. Yangon Division

Yangon Divisional TB Centre covers 4 districts with 45 townships of Yangon Division. Its population was 5.8 millions. It achieved CDR of 85% and if added the contribution of other reporting units CDR increased to 110%. Cure rate and TSR increased to 81% and 89% compared to previous years. Reporting efficacy was 100%.

The estimated new smear positive TB patients were calculated with 170/100,000 population based on the Yangon Divisional TB Prevalence Survey results (2006). 4 townships: Kyauktada, Kawhmu, Twantay, Thongwa and Cocogyun townships (CDR <40%) were needed to improve the case finding activities. Only 19 townships: Dawbon, Dagon(North), Thaketa, Thingungyun, Yankin, Dagon(East), Seikkan, Dagon, Bahan, Mayangone, Hlaing, Ahlone, Thanlyin, Seikkyikhanaungto, Mingalardone, Shwepyithar, Hlaingthayar, Hmawbi and Hlegu townships achieved the both targets in 2009.

Defaulter rate was reduced to 3% from 13% in 2003 cohort. Although Case fatality rate was 4% in Yangon Division, high (=5%) in 10 townships: Dagon (North), Thingungyun, Kamaryut, Kyimyindine, Dagon, Lanmadaw, Ahlone, Dallah, Kungyangone and Taikkyi townships.





## Tuberculosis Diagnostic Centre (Yangon)

Referred TB suspects increased in 2009 in both Aungmye and Latha diagnostic centers.

**Table 36. Case load of TB Diagnostic Centers in Yangon Division in 2009**

Month	Referred TB suspects		New		Follow-up		Total	
	UTI	Latha	UTI	Latha	UTI	Latha	UTI	Latha
January	659	535	281	243	572	984	1609	1309
February	663	493	275	219	557	905	1608	1199
March	646	439	274	207	614	947	1629	1228
April	492	373	261	170	617	786	1438	1038
May	731	433	223	235	568	916	1712	1202
June	738	472	260	218	487	893	1576	1158
July	820	522	280	242	522	1164	1734	1346
August	749	608	286	281	476	1193	1612	1312
September	770	553	307	253	473	1187	1663	1436
October	747	566	288	245	531	1156	1691	1539
November	698	663	261	305	442	1213	1533	1647
December	668	542	244	250	456	1114	1473	1528
<b>Total</b>	<b>8381</b>	<b>8314</b>	<b>2350</b>	<b>2868</b>	<b>6315</b>	<b>12458</b>	<b>19278</b>	<b>15942</b>

## JICA (MIDC) project supported “Half year TB evaluation meeting”, Yangon.

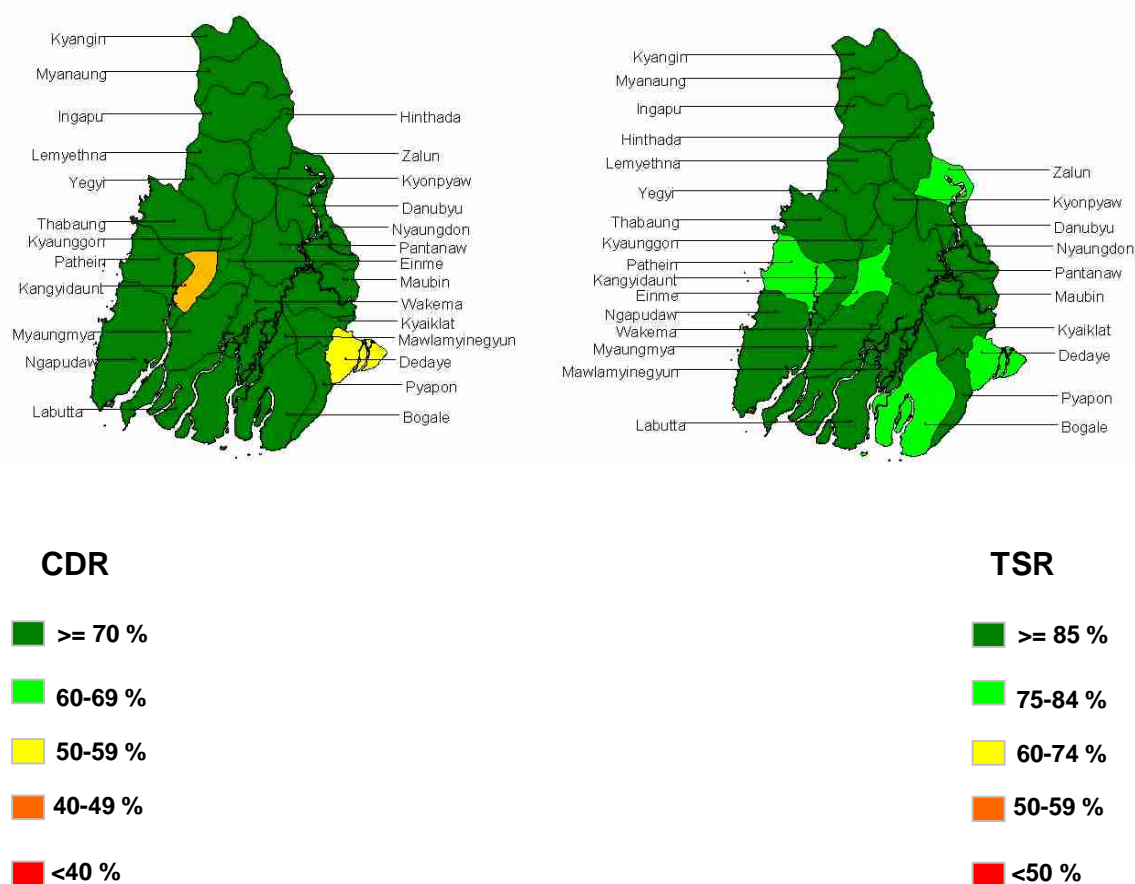
Problems identified in Yangon Division were low CDR in townships mostly in South and West Districts and no laboratory in (14) townships of Yangon Division. Major errors were repeated found in South Okkalapa and Dagon (North) townships.

### 10.8.17. Ayeyarwaddy Division

Ayeyarwaddy Divisional TB centre covers only Ayeyarwaddy Division which has 5 districts with 26 townships. Total population of the division was about 6.5 millions. It achieved CDR 92%, CR 81% and TSR 88%. Reporting efficacy was 100%. CDR increased to 102% when other reporting units were added.

Seventeen townships achieved the TB control targets. Number of townships achieved the targets was increased from 16 townships to 17 townships compared to 2008. Out of 26 townships, Dedaye township got CDR <40% and Kangyidauk got CDR 40%. Defaulter rate of Ayeyarwaddy Division was only 4% and Zalun township was high above 10% in 2008 cohort. Case fatality rate for the division was 6% and CFR of Bogalay, Laputta and Nyaungdone townships were above 10%.

Performance of Ayeyarwaddy division is recognized as the best among 17 States and divisions although the performance could be affected due to cyclone Nargis. Problems identified were delay sending of QC slides and weak supervision of BHS.



## **10.9 Possible actions to be taken for the problems**

### **A. Case Detection Rate less than 40%**

- to promote community awareness by widespread health education concerning TB with the support of IEC materials
- to educate family members of TB patients and promote contact tracing
- to advocate TB control activities to general practitioners and local NGOs and try to involve them
- to advocate community and registered TB patients to involve in TB control
- to promote early case referral for diagnosis and treatment from GPs
- to assess the laboratory performance, to ensure 3 sputum smear examinations are being done for all chest symptomatic
- to ensure all smear positive TB patients in the laboratory register are registered and treated
- to ensure that sputum microscopy is accessible to patients with trained laboratory technicians in place
- to improve laboratory quality assurance system and involve TMOs in laboratory supervision
- to establish sputum collection points in hard to reach areas
- to improve the skills of health staff who diagnose the TB patients
- to promote TB suspect identification and referral by BHS
- to identify TB suspected patients as early as possible

### **B. Cure Rate less than 50% in new smear positive TB cases**

- to strengthen health education session for TB patients at the time of registration for treatment and during follow up visits for sputum microscopy
- to provide TB counseling to TB patients especially for treatment adherence
- to ensure every dose of medication is directly observed ie. to assign DOT provider for every TB patient put on treatment
- to intensify the follow-up sputum examination during and at the end of treatment
- to take accurate history taking for the most effective treatment.
- to give refresher training to DOT supervisors and DOT providers if required
- to consider HIV co- infection
- to use quarterly cohort review meeting for early identification of missed dose patients
- to closely monitor the performance of partners at all level and take timely action especially for partners treating TB/HIV

**C. Cure Rate less than 50% and Case Detection Rate less than 40%**

- to treat TB patients till cured with DOTS and raise the Cure rate first and then to raise the case detection rate according to suggestions A and B.

**D. CDR more than 100% and Cure Rate less than 50%**

- to assess laboratory quality assessment system is implementing or not
- to ensure that TB patients reside in the respective township are being treated
- to treat TB patients till cured with DOTS
- to do regular sputum follow-up examination during the treatment which is the responsibility of DOT providers and supervisors of TB patients
- to check the township actual population
- to evaluate the current situation of TB in terms of prevalence of sputum smear positive TB cases in that particular township and how much it deviates from the national figure (1 sputum positive TB cases per 1000 population)
- to conduct epidemiological surveillance

**E. Cure Rate >85% with Case Detection Rate less than 40%**

- to maintain CR and raise the CDR as suggestion A.

**F. Sputum Positivity Rate less than 10%**

- to ensure 3 sputum specimens are examined for all TB suspects
- to check the TB suspect definition is followed or not
- to check quality of laboratory performance
- to check quality of stains and microscopes using in that microscopy centre
- to improve the accessibility of TB suspects to sputum microscopy centers

**G. Sputum Positivity Rate more than 10%**

- to evaluate the prevalence of TB in that particular township
- to improve the accessibility of TB suspects to sputum microscopy centers

**H. Sputum Conversion Rate less than 80-85% in new smear positive TB cases**

- to explain all the staff involving in TB control about the importance of follow-up sputum examination in TB control
- to ensure sputum microscopy accuracy with quality assurance system

- to check that every dose of medication is directly observed
- to check categorization of TB patients based on proper history taking is correct or not
- to check correctness of TB-07, Block 5
- to provide qualified DOT to every patient
- to monitor the drug resistant TB situation

**I. Death Rate more than 5% in new smear positive TB cases**

- to identify TB suspect as early as possible and refer
- to advocate local GPs and encourage more prompt referral for diagnosis and treatment
- to ensure that every dose of medication is directly observed
- to consider HIV prevalence among TB patients
- to find out other causes of death other than TB

**J. Treatment Failure Rate more than 5% in new smear positive TB cases**

- to check categorization of TB patients based on proper history taking is correct or not
- to ensure the quality of anti-TB drugs, stored in appropriate condition and being used before their expiry date
- to ensure that every correct dose of medication is directly observed, especially in initial phase
- to consider level of primary drug resistance in the community

**K. Defaulter Rate more than 10% in new smear positive TB cases**

- to strengthen DOT by supervision and close monitoring
- to educate TB patients concerning TB disease, its treatment and follow-up
- to provide adherence counseling as necessary
- to instruct the DOT supervisors and providers how to take action for patient with missed dose
- to find the patients with missed dose within 1 week (not to miss more than 1-2 doses) and put under DOT again.

**L. Transferred out Rate more than 5% in new smear positive TB cases**

- to ensure defaulted TB patients are not counted as transferred out cases
- to ask for the treatment outcome of transferred out patient

**M. Cure Rate less than 50% but Treatment Success Rate more than 70% in new smear positive cases**

- to intensify follow-up sputum examination as 2<sup>nd</sup> , 5<sup>th</sup> and 6<sup>th</sup> month of treatment in new smear positive Category I TB patients
- to explain all the staff involving in TB control the crucial importance of follow-up sputum examination in TB control
- to make sure defaulted TB patients are not counted as completed TB patients and misuse of anti-TB drugs

**N. Proportion of new smear positive TB patients out of all pulmonary TB cases is less than 55%**

- to check direct sputum microscopy is used as a diagnostic method or not
- to check 3 sputum smear examinations are being done on all chest symptomatic
- to check quality assessment system of laboratory performance



### **11.1 Recommendations**

1. To mobilize the resources for uninterrupted qualified drug supplies
2. To scale up decentralization of DOTS services to appropriate SHU/RHCs
3. To develop Advocacy, Communication and Social Mobilization (ACSM) strategy appropriate for the Myanmar community
1. To evaluate the activities which promote TB case finding especially in hard to reach area and plan for scale up
2. To evaluate the defaulter reduction actions and scale up in townships with high defaulter rate
3. To evaluate and scale up the prevention and control activities for TB/HIV co-infection and MDR-TB
4. To scale up on Public-Private Mix and strengthen the public-public Mix
5. To review and revise the national guidelines according to new strategy
6. To cover private laboratories including which are using by PPM-DOTS under the external quality assurance system of NTP
7. To deploy the important posts which are not sanctioned in NTP: X-ray technicians in all State/Divisional TB centers, one pharmacist each for central, Upper and Lower Myanmar TB stores.
8. To strengthen coordination mechanism related to TB control at all levels

### **11.2 Conclusion**

NTP, Myanmar covered all the townships since November, 2003. NTP achieved case detection rate 95% and cure rate 78% (treatment success rate 85%) in 2009 and reached the global TB control targets since 2006. The achievement should be sustained by implementing innovative approaches in line with Stop TB Strategies and Millenium Develoment Goals, according to the accessibility status of different location in the country. The National TB Prevalence Survey was conducted in June 2009, aiming to measure the magnitude of TB in our country. If we know the actual prevalence of TB, target setting will be changed from current situation and case detection rate will be one third or half of our achievement. Therefore, we must try to improve our case finding activities by innovative approaches. The townships, which have not reached the targets, should scale-up their effort with appropriate and innovative strategies. In conclusion, improvement of coordination with the partners is also important to maintain the achievement.

**NTP (Central) Drug Store Balance (2009)**

**(Annex 1)**

<b>NTP (Central) Drugs (2009)</b>		<b>4FDC</b>	<b>2FDC</b>	<b>ETB</b>	<b>ETB</b>	<b>PZA</b>	<b>S 1 G</b>	<b>S/N</b>	<b>D/W</b>	<b>R150</b>	<b>Cat I Kit</b>	<b>Cat II Kit</b>	<b>Ped HRZ</b>	<b>Ped HR</b>	<b>Ped HRZ</b>	<b>Ped HR</b>
<b>Packing Size</b>		672's	672's	672's	100's	672's	50's	100's	100's	100's	1's	1's	1000's	1000's	90's	90's
<b>Opening Balance</b>		6693	32795	1442	0	6928	5020	980	420	0	5961	0	660	1488	0	0
<b>Received</b>		10391	25379	2990	15028	0	10289.6	7696	7500	220	45000	0	0	0	63717	128124
<b>Issued</b>		13310	44299	4432	15028	6928	12170.6	6096	4839	220	16452	0	660	1488	61303	109756
<b>Closing Balance</b>		3774	13875	0	0	0	3139	2580	3081	0	34509	0	0	0	2414	18368
<b>Expiry Date</b>	4/2011										6477					
	5/2011	437														
	6/2011										20927				2414	
	8/2011															18368
	12/2011		13875													
	2/2012	3337														
	3/2012						1027				7105					
	4/2012						2112									
	11/2012							1880								
	5/2013							700								
	11/2013								3081							

**Lower Myanmar Drug Store Balance (2009)**

(Annex 1)

Lower Myanmar Drugs (2009)		4FDC (Tab)	2FDC (Tab)	ETB (Tab)	PZA (Tab)	S 1 G (Vial)	S/N (Pcs)	D/W (Amp)	Cat I Kit (Kit)	Cat II Kit (Kit)	Ped HRZ (Tab)	Ped HR (Tab)	INH 300mg (Tab)
<b>Opening Balance</b>		2037504	6785856	583968	682080	112100	112600	110800	4754	0	25650	65520	0
<b>Received</b>		6237504	19582752	2237592	4046112	273400	355000	356000	12472	0	1575450	2877120	295680
<b>Issued</b>		7543872	23950752	2794168	4728192	345050	433700	431800	15782	0	1601100	2669220	161280
<b>Closing Balance</b>		731136	2417856	27392	0	40450	33900	35000	1444	0	0	273420	134400
<b>Expiry Date</b>	5/2011	731136											
	6/2011												
	8/2011											273420	
	9/2011								1444				
	12/2011		2417856										
	4/2012					40450							
	10/2012			27392									
	11/2012						33900						
	11/2013							35000					
	8/2014												134400

**Upper Myanmar Drug Store Balance (2009)**

**(Annex 1)**

<b>Upper Myanmar Drugs (2009)</b>		<b>4FDC</b>	<b>2FDC</b>	<b>ETB</b>	<b>ETB</b>	<b>PZA</b>	<b>S 1 G</b>	<b>S/N</b>	<b>D/W</b>	<b>Cat I Kit</b>	<b>Cat II Kit</b>	<b>Ped HRZ</b>	<b>Ped HR</b>	<b>Ped HRZ</b>	<b>Ped HR</b>	<b>INH 300mg</b>
<b>Packing Size</b>		672's	672's	672's	100's	672's	50's	100's	100's	1's	1's	1000's	1000's	90's	90's	672's
<b>Opening Balance</b>		2075	9178	355	0	1875	960	448	480	552	0	707	1592	0	0	65
<b>Received</b>		4026	15140	1823	4500	1909	4430	2294	2139	3876	0	250	1102	7900	15800	0
<b>Issued</b>		4765	16372	2142	2161	3456	4210	2169	2064	3829	0	957	2694	3000	6001	65
<b>Closing Balance</b>		1336	7946	36	2339	328	1180	573	555	599	0	0	0	4900	9799	0
<b>Expiry Date</b>	2/2010					328										
	6/2011									599				4900	9799	
	7/2011		7946													
	2/2012	1336														
	4/2012						1180									
	10/2012				2339											
	11/2012							573								
	3/2013			36												
	11/2013								555							

## NATIONAL TUBERCULOSIS PROGRAMME

## Laboratory supplies and equipments (2009)

Sr.No.	Items	Opening balance (31-12-08)	Received 2009	Issued 2009	Closing balance (31-12-09)
1	Fuhsin Basic(25 gm)	109	800	114	795
2	Phenol Crystals (500 gm)	100	300	382	618
3	Methylated Spirit (cans )	0	50	43	7
4	Microscope(CX21 Olympus)	0	4	4	0
5	Dry cell	10	0	0	10
6	Inverter with dry cell battery	10	0	0	10
7	Binocular Microscopes Nikon E 100	10	30	3	37
8	Microscope Glass Slides 3600/unit	-	300	274	26
9	Xylene (1 Litre)	153	0	50	103
10	Objective lens	106	0	5	101
11	Methylene Blue (25 gm)	169	100	82	187
12	Sulphuric Acid ( 2.5L )	60	150	0	210
13	Sulphuric Acid ( 1L )	445	0	252	193
14	Sulphuric Acid ( 500 ml )	178	100	178	100
15	Sputum containers (bags of 1000)	240	810	510	540
16	Immersion Oil (1 liter)	73	0	7	66
17	Methanol (1L)	152	149	93	208
18	Glycerol(1L)	10	11	5	16
19	Sodium Hydroxide(500g)	21	30	14	37
20	Auramine O	14	0	7	7
21	B. P. Phenyl	0	300	42	258

**Manpower situation of National Tuberculosis Programme (2009)**

**Annex 3**

No.	Designation	Pay	Sanc tion	Posted	Vacant	Remark
1.	Deputy Director (TB)	140000-2000-150000	1	1	0	
2.	Medical Superintendent	140000-2000-150000	1	1	0	
3.	Lecture/TB specialist	140000-2000-150000	1	1	0	
4.	Assistant Director (TB)	120000-2000-130000	1	1+3*	0	
5.	Microbiologist	120000-2000-130000	2	1	1	Mdy
6.	State/Divisional TB Officer	120000-2000-130000	6	6+7*	0	
7.	Medical Officer	100000-2000-110000	56	38+12*	18	
8.	Administrative Officer	100000-2000-110000	1	1	0	
9.	Superintendent	65000-1000-70000	1	1	0	
10.	District Community Health Nurse	65000-1000-70000	2	2	0	
11.	Assistant Statistical Officer	59000-1000-64000	2	2	0	
12.	Health Assistant	59000-1000-64000	80	70	10	
13.	Sister	59000-1000-64000	1	1	0	
14.	Public Health Sister	59000-1000-64000	1	1	0	
15.	Medical technician	59000-1000-64000	1	1+3*	0	
16.	Radiology technician	59000-1000-64000	9	9	0	
17.	Radiographer	59000-1000-64000	2	1+1*	1	
18.	BC (Budget/Admin)	59000-1000-64000	4	3+2*	0	
19.	BCG supervisor	59000-1000-64000	14	4	10	
20.	Blue staff	53000-1000-58000	4	4	0	
21.	LHV	53000-1000-58000	12	12	0	
22.	Trained nurse	53000-1000-58000	122	106	16	
23.	Grade 1 lab: technician	53000-1000-58000	11	10+3*	1	
24.	Grade 1 X-ray technician	53000-1000-58000	8	6	2	
25.	Assistant statistician	53000-1000-58000	5	5	0	
26.	BCG technician	53000-1000-58000	60	20	40	
27.	UD (Budget/Admin)	53000-1000-58000	11	9+2*	2	
28.	Grade 2 lab technician	47000-1000-52000	200	145	55	
29.	LD (Budget/Admin)	47000-1000-52000	35	27	8	
30.	Compounder	47000-1000-52000	4	3	1	
31.	Grade 2 X-ray technician	47000-1000-52000	3	1	2	
32.	Steward	47000-1000-52000	1	0	1	
33.	Typist	47000-1000-52000	7	4	3	
34.	Jr. TB worker	47000-1000-52000	123	87	36	
35.	Statistical clerk	47000-1000-52000	100	87	13	
36.	Driver	41000-1000-46000	48	7	41	
37.	Clinic assistant	35000-1000-40000	2	2	0	
38.	Lab. boy and Lab: assistant	35000-1000-40000	7	4	3	
39.	Peon	35000-1000-40000	15	6	9	
40.	X-ray van assistant	35000-1000-40000	2	0	2	
41.	X-ray department assistant	35000-1000-40000	3	2	1	
42.	Gardener and Plumber	35000-1000-40000	2	1	1	
43.	Night Watch	35000-1000-40000	14	7	7	
44.	Sweeper and Manual worker	35000-1000-40000	43	25	18	
<b>Total</b>			<b>1028</b>	<b>725+20*</b>	<b>303</b>	

**\* Lie from other posts**

- |                              |  |
|------------------------------|--|
| 1. Assistant Director        | 3 (central)  |
| 2. State/Division TB Officer | 7 (Taunggyi, Lashio, Kengtong, Monywa, Magway, Myeik, Myitkyina) |
| 3. Medical Officer           | 1 (Tachileik)  |
| 4. Medical Technician        | 2 (central)  |
| 5. Radiographer              | 1 (Mandalay)   |
| 6. BC                        | 2 (central)  |
| 7. Grade.I Lab: Technician   | 2 (central)  |
| 8. UD                        | 2 (central)  |

# NATIONAL TUBERCULOSIS PROGRAMME CASE FINDING AND ACTIVITIES

Annex-4

Annual 2009

Block 1

No. of report received Tsp:	Sr.No	State/Division	Population	Estimate d cases	PULMONARY TUBERCULOSIS																		Total			
					SMEAR POSITIVE										Smear Negative				Extra Pulmonary TB		Total					
					New Cases				CDR		Old Cases				Total											
					Relapses		TAD		TAF		M		F		M		F									
					M	F	T	M	F	M	F	M	F	M	F	M	F	M	F							
15	1	Kachin State	1376067	1032	881	374	1255	122%	129	37	16	5	60	21	1523	880	566	1446	1161	864	2025	127	48	3254	1915	5169
7	2	Kayah State	288919	217	97	34	131	60%	10	2	3	1	5	4	156	165	78	243	445	286	731	37	10	762	415	1177
9	3	Chin State	508351	381	101	50	151	40%	23	12	2	1	6	2	197	196	167	363	359	274	633	15	5	702	511	1213
37	4	Sagaing Div:	6325851	4744	1983	926	2909	61%	159	58	20	7	61	22	3236	1091	593	1684	1785	1295	3080	88	28	5187	2929	8116
25	5	Magway Div:	4092771	3070	1329	723	2052	67%	131	53	13	1	48	23	2321	1285	969	2254	1705	1300	3005	209	111	4720	3180	7900
31	6	Mandalay Div:	6983424	5238	2293	1067	3360	64%	336	121	43	13	68	24	3965	2260	1098	3358	2434	1812	4246	304	118	7738	4253	11991
21	7	Shan (S) State	2119301	1589	524	256	780	49%	43	15	15	2	28	11	894	658	370	1028	306	242	548	43	11	1617	907	2524
9	8	Shan (E) State	712093	534	319	164	483	90%	57	14	17	4	10	0	585	364	223	587	174	145	319	13	7	954	557	1511
19	9	Shan (N) State	2712893	2035	729	411	1140	56%	93	30	11	10	21	5	1310	760	429	1189	702	528	1230	33	19	2349	1432	3781
7	10	Kayin State	1537453	1153	675	386	1061	92%	59	16	16	4	9	7	1172	1349	1009	2358	207	175	382	23	5	2338	1602	3940
10	11	Tanintharyi Div:	1646224	1235	600	285	885	72%	48	32	17	5	12	10	1009	1423	1116	2539	1347	1131	2478	39	27	3486	2606	6092
14	12	Bago (East)	2855562	2142	1161	603	1764	82%	125	72	20	6	27	10	2024	1378	977	2355	328	269	597	12	20	3051	1957	5008
14	13	Bago (West)	2025688	1519	1077	511	1588	105%	102	48	9	0	30	8	1785	1598	1287	2885	134	138	272	17	6	2967	1998	4965
10	14	Mon State	2053149	1540	1164	594	1758	114%	106	59	21	10	39	17	2010	2063	1739	3802	362	312	674	13	9	3768	2740	6508
17	15	Rakhine State	3355941	2517	1362	837	2199	87%	108	35	23	7	22	14	2408	1526	1431	2957	649	569	1218	69	46	3759	2939	6698
45	16	Yangon Div:	5782463	9801	5567	2762	8329	85%	915	377	99	28	202	99	10049	5081	3139	8220	1993	1633	3626	488	215	14345	8253	22598
26	17	Ayeyarwady Div:	6531731	4899	2827	1680	4507	92%	254	132	17	8	36	20	4974	2308	1782	4090	1294	1047	2341	129	59	6865	4728	11593
316	All State & Div: Total		50907881	43645	22689	11663	34352	79%	2698	1113	362	112	684	297	39618	24385	16973	41358	15385	12020	27405	1659	744	67862	42922	110784
18	Other Unit				4697	2340	7037		557	202	98	15	239	111	8259	5987	3867	9854	2475	1801	4276	615	235	14668	8571	23239
316	Union of Myanmar		50907881	43645	27386	14003	41389	95%	3255	1315	460	127	923	408	47877	30372	20840	51212	17860	13821	31681	2274	979	82530	51493	134023

TAD = Treatment after default  
TAF = Treatment after failure

CDR = 95% CR = 78% TSR = 85%

Reporting Efficiency Rate = 97% (316/325) tsps

Report had not been received from ( 9 ) Townships

Kachin State (3) Tsps: 1. N'ganyan 2. Hsawlaw 3. Khaunglanbu

Shan (N) State (5) Tsps: 1. Kongyan 2. Panwine 3. Mongmaw 4. Manphant 5. Narphant

Shan (E) State (1) Tsps: 1. Matman

**NATIONAL TUBERCULOSIS PROGRAMME  
CASE FINDING ACTIVITIES (2009)**

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																		Total	Extra Pulmonary Tuberculosis		other			TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				SMEAR POSITIVE										Smear Negative									M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

\* Note\* (Nr.) Report had not been received from (3) townships

Nr. 3 Tsp; 1.N'ganyan. 2. Hsawlaw, 3 Khaunglanbu



Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																		Total	Extra Pulmonary Tuberculosis		Total		other		TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
				SMEAR POSITIVE										Smear Negative				Total					M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M</

Chin State

1	Falam	52210	39	8	6	14	36%	8	5	1	0	5	2	35	20	21	41	29	24	53	1	1	72	59	131
2	Hakha	57884	43	14	6	20	46%	2	1	0	0	0	0	23	31	20	51	122	91	213	8	3	177	121	298
3	Htantalan	70048	53	3	0	3	6%	0	0	0	0	0	0	3	8	6	14	10	9	19	0	0	21	15	36
4	Tiddim	90408	68	20	8	28	41%	1	1	0	0	0	0	30	28	31	59	109	89	198	3	0	161	129	290
5	Tunzan	32470	24	6	6	12	49%	2	1	1	0	0	0	16	42	35	77	24	20	44	0	0	75	62	137
6	Mindat	43148	32	17	10	27	83%	9	3	0	0	1	0	40	30	30	60	43	28	71	2	0	102	71	173
7	Kanpetlet	18933	14	0	0	0	0%	0	0	0	0	0	0	8	1	9	9	6	4	10	0	0	14	5	19
8	Matupi	56765	43	12	3	15	35%	0	0	0	0	0	0	15	17	16	33	4	4	8	1	1	34	24	58
9	Paletwa	86485	65	21	11	32	49%	1	1	0	1	0	0	35	12	7	19	12	5	17	0	0	46	25	71
Total		508351	381	101	50	151	40%	23	12	2	1	6	2	197	196	167	363	359	274	633	15	5	702	511	1213

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated News(+) cases	PULMONARY TUBERCULOSIS																				Extra Pulmonary Tuberculosis				Total				other				TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				SMEAR POSITIVE												Smear Negative								Total				Total				Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				New Cases						CDR		Previously treated cases						Total				Total				Total				Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
				M		F		T				M		F		M		F		M		F		M		F		M		F		M		F		M		F		M		F																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				M		F		T				M		F		M		F		M		F		M		F		M		F		M		F		M		F		M		F																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				M	F	T		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated News(+) cases	PULMONARY TUBERCULOSIS																		Total	Extra Pulmonary Tuberculosis				other				TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
				SMEAR POSITIVE														Smear Negative					M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated News(+) cases	PULMONARY TUBERCULOSIS																								Total	Extra Pulmonary Tuberculosis		Total		other		TOTAL	
				SMEAR POSITIVE												Smear Negative				M	F	M	F	M	F	M	F									
				New Cases				CDR	Previously treated cases								Total																			
				Relapses		T'after Default			T'after failure		Total		Total																							
				M	F	M	F		M	F	M	F	M	F																						
				Mandalay Division																																
1	Amarapura	178378	134	60	33	93	70%	10	2	1	0	2	1	0	2	1	109	44	22	66	47	31	78	9	2	173	91	264								
2	Aungmyaytharza	246220	185	149	70	219	119%	18	12	1	0	6	1	0	6	1	257	143	66	209	141	115	256	27	9	485	273	758								
3	Chanayetharzan	233028	175	96	45	141	81%	13	8	3	2	6	2	0	6	2	175	103	52	155	116	76	192	18	8	355	193	548								
4	Chanmyatharzi	173490	130	171	76	247	190%	25	5	1	1	4	0	0	4	0	283	180	86	266	94	91	185	28	12	503	271	774								
5	Maharaungmyae	218577	164	110	55	165	101%	19	5	3	0	2	0	0	2	0	194	107	56	163	121	78	199	27	7	389	201	590								
6	Pyigyitagonn	145046	109	84	49	133	122%	14	5	3	1	1	0	0	1	0	157	105	48	153	109	74	183	20	1	336	178	514								
7	Patheingyi	173723	130	63	42	105	81%	9	3	5	2	0	3	0	0	3	127	78	28	106	92	57	149	7	4	254	139	393								
8	Meiktilar	355886	267	28	26	54	20%	20	5	0	0	1	0	0	1	0	80	194	104	298	227	196	423	31	19	501	350	851								
9	Mahlaing	199444	150	31	13	44	29%	1	3	1	0	0	0	0	0	0	49	58	25	83	22	15	37	10	2	123	58	181								
10	Tharzi	198752	149	56	36	92	62%	9	3	0	0	0	0	0	0	0	104	32	6	38	47	20	67	3	0	147	65	212								
11	Wundwin	299002	224	74	25	99	44%	21	6	0	0	0	0	0	0	0	126	26	22	48	30	33	63	0	0	151	86	237								
12	Myingan	286837	215	93	46	139	65%	20	9	0	0	0	0	0	0	0	168	126	61	187	164	149	313	8	0	411	265	676								
13	Kyaukpadaun	299881	225	89	46	135	60%	10	9	1	1	0	0	0	0	0	156	39	22	61	31	28	59	3	2	173	108	281								
14	Natogyi	234263	176	32	13	45	26%	3	1	0	1	1	0	1	0	1	51	25	7	32	15	13	28	5	2	81	37	118								
15	Ngazun	138323	104	29	17	46	44%	6	3	0	0	0	0	0	0	2	57	29	11	40	35	16	51	1	0	100	49	149								
16	Taungtha	240534	180	35	14	49	27%	10	7	0	2	0	0	0	0	0	68	57	26	83	44	37	81	1	0	147	86	233								
17	NyaungU	269023	202	55	39	94	47%	10	2	0	0	6	2	0	6	2	114	93	75	168	93	87	180	14	21	271	226	497								
18	Pyin oo Lwin	175615	132	58	24	82	62%	1	3	0	0	2	1	0	2	1	89	62	24	86	130	96	226	4	2	257	150	407								
19	Madayar	259994	195	82	25	107	55%	6	1	6	0	7	4	0	7	4	131	62	32	94	44	31	75	5	1	212	94	306								
20	Mogok	192044	144	50	18	68	47%	7	3	2	0	4	0	0	4	0	84	50	25	75	103	77	180	20	8	236	131	367								
21	Sintgu	139133	104	98	15	113	108%	23	2	1	0	1	0	1	0	1	140	72	27	99	41	27	68	18	2	254	73	327								
22	Thabeikkyin	111228	83	60	17	77	92%	5	0	1	0	4	0	0	4	0	87	51	24	75	95	37	132	5	0	221	78	299								
23	Yamethin	251473	189	62	28	90	48%	13	1	0	0	0	0	0	0	0	104	47	19	66	79	37	116	2	2	203	87	290								
24	Lewei	274514	206	106	82	188	91%	4	2	0	0	0	0	0	0	0	194	24	17	41	25	16	41	3	1	162	118	280								
25	Pyawbwei	350636	263	56	27	83	32%	11	8	0	0	0	0	0	0	0	102	56	28	84	42	43	85	0	0	165	106	271								
26	Pyinmana	319219	239	164	65	229	96%	21	2	9	0	9	4	0	9	4	274	188	90	278	117	65	182	19	5	527	231	758								
27	Tatone	288263	216	76	33	109	50%	8	1	0	0	0	0	0	0	0	118	29	12	41	43	21	64	10	2	166	69	235								
28	Kyaukse	226287	170	101	36	137	81%	7	2	2	3	12	4	0	0	0	167	109	36	145	180	156	336	2	3	413	240	653								
29	Myittha	232564	174	54	35	89	51%	8	5	0	0	0	0	0	0	0	102	22	17	39	40	36	76	0	0	124	93	217								
30	Sintgine	125155	94	44	10	54	58%	3	0	1	0	0	0	0	0	0	58	33	22	55	60	47	107	2	1	143	80	223								
31	TadaOo	146892	110	27	7	34	31%	1	3	2	0	0	0	0	0	0	40	16	8	24	7	7	14	2	2	55	27	82								
Total		6983424	5238	2293	1067	3360	64%	336	121	43	13	68	24	3965	2260	1098	3358	2434	1812	4246	304	118	7738	4253	11991											

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated News(+) cases	PULMONARY TUBERCULOSIS																		Total	Extra Pulmonary Tuberculosis			other			TOTAL				
				SMEAR POSITIVE										Smear Negative				Total															
				New Cases						CDR	Previously treated cases						Smear Negative																
				Relapses		T'after Default		T'after failure			Total		M		F																		
				M	F	T	M	F	M		F	M	F	M	F	M	F													M	F	M	F
SHAN (South) State																																	
1	Linkay	61590	46	22	5	27	58%	0	0	1	0	0	0	0	0	28	10	7	17	1	5	6	2	0	36	17	53						
2	Maukme	30016	23	9	10	19	84%	1	1	0	0	1	0	0	0	22	1	1	2	3	2	5	0	0	15	14	29						
3	Monai	43098	32	8	7	15	46%	0	1	0	0	1	0	0	0	17	4	4	8	0	1	1	0	0	13	13	26						
4	Mangpang	37017	28	8	5	13	47%	0	1	0	0	2	0	0	0	16	4	0	4	0	1	1	0	0	14	7	21						
5	Loilem	107128	80	11	15	26	32%	4	0	0	0	0	0	0	0	30	49	15	64	3	4	7	1	1	68	35	103						
6	Kunhein	74686	56	30	26	56	100%	2	1	0	0	5	2	0	0	66	29	22	51	23	36	59	1	0	90	87	177						
7	Kyeethi	35438	27	5	5	10	38%	0	0	0	0	1	0	0	0	11	26	18	44	8	13	21	0	0	40	36	76						
8	Laikha	40331	30	27	8	35	116%	4	0	0	0	1	0	0	0	40	33	10	43	8	4	12	1	0	74	22	96						
9	Mongaking	121367	91	15	4	19	21%	0	1	1	1	1	2	5	3	25	5	3	8	12	0	12	0	0	34	11	45						
10	Mongshu	63654	48	15	9	24	50%	1	1	0	0	0	0	0	0	26	26	25	51	11	15	26	0	0	53	50	103						
11	Namsan	75439	57	29	13	42	74%	2	0	0	0	0	0	0	0	44	71	29	100	43	31	74	8	2	153	75	228						
12	Taunggyi	345516	259	107	42	149	57%	14	3	8	0	7	3	184	162	107	269	89	62	151	19	5	406	222	628								
13	Hopone	97136	73	13	10	23	32%	1	0	1	0	0	0	0	0	25	12	7	19	6	4	10	0	1	33	22	55						
14	Hpekon	77340	58	16	5	21	36%	1	0	0	0	1	0	0	0	23	35	27	62	8	2	10	4	0	65	34	99						
15	Hsiseng	133276	100	27	18	45	45%	5	2	3	1	1	1	58	14	10	24	22	45	19	10	29	0	0	73	46	119						
16	Kalaw	155979	117	51	13	64	55%	2	0	0	0	4	2	72	28	17	45	19	45	10	29	0	0	104	42	146							
17	Lauksauk	133862	100	37	12	49	49%	1	0	1	0	0	0	51	58	27	85	6	3	9	3	1	106	43	149								
18	Pindaya	78686	59	7	5	12	20%	0	0	0	0	1	0	13	35	6	41	4	8	12	0	0	47	19	66								
19	Pinlaung	152973	115	34	9	43	37%	2	1	0	0	0	0	46	11	8	19	21	14	35	0	0	68	32	100								
20	Nyaungshwe	181017	136	43	33	76	56%	3	2	0	0	0	1	82	22	16	38	18	12	30	2	0	88	64	152								
21	Ywangan	73752	55	10	2	12	22%	0	1	0	0	2	0	15	23	11	34	1	1	2	1	1	37	16	53								
Total		2119301	1589	524	256	780	49%	43	15	15	2	28	11	894	658	370	1028	306	242	548	43	11	1617	907	2524								

## SHAN (East) State

1	Kengtong	188211	141	85	31	116	82%	19	3	7	1	4	0	150	96	51	147	48	46	94	8	5	267	137	404
2	Mongkhat	29526	22	2	1	3	14%	0	0	0	0	0	0	3	0	0	0	4	2	6	0	0	6	3	9
3	Mongyan	94417	71	14	8	22	31%	1	1	0	0	0	0	24	3	9	12	16	7	23	0	0	34	25	59
4	Monghsat	77793	58	46	32	78	134%	7	0	6	1	1	0	93	7	4	11	24	14	38	0	0	91	51	142
5	Mongping	53700	40	23	14	37	92%	2	2	1	1	0	0	43	11	8	19	24	14	38	0	0	61	39	100
6	Mongton	39692	30	22	10	32	107%	4	2	2	0	2	0	42	29	13	42	23	22	45	0	0	82	47	129
7	Monpyak	40024	30	11	12	23	77%	2	2	1	0	0	0	28	15	8	23	22	19	41	0	0	51	41	92
8	Mongyaung	70514	53	27	8	35	66%	5	0	0	0	3	0	43	17	11	28	4	5	9	0	0	56	24	80
9	Tachileik	118216	89	89	48	137	155%	17	4	0	1	0	0	159	186	119	305	9	16	25	5	2	306	190	496
10	Matman	Nr.																							
Total				319	164	483	90%	57	14	17	4	10	0	585	364	223	587	174	145	319	13	7	954	557	1511

## Annex-4(townships list)

Sr.	TOWNSHIP	Population Estimated (News(+) cases	PULMONARY TUBERCULOSIS																Extra Pulmonary Tuberculosis		Total		other		TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
			SMEAR POSITIVE								Smear Negative																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
			New Cases				CDR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
			Previously treated cases				Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
			Relapses		Tafter Default		Tafter failure		Total		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated News(+) cases	PULMONARY TUBERCULOSIS																					
				SMEAR POSITIVE										Smear Negative											
				New Cases					CDR	Previously treated cases						Total									
										Relapses															
				M	F	T	M	F	M	F	M	F	M	F	M	F									
				M	F	T	M	F	M	F	M	F	M	F	M	F									
KAYIN State																									
1	Kawkaireik	332438	249	108	74	182		14	4	3	0	3	0	206	109	67	176	24	24	48	3	2	264	171	435
2	Kyainseikkayi	181508	136	37	17	54	40%	0	0	1	0	0	1	56	43	27	70	9	8	17	0	0	90	53	143
3	Myawady	62327	47	113	57	170	364%	8	4	7	1	1	2	193	79	48	127	70	56	126	17	3	295	171	466
4	Hpa-an	501451	376	301	152	453	120%	26	5	4	2	1	1	492	926	682	1608	68	60	128	2	0	1328	902	2230
5	Hlaingbwe	292053	219	75	66	141	64%	9	3	1	1	1	1	157	117	136	253	25	15	40	0	0	228	222	450
6	Papun(Kamama)	75217	56	34	15	49	87%	1	0	0	0	2	2	54	55	40	95	9	10	19	0	0	101	67	168
7	Thandaung	92459	69	7	5	12	17%	1	0	0	0	1	0	14	20	9	29	2	2	4	1	0	32	16	48
	Total	1537453	1153	675	386	1061	92%	59	16	16	4	9	7	1172	1349	1009	2358	207	175	382	23	5	2338	1602	3940

## Tanintharyi Division

[illegible]

Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																Total			Extra Pulmonary Tuberculosis			other			TOTAL									
				SMEAR POSITIVE												Smear Negative																						
				New Cases			CDR			Previously treated cases																						Total						
										Relapses			T after Default																					T after failure				
										M	F	T	M	F	M																			F	T	M	F	T
										Bago (East )																												
1	Bago	416700	313	267	132	399	128%	32	19	12	0	7	4	473	231	143	374	132	86	218	4	7	685	391	1076													
2	Daik-U	212479	159	93	50	143	90%	3	5	0	0	3	2	156	75	54	129	13	8	21	3	3	190	122	312													
3	Kawa	217563	163	44	23	67	41%	7	3	1	0	0	0	78	55	48	103	9	10	19	0	3	116	87	203													
4	Kyauktaga	251009	188	81	58	139	74%	7	6	0	0	2	0	154	83	84	167	27	23	50	0	1	200	172	372													
5	Nyaunglaybin	234687	176	60	38	98	56%	2	4	1	1	3	0	109	35	26	61	22	24	46	0	2	123	95	218													
6	Shwekyin	83566	63	30	20	50	80%	1	0	0	1	0	0	52	61	39	100	5	3	8	0	0	97	63	160													
7	Thanatpin	157795	118	73	33	106	90%	5	3	0	0	0	0	114	122	126	248	12	17	29	0	0	212	179	391													
8	Waw	200598	150	97	49	146	97%	5	3	1	0	3	1	159	38	21	59	25	17	42	0	0	169	91	260													
9	Taunggoo	230576	173	106	26	132	76%	18	3	3	0	3	2	161	127	68	195	27	20	47	4	3	288	122	410													
10	Kyaukkyi	102891	77	39	29	68	88%	5	1	0	0	0	0	74	62	44	106	4	4	8	0	0	110	78	188													
11	Oktwin	153769	115	49	23	72	62%	6	6	0	0	0	0	84	68	55	123	17	12	29	0	0	140	96	236													
12	Phyu	287364	216	123	53	176	82%	21	9	0	1	3	0	210	311	199	510	20	31	51	1	0	479	293	772													
13	Htantabin	119357	90	33	18	51	57%	6	6	0	0	0	0	63	60	33	93	5	11	16	0	1	104	69	173													
14	Yedashe	187208	140	66	51	117	83%	7	4	2	3	3	1	137	50	37	87	10	3	13	0	0	138	99	237													
Total		2855562	2142	1161	603	1764	82%	125	72	20	6	27	10	2024	1378	977	2355	328	269	597	12	20	3051	1957	5008													
Bago (West )																																						
1	Pyay	234344	176	143	67	210	119%	4	3	0	0	10	4	231	295	211	506	22	21	43	3	2	477	308	785													
2	Paukkaung	117296	108	59	41	100	93%	7	1	0	0	0	0	108	79	80	159	4	5	9	0	0	149	127	276													
3	Paungde	143663	101	67	26	93	92%	12	4	1	0	1	0	111	74	67	141	7	6	13	1	0	163	103	266													
4	Padaung	135012	101	68	18	86	85%	4	2	0	0	4	2	98	97	70	167	12	12	24	4	0	189	104	293													
5	Shwedaung	142659	107	55	46	101	94%	9	5	1	0	1	0	117	121	90	211	29	33	62	4	1	220	175	395													
6	Thegon	134075	101	79	29	108	107%	5	2	0	0	2	0	117	206	156	362	16	6	22	1	0	309	193	502													
7	Tharyarwady	150725	113	125	54	179	158%	7	2	4	0	6	2	200	86	73	159	5	6	11	1	0	234	137	371													
8	Zigon	72806	55	50	18	68	125%	3	1	0	0	0	0	72	95	65	160	1	4	5	2	3	151	91	242													
9	Minhla	119742	90	69	29	98	109%	4	5	0	0	4	0	111	50	23	73	3	7	10	0	0	130	64	194													
10	Moenyo	143078	107	56	31	87	81%	4	2	3	0	1	0	97	29	26	55	16	13	29	0	0	109	72	181													
11	Okpo	140158	105	56	31	87	83%	4	1	0	0	0	0	92	59	40	99	0	3	3	0	0	119	75	194													
12	Gyobingauk	114852	86	68	37	105	122%	8	5	0	0	0	0	118	130	124	254	3	7	10	0	0	209	173	382													
13	Nattalin	158878	119	80	42	122	102%	9	4	0	0	0	0	135	106	101	207	4	6	10	1	0	200	153	353													
14	Latpadan	218400	164	102	42	144	88%	22	11	0	0	1	0	178	171	161	332	12	9	21	0	0	308	223	531													
Total		2025688	1519	1077	511	1588	105%	102	48	9	0	30	8	1785	1598	1287	2885	134	138	272	17	6	2967	1998	4965													



Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																Extra Pulmonary Tuberculosis				Total				other				TOTAL			
				SMEAR POSITIVE												Smear Negative																			
				New Cases				CDR		Previously treated cases								Total				M		F											
				M	F	T	Relapses		M	F	M	F	M	T	M	F	M	T	M	F	M	F													
							M	F																											
							M	F																											
				Mon State																															
1	Mawlamyaing	274496	206	249	106	355	172%	40	20	6	2	6	3	432	476	367	843	63	60	123	6	3	846	561	1407										
2	Chanungzon	153662	115	63	30	93	81%	3	3	0	0	2	0	101	141	93	234	3	6	9	0	0	212	132	344										
3	Kyaikmaraw	209698	157	70	35	105	67%	11	2	1	0	0	0	119	208	185	393	20	11	31	0	0	310	233	543										
4	Mudon	207832	156	110	53	163	105%	7	3	1	1	4	1	180	184	154	338	166	129	295	3	3	475	344	819										
5	Thanbyuzayat	161455	121	77	43	120	99%	3	3	0	0	1	2	129	156	145	301	8	10	18	0	1	245	204	449										
6	Ye	240461	180	116	67	183	101%	11	9	8	5	12	3	231	150	119	269	11	18	29	2	0	310	221	531										
7	Thaton	243618	183	159	68	227	124%	9	8	4	1	5	3	257	94	78	172	33	33	66	1	1	305	192	497										
8	Belin	168852	127	129	72	201	159%	10	2	0	0	1	2	216	217	175	392	11	18	29	1	1	369	270	639										
9	Kyaikto	154119	116	62	46	108	93%	6	5	1	1	4	2	127	91	58	149	15	7	22	0	0	179	119	298										
10	Paung	238956	179	129	74	203	113%	6	4	0	0	4	1	218	346	365	711	32	20	52	0	0	517	464	981										
Total		2053149	1540	1164	594	1758	114%	106	59	21	10	39	17	2010	2063	1739	3802	362	312	674	13	9	3768	2740	6508										

Rakhine State

1	Kyaukphyu	206016	155	60	50	110	71%	1	4	4	1	1	2	123	78	93	171	51	40	91	7	5	202	195	397
2	Ann	154829	116	40	20	60	52%	3	2	0	1	1	0	67	44	41	85	235	213	448	6	4	329	281	610
3	Manaung	104610	78	32	15	47	60%	5	1	0	0	0	0	53	15	7	22	18	9	27	0	0	70	32	102
4	Rambye	155273	116	30	21	51	44%	5	1	0	0	0	1	58	17	15	32	14	15	29	2	3	68	56	124
5	Maungdaw	459367	345	103	50	153	44%	12	3	2	0	4	5	179	260	239	499	52	51	103	0	0	433	348	781
6	Buthidaung	304421	228	154	111	265	116%	13	6	0	0	0	0	284	253	342	595	8	11	19	3	7	431	477	908
7	Rathedaung	176638	132	80	57	137	103%	3	0	2	1	1	0	144	29	16	45	8	4	12	4	1	127	79	206
8	Sittwe	288215	216	184	92	276	128%	23	2	6	1	7	5	320	310	266	576	96	92	188	28	13	654	471	1125
9	Kyauktaw	253575	190	111	78	189	99%	7	6	2	2	0	0	206	133	102	235	14	12	26	1	1	268	201	469
10	Minbya	207702	156	95	72	167	107%	3	1	0	0	3	0	174	19	22	41	12	11	23	1	1	133	107	240
11	Myaukoo	237778	178	96	85	181	101%	12	3	0	0	1	0	197	80	66	146	31	24	55	6	1	226	179	405
12	Myebon	130011	98	40	34	74	76%	4	0	0	0	1	0	79	21	27	48	22	22	44	2	0	90	83	173
13	Pauktaw	140818	106	55	41	96	91%	8	1	7	1	0	1	114	41	22	63	7	8	15	5	1	123	75	198
14	Ponnagyun	139829	105	73	25	98	93%	3	1	0	0	1	0	103	65	59	124	11	5	16	2	5	155	95	250
15	Thandwe	160363	120	86	37	123	102%	2	2	0	0	2	0	129	54	30	84	24	25	49	1	3	169	97	266
16	Gwa	83419	63	36	14	50	80%	0	1	0	0	0	0	51	40	22	62	11	8	19	0	0	87	45	132
17	Taungup	153077	115	87	35	122	106%	4	1	0	0	0	0	127	67	62	129	35	19	54	1	1	194	118	312
	Total	3355941	2517	1362	837	2199	87%	108	35	23	7	22	14	2408	1526	1431	2957	649	569	1218	69	46	3759	2939	6698

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																Total	Extra Pulmonary Tuberculosis		Total		other		TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				SMEAR POSITIVE												Smear Negative																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				CDR				Previously treated cases				Total				Total					M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M	F		M

## YANGON Division

	East District	0	0	1	0	1		0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2
1	Botataung	35427	60	29	11	40	67%	4	3	0	0	1	1	49	62	44	106	9	6	15	8	2	113	67	180	
2	Dawbon	79892	135	105	47	152	112%	20	9	0	0	0	0	181	57	47	104	33	45	78	8	5	223	153	376	
3	Dagon(N)	161732	274	131	60	191	70%	23	10	1	2	0	1	228	153	87	240	22	20	42	20	6	350	186	536	
4	Dagon(S)	263867	447	385	193	578	129%	89	44	11	3	24	11	760	372	244	616	116	91	207	18	9	1015	595	1610	
5	MingalarTN	123264	209	108	32	140	67%	21	8	1	0	6	4	180	227	125	352	39	26	65	27	6	429	201	630	
6	Okkala(N)	271003	459	179	100	279	61%	35	12	6	2	13	13	360	305	217	522	53	52	105	20	16	611	412	1023	
7	Okkala(S)	160471	272	122	43	165	61%	31	13	1	2	1	1	214	153	77	230	42	66	108	25	6	375	208	583	
8	Thaketa	230966	391	324	153	477	122%	56	17	6	1	4	3	564	146	83	229	119	99	218	14	9	669	365	1034	
9	Thingangyun	174277	295	161	79	240	81%	46	10	10	0	1	3	310	150	76	226	78	78	156	22	10	468	256	724	
10	Yankin	92897	157	103	43	146	93%	20	6	0	0	0	0	172	94	73	167	6	11	17	12	1	235	134	369	
11	Tamwe	143806	244	71	48	119	49%	25	10	1	0	6	1	162	112	57	169	51	34	85	12	5	278	155	433	
12	Pazundaung	44765	76	28	8	36	47%	11	1	0	0	5	0	53	44	20	64	18	20	38	4	2	110	51	161	
13	Dagon(E)	85354	145	123	82	205	142%	28	13	1	3	2	2	254	88	43	131	20	21	41	15	6	277	170	447	
14	Dagon Seikkan	73888	125	54	26	80	64%	13	7	0	0	0	0	100	88	60	148	32	24	56	23	11	210	128	338	
	Total	1941609	3291	1924	925	2849	87%	422	163	38	13	63	40	3588	2052	1253	3305	638	593	1231	228	94	5365	3081	8446	

## West District

1	Kamayut	46092	78	48	29	77	99%	7	5	0	0	3	1	93	44	36	80	22	13	35	5	4	129	88	217
2	Kyauktada	37701	64	14	6	20	31%	1	1	1	0	3	0	26	15	14	29	12	10	22	2	2	48	33	81
3	Kyinmyindaing	93969	159	94	55	149	94%	23	2	2	1	13	5	195	77	40	117	34	28	62	7	5	250	136	386
4	Sanchaung	75999	129	56	27	83	64%	11	9	2	0	4	4	113	59	39	98	30	24	54	4	1	166	104	270
5	Seikkan	1171	2	4	0	4	202%	0	0	0	0	0	0	4	2	2	4	1	1	2	0	0	7	3	10
6	Dagon	23700	40	24	11	35	87%	4	2	1	0	1	1	44	13	17	30	10	9	19	1	3	54	43	97
7	Pabadan	36644	62	23	7	30	48%	4	3	0	0	0	1	38	21	7	28	10	15	25	4	1	62	34	96
8	Bahan	71091	120	67	23	90	75%	9	5	2	0	2	1	109	57	32	89	13	18	31	4	1	154	80	234
9	Mayangon	146226	248	140	85	225	91%	24	14	1	1	9	6	280	121	79	200	87	71	158	8	2	390	258	648
10	Latha	27690	47	15	10	25	53%	3	3	0	0	0	0	31	18	7	25	3	7	10	1	0	40	27	67
11	Lanmadaw	40093	68	26	10	36	53%	4	1	0	0	1	1	43	25	14	39	11	9	20	5	1	72	36	108
12	Hlaing	114706	194	124	60	184	95%	19	9	4	0	11	2	229	162	85	247	34	26	60	6	8	360	190	550
13	Ahlon	48794	83	43	18	61	74%	11	6	1	1	4	2	86	61	37	98	9	11	20	7	1	136	76	212
Total		763876	1294.8	678	341	1019	79%	120	60	14	3	51	24	1291	675	409	1084	276	242	518	54	29	1868	1108	2976

# Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated News(+) cases	PULMONARY TUBERCULOSIS																Total	Extra Pulmonary Tuberculosis			other			TOTAL		
				SMEAR POSITIVE												Smear Negative					M	F	M	F	M	F	M	F	
				New Cases				CDR	Previously treated cases								Total												
				M	F	T	Relapses				T after Default				T after failure														
							M		F	M	F	M	F	M	F														
																M		F	M										F
South District																													
1	Seikkikhanaung	30842	52		37	21	58		111%	1	3	0	0	0	5	1	68	22	13	35	8	4	12	0	1	73	43	116	
2	Dallah	148054	251		123	56	179		71%	9	4	10	1	0	2	205	144	64	208	81	60	141	29	20	396	207	603		
3	Cocogyun	976	2		0	0	0		0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	Kawhmu	147749	250		40	20	60		24%	2	2	0	0	0	0	64	46	44	90	10	12	22	2	1	100	79	179		
5	Kyauktan	154682	262		71	63	134		51%	7	4	1	0	1	1	148	79	62	141	25	9	34	3	2	187	141	328		
6	Kunggyangone	111409	189		74	30	104		55%	7	8	0	0	0	0	119	53	28	81	29	20	49	1	2	164	88	252		
7	Kayan	163322	277		96	66	162		59%	12	6	0	0	0	0	180	32	36	68	64	41	105	3	3	207	152	359		
8	Twantay	259701	440		106	44	150		34%	15	4	1	0	0	1	171	61	34	95	54	34	88	8	2	245	119	364		
9	Thonegwa	171568	291		73	37	110		38%	3	2	0	1	0	0	116	63	30	93	26	15	41	13	6	178	91	269		
10	Thanlyin	174282	295		202	100	302		102%	23	8	3	2	5	1	344	135	65	200	48	39	87	16	6	432	221	653		
Total		1362585	2309		822	437	1259		55%	79	41	15	4	11	6	1415	635	376	1011	345	234	579	75	43	1982	1141	3123		
North District																													
1	Mingalardon	171806	291		336	145	481		165%	59	19	12	2	33	9	615	291	168	459	131	66	197	27	5	889	414	1303		
2	Shwepyithar	213015	361		261	115	376		104%	27	17	3	1	4	4	432	149	116	265	78	84	162	16	5	538	342	880		
3	Hlaingtharyar	321353	545		607	352	959		176%	73	27	9	1	4	3	1076	534	407	941	77	65	142	33	18	1337	873	2210		
4	Insein	240579	408		355	157	512		126%	65	15	6	2	22	6	628	273	133	406	169	121	290	32	10	922	444	1366		
5	Taikkyi	261429	443		147	73	220		50%	16	9	0	0	2	0	247	155	93	248	40	39	79	10	9	370	223	593		
6	Htantabin	139628	237		65	40	105		44%	7	4	0	0	1	2	119	33	19	52	26	12	38	2	0	134	77	211		
7	Hmawbi	180945	307		142	79	221		72%	20	10	0	1	6	4	262	98	62	160	87	90	177	3	1	356	247	603		
8	Hlegu	185638	315		158	83	241		77%	21	11	1	0	1	1	276	134	74	208	105	73	178	3	0	423	242	665		
	U.T.I	0	0		68	11	79			4	0	1	1	4	0	89	45	21	66	8	6	14	4	0	134	39	173		
	NTP( Diagnostic	0	0		4	4	8			2	1	0	0	0	0	11	7	8	15	13	8	21	1	1	27	22	49		
	Total	1714393	2906		2143	1059	3202		110%	294	113	32	8	77	29	3755	1719	1101	2820	734	564	1298	131	49	5130	2923	8053		
Yangon Division		5782463	9801		5567	2762	8329		85%	915	377	99	28	202	99	10049	5081	3139	8220	1993	1633	3626	488	215	14345	8253	22598		

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																		Extra Pulmonary Tuberculosis			other			TOTAL		
				SMEAR POSITIVE										Smear Negative			Total					Total			TOTAL					
				New Cases			CDR	Previously treated cases						Total			Total			Total			TOTAL							
				M	F	T		Relapses			Tafter Default			Tafter failure			M	F	Total	M	F	Total								
								M	F	T	M	F	T	M	F	T							M	F	T					
				AYEYARWADY Division																						M	F	Total	M	F
1	Patheingyi	372927	280	305	145	450	161%	33	24	4	2	1	1	515	283	177	460	164	127	291	24	11	814	487	1301					
2	Kanyidaung	200982	151	37	24	61	40%	5	5	0	0	0	0	71	53	27	80	24	14	38	3	0	122	70	192					
3	Yekyi	216600	162	106	49	155	95%	21	6	0	0	1	0	183	83	55	138	39	41	80	1	1	251	152	403					
4	Kyaunggon	162484	122	85	50	135	111%	7	8	2	1	3	1	157	93	52	145	21	25	46	3	3	214	140	354					
5	Kyongpyaw	281681	211	94	48	142	67%	8	4	1	0	0	0	155	21	16	37	13	12	25	2	0	139	80	219					
6	Ngaputaw	297330	223	103	66	169	76%	11	6	1	1	2	0	190	84	46	130	29	31	60	1	1	231	151	382					
7	Thabaung	149741	112	69	40	109	97%	8	2	0	1	1	1	122	43	26	69	26	11	37	8	3	155	84	239					
8	Hinhada	357161	268	230	141	371	138%	15	8	0	0	0	0	394	209	208	417	55	66	121	1	0	510	423	933					
9	Kyankin	95512	72	46	30	76	106%	5	1	0	0	1	0	83	64	50	114	18	7	25	7	3	141	91	232					
10	Myanaung	326243	245	127	69	196	80%	18	6	0	0	0	0	220	139	125	264	69	39	108	0	0	353	239	592					
11	Ingapu	237337	178	160	83	243	137%	13	3	0	0	0	0	259	168	187	355	149	119	268	0	3	490	395	885					
12	Zalun	180798	136	75	50	125	92%	9	3	0	1	2	1	141	53	64	117	39	32	71	0	0	178	151	329					
13	Laymthethna	106825	80	33	28	61	76%	5	1	1	0	0	1	69	36	27	63	24	24	48	0	0	99	81	180					
14	Myaungmya	344995	259	141	91	232	90%	5	4	3	0	4	3	251	102	71	173	102	95	197	4	2	361	266	627					
15	Laputta	304988	229	121	82	203	89%	9	8	0	0	2	0	222	127	99	226	29	29	58	8	4	296	222	518					
16	Mawgyun	293333	220	86	56	142	65%	5	3	0	0	1	0	151	62	32	94	17	14	31	10	3	181	108	289					
17	Wakema	322100	242	126	70	196	81%	5	3	0	0	8	1	213	65	53	118	23	23	46	7	4	234	154	388					
18	Einme	207345	156	87	68	155	100%	5	7	0	0	1	0	168	50	41	91	7	5	12	5	6	155	127	282					
19	Pyapon	321301	241	141	89	230	95%	6	2	0	0	0	0	238	135	87	222	74	58	132	7	2	363	238	601					
20	Bogalay	303013	227	130	88	218	96%	13	8	4	1	1	1	246	93	70	163	102	71	173	14	6	357	245	602					
21	Dedaye	211353	159	26	25	51	32%	3	2	0	0	0	0	56	19	12	31	18	9	27	3	1	69	49	118					
22	Kyaiklatt	231608	174	71	35	106	61%	5	1	0	0	2	1	115	58	36	94	24	16	40	0	0	160	89	249					
23	Maubin	338848	254	157	79	236	93%	12	2	1	1	6	9	267	96	65	161	94	79	173	21	6	387	241	628					
24	Nyaungdon	215767	162	70	42	112	69%	9	5	0	0	0	0	126	35	17	52	17	20	37	0	0	131	84	215					
25	Pantanaw	269134	202	82	60	142	70%	8	6	0	0	0	0	156	75	63	138	42	27	69	0	0	207	156	363					
26	Danuphyu	182325	137	119	72	191	140%	11	4	0	0	0	0	206	62	76	138	75	53	128	0	0	267	205	472					
Total				4899	2827	1680	92%	254	132	17	8	36	20	4974	2308	1782	4090	1294	1047	2341	129	59	6865	4728	11593					

## Annex-4(townships list)

Sr.	TOWNSHIP	Population	Estimated NewS(+) cases	PULMONARY TUBERCULOSIS																				Total		Extra Pulmonary Tuberculosis		Total		other		TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				SMEAR POSITIVE										Smear Negative																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				New Cases						CDR		Previously treated cases						Total				M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M

**NATIONAL TUBERCULOSIS PROGRAMME**  
**AGE AND SEX DISTRIBUTION OF NEW SMEAR POSITIVE TB PATIENTS**

**Block 2****Annual 2009**

Sr.No	S/D	AGE GROUP ( YEAR )																		TOTAL			
		0-14		15-24		25 - 34		35 - 44		45 - 54		55 - 64		65 or more									
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T			
1	Kachin State	6	13	159	101	227	79	221	72	167	60	72	27	29	22	881	374	1255					
2	Kayah State	0	0	22	7	21	11	21	6	20	7	8	2	5	1	97	34	131					
3	Chin State	0	0	13	5	16	14	22	6	18	10	19	7	13	8	101	50	151					
4	Sagaing Div:	15	7	190	133	393	182	460	165	408	188	279	148	238	103	1983	926	2909					
5	Magway Div:	5	2	154	114	247	155	290	115	284	124	198	129	151	84	1329	723	2052					
6	Mandalay Div:	10	14	303	212	615	276	574	214	399	173	236	96	156	82	2293	1067	3360					
7	Shan (S) State	5	8	70	45	126	55	123	49	101	45	66	30	33	24	524	256	780					
8	Shan (E) State	4	3	34	32	81	49	82	39	73	19	28	18	17	4	319	164	483					
9	Shan (N) State	4	11	104	93	186	104	168	75	135	65	83	40	49	23	729	411	1140					
10	Kayin State	3	3	66	53	130	69	161	84	143	66	120	66	52	45	675	386	1061					
11	Tanintharyi Div:	0	1	54	51	159	67	159	58	105	61	72	30	51	17	600	285	885					
12	Bago (East)	4	9	139	99	260	156	290	138	239	114	147	63	82	24	1161	603	1764					
13	Bago (West)	2	3	89	77	217	109	243	99	234	104	169	77	123	42	1077	511	1588					
14	Mon State	2	3	117	94	242	148	289	122	234	103	153	80	127	44	1164	594	1758					
15	Rakhine State	8	8	140	129	226	165	311	181	300	164	226	116	151	74	1362	837	2199					
16	Yangon Div:	23	38	806	652	1476	690	1384	520	1009	425	578	255	291	182	5567	2762	8329					
17	Ayeyarwady Div:	4	8	236	213	494	366	635	334	656	371	471	231	331	157	2827	1680	4507					
All State & Div: Total		95	131	2696	2110	5116	2695	5433	2277	4525	2099	2925	1415	1899	936	22689	11663	34352					
Other Unit		23	33	567	449	1254	602	1196	464	796	364	510	267	351	161	4697	2340	7037					
Union of Myanmar		118	164	3263	2559	6370	3297	6629	2741	5321	2463	3435	1682	2250	1097	27386	14003	41389					

**NATIONAL TUBERCULOSIS PROGRAMME**  
**AGE DISTRIBUTION OF PRIMARY COMPLEX, HILAR LYMPHADENOPATHY AND TB MENINGITIS PATIENTS**

Sr.No	Township	PC and TBM cases by age group															Annual 2009		
		PC			Total	Hilar Lymphadenopathy			Total	TBM			Total						
		0-4	5-14	≥15		0-4	5-14	≥15		0-4	5-14	≥15							
		0-4	5-14	≥15	0-4	5-14	≥15	0-4	5-14	≥15	0-4	5-14	≥15	Total					
1	Kachin State	42	154	41	237	868	891	25	1784	3	1	2	6						
2	Kayah State	314	257	70	641	0	0	0	0	0	6	7	13						
3	Chin State	180	150	22	352	155	140	18	313	3	1	6	10						
4	Sagaing Div:	515	1648	41	2204	240	277	20	537	10	21	9	40						
5	Magway Div:	596	839	58	1493	483	673	81	1237	19	14	11	44						
6	Mandalay Div:	1325	1602	32	2959	178	266	82	526	21	12	20	53						
7	Shan (S) State	144	259	46	449	54	125	35	214	2	2	1	5						
8	Shan (E) State	144	143	1	288	49	64	18	131	5	24	0	29						
9	Shan (N) State	217	329	19	565	200	305	40	545	11	17	17	45						
10	Kayin State	394	544	23	961	101	141	10	252	12	21	11	44						
11	Tanintharyi Div:	540	690	22	1252	5	5	3	13	10	36	11	57						
12	Bago (East)	274	467	11	752	23	34	12	69	7	2	6	15						
13	Bago (West)	367	605	2	974	4	11	47	62	7	4	5	16						
14	Mon State	382	1032	15	1429	162	308	24	494	1	5	4	10						
15	Rakhine State	415	958	9	1382	192	291	19	502	9	16	13	38						
16	Yangon Div:	1039	1360	24	2423	352	462	110	924	42	19	53	114						
17	Ayeyarwady Div:	290	396	16	702	483	904	43	1430	11	6	11	28						
All State & Div: Total		7178	11433	452	19063	3549	4897	587	9033	173	207	187	567						
Other Unit		1343	2229	41	3613	695	543	139	1377	2	9	203	214						
Union of Myanmar		8521	13662	493	22676	4244	5440	726	10410	175	216	390	781						

**NATIONAL TUBERCULOSIS PROGRAMME  
NOTIFIED TB PATIENTS ACCORDING TO CATEGORY OF REGIMENS**

**Block-3****Annual 2009**

Sr.No	State/Division	CAT - 1				CAT - 2				CAT - 3			TOTAL
		Sputum Smear Positive	Sputum Smear Negative	EP Seriously ill	Total	Relapses	Treat-ment after Default	Treat-ment after Failure	Others (Failure)	Total	P	EP	Total
1	Kachin State	1318	1107	155	2580	173	21	81	183	458	427	1934	2361
2	Kayah State	134	178	80	392	12	4	9	48	73	76	674	750
3	Chin State	142	269	77	488	38	3	8	19	68	119	536	655
4	Sagaing Div:	2952	1300	383	4635	227	27	85	125	464	443	2888	3331
5	Magway Div:	2105	1668	378	4151	200	15	62	329	606	681	2825	3506
6	Mandalay Div:	3443	2948	860	7251	481	55	94	446	1076	510	3490	4000
7	Shan (S) State	809	457	149	1415	61	18	41	55	175	589	424	1013
8	Shan (E) State	494	242	46	782	74	15	10	28	127	457	301	758
9	Shan (N) State	1134	954	187	2275	120	23	27	49	219	293	961	1254
10	Kayin State	1100	1074	104	2278	80	21	16	30	147	1384	286	1670
11	Tanintharyi Div:	906	1630	150	2686	86	23	22	79	210	997	2382	3379
12	Bago (East)	1823	1026	217	3066	228	28	35	48	339	1421	456	1877
13	Bago (West)	1644	1305	129	3078	160	9	38	30	237	1886	165	1851
14	Mon State	1798	1278	131	3207	174	35	53	23	285	2580	565	3145
15	Rakhine State	2228	1352	308	3888	149	31	51	103	334	1634	937	2571
16	Yangon Div:	8432	5545	1181	15158	1312	127	306	717	2462	2834	2526	5360
17	Ayeyarwady Div:	4579	2527	585	7691	388	24	56	200	668	1646	1823	3469
<b>All State &amp; Div: Total</b>		<b>35041</b>	<b>24860</b>	<b>5120</b>	<b>65021</b>	<b>3963</b>	<b>479</b>	<b>994</b>	<b>2512</b>	<b>7948</b>	<b>17777</b>	<b>23173</b>	<b>40950</b>
<b>Other Unit</b>		<b>7081</b>	<b>4884</b>	<b>1359</b>	<b>13324</b>	<b>790</b>	<b>127</b>	<b>355</b>	<b>811</b>	<b>2083</b>	<b>5088</b>	<b>2915</b>	<b>8003</b>
<b>Union of Myanmar</b>		<b>42122</b>	<b>29744</b>	<b>6479</b>	<b>78345</b>	<b>4753</b>	<b>606</b>	<b>1349</b>	<b>3323</b>	<b>10031</b>	<b>22865</b>	<b>26088</b>	<b>48953</b>
													<b>137329</b>



**NATIONAL TUBERCULOSIS PROGRAMME  
LABORATORY PERFORMANCE**

Block-4											Annual 2009	
Sr.No	State/Division	A		B			C		D		TB suspects per 100000	
		Number of suspects(Dx) examined by microscopy for case finding		Number of smear positive pts detected out of suspects (Dx)			Number of patients examined by microscopy for follow-up		Number of smear positive out of follow-up patients			
		No. of Pts	slides	No. of Pts	Positivity Rate	slides	No. of Pts	slides	No. of Pts	slides		
1	Kachin State	7735	21337	1484	19%	4118	6691	13362	482	936	562	
2	Kayah State	2421	6975	140	6%	345	760	1536	55	91	838	
3	Chin State	1111	3030	143	13%	385	924	1930	56	132	219	
4	Sagaing Div:	23823	71032	3121	13%	8315	12131	25443	604	1068	377	
5	Magway Div:	12718	35018	2466	19%	5772	11610	23103	654	1060	311	
6	Mandalay Div:	16790	48218	3746	22%	9962	19412	38219	922	1724	240	
7	Shan (S) State	6039	16254	799	13%	1740	3083	5901	196	307	285	
8	Shan (E) State	2905	7946	488	17%	980	1797	3507	103	151	408	
9	Shan (N) State	6563	17807	1350	21%	3331	4916	9490	262	523	242	
10	Kayin State	6621	18074	1259	19%	2828	6111	12121	187	357	431	
11	Tanintharyi Div:	4674	13957	1772	38%	2470	4666	10422	178	343	284	
12	Bago (East)	9158	26761	2054	22%	5858	8924	18279	244	482	321	
13	Bago (West)	7664	21323	1823	24%	5095	9162	18110	331	792	378	
14	Mon State	14426	42074	2173	15%	5341	11596	22876	435	800	703	
15	Rakhine State	11535	32542	2407	21%	5941	9445	18676	542	972	344	
16	Yangon Div:	38582	109846	9510	25%	24839	48874	98416	5697	13401	667	
17	Ayeyarwady Div:	21772	63145	5014	23%	12873	21519	41967	792	1550	333	
All State & Div: Total		194537	555339	39749	20%	100193	181621	363358	11740	24689	382	
Other Unit		41846	120466	7683	18%	20494	26052	54354	2912	5440		
Union of Myanmar		236383	675805	47432	20%	120687	207673	417712	14652	30129	464	

**Annex-9**  
**NATIONAL TUBERCULOSIS PROGRAMME**  
**SPUTUM CONVERSION OF NEW POSITIVE PULMONARY TB PATIENTS**

Block-5										Annual 2009
Sr.no	State/Division	New smear(+) cases Register in previous Q:	Smear not done at eighter 2or 3 months	Sputum conversion at				Remaining positive at 3 month	TOTAL 2+3+4+5	Sputum Conversion Rate
				2 month		3 month				
				No	%	No	%			
1	Kachin State	1255	150	902	72%	155	12%	48	1255	84%
2	Kayah State	131	9	108	82%	10	8%	4	131	90%
3	Chin State	151	23	106	70%	20	13%	2	151	83%
4	Sagaing Div:	2909	269	2389	82%	189	6%	62	2909	89%
5	Magway Div:	2052	170	1670	81%	137	7%	75	2052	88%
6	Mandalay Div:	3360	332	2662	79%	270	8%	96	3360	87%
7	Shan (S) State	780	76	619	79%	63	8%	22	780	87%
8	Shan (E) State	483	66	367	76%	32	7%	18	483	83%
9	Shan (N) State	1140	163	844	74%	100	9%	33	1140	83%
10	Kayin State	1061	122	826	78%	95	9%	18	1061	87%
11	Tanintharyi Div:	885	123	698	79%	50	6%	14	885	85%
12	Bago (East)	1764	155	1524	86%	68	4%	17	1764	90%
13	Bago (West)	1588	132	1282	81%	123	8%	51	1588	88%
14	Mon State	1758	158	1409	80%	134	8%	57	1758	88%
15	Rakhine State	2199	212	1692	77%	221	10%	74	2199	87%
16	Yangon Div:	8329	537	7000	84%	592	7%	200	8329	91%
17	Ayeyarwady Div:	4507	301	3818	85%	300	7%	88	4507	91%
	Total	34352	2998	27916	81%	2559	7%	879	34352	89%
Other Unit		6999	837	5187	74%	652	9%	323	6999	83%
Union of Myanmar		41351	3835	33103	80%	3211	8%	1202	41351	88%

**NATIONAL TUBERCULOSIS PROGRAMME**  
**TREATMENT OUTCOMES OF NEW SMEAR POSITIVE TB PATIENTS (2008 COHORT)**

Sr.No	State/ Division	TOTAL	NEW SMEAR POSITIVE TB PATIENTS														Total
			Cured		Completed		TSR		Died		Failure		Defaulted		Transfer		
			No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	Kachin State	1158	847	73%	57	5%	78%	64	6%	44	4%	117	10%	29	3%	1158	
2	Kayah State	157	99	63%	29	18%	82%	6	4%	6	4%	11	7%	6	4%	157	
3	Chin State	160	114	71%	30	19%	90%	7	4%	3	2%	5	3%	1	1%	160	
4	Sagaing Division	2800	2179	78%	204	7%	85%	219	8%	71	3%	91	3%	36	1%	2800	
5	Magway Division	2236	1697	76%	230	10%	86%	137	6%	45	2%	92	4%	35	2%	2236	
6	Mandalay Division	3649	2947	81%	211	6%	87%	265	7%	74	2%	92	3%	60	2%	3649	
7	Shan State (South)	773	621	80%	41	5%	86%	51	7%	13	2%	36	5%	11	1%	773	
8	Shan State (East)	561	393	70%	77	14%	84%	18	3%	16	3%	43	8%	14	2%	561	
9	Shan State (North)	1089	746	69%	126	12%	80%	55	5%	27	2%	120	11%	15	1%	1089	
10	Kayin State	1095	834	76%	71	6%	83%	47	4%	15	1%	91	8%	37	3%	1095	
11	Tanintharyi Division	822	608	74%	44	5%	79%	25	3%	18	2%	71	9%	56	7%	822	
12	Bago (East) Division	1894	1480	78%	159	8%	87%	96	5%	32	2%	105	6%	22	1%	1894	
13	Bago (West) Division	1716	1367	80%	85	5%	85%	143	8%	42	2%	57	3%	22	1%	1716	
14	Mon State	1800	1450	81%	87	5%	85%	101	6%	43	2%	84	5%	35	2%	1800	
15	Rakhine State	2228	1653	74%	263	12%	86%	126	6%	44	2%	121	5%	21	1%	2228	
16	Yangon Division	8788	7235	82%	522	6%	88%	385	4%	258	3%	302	3%	86	1%	8788	
17	Ayeyarwaddy Division	4966	4005	81%	353	7%	88%	298	6%	57	1%	210	4%	43	1%	4966	
States & Divisions total		35892	28275	79%	2589	7%	86%	2043	6%	808	2%	1648	5%	529	1%	35892	
NS(+) TB patients, Unknown HIV status (NTP)		35184	27968	79%	2450	7%	86%	1837	5%	800	2%	1619	5%	510	1%	35184	
Other Unit		5365	3792	71%	521	10%	80%	333	6%	257	5%	328	6%	134	2%	5365	
NS(+) TB patients, Unknown HIV status (Other units)		4800	3459	72%	494	10%	82%	201	4%	243	5%	288	6%	115	2%	4800	
Union of Myanmar		41257	32067	78%	3110	8%	85%	2376	6%	1065	3%	1976	5%	663	2%	41257	
NS(+) TB patients, unknown HIV status (Union)		39984	31427	79%	2944	7%	86%	2038	5%	1043	3%	1907	5%	625	2%	39984	

**TREATMENT OUTCOME OF TB/HIV PATIENTS IN 2009 (2008 COHORT)**

Sr.No		Reporting units	TOTAL	NEW SMEAR POSITIVE TB PATIENTS (KNOWN HIV POSITIVE)												Total		
				Cured		Completed		TSR %	Died		Failure		Defaulted		Transfer			
									No.	Rate	No.	Rate	No.	Rate	No.		Rate	
				No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate		No.	Rate
1	NTP		708	307	43%	139	20%	63%		206	29%	8	1%	29	4%	19	3%	708
2	Other Units		565	333	59%	27	5%	64%		132	23%	14	2%	40	7%	19	3%	565
Total			1273	640	50%	166	13%	63%		338	27%	22	2%	69	5%	38	3%	1273

**NATIONAL TUBERCULOSIS PROGRAMME  
TREATMENT OUTCOMES OF NEW SMEAR POSITIVE TB PATIENTS (2008 COHORT)**

**Kachin State**

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR	Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate		No	Rate	No	Rate	No	Rate	No	Rate	
1	Bahmo	105	90	86%	0	0%	86%	6	6%	3	3%	2	2%	4	4%	105
2	Mansi	49	35	71%	0	0%	71%	1	2%	1	2%	11	22%	1	2%	49
3	Momaik	19	16	84%	0	0%	84%	2	11%	0	0%	1	5%	0	0%	19
4	Shwegu	34	28	82%	5	15%	97%	1	3%	0	0%	0	0%	0	0%	34
5	Mohyinin	146	110	75%	5	3%	79%	11	8%	3	2%	15	10%	2	1%	146
6	Kamaing	65	35	54%	7	11%	65%	5	8%	4	6%	11	17%	3	5%	65
7	Mogaung	121	84	69%	8	7%	76%	6	5%	7	6%	13	11%	3	2%	121
8	Tanai	55	31	56%	7	13%	69%	4	7%	3	5%	10	18%	0	0%	55
9	Myitkyina	365	258	71%	13	4%	74%	20	5%	19	5%	44	12%	11	3%	365
10	Chipway	2	2	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	2
11	Hsawlaw	Nr.														
12	N Jan Yan	Nr.														
13	Waingmaw	121	99	82%	8	7%	88%	5	4%	3	2%	4	3%	2	2%	121
14	Putao	72	57	79%	4	6%	85%	2	3%	1	1%	6	8%	2	3%	72
15	Khaunglanbu	Nr.														
16	Machanbaw	3	2	67%	0	0%	67%	1	33%	0	0%	0	0%	0	0%	3
17	Nogmun	0														0
18	Sumprabum	1	0	0%	0	0%	0%	0	0%	0	0%	0	0%	1	100%	1
	Total	1158	847	73%	57	5%	78%	64	6%	44	4%	117	10%	29	3%	1158

**Kayah State**

1	Bawlake	9	5	56%	1	11%	67%	0	0%	0	0%	3	33%	0	0%	9
2	Masai	6	3	50%	3	50%	100%	0	0%	0	0%	0	0%	0	0%	6
3	Pasaung	11	2	18%	5	45%	64%	1	9%	2	18%	0	0%	1	9%	11
4	Loikaw	85	59	69%	9	11%	80%	2	2%	4	5%	7	8%	4	5%	85
5	Dimawhso	33	25	76%	3	9%	85%	3	9%	0	0%	1	3%	1	3%	33
6	Phruho	8	5	63%	3	38%	100%	0	0%	0	0%	0	0%	0	0%	8
7	Shataw	5	0	0%	5	100%	100%	0	0%	0	0%	0	0%	0	0%	5
<b>Total</b>		<b>157</b>	<b>99</b>	<b>63%</b>	<b>29</b>	<b>18%</b>	<b>82%</b>	<b>6</b>	<b>4%</b>	<b>6</b>	<b>4%</b>	<b>11</b>	<b>7%</b>	<b>6</b>	<b>4%</b>	<b>157</b>

**Chin State**

1	Falam	7	6	86%	0	0%	86%	1	14%	0	0%	0	0%	0	0%	7
2	Hakha	23	20	87%	0	0%	87%	2	9%	1	4%	0	0%	0	0%	23
3	Htantalan	7	7	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	7
4	Tiddim	29	23	79%	3	10%	90%	1	3%	0	0%	2	7%	0	0%	29
5	Tunzan	5	4	80%	1	20%	100%	0	0%	0	0%	0	0%	0	0%	5
6	Mindat	30	12	40%	12	40%	80%	3	10%	2	7%	0	0%	1	3%	30
7	Kanpetlet	13	5	38%	8	62%	100%	0	0%	0	0%	0	0%	0	0%	13
8	Matupi	9	6	67%	3	33%	100%	0	0%	0	0%	0	0%	0	0%	9
9	Paletwa	37	31	84%	3	8%	92%	0	0%	0	0%	3	8%	0	0%	37
<b>Total</b>		<b>160</b>	<b>114</b>	<b>71%</b>	<b>30</b>	<b>19%</b>	<b>90%</b>	<b>7</b>	<b>4%</b>	<b>3</b>	<b>2%</b>	<b>5</b>	<b>3%</b>	<b>1</b>	<b>1%</b>	<b>160</b>

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
Sagaing Division																	
1	Sagaing	190	153	81%	13	7%	87%	18	9%	1	1%	4	2%	1	1%	190	
2	Myaung	65	47	72%	11	17%	89%	5	8%	0	0%	1	2%	1	2%	65	
3	Myinmu	108	105	97%	0	0%	97%	3	3%	0	0%	0	0%	0	0%	108	
4	Shwebo	121	91	75%	8	7%	82%	8	7%	1	1%	7	6%	6	5%	121	
5	Kanbalu	128	101	79%	8	6%	85%	10	8%	2	2%	4	3%	3	2%	128	
6	Khin-U	56	49	88%	1	2%	89%	5	9%	1	2%	0	0%	0	0%	56	
7	Kyunhla	45	20	44%	19	42%	87%	5	11%	0	0%	1	2%	0	0%	45	
8	Tabayin	55	49	89%	3	5%	95%	3	5%	0	0%	0	0%	0	0%	55	
9	Taze	64	50	78%	8	13%	91%	4	6%	0	0%	1	2%	1	2%	64	
10	Wetlet	119	99	83%	2	2%	85%	15	13%	3	3%	0	0%	0	0%	119	
11	Ye-U	51	42	82%	0	0%	82%	3	6%	3	6%	3	6%	0	0%	51	
12	Monywa	191	139	73%	8	4%	77%	25	13%	6	3%	10	5%	3	2%	191	
13	Ayadaw	78	71	91%	2	3%	94%	5	6%	0	0%	0	0%	0	0%	78	
14	Budalin	91	71	78%	0	0%	78%	8	9%	7	8%	5	5%	0	0%	91	
15	ChaungU	73	58	79%	4	5%	85%	6	8%	0	0%	4	5%	1	1%	73	
16	Kani	41	30	73%	11	27%	100%	0	0%	0	0%	0	0%	0	0%	41	
17	Pale	54	30	56%	13	24%	80%	3	6%	4	7%	4	7%	0	0%	54	
18	Salingyi	54	40	74%	1	2%	76%	6	11%	3	6%	2	4%	2	4%	54	
19	Yinnabin	51	47	92%	1	2%	94%	2	4%	0	0%	1	2%	0	0%	51	
20	Katha	102	82	80%	1	1%	81%	8	8%	4	4%	5	5%	2	2%	102	
21	Banmauk	22	14	64%	6	27%	91%	2	9%	0	0%	0	0%	0	0%	22	
22	Htigyaing	62	40	65%	9	15%	79%	5	8%	5	8%	2	3%	1	2%	62	
23	Indaw	55	48	87%	0	0%	87%	3	5%	1	2%	2	4%	1	2%	55	
24	Kawlin	60	40	67%	6	10%	77%	9	15%	3	5%	2	3%	0	0%	60	
25	Pinlebu	41	28	68%	7	17%	85%	6	15%	0	0%	0	0%	0	0%	41	
26	Wuntho	30	26	87%	0	0%	87%	2	7%	2	7%	0	0%	0	0%	30	
27	Kalay	217	171	79%	0	0%	79%	18	8%	15	7%	10	5%	3	1%	217	
28	Kalewa	40	35	88%	2	5%	93%	2	5%	0	0%	1	3%	0	0%	40	
29	Minkin	54	52	96%	0	0%	96%	2	4%	0	0%	0	0%	0	0%	54	
30	Tamu	144	136	94%	1	1%	95%	4	3%	0	0%	2	1%	1	1%	144	
31	Mawlaik	17	12	71%	4	24%	94%	0	0%	0	0%	1	6%	0	0%	17	
32	Phaungbyin	76	48	63%	13	17%	80%	8	11%	1	1%	3	4%	3	4%	76	
33	Khamti	87	56	64%	9	10%	75%	6	7%	5	6%	7	8%	4	5%	87	
34	Homalin	92	52	57%	22	24%	80%	9	10%	2	2%	4	4%	3	3%	92	
35	Layshi	9	8	89%	0	0%	89%	0	0%	1	11%	0	0%	0	0%	9	
36	Lahel	50	34	68%	10	20%	88%	0	0%	1	2%	5	10%	0	0%	50	
37	Nanyun	7	5	71%	1	14%	86%	1	14%	0	0%	0	0%	0	0%	7	
Total		2800	2179	78%	204	7%	85%	219	8%	71	3%	91	3%	36	1%	2800	

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
Magwe Division																	
1	Magwe	323	230	71%	28	9%	80%	20	6%	15	5%	21	7%	9	3%	323	
2	Chauk	152	106	70%	20	13%	83%	5	3%	1	1%	15	10%	5	3%	152	
3	Taundwingyi	122	109	89%	0	0%	89%	8	7%	0	0%	3	2%	2	2%	122	
4	Myothit	117	112	96%	0	0%	96%	4	3%	0	0%	1	1%	0	0%	117	
5	Natmauk	95	73	77%	9	9%	86%	5	5%	1	1%	6	6%	1	1%	95	
6	Yenanchaung	120	107	89%	4	3%	93%	5	4%	2	2%	2	2%	0	0%	120	
7	Pakokku	144	97	67%	30	21%	88%	7	5%	1	1%	6	4%	3	2%	144	
8	Yesagyo	53	47	89%	0	0%	89%	4	8%	0	0%	1	2%	1	2%	53	
9	Pauk	99	94	95%	0	0%	95%	5	5%	0	0%	0	0%	0	0%	99	
10	Myaing	126	59	47%	57	45%	92%	9	7%	1	1%	0	0%	0	0%	126	
11	Seikphyu	44	39	89%	3	7%	95%	1	2%	0	0%	0	0%	1	2%	44	
12	Gantgaw	65	40	62%	23	35%	97%	2	3%	0	0%	0	0%	0	0%	65	
13	Saw	22	21	95%	0	0%	95%	1	5%	0	0%	0	0%	0	0%	22	
14	Htilin	16	14	88%	0	0%	88%	2	13%	0	0%	0	0%	0	0%	16	
15	Minbu	110	77	70%	4	4%	74%	7	6%	9	8%	10	9%	3	3%	110	
16	Ngape	24	13	54%	6	25%	79%	3	13%	0	0%	0	0%	2	8%	24	
17	Pwintphyu	35	30	86%	0	0%	86%	3	9%	2	6%	0	0%	0	0%	35	
18	Saytoketaya	24	5	21%	10	42%	63%	1	4%	4	17%	3	13%	1	4%	24	
19	Salin	120	85	71%	24	20%	91%	8	7%	1	1%	1	1%	1	1%	120	
20	Thayet	113	71	63%	11	10%	73%	7	6%	4	4%	18	16%	2	2%	113	
21	Minhla	48	47	98%	0	0%	98%	0	0%	0	0%	1	2%	0	0%	48	
22	Kanma	62	56	90%	0	0%	90%	6	10%	0	0%	0	0%	0	0%	62	
23	Sinpaukwae	32	32	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	32	
24	Mindon	35	35	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	35	
25	Aunglan	135	98	73%	1	1%	73%	24	18%	4	3%	4	3%	4	3%	135	
	Total	2236	1697	76%	230	10%	86%	137	6%	45	2%	92	4%	35	2%	2236	

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
Mandalay Division																	
1	Amarapura	88	59	67%	18	20%	88%	5	6%	1	1%	2	2%	3	3%	88	
2	Aungmyaytharzan	219	193	88%	0	0%	88%	13	6%	5	2%	3	1%	5	2%	219	
3	Chanayetharzan	148	115	78%	8	5%	83%	12	8%	5	3%	5	3%	3	2%	148	
4	Chanmyatharzi	241	216	90%	2	1%	90%	11	5%	2	1%	8	3%	2	1%	241	
5	Maharaungmyae	188	169	90%	0	0%	90%	15	8%	1	1%	0	0%	3	2%	188	
6	Pyigyitagonn	147	108	73%	13	9%	82%	17	12%	3	2%	2	1%	4	3%	147	
7	Patheingyi	134	114	85%	3	2%	87%	6	4%	3	2%	2	1%	6	4%	134	
8	Meiktilar	61	38	62%	8	13%	75%	9	15%	0	0%	2	3%	4	7%	61	
9	Mahlaing	37	29	78%	3	8%	86%	2	5%	1	3%	2	5%	0	0%	37	
10	Tharzi	92	88	96%	4	4%	100%	0	0%	0	0%	0	0%	0	0%	92	
11	Wundwin	104	86	83%	1	1%	84%	15	14%	0	0%	2	2%	0	0%	104	
12	Myingan	190	163	86%	0	0%	86%	18	9%	5	3%	4	2%	0	0%	190	
13	Kyaukpadaung	223	178	80%	11	5%	85%	25	11%	3	1%	4	2%	2	1%	223	
14	Natogyi	36	27	75%	2	6%	81%	3	8%	1	3%	2	6%	1	3%	36	
15	Ngazun	57	45	79%	4	7%	86%	3	5%	1	2%	4	7%	0	0%	57	
16	Taungtha	54	44	81%	6	11%	93%	0	0%	0	0%	2	4%	2	4%	54	
17	NyaungU	140	101	72%	18	13%	85%	10	7%	6	4%	3	2%	2	1%	140	
18	Pyin oo Lwin	83	79	95%	0	0%	95%	0	0%	4	5%	0	0%	0	0%	83	
19	Madayar	132	92	70%	8	6%	76%	15	11%	8	6%	8	6%	1	1%	132	
20	Mogok	59	47	80%	6	10%	90%	4	7%	1	2%	0	0%	1	2%	59	
21	Sintgu	116	110	95%	5	4%	99%	1	1%	0	0%	0	0%	0	0%	116	
22	Thabeikkyin	80	56	70%	11	14%	84%	3	4%	3	4%	4	5%	3	4%	80	
23	Yamethin	105	92	88%	0	0%	88%	12	11%	0	0%	1	1%	0	0%	105	
24	Lewei	147	131	89%	8	5%	95%	6	4%	1	1%	0	0%	1	1%	147	
25	Pyawbwei	108	97	90%	0	0%	90%	8	7%	3	3%	0	0%	0	0%	108	
26	Pyinmana	220	130	59%	38	17%	76%	19	9%	5	2%	22	10%	6	3%	220	
27	Tatkone	76	51	67%	10	13%	80%	6	8%	2	3%	2	3%	5	7%	76	
28	Kyaukse	193	153	79%	12	6%	85%	11	6%	8	4%	4	2%	5	3%	193	
29	Myittha	76	56	74%	11	14%	88%	6	8%	0	0%	3	4%	0	0%	76	
30	Sintgine	51	46	90%	1	2%	92%	4	8%	0	0%	0	0%	0	0%	51	
31	TadaOo	44	34	77%	0	0%	77%	6	14%	2	5%	1	2%	1	2%	44	
Total		3649	2947	81%	211	6%	87%	265	7%	74	2%	92	3%	60	2%	3649	

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
Shan State (South)																	
1	Linhkay	28	25	89%	0	0%	89%	2	7%	1	4%	0	0%	0	0%	28	
2	Maukme	18	16	89%	0	0%	89%	2	11%	0	0%	0	0%	0	0%	18	
3	Monai	17	17	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	17	
4	Mangpang	0														0	
5	Loilem	30	26	87%	0	0%	87%	1	3%	0	0%	2	7%	1	3%	30	
6	Kunhein	41	24	59%	12	29%	88%	3	7%	1	2%	1	2%	0	0%	41	
7	Kyeethi	18	16	89%	0	0%	89%	1	6%	0	0%	0	0%	1	6%	18	
8	Laikha	26	26	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	26	
9	Mongkaing	23	10	43%	7	30%	74%	1	4%	0	0%	5	22%	0	0%	23	
10	Mongshu	34	34	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	34	
11	Namsan	37	25	68%	1	3%	70%	3	8%	0	0%	6	16%	2	5%	37	
12	Taunggyi	157	106	68%	10	6%	74%	13	8%	5	3%	17	11%	6	4%	157	
13	Hopone	21	18	86%	0	0%	86%	2	10%	0	0%	0	0%	1	5%	21	
14	Hpekon	23	19	83%	1	4%	87%	0	0%	1	4%	2	9%	0	0%	23	
15	Hsiseng	36	25	69%	4	11%	81%	5	14%	0	0%	2	6%	0	0%	36	
16	Kalaw	82	67	82%	1	1%	83%	10	12%	3	4%	1	1%	0	0%	82	
17	Lauksauk	48	43	90%	0	0%	90%	5	10%	0	0%	0	0%	0	0%	48	
18	Pindaya	11	10	91%	1	9%	100%	0	0%	0	0%	0	0%	0	0%	11	
19	Pinlaung	44	38	86%	4	9%	95%	2	5%	0	0%	0	0%	0	0%	44	
20	Nyaungshwe	69	68	99%	0	0%	99%	0	0%	1	1%	0	0%	0	0%	69	
21	Ywangan	10	8	80%	0	0%	80%	1	10%	1	10%	0	0%	0	0%	10	
Total		773	621	80%	41	5%	86%	51	7%	13	2%	36	5%	11	1%	773	

<b>Shan State (East)</b>																
1	Kengtong	147	106	72%	17	12%	84%	0	0%	4	3%	13	9%	7	5%	147
2	Mongkhat	0	0		0			0		0		0		0		0
3	Mongyan	40	29	73%	9	23%	95%	1	3%	0	0%	1	3%	0	0%	40
4	Monghsat	117	74	63%	19	16%	79%	7	6%	9	8%	6	5%	2	2%	117
5	Mongping	41	30	73%	5	12%	85%	1	2%	0	0%	5	12%	0	0%	41
6	Mongton	17	9	53%	2	12%	65%	0	0%	1	6%	5	29%	0	0%	17
7	Monpyak	23	19	83%	2	9%	91%	0	0%	1	4%	1	4%	0	0%	23
8	Mongyaung	37	23	62%	9	24%	86%	0	0%	0	0%	5	14%	0	0%	37
9	Tachileik	139	103	74%	14	10%	84%	9	6%	1	1%	7	5%	5	4%	139
10	Matman	Nr.														
Total		561	393	70%	77	14%	84%	18	3%	16	3%	43	8%	14	2%	561



# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR	Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate		No	Rate	No	Rate	No	Rate	No	Rate	
Shan State (North)																
1	Kunlon	24	23	96%	0	0%	96%	1	4%	0	0%	0	0%	0	0%	24
2	Hopan	75	28	37%	38	51%	88%	3	4%	1	1%	5	7%	0	0%	75
3	Kyaukme	120	86	72%	8	7%	78%	10	8%	2	2%	11	9%	3	3%	120
4	Hsipaw	109	109	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	109
5	Mabein	20	18	90%	2	10%	100%	0	0%	0	0%	0	0%	0	0%	20
6	Manton	5	5	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	5
7	Mongmeik	51	40	78%	3	6%	84%	3	6%	2	4%	3	6%	0	0%	51
8	Namtu	52	35	67%	8	15%	83%	7	13%	0	0%	2	4%	0	0%	52
9	Nyaungcho	40	38	95%	0	0%	95%	1	3%	1	3%	0	0%	0	0%	40
10	Lashio	217	133	61%	7	3%	65%	15	7%	11	5%	49	23%	2	1%	217
11	Namsam	21	12	57%	7	33%	90%	1	5%	1	5%	0	0%	0	0%	21
12	Mongmaw	Nr.														
13	Theinni	44	21	48%	9	20%	68%	5	11%	3	7%	6	14%	0	0%	44
14	Mongreh	33	27	82%	4	12%	94%	1	3%	0	0%	1	3%	0	0%	33
15	Manphant	Nr.														
16	Pangyan	11	2	18%	3	27%	45%	0	0%	0	0%	6	55%	0	0%	11
17	Narphant	Nr.														
18	Panwaing	Nr.														
19	Tanyan	61	41	67%	15	25%	92%	1	2%	3	5%	1	2%	0	0%	61
20	Laukkai	22	8	36%	4	18%	55%	0	0%	0	0%	6	27%	4	18%	22
21	Kongyan	Nr.														
22	Muse	60	39	65%	5	8%	73%	3	5%	0	0%	10	17%	3	5%	60
23	Kutkai	45	29	64%	3	7%	71%	3	7%	2	4%	8	18%	0	0%	45
24	Namkham	79	52	66%	10	13%	78%	1	1%	1	1%	12	15%	3	4%	79
Total		1089	746	69%	126	12%	80%	55	5%	27	2%	120	11%	15	1%	1089

Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate			No	Rate	No	Rate	No	Rate	No	Rate	
Kayin State																	
1	Kawkareik	179	139	78%	11	6%	84%	12	7%	2	1%	14	8%	1	1%	179	
2	Kyainseikkyi	57	36	63%	16	28%	91%	3	5%	0	0%	2	4%	0	0%	57	
3	Myawady	168	107	64%	16	10%	73%	11	7%	5	3%	18	11%	11	7%	168	
4	Hpa-an	461	366	79%	19	4%	84%	10	2%	1	0%	45	10%	20	4%	461	
5	Hlaingbwe	142	114	80%	9	6%	87%	6	4%	3	2%	7	5%	3	2%	142	
6	Papun(Kamamaung)	65	54	83%	0	0%	83%	2	3%	2	3%	5	8%	2	3%	65	
7	Thandaung	23	18	78%	0	0%	78%	3	13%	2	9%	0	0%	0	0%	23	
	Total	1095	834	76%	71	6%	83%	47	4%	15	1%	91	8%	37	3%	1095	
Tanintharyi Division																	
1	Dawei	143	120	84%	5	3%	87%	1	1%	8	6%	6	4%	3	2%	143	
2	Launglon	26	24	92%	0	0%	92%	2	8%	0	0%	0	0%	0	0%	26	
3	Thayetchaung	18	14	78%	1	6%	83%	1	6%	0	0%	2	11%	0	0%	18	
4	Yebyu	29	24	83%	0	0%	83%	1	3%	1	3%	2	7%	1	3%	29	
5	Kawthaung	135	103	76%	13	10%	86%	4	3%	1	1%	11	8%	3	2%	135	
6	Bokpyin	20	14	70%	2	10%	80%	1	5%	0	0%	3	15%	0	0%	20	
7	Myeik	301	211	70%	10	3%	73%	11	4%	4	1%	19	6%	46	15%	301	
8	Kyunsu	11	10	91%	0	0%	91%	0	0%	0	0%	1	9%	0	0%	11	
9	Tanintharyi	54	44	81%	1	2%	83%	3	6%	1	2%	5	9%	0	0%	54	
10	Palaw	85	44	52%	12	14%	66%	1	1%	3	4%	22	26%	3	4%	85	
	Total	822	608	74%	44	5%	79%	25	3%	18	2%	71	9%	56	7%	822	

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
Bago East Division																	
1	Bago	465	318	68%	63	14%	82%	24	5%	18	4%	37	8%	5	1%	465	
2	Daik-U	134	119	89%	2	1%	90%	4	3%	1	1%	8	6%	0	0%	134	
3	Kawa	96	69	72%	14	15%	86%	4	4%	1	1%	7	7%	1	1%	96	
4	Kyauktaga	150	130	87%	10	7%	93%	8	5%	0	0%	0	0%	2	1%	150	
5	Nyaungdaybin	110	88	80%	9	8%	88%	5	5%	2	2%	5	5%	1	1%	110	
6	Shwekyin	53	34	64%	10	19%	83%	2	4%	0	0%	6	11%	1	2%	53	
7	Thanatpin	99	76	77%	8	8%	85%	7	7%	0	0%	8	8%	0	0%	99	
8	Waw	146	122	84%	6	4%	88%	8	5%	4	3%	6	4%	0	0%	146	
9	Taunggoo	138	113	82%	0	0%	82%	9	7%	4	3%	5	4%	7	5%	138	
10	Kyaukkyyi	50	36	72%	12	24%	96%	1	2%	0	0%	1	2%	0	0%	50	
11	Oktwin	87	68	78%	4	5%	83%	10	11%	0	0%	4	5%	1	1%	87	
12	Phyu	193	158	82%	10	5%	87%	5	3%	2	1%	16	8%	2	1%	193	
13	Htantabin	62	56	90%	3	5%	95%	3	5%	0	0%	0	0%	0	0%	62	
14	Yedashe	111	93	84%	8	7%	91%	6	5%	0	0%	2	2%	2	2%	111	
Total		1894	1480	78%	159	8%	87%	96	5%	32	2%	105	6%	22	1%	1894	
Bago West Division																	
1	Pyay	288	213	74%	4	1%	75%	29	10%	19	7%	14	5%	9	3%	288	
2	Paukhaung	101	89	88%	0	0%	88%	10	10%	0	0%	2	2%	0	0%	101	
3	Paungde	96	77	80%	0	0%	80%	10	10%	1	1%	3	3%	5	5%	96	
4	Padaung	82	62	76%	7	9%	84%	10	12%	0	0%	3	4%	0	0%	82	
5	Shwedaung	88	56	64%	15	17%	81%	9	10%	0	0%	7	8%	1	1%	88	
6	Thegon	76	59	78%	4	5%	83%	2	3%	2	3%	8	11%	1	1%	76	
7	Tharyarwady	172	147	85%	0	0%	85%	13	8%	9	5%	2	1%	1	1%	172	
8	Zigon	96	87	91%	6	6%	97%	3	3%	0	0%	0	0%	0	0%	96	
9	Minhla	96	81	84%	5	5%	90%	5	5%	4	4%	0	0%	1	1%	96	
10	Moenyo	84	68	81%	2	2%	83%	9	11%	4	5%	0	0%	1	1%	84	
11	Okpo	96	90	94%	0	0%	94%	6	6%	0	0%	0	0%	0	0%	96	
12	Gyobingauk	101	89	88%	1	1%	89%	7	7%	0	0%	2	2%	2	2%	101	
13	Nattalin	145	113	78%	14	10%	88%	12	8%	2	1%	4	3%	0	0%	145	
14	Latpadan	195	136	70%	27	14%	84%	18	9%	1	1%	12	6%	1	1%	195	
Total		1716	1367	80%	85	5%	85%	143	8%	42	2%	57	3%	22	1%	1716	

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR	Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate		No	Rate	No	Rate	No	Rate	No	Rate	
Mon State																
1	Mawlamyaing	340	277	81%	19	6%	87%	13	4%	3	1%	18	5%	10	3%	340
2	Chanungzon	67	52	78%	5	7%	85%	6	9%	2	3%	1	1%	1	1%	67
3	Kyaikmaraw	146	107	73%	23	16%	89%	11	8%	2	1%	3	2%	0	0%	146
4	Mudon	166	140	84%	2	1%	86%	6	4%	2	1%	16	10%	0	0%	166
5	Thanbyuzayat	134	113	84%	0	0%	84%	11	8%	5	4%	2	1%	3	2%	134
6	Ye	159	92	58%	13	8%	66%	18	11%	14	9%	21	13%	1	1%	159
7	Thaton	281	224	80%	9	3%	83%	20	7%	9	3%	11	4%	8	3%	281
8	Belin	209	183	88%	7	3%	91%	8	4%	3	1%	7	3%	1	0%	209
9	Kyaikto	133	112	84%	9	7%	91%	2	2%	2	2%	5	4%	3	2%	133
10	Paung	165	150	91%	0	0%	91%	6	4%	1	1%	0	0%	8	5%	165
Total		1800	1450	81%	87	5%	85%	101	6%	43	2%	84	5%	35	2%	1800
Rakhine State																
1	Kyaukphyu	97	59	61%	16	16%	77%	7	7%	3	3%	7	7%	5	5%	97
2	Ann	51	22	43%	12	24%	67%	0	0%	1	2%	14	27%	2	4%	51
3	Manaung	44	44	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	44
4	Rambye	56	40	71%	3	5%	77%	5	9%	5	9%	1	2%	2	4%	56
5	Maungdaw	193	117	61%	51	26%	87%	14	7%	9	5%	2	1%	0	0%	193
6	Buthidaung	322	267	83%	28	9%	92%	27	8%	0	0%	0	0%	0	0%	322
7	Rathedaung	106	86	81%	9	8%	90%	3	3%	0	0%	8	8%	0	0%	106
8	Sittwe	326	219	67%	45	14%	81%	18	6%	18	6%	21	6%	5	2%	326
9	Kyauktaw	182	172	95%	4	2%	97%	1	1%	0	0%	5	3%	0	0%	182
10	Minbya	148	125	84%	4	3%	87%	8	5%	5	3%	4	3%	2	1%	148
11	Myaukoo	191	173	91%	0	0%	91%	14	7%	0	0%	4	2%	0	0%	191
12	Myebon	66	26	39%	26	39%	79%	4	6%	0	0%	10	15%	0	0%	66
13	Pauktaw	91	28	31%	29	32%	63%	3	3%	1	1%	30	33%	0	0%	91
14	Ponnagyun	84	66	79%	15	18%	96%	1	1%	1	1%	1	1%	0	0%	84
15	Thandwe	110	90	82%	5	5%	86%	9	8%	0	0%	4	4%	2	2%	110
16	Gwa	53	48	91%	0	0%	91%	5	9%	0	0%	0	0%	0	0%	53
17	Taungup	108	71	66%	16	15%	81%	7	6%	1	1%	10	9%	3	3%	108
Total		2228	1653	74%	263	12%	86%	126	6%	44	2%	121	5%	21	1%	2228

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR	Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate		No	Rate	No	Rate	No	Rate	No	Rate	
Yangon Division																
	East District	3	3	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	3
1	Botataung	55	48	87%	1	2%	89%	1	2%	3	5%	1	2%	1	2%	55
2	Dawbon	145	141	97%	0	0%	97%	4	3%	0	0%	0	0%	0	0%	145
3	Dagon(N)	272	224	82%	11	4%	86%	15	6%	6	2%	11	4%	5	2%	272
4	Dagon(S)	617	460	75%	30	5%	79%	33	5%	39	6%	49	8%	6	1%	617
5	MingalarTN	165	144	87%	1	1%	88%	7	4%	10	6%	1	1%	2	1%	165
6	Okkala(N)	296	257	87%	3	1%	88%	11	4%	10	3%	13	4%	2	1%	296
7	Okkala(S)	207	182	88%	0	0%	88%	10	5%	8	4%	7	3%	0	0%	207
8	Tharkata	437	372	85%	26	6%	91%	20	5%	3	1%	12	3%	4	1%	437
9	Thingangyun	226	192	85%	1	0%	85%	16	7%	9	4%	6	3%	2	1%	226
10	Yankin	146	130	89%	4	3%	92%	5	3%	2	1%	1	1%	4	3%	146
11	Tarmwe	119	102	86%	2	2%	87%	2	2%	10	8%	1	1%	2	2%	119
12	Pazundaung	52	47	90%	1	2%	92%	1	2%	1	2%	1	2%	1	2%	52
13	Dagon(E)	219	190	87%	4	2%	89%	7	3%	8	4%	9	4%	1	0%	219
14	Dagon Seikkan	109	85	78%	7	6%	84%	5	5%	0	0%	10	9%	2	2%	109
	Total	3068	2577	84%	91	3%	87%	137	4%	109	4%	122	4%	32	1%	3068
West District																
1	Kamayut	72	50	69%	9	13%	82%	4	6%	5	7%	2	3%	2	3%	72
2	Kyauktaga	27	24	89%	2	7%	96%	0	0%	0	0%	1	4%	0	0%	27
3	Kyeemyintdaing	125	98	78%	0	0%	78%	10	8%	13	10%	2	2%	2	2%	125
4	Sanchaung	110	95	86%	2	2%	88%	4	4%	4	4%	3	3%	2	2%	110
5	Seikkan	4	4	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	4
6	Dagon	31	27	87%	0	0%	87%	2	6%	1	3%	0	0%	1	3%	31
7	Pabadan	28	23	82%	0	0%	82%	1	4%	4	14%	0	0%	0	0%	28
8	Bahan	99	81	82%	9	9%	91%	3	3%	0	0%	3	3%	3	3%	99
9	Mayangon	231	199	86%	10	4%	90%	9	4%	7	3%	2	1%	4	2%	231
10	Latha	30	21	70%	0	0%	70%	1	3%	4	13%	3	10%	1	3%	30
11	Lanmadaw	27	23	85%	1	4%	89%	2	7%	1	4%	0	0%	0	0%	27
12	Hlaing	242	207	86%	13	5%	91%	8	3%	8	3%	2	1%	4	2%	242
13	Ahlonge	78	54	69%	14	18%	87%	5	6%	3	4%	2	3%	0	0%	78
	Total	1104	906	82%	60	5%	88%	49	4%	50	5%	20	2%	19	2%	1104

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR	Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate		No	Rate	No	Rate	No	Rate	No	Rate	
South District																
1	Seikkyikhanaungto	45	39	87%	3	7%	93%	0	0%	3	7%	0	0%	0	0%	45
2	Dallah	155	119	77%	7	5%	81%	12	8%	6	4%	11	7%	0	0%	155
3	Cocogyun	0														0
4	Kawhmu	89	83	93%	1	1%	94%	3	3%	0	0%	2	2%	0	0%	89
5	Kyauktan	130	101	78%	18	14%	92%	6	5%	3	2%	1	1%	1	1%	130
6	Kungyangone	102	85	83%	4	4%	87%	7	7%	2	2%	4	4%	0	0%	102
7	Kayan	150	138	92%	3	2%	94%	8	5%	0	0%	0	0%	1	1%	150
8	Twantay	179	147	82%	15	8%	91%	8	4%	4	2%	5	3%	0	0%	179
9	Thonegwa	112	93	83%	11	10%	93%	4	4%	1	1%	2	2%	1	1%	112
10	Thanlyin	296	237	80%	21	7%	87%	12	4%	7	2%	17	6%	2	1%	296
	Total	1258	1042	83%	83	7%	89%	60	5%	26	2%	42	3%	5	0%	1258

North District																		
1	Mingalardon	536	385	72%	75	14%	86%	25	5%	11	2%	28	5%	12	2%	536		
2	Shwepyithar	395	243	62%	100	25%	87%	12	3%	5	1%	27	7%	8	2%	395		
3	Hlaingtharyar	1011	942	93%	19	2%	95%	17	2%	14	1%	19	2%	0	0%	1011		
4	Insein	582	434	75%	67	12%	86%	31	5%	26	4%	19	3%	5	1%	582		
5	Taikkyi	240	204	85%	0	0%	85%	32	13%	3	1%	1	0%	0	0%	240		
6	Htantabin	99	78	79%	11	11%	90%	2	2%	2	2%	6	6%	0	0%	99		
7	Hmawbi	238	201	84%	11	5%	89%	7	3%	10	4%	7	3%	2	1%	238		
8	Hlegu	174	167	96%	0	0%	96%	5	3%	2	1%	0	0%	0	0%	174		
	U.T.I	69	46	67%	2	3%	70%	8	12%	0	0%	11	16%	2	3%	69		
	NTP (Diagnostic)	14	10	71%	3	21%	93%	0	0%	0	0%	0	0%	1	7%	14		
Total		3358	2710	81%	288	9%	89%	139	4%	73	2%	118	4%	30	1%	3358		
Yangon Division		8788	7235	82%	522	6%	88%	385	4%	258	3%	302	3%	86	1%	8788		

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
Ayeyarwaddy Division																	
1	Patheingyi	516	410	79%	27	5%	85%	23	4%	5	1%	36	7%	15	3%	516	
2	Kanyidaung	39	37	95%	2	5%	100%	0	0%	0	0%	0	0%	0	0%	39	
3	Yekyi	150	113	75%	17	11%	87%	12	8%	0	0%	8	5%	0	0%	150	
4	Kyaunggon	121	93	77%	13	11%	88%	5	4%	6	5%	4	3%	0	0%	121	
5	Kyongpyaw	142	127	89%	2	1%	91%	8	6%	0	0%	5	4%	0	0%	142	
6	Ngaputaw	202	146	72%	36	18%	90%	11	5%	1	0%	8	4%	0	0%	202	
7	Thabaung	103	80	78%	10	10%	87%	5	5%	4	4%	2	2%	2	2%	103	
8	Hinhada	493	391	79%	47	10%	89%	24	5%	0	0%	22	4%	9	2%	493	
9	Kyankin	92	77	84%	9	10%	93%	2	2%	0	0%	4	4%	0	0%	92	
10	Myanaung	150	135	90%	0	0%	90%	12	8%	0	0%	2	1%	1	1%	150	
11	Ingapu	197	166	84%	8	4%	88%	10	5%	0	0%	11	6%	2	1%	197	
12	Zalun	192	141	73%	19	10%	83%	8	4%	1	1%	23	12%	0	0%	192	
13	Laymethna	77	67	87%	0	0%	87%	5	6%	2	3%	3	4%	0	0%	77	
14	Myaungmya	275	241	88%	21	8%	95%	8	3%	2	1%	3	1%	0	0%	275	
15	Laputta	242	209	86%	0	0%	86%	25	10%	1	0%	5	2%	2	1%	242	
16	Mawgyun	227	160	70%	37	16%	87%	17	7%	1	0%	10	4%	2	1%	227	
17	Wakema	221	197	89%	5	2%	91%	1	0%	14	6%	3	1%	1	0%	221	
18	Einme	113	88	78%	5	4%	82%	7	6%	1	1%	10	9%	2	2%	113	
19	Pyapon	232	186	80%	9	4%	84%	20	9%	2	1%	9	4%	6	3%	232	
20	Bogalay	302	205	68%	32	11%	78%	45	15%	0	0%	20	7%	0	0%	302	
21	Dedaye	52	31	60%	13	25%	85%	4	8%	1	2%	3	6%	0	0%	52	
22	Kyaiklatt	145	106	73%	24	17%	90%	13	9%	0	0%	2	1%	0	0%	145	
23	Maubin	212	165	78%	16	8%	85%	9	4%	15	7%	6	3%	1	0%	212	
24	Nyaungdon	109	97	89%	0	0%	89%	11	10%	1	1%	0	0%	0	0%	109	
25	Pantanaw	155	140	90%	0	0%	90%	4	3%	0	0%	11	7%	0	0%	155	
26	Danuphyu	207	197	95%	1	0%	96%	9	4%	0	0%	0	0%	0	0%	207	
Total		4966	4005	81%	353	7%	88%	298	6%	57	1%	210	4%	43	1%	4966	

# Annex-10 (townships list)

Sr. No.	Townships	Reg. Pts.	Cured		Completed		TSR		Died		Failure		Defaulted		Transferred out		Total eva. Pts.
			No	CR	No	Rate		Rate	No	Rate	No	Rate	No	Rate			
Other reporting Units																	
1	Aung San Hos:	78	32	41%	1	1%	42%	10	13%	7	9%	17	22%	11	14%	78	
2	Patheingyi Hos:	26	15	58%	1	4%	62%	3	12%	0	0%	3	12%	4	15%	26	
3	East YGH	9	6	67%	2	22%	89%	0	0%	0	0%	1	11%	0	0%	9	
4	Mingalardon Hos:	102	60	59%	1	1%	60%	37	36%	2	2%	0	0%	2	2%	102	
5	Wabargi Hospital (N/Okkalapa)	160	89	56%	3	2%	58%	50	31%	7	4%	5	3%	6	4%	160	
6	No.1MBH (PyinOoLwin)	66	55	83%	0	0%	83%	11	17%	0	0%	0	0%	0	0%	66	
7	1000 bedded hospital (Naypyitaw)	138	122	88%	0	0%	88%	2	1%	8	6%	5	4%	1	1%	138	
8	AZG (Ygn)	110	62	56%	7	6%	63%	14	13%	12	11%	9	8%	6	5%	110	
9	AZG (Kachin)	219	149	68%	25	11%	79%	11	5%	14	6%	19	9%	1	0%	219	
10	PSI	4098	2984	73%	476	12%	84%	160	4%	167	4%	222	5%	89	2%	4098	
11	AZG (Shan-north)	244	143	59%	5	2%	61%	16	7%	36	15%	37	15%	7	3%	244	
12	AZG Rakhine	4	3	75%	0	0%	75%	1	25%	0	0%	0	0%	0	0%	4	
13	Thingangyun Sanpya Hospital	0														0	
14	Medecins du monde	50	26	52%	0	0%	52%	12	24%	0	0%	7	14%	5	10%	50	
15	New YGH	47	35	74%	0	0%	74%	5	11%	3	6%	2	4%	2	4%	47	
16	West YGH	0														0	
17	AHRN (Shan North)	4	3	75%	0	0%	75%	0	0%	1	25%	0	0%	0	0%	4	
	Total	5355	3784	71%	521	10%	80%	332	6%	257	5%	327	6%	134	0%	5355	



**NATIONAL TUBERCULOSIS PROGRAMME**  
**TREATMENT OUTCOME OF SMEAR NEGATIVE TB PATIENTS (2008 COHORT)**

Sr.No.	State/ Division	SMEAR NEGATIVE TB PATIENTS											
		Total Nc		Completed		Died		Failure		Defaulted		Transfer	
		Reg. pts	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	No.	Rate
1	Kachin State	1347	1034	77%	131	10%	11	1%	129	10%	42	3%	1347
2	Kayah State	166	122	73%	19	11%	1	1%	18	11%	6	4%	166
3	Chin State	296	252	85%	17	6%	6	2%	18	6%	3	1%	296
4	Sagaing Division	1925	1549	80%	198	10%	11	1%	138	7%	29	2%	1925
5	Magway Division	2451	2040	83%	222	9%	5	0%	137	6%	47	2%	2451
6	Mandalay Division	3420	2844	83%	299	9%	18	1%	153	4%	106	3%	3420
7	Shan State (South)	745	552	74%	70	9%	6	1%	98	13%	19	3%	745
8	Shan State (East)	340	276	81%	20	6%	2	1%	34	10%	8	2%	340
9	Shan State (North)	1330	977	73%	117	9%	9	1%	202	15%	25	2%	1330
10	Kayin State	1723	1355	79%	74	4%	2	0%	227	13%	65	4%	1723
11	Tanintharyi Division	1862	1335	72%	100	5%	4	0%	281	15%	142	8%	1862
12	Bago (East) Division	1585	1288	81%	104	7%	3	0%	150	9%	40	3%	1585
13	Bago (West) Division	2038	1702	84%	164	8%	3	0%	148	7%	21	1%	2038
14	Mon State	2793	2426	87%	156	6%	6	0%	159	6%	46	2%	2793
15	Rakhine State	1568	1379	88%	96	6%	3	0%	83	5%	7	0%	1568
16	Yangon Division	8057	7037	87%	416	5%	59	1%	423	5%	122	2%	8057
17	Ayeyarwaddy Division	4247	3624	85%	265	6%	12	0%	268	6%	78	2%	4247
<b>States &amp; Divisions total</b>		<b>35893</b>	<b>29792</b>	<b>83%</b>	<b>2468</b>	<b>7%</b>	<b>161</b>	<b>0%</b>	<b>2666</b>	<b>7%</b>	<b>806</b>	<b>2%</b>	<b>35893</b>
NS(-) TB patients, Unknown HIV status (NTP)		34678	29055	84%	2155	6%	141	0%	2568	7%	759	2%	34678
<b>Other Unit</b>		<b>4853</b>	<b>3832</b>	<b>79%</b>	<b>515</b>	<b>11%</b>	<b>46</b>	<b>1%</b>	<b>342</b>	<b>7%</b>	<b>118</b>	<b>2%</b>	<b>4853</b>
NS(-) TB patients, Unknown HIV status (Other units)		3503	2898	83%	196	6%	38	1%	291	8%	80	2%	3503
<b>Union of Myanmar</b>		<b>40746</b>	<b>33624</b>	<b>83%</b>	<b>2983</b>	<b>7%</b>	<b>207</b>	<b>1%</b>	<b>3008</b>	<b>7%</b>	<b>924</b>	<b>2%</b>	<b>40746</b>
NS(-) TB patients, unknown HIV status (Union)		38181	31953	84%	2351	6%	179	0%	2859	7%	839	2%	38181

**TREATMENT OUTCOMES OF TB/HIV PATIENTS IN 2009 (2008 COHORT)**

Sr.No.	Reporting units	SMEAR NEGATIVE TB PATIENTS											
		Total Nc		Completed		Died		Failure		Defaulted		Transfer	
		Reg. pts	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	No.	Rate
1	NTP	1215	737	61%	313	26%	20	2%	98	8%	47	4%	1215
2	Other Units	1350	934	69%	319	24%	8	1%	51	4%	38	3%	1350
<b>Total</b>		<b>2565</b>	<b>1671</b>	<b>65%</b>	<b>632</b>	<b>25%</b>	<b>28</b>	<b>1%</b>	<b>149</b>	<b>6%</b>	<b>85</b>	<b>3%</b>	<b>2565</b>

**NATIONAL TUBERCULOSIS PROGRAMME  
TREATMENT OUTCOME OF RELAPSES (2008 COHORT)**

Sr.No.	State/ Division	RELAPSE CASES													
		Total	Cured		Completed		Died		Failure		Defaulted		Transferred out		Total
			No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	Kachin State	109	78	72%	13	12%	7	6%	7	6%	4	4%	0	0%	109
2	Kayah State	18	11	61%	3	17%	1	6%	0	0%	2	11%	1	6%	18
3	Chin State	26	17	65%	2	8%	1	4%	5	19%	1	4%	0	0%	26
4	Sagaing Division	227	127	56%	49	22%	26	11%	7	3%	11	5%	7	3%	227
5	Magway Division	170	111	65%	31	18%	16	9%	5	3%	6	4%	1	1%	170
6	Mandalay Division	434	281	65%	53	12%	58	13%	14	3%	14	3%	14	3%	434
7	Shan State (South)	76	45	59%	7	9%	10	13%	5	7%	7	9%	2	3%	76
8	Shan State (East)	54	27	50%	18	33%	2	4%	4	7%	2	4%	1	2%	54
9	Shan State (North)	90	59	66%	12	13%	6	7%	6	7%	6	7%	1	1%	90
10	Kayin State	75	51	68%	2	3%	3	4%	3	4%	12	16%	4	5%	75
11	Tanintharyi Division	54	33	61%	10	19%	5	9%	4	7%	1	2%	1	2%	54
12	Bago (East) Division	232	162	70%	21	9%	24	10%	7	3%	12	5%	6	3%	232
13	Bago (West) Division	122	85	70%	13	11%	11	9%	6	5%	6	5%	1	1%	122
14	Mon State	171	123	72%	12	7%	15	9%	5	3%	9	5%	7	4%	171
15	Rakhine State	170	109	64%	20	12%	21	12%	9	5%	10	6%	1	1%	170
16	Yangon Division	1247	858	69%	113	9%	121	10%	66	5%	67	5%	22	2%	1247
17	Ayeyarwaddy Division	388	280	72%	32	8%	41	11%	17	4%	12	3%	6	2%	388
States & Divisions total		3663	2457	67%	411	11%	368	10%	170	5%	182	5%	75	2%	3663
(relapse) TB patients, Unknown HIV status (NTP)		3596	2421	67%	403	11%	349	10%	168	5%	182	5%	73	2%	3596
Other Unit		609	358	59%	91	15%	64	11%	37	6%	30	5%	29	5%	609
(relapse) TB patients, Unknown HIV status (Other)		519	324	62%	67	13%	38	7%	35	7%	27	5%	28	5%	519
Union of Myanmar		4272	2815	66%	502	12%	432	10%	207	5%	212	5%	104	2%	4272
(relapse) TB patients, unknown HIV status (Union)		4115	2745	67%	470	11%	387	9%	203	5%	209	5%	101	2%	4115

**TREATMENT OUTCOMES OF TB/HIV PATIENTS (2008 COHORT)**

Sr.No.	Reporting units	RELAPSE CASES													
		Total	Cured		Completed		Died		Failure		Defaulted		Transferred out		Total
			No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	NTP	67	36	54%	8	12%	19	28%	2	3%	0	0%	2	3%	67
2	Other Units	90	34	38%	24	27%	26	29%	2	2%	3	3%	1	1%	90
Total		157	70	45%	32	20%	45	29%	4	3%	3	2%	3	2%	157

**NATIONAL TUBERCULOSIS PROGRAMME**  
**TREATMENT OUTCOME OF TREATMENT AFTER DEFAULT (2008 COHORT)**

**Annex-13**

Sr.No.	State/ Division	TOTAL	TREATMENT AFTER DEFAULT												Total	
			Cured		Completed		Died		Failure		Defaulted		Transfer			
			No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate		
1	Kachin State	22	17	77%	2	9%	1	5%	0	0%	2	9%	0	0%	22	
2	Kayah State	6	2	33%	2	33%	2	33%	0	0%	0	0%	0	0%	6	
3	Chin State	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	1	
4	Sagaing Division	28	13	46%	7	25%	2	7%	2	7%	4	14%	0	0%	28	
5	Magway Division	35	19	54%	11	31%	2	6%	0	0%	3	9%	0	0%	35	
6	Mandalay Division	18	7	39%	5	28%	3	17%	0	0%	3	17%	0	0%	18	
7	Shan State (South)	11	6	55%	0	0%	1	9%	0	0%	3	27%	1	9%	11	
8	Shan State (East)	8	1	13%	2	25%	4	50%	0	0%	0	0%	1	13%	8	
9	Shan State (North)	30	18	60%	4	13%	5	17%	2	7%	0	0%	1	3%	30	
10	Kayin State	8	4	50%	1	13%	1	13%	0	0%	1	13%	1	13%	8	
11	Tanintharyi Division	11	4	36%	4	36%	0	0%	0	0%	0	0%	3	27%	11	
12	Bago (East) Division	29	20	69%	1	3%	3	10%	2	7%	3	10%	0	0%	29	
13	Bago (West) Division	12	5	42%	2	17%	3	25%	0	0%	2	17%	0	0%	12	
14	Mon State	28	15	54%	2	7%	4	14%	1	4%	5	18%	1	4%	28	
15	Rakhine State	32	17	53%	7	22%	4	13%	1	3%	3	9%	0	0%	32	
16	Yangon Division	160	79	49%	27	17%	17	11%	7	4%	21	13%	9	6%	160	
17	Ayeyarwaddy Division	51	34	67%	9	18%	4	8%	0	0%	4	8%	0	0%	51	
States & Divisions total			490	262	53%	86	18%	56	11%	15	3%	54	11%	17	3%	490
(TAD) TB patients, Unknown HIV status (NTP)			483	261	54%	84	17%	52	11%	15	3%	54	11%	17	4%	483
Other Unit			121	51	42%	16	13%	20	17%	6	5%	21	17%	7	6%	121
(TAD) TB patients, Unknown HIV status (Other units)			102	45	44%	14	14%	12	12%	6	6%	19	19%	6	6%	102
Union of Myanmar			611	313	51%	102	17%	76	12%	21	3%	75	12%	24	4%	611
(TAD) TB patients, unknown HIV status (Union)			585	306	52%	98	17%	64	11%	21	4%	73	12%	23	4%	585

**TREATMENT OUTCOME OF TB/HIV PATIENTS (2008 COHORT)**

Sr.No.	Reporting units	TOTAL	TREATMENT AFTER DEFAULT CASES												Total
			Cured		Completed		Died		Failure		Defaulted		Transfer		
			No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	NTP	7	1	14%	2	29%	4	57%	0	0%	0	0%	0	0%	7
2	Other Units	19	6	32%	2	11%	8	42%	0	0%	2	11%	1	5%	19
Total		26	7	27%	4	15%	12	46%	0	0%	2	8%	1	4%	26

**NATIONAL TUBERCULOSIS PROGRAMME**  
**TREATMENT OUTCOME OF TREATMENT AFTER FAILURE (2008 COHORT)**

Annex-14

Sr.No.	State/ Division	TOTAL	TREATMENT AFTER FAILURE												Total
			Cured		Completed		Died		Failure		Defaulted		Transfer		
			No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	Kachin State	60	47	78%	0	0%	0	0%	6	10%	6	10%	1	2%	60
2	Kayah State	10	4	40%	2	20%	1	10%	1	10%	1	10%	1	10%	10
3	Chin State	1	0	0%	0	0%	0	0%	0	0%	0	0%	1	0%	1
4	Sagaing Division	80	50	63%	9	11%	10	13%	4	5%	4	5%	3	4%	80
5	Magway Division	49	30	61%	3	6%	5	10%	1	2%	9	18%	1	2%	49
6	Mandalay Division	40	21	53%	5	13%	3	8%	4	10%	2	5%	5	13%	40
7	Shan State (South)	21	12	57%	1	5%	0	0%	2	10%	5	24%	1	5%	21
8	Shan State (East)	5	2	40%	1	20%	0	0%	1	20%	1	20%	0	0%	5
9	Shan State (North)	26	19	73%	0	0%	0	0%	4	15%	2	8%	1	4%	26
10	Kayin State	9	4	44%	0	0%	0	0%	5	56%	0	0%	0	0%	9
11	Tanintharyi Division	26	13	50%	7	27%	3	12%	2	8%	1	4%	0	0%	26
12	Bago (East) Division	38	19	50%	3	8%	4	11%	7	18%	5	13%	0	0%	38
13	Bago (West) Division	35	25	71%	1	3%	4	11%	3	9%	2	6%	0	0%	35
14	Mon State	45	19	42%	9	20%	6	13%	5	11%	3	7%	3	7%	45
15	Rakhine State	40	24	60%	3	8%	4	10%	3	8%	5	13%	1	3%	40
16	Yangon Division	280	144	51%	22	8%	31	11%	52	19%	24	9%	7	3%	280
17	Ayeyarwaddy Division	50	25	50%	7	14%	7	14%	5	10%	5	10%	1	2%	50
States & Divisions total			815	458	73	9%	78	10%	105	13%	75	9%	26	3%	815
(TAF) TB patients, Unknown HIV status (NTP)			803	453	70	9%	75	9%	105	13%	75	9%	25	3%	803
Other Unit			300	143	18	6%	39	13%	47	16%	33	11%	20	7%	300
(TAF) TB patients, Unknown HIV status (Other units)			270	136	16	6%	24	9%	47	17%	27	10%	20	7%	270
Union of Myanmar			1115	601	91	8%	117	10%	152	14%	108	10%	46	4%	1115
(TAF) TB patients, unknown HIV status (Union)			1073	589	86	8%	99	9%	152	14%	102	10%	45	4%	1073

**TREATMENT OUTCOME OF TB/HIV PATIENTS IN 2009 (2008 COHORT)**

Sr.No.	Reporting units	TOTAL	TREATMENT AFTER FAILURE CASES												
			Cured		Completed		Died		Failure		Defaulted		Transfer		Total
			No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	NTP	12	5	42%	3	25%	3	25%	0	0%	0	0%	1	8%	12
2	Other Units	30	7	23%	2	7%	15	50%	0	0%	6	20%	0	0%	30
Total		42	12	29%	5	12%	18	43%	0	0%	6	14%	1	2%	42

**NATIONAL TUBERCULOSIS PROGRAMME  
TREATMENT OUTCOME OF OTHER CASES (2008 COHORT)**

Sr.No.	State/ Division	OTHER CASES											
		Total	Cured		Completed		Died		Failure		Defaulted		Total
			No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	Kachin State	74	39	53%	15	20%	7	9%	1	1%	9	12%	74
2	Kayah State	22	2	9%	18	82%	1	5%	0	0%	0	0%	22
3	Chin State	15	0	0%	11	73%	0	0%	0	0%	3	20%	15
4	Sagaing Division	86	15	17%	52	60%	12	14%	0	0%	4	5%	86
5	Magway Division	256	0	0%	205	80%	27	11%	1	0%	15	6%	256
6	Mandalay Division	348	18	5%	249	72%	52	15%	1	0%	15	4%	348
7	Shan State (South)	15	3	20%	6	40%	1	7%	2	13%	1	7%	15
8	Shan State (East)	18	1	6%	11	61%	0	0%	1	6%	5	28%	18
9	Shan State (North)	40	9	23%	18	45%	3	8%	0	0%	10	25%	40
10	Kayin State	5	1	20%	0	0%	1	20%	0	0%	2	40%	5
11	Tanintharyi Division	76	5	7%	45	59%	7	9%	0	0%	5	7%	76
12	Bago (East) Division	28	11	39%	9	32%	7	25%	0	0%	1	4%	28
13	Bago (West) Division	11	3	27%	6	55%	1	9%	0	0%	1	9%	11
14	Mon State	27	3	11%	19	70%	3	11%	0	0%	1	4%	27
15	Rakhine State	20	0	0%	14	70%	2	10%	1	5%	3	15%	20
16	Yangon Division	776	102	13%	501	65%	87	11%	16	2%	52	7%	776
17	Ayeyarwaddy Division	203	19	9%	120	59%	30	15%	8	4%	21	10%	203
<b>States &amp; Divisions total</b>		<b>2020</b>	<b>231</b>	<b>11%</b>	<b>1299</b>	<b>64%</b>	<b>241</b>	<b>12%</b>	<b>31</b>	<b>2%</b>	<b>148</b>	<b>7%</b>	<b>2020</b>
(Other) TB patients, Unknown HIV status (NTP)		1937	228	12%	1253	65%	213	11%	31	2%	143	7%	1937
<b>Other Unit</b>		<b>613</b>	<b>16</b>	<b>3%</b>	<b>354</b>	<b>58%</b>	<b>139</b>	<b>23%</b>	<b>19</b>	<b>3%</b>	<b>52</b>	<b>8%</b>	<b>613</b>
(Other) TB patients, Unknown HIV status (Other units)		393	15	4%	228	58%	61	16%	15	4%	45	11%	393
<b>Union of Myanmar</b>		<b>2633</b>	<b>247</b>	<b>9%</b>	<b>1653</b>	<b>63%</b>	<b>380</b>	<b>14%</b>	<b>50</b>	<b>2%</b>	<b>200</b>	<b>8%</b>	<b>2633</b>
(Other) TB patients, unknown HIV status (Union)		2330	243	10%	1481	64%	274	12%	46	2%	188	8%	2330

**TREATMENT OUTCOME OF TB/HIV PATIENTS (2008 COHORT)**

Sr.No.	Reporting units	OTHER CASES											
		Total	Cured		Completed		Died		Failure		Defaulted		Total
			No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	NTP	83	3	4%	46	55%	28	34%	0	0%	5	6%	83
2	Other Units	220	1	0%	126	57%	78	35%	4	2%	7	3%	220
<b>Total</b>		<b>303</b>	<b>4</b>	<b>1%</b>	<b>172</b>	<b>57%</b>	<b>106</b>	<b>35%</b>	<b>4</b>	<b>1%</b>	<b>12</b>	<b>4%</b>	<b>303</b>

**NATIONAL TUBERCULOSIS PROGRAMME**  
**TREATMENT OUTCOME OF PRIMARY COMPLEX AND TB MENINGITIS (2008 COHORT)**

Sr.No.	State/ Division	PRIMARY COMPLEX								TB MENINGITIS						
		Total No. Reg. pts.	Completed		Died	Defaulted		Transfer out	Total	Total No. Reg. pts.	Comple- ted	Died	Defaulted	Transfer	Total	
			No	Rate		No	Rate									
1	Kachin State	216	205	95%	4	3	1%	5	216	6	6	0	0	0	6	
2	Kayah State	336	315	94%	4	15	4%	2	336	2	1	1	0	0	2	
3	Chin State	295	267	91%	4	17	6%	7	295	2	1	1	0	0	2	
4	Sagaing Division	2590	2495	96%	15	48	2%	32	2590	38	34	3	1	0	38	
5	Magway Division	1662	1594	96%	16	25	2%	27	1662	21	13	4	1	3	21	
6	Mandalay Division	2983	2874	96%	24	63	2%	22	2983	33	26	4	2	1	33	
7	Shan State (South)	513	465	91%	11	34	7%	3	513	8	3	3	1	1	8	
8	Shan State (East)	291	271	93%	0	19	7%	1	291	8	6	1	1	0	8	
9	Shan State (North)	487	430	88%	7	41	8%	9	487	27	11	7	8	1	27	
10	Kayin State	1006	881	88%	1	102	10%	22	1006	14	8	1	5	0	14	
11	Tanintharyi Division	2141	1753	82%	75	254	12%	59	2141	21	16	3	2	0	21	
12	Bago (East) Division	722	674	93%	14	25	3%	9	722	24	19	3	1	1	24	
13	Bago (West) Division	1029	985	96%	6	31	3%	7	1029	10	8	0	1	1	10	
14	Mon State	1611	1561	97%	6	34	2%	10	1611	3	2	0	1	0	3	
15	Rakhine State	676	643	95%	12	21	3%	0	676	33	23	7	1	2	33	
16	Yangon Division	3276	3181	97%	16	58	2%	21	3276	125	100	18	6	1	125	
17	Ayeyarwaddy Division	201	196	98%	1	4	2%	0	201	44	30	12	1	1	44	
States & Divisions total		20035	18790	94%	216	794	4%	236	20035	419	307	68	32	12	419	
(PC+TBM) TB patients, Unknown HIV status (NTP)		19997	18763	94%	208	791	4%	236	19997	402	300	61	30	11	402	
Other Unit		2622	2431	93%	55	120	5%	16	2622	17	10	4	3	0	17	
(PC+TBM) TB patients, Unknown HIV status (Other )		2413	2267	94%	15	116	5%	15	2413	17	10	4	3	0	17	
Union of Myanmar		22657	21221	94%	271	914	4%	252	22657	436	317	72	35	12	436	
(PC+TBM) TB patients, unknown HIV status (Union)		22410	21030	94%	223	907	4%	251	22410	419	310	65	33	11	419	

**TREATMENT OUTCOME OF TB/HIV PATIENTS IN 2009 (2008 COHORT)**

Sr.No.	Reporting units	PRIMARY COMPLEX										TB MENINGITIS					
		Total No. Reg. pts.	Completed		Died	Defaulted		Transfer out	Total	Total No. Reg. pts.	Comple- ted	Died	Defaulted	Transfer out	Total		
			No	Rate		No	Rate										
1	NTP	38	27	71%	8	3	8%	0	38	17	7	7	2	1	17		
2	Other Units	209	164	78%	40	4	2%	1	209	0	0	0	0	0	0		
Total		247	191	77%	48	7	3%	1	247	17	7	7	2	1	17		

**NATIONAL TUBERCULOSIS PROGRAMME  
TREATMENT OUTCOME OF EP TB PATIENTS (2008 COHORT)**

Sr.No.	State/ Division	EP TB PATIENTS											
		Total No.		Completed		Died		Failure		Defaulted		Transfer	
		Reg. pts.	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	No.	Rate
1	Kachin State	958	891	93%	12	1%	0	0%	29	3%	26	3%	958
2	Kayah State	0											0
3	Chin State	83	75	90%	2	2%	2	2%	3	4%	1	1%	83
4	Sagaing Division	654	584	89%	29	4%	3	0%	29	4%	9	1%	654
5	Magway Division	0											0
6	Mandalay Division	1097	980	89%	71	6%	4	0%	18	2%	24	2%	1097
7	Shan State (South)	259	209	81%	16	6%	0	0%	31	12%	3	1%	259
8	Shan State (East)	106	94	89%	3	3%	0	0%	7	7%	2	2%	106
9	Shan State (North)	493	417	85%	15	3%	0	0%	53	11%	8	2%	493
10	Kayin State	29	26	90%	0	0%	0	0%	2	7%	1	3%	29
11	Tanintharyi Division	0											0
12	Bago (East) Division	540	454	84%	23	4%	0	0%	54	10%	9	2%	540
13	Bago (West) Division	153	147	96%	3	2%	1	1%	2	1%	0	0%	153
14	Mon State	51	45	88%	3	6%	2	4%	1	2%	0	0%	51
15	Rakhine State	310	183	59%	83	27%	4	1%	35	11%	5	2%	310
16	Yangon Division	1444	1319	91%	48	3%	8	1%	43	3%	26	2%	1444
17	Ayeyarwaddy Division	866	732	85%	61	7%	2	0%	53	6%	18	2%	866
<b>States &amp; Divisions total</b>		<b>7043</b>	<b>6156</b>	<b>87%</b>	<b>369</b>	<b>5%</b>	<b>26</b>	<b>0%</b>	<b>360</b>	<b>5%</b>	<b>132</b>	<b>2%</b>	<b>7043</b>
EP TB patients, Unknown HIV status (NTP)		6394	5620	88%	296	5%	24	0%	335	5%	119	2%	6394
<b>Other Unit</b>		<b>912</b>	<b>677</b>	<b>74%</b>	<b>171</b>	<b>19%</b>	<b>1</b>	<b>0%</b>	<b>40</b>	<b>4%</b>	<b>23</b>	<b>3%</b>	<b>912</b>
EP TB patients, Unknown HIV status (Other units)		224	189	84%	17	8%	0	0%	18	8%	0	0%	224
<b>Union of Myanmar</b>		<b>7955</b>	<b>6833</b>	<b>86%</b>	<b>540</b>	<b>7%</b>	<b>27</b>	<b>0%</b>	<b>400</b>	<b>5%</b>	<b>155</b>	<b>2%</b>	<b>7955</b>
EP TB patients, unknown HIV status (Union)		6618	5809	88%	313	5%	24	0%	353	5%	119	2%	6618
<b>TREATMENT OUTCOMES OF TB/HIV PATIENTS IN 2009 (2008 COHORT)</b>													
Sr.No.	Reporting units	EP TB PATIENTS											
		Total No.		Completed		Died		Failure		Defaulted		Transfer	
		Reg. pts.	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	No.	Rate
1	NTP	649	536	83%	73	11%	2	0%	25	4%	13	2%	649
2	Other Units	688	488	71%	154	22%	1	0%	22	3%	23	3%	688
<b>Total</b>		<b>1337</b>	<b>1024</b>	<b>77%</b>	<b>227</b>	<b>17%</b>	<b>3</b>	<b>0%</b>	<b>47</b>	<b>4%</b>	<b>36</b>	<b>3%</b>	<b>1337</b>

**NATIONAL TUBERCULOSIS PROGRAMME**  
**Annex-18**  
**TREATMENT OUTCOME OF HILAR LYMPHADENOPATHY TB PATIENTS (2008 COHORT)**  
**Annex - 11**

Sr.No.	State/ Division	HILAR LYMPHADENOPATHY TB PATIENTS											
		Total No.		Completed		Died		Failure		Defaulted		Transfer	
		Reg. pts.	No.	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1	Kachin State	859	801	93%	9	1%	0	0%	0	33	4%	16	2%
2	Kayah State	0	0					0		0		0	
3	Chin State	6	6	100%	0	0%	0	0%	0	0	0%	0	0%
4	Sagaing Division	303	295	97%	4	1%	0	0%	0	2	1%	2	1%
5	Magway Division	387	384		1		0	0		1		1	
6	Mandalay Division	156	153	98%	1	1%	0	0%	0	0	0%	2	1%
7	Shan State (South)	89	83	93%	1	1%	0	0%	0	5	6%	0	0%
8	Shan State (East)	90	81	90%	0	0%	0	0%	0	8	9%	1	1%
9	Shan State (North)	207	195	94%	5	2%	0	0%	0	7	3%	0	0%
10	Kayin State	25	18	72%	0	0%	0	0%	0	5	20%	2	8%
11	Tanintharyi Division	0	0					0		0		0	
12	Bago (East) Division	52	52	100%	0	0%	0	0%	0	0	0%	0	0%
13	Bago (West) Division	10	9	90%	1	10%	0	0%	0	0	0%	0	0%
14	Mon State	166	162	98%	0	0%	0	0%	0	4	2%	0	0%
15	Rakhine State	380	362	95%	1	0%	0	0%	0	15	4%	2	1%
16	Yangon Division	91	88	97%	0	0%	2	2%	1	1	1%	0	0%
17	Ayeyarwaddy Division	1853	1774	96%	14	1%	0	0%	60	3%	0%	5	0%
<b>States &amp; Divisions total</b>		<b>4674</b>	<b>4463</b>	<b>95%</b>	<b>37</b>	<b>1%</b>	<b>2</b>	<b>0%</b>	<b>141</b>	<b>3%</b>	<b>31</b>	<b>1%</b>	<b>4674</b>
Hilar TB patients, Unknown HIV status (NTP)		4665	4456	96%	37	1%	2	0%	140	3%	30	1%	4665
<b>Other Unit</b>		<b>156</b>	<b>125</b>	<b>80%</b>	<b>14</b>	<b>9%</b>	<b>1</b>	<b>1%</b>	<b>15</b>	<b>10%</b>	<b>1</b>	<b>1%</b>	<b>156</b>
Hilar TB patients, Unknown HIV status (Other units)		129	106	82%	7	5%	0	0%	15	12%	1	1%	129
<b>Union of Myanmar</b>		<b>4830</b>	<b>4588</b>	<b>95%</b>	<b>51</b>	<b>1%</b>	<b>3</b>	<b>0%</b>	<b>156</b>	<b>3%</b>	<b>32</b>	<b>1%</b>	<b>4830</b>
Hilar TB patients, unknown HIV status (Union)		4794	4562	95%	44	1%	2	0%	155	3%	31	1%	4794

**TREATMENT OUTCOMES OF TB/HIV PATIENTS IN 2009 (2008 COHORT)**

Sr.No.	Reporting units	HILAR LYMPHADENOPATHY TB PATIENTS											
		Total No.		Completed		Died		Failure		Defaulted		Transfer	
		Reg. pts.	No.	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1	NTP	9	7	78%		0%				1	11%	1	11%
2	Other Units	27	19	70%	7	26%	1	4%			0%		0%
<b>Total</b>		<b>36</b>	<b>26</b>	<b>72%</b>	<b>7</b>	<b>19%</b>	<b>1</b>	<b>3%</b>	<b>1</b>	<b>3%</b>	<b>1</b>	<b>3%</b>	<b>36</b>



# **NATIONAL TUBERCULOSIS PROGRAMME CASE FINDING ACTIVITIES**

Sr.No.		Reporting units	PULMONARY TUBERCULOSIS														Other reporting unit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
			SMEAR POSITIVE										Total				Smear Negative				Total				Extra Pulmonary TB				Total				Other				Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
			New Cases			Relapses							TAD			TAF																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
M	F	T	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F

# AGE AND SEX DISTRIBUTION OF NEW SMEAR POSITIVE TB PATIENTS

Block-2

Other reporting unit

Sr.No	Reporting units	AGE GROUP ( YEAR )														TOTAL			
		0-14		15-24		25 - 34		35 - 44		45 - 54		55 - 64		≥ 65		M	F	M	T
		M	F	M	F	M	F	M	F	M	F	M	F	M	F				
1	Aung San TB Hospital	0	0	9	3	9	3	21	2	10	1	9	1	2	0	60	10	70	
2	Patheingyi TB Hospital	0	0	2	1	4	2	3	3	4	0	1	0	1	0	15	6	21	
3	East Yangon General Hospital	0	0	1	6	2	2	1	0	1	1	0	0	0	0	5	9	14	
4	Mingalardon Hospital	0	0	1	0	21	10	23	6	6	0	2	0	0	0	53	16	69	
5	Wabargi Specialist Hospital	0	0	7	6	64	34	42	20	14	6	1	0	0	1	128	67	195	
6	No.1MBH (PyinOoLwin)	0	0	10	0	16	2	20	1	5	0	2	0	0	0	53	3	56	
7	1000 beded Hospital (Nay Pyi Taw)	0	2	11	10	28	11	16	9	17	9	10	6	5	4	87	51	138	
8	AZG (Yangon)	0	1	6	4	33	16	37	11	7	2	0	1	2	0	85	35	120	
9	AZG (Kachin)	1	0	15	7	52	14	47	11	14	7	5	5	2	1	136	45	181	
10	PSI	16	26	428	357	843	438	858	343	608	278	413	217	294	139	3460	1798	5258	
11	AZG (Shan-North)	2	1	16	14	58	19	32	18	19	8	9	2	1	2	137	64	201	
12	AZG (Rakhine)	0	0	1	0	3	0	2	2	0	1	1	0	0	0	7	3	10	
13	MMA	4	1	48	38	86	41	69	31	72	42	49	30	34	12	362	195	557	
14	AHRN (Shan North)	0	1	8	0	15	2	9	2	9	2	1	0	0	0	42	7	49	
15	Thingangyun Sanpya Hospital	0	0	0	0	3	1	1	0	1	1	0	0	1	0	6	2	8	
16	Medecins du monde	0	0	0	0	6	0	5	2	0	0	1	0	0	0	12	2	14	
17	New Yangon General Hospital	0	1	2	3	11	4	9	2	7	6	6	5	8	2	43	23	66	
18	West Yangon General Hospital	0	0	2	0	0	3	1	1	2	0	0	0	1	0	6	4	10	
	<b>Total</b>	<b>23</b>	<b>33</b>	<b>567</b>	<b>449</b>	<b>1254</b>	<b>602</b>	<b>1196</b>	<b>464</b>	<b>796</b>	<b>364</b>	<b>510</b>	<b>267</b>	<b>351</b>	<b>161</b>	<b>4697</b>	<b>2340</b>	<b>7037</b>	

## PRIMARY COMPLEX AND TB MENINGITIS CASES BY AGE GROUP

Sr.No	Reporting Units	PC and TBM cases by age group													Total
		PC			Total	Hilar Lymphadenopathy			Total	TBM					
		0-4	<15	≥15		0-4	5-14	≥15		0-4	<15	≥15			
1	Aung San TB Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Patheingyi TB Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	East Yangon General Hospital	21	204	0	225	0	0	0	0	0	0	0	0	0	0
4	Mingalardon Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Wabargi Specialist Hospital	55	48	0	103	3	3	0	6	0	0	0	0	0	0
6	No.1MBH (PyinOoLwin)	3	17	0	20	0	0	0	0	0	0	0	0	0	0
7	1000 beded Hospital (Nay Pyi Taw)	43	61	0	104	0	10	4	14	1	2	2	5	3	3
8	AZG (Yangon)	2	10	1	13	0	0	1	1	0	0	3	3	3	3
9	AZG (Kachin)	2	1	0	3	0	3	105	108	0	0	2	2	2	2
10	PSI	987	1657	36	2680	591	429	6	1026	0	4	107	111	111	111
11	AZG (Shan-North)	0	1	0	1	0	0	0	0	1	2	0	3	3	3
12	AZG (Rakhine)	0	0	0	0	0	1	3	4	0	0	0	0	0	0
13	MMA	212	222	1	435	101	90	16	207	0	0	86	86	86	86
14	AHRN (Shan North)	0	2	1	3	0	7	4	11	0	0	2	2	2	2
15	Thingangyun Sanpya Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Medecins du monde	0	2	0	2	0	0	0	0	0	0	1	1	1	1
17	New Yangon General Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	West Yangon General Hospital	18	4	2	24	0	0	0	0	0	1	0	1	0	1
Total		1343	2229	41	3613	695	543	139	1377	2	9	203	214	214	214

**NOTIFIED TB PATIENTS ACCORDING TO CATEGORY OF REGIMENS (2009)**

**Other reporting Unit**

Sr.No	Reporting units	CAT - 1			CAT - 2				CAT - 3			TOTAL		
		Sputum Smear Positive	Sputum Smear Negative	EP Seriously ill	Total	Relapses	Treat-ment after Default	Treat-ment after Failure	Others (Failure)	Total	P		EP	Total
1	Aung San TB Hospital	70	42	5	117	44	11	21	194	270	0	0	0	387
2	Patheingyi TB Hospital	21	39	10	70	28	1	11	68	108	11	0	11	189
3	East Yangon General Hospital	14	34	1	49	6	2	0	0	8	0	225	225	282
4	Mingalardon Hospital	68	305	51	424	16	1	6	153	176	12	0	12	612
5	Wabargi Specialist Hospital	190	297	318	805	17	4	18	33	72	133	48	181	1058
6	No.1MBH (PyinOoLwin)	94	149	14	257	21	1	2	12	36	9	37	46	339
7	1000 beded Hospital (Nay Pyi Taw)	103	213	45	361	12	5	6	27	50	19	104	123	534
8	AZG (Yangon)	121	196	169	486	57	6	7	163	233	14	9	23	742
9	AZG (Kachin)	1490	845	190	2525	156	22	54	34	266	1618	558	2176	4967
10	PSI	3978	1896	275	6149	300	33	159	49	541	2946	1536	4482	11172
11	AZG (Shan-North)	202	165	98	465	31	7	44	23	105	1	0	1	571
12	AZG (Rakhine)	10	7	9	26	0	0	0	0	0	0	12	12	38
13	MMA	558	435	34	1027	52	8	16	38	114	288	366	654	1795
14	AHRN (Shan North)	64	38	31	133	2	10	4	4	20	1	0	1	154
15	Thingangyun Sanpya Hospital	8	11	3	22	0	0	0	2	2	5	1	6	30
16	Medecins du monde	14	41	56	111	22	6	5	0	33	0	0	0	144
17	New Yangon General Hospital	66	93	37	196	0	0	1	8	9	8	8	16	221
18	West Yangon General Hospital	10	78	13	101	26	10	1	3	40	23	11	34	175
	Total	7081	4884	1359	13324	790	127	355	811	2083	5088	2915	8003	23410

**Block-4 LABORATORY PERFORMANCE(2009)**

Sr.No	Reporting units	A		B		C		D	
		No. of suspects(Dx) examined by microscopy for case finding	No. of slides	No. of smear positive detected out of suspects (Dx)	No. of positive pts	No. of patients examined by microscopy for follow-up	No. of slides	No. of smear positive out of follow-up patients	No. of slides
1	Aung San TB Hospital	392	1016	241	616	1651	2222	539	922
2	Patheingyi TB Hospital	1686	4605	335	828	846	1647	215	311
3	East Yangon General Hospital	593	1779	9	27	72	176	1	3
4	Mingalardon Hospital	506	1518	56	109	781	1562	8	12
5	Wabargi Specialist Hospital	1565	4422	188	524	908	1813	35	68
6	No.1MBH (PyinOoLwin)	312	894	75	99	379	1137	0	0
7	1000 beded Hospital (Nay Pyi Taw)	NA							
8	AZG (Yangon)	6061	16816	1290	3275	834	2762	55	101
9	AZG (Kachin)	3511	10067	550	1563	1240	3737	211	464
10	PSI	19943	58282	3836	10328	15076	29278	1295	2254
11	AZG (Shan-North)	2412	7236	389	1167	1323	3969	253	759
12	AZG (Rakhine)	55	150	5	13	5	15	2	2
13	MMA	2329	6507	474	1313	1465	2894	110	208
14	AHRN (Shan North)	805	2415	49	145	135	411	9	24
15	Thingangyun Sanpya Hospital	21	63	8	24	0	0	0	0
16	Medecins du monde	421	1060	36	91	283	737	12	28
17	New Yangon General Hospital	1000	2950	77	201	521	1028	12	22
18	West Yangon General Hospital	150	450	10	30	51	102	1	2
	<b>Total</b>	<b>41762</b>	<b>120230</b>	<b>7628</b>	<b>20353</b>	<b>25570</b>	<b>53490</b>	<b>2758</b>	<b>5180</b>

NA = Not available

**SPUTUM CONVERSION OF NEW SMEAR POSITIVE PULMONARY TB PATIENTS (2009)**

**Block 5**

**Other reporting unit**

Sr.No.	Reporting units	Registered cases	Smear not done at eighter 2or 3 months	Sputum conversion at				Remaining positive at 3 month	TOTAL 2+3+4+5
				2 month		3 month			
				No	%	No	%		
				No	%	No	%		
1	Aung San TB Hospital	71	30	19	27%	5	7%	17	71
2	Patheingyi TB Hospital	21	12	4	19%	4	19%	1	21
3	East Yangon General Hospital	15	0	13	87%	2	13%	0	15
4	Mingalardon Hospital	69	20	49	71%	0	0%	0	69
5	Wabargi Specialist Hospital	195	62	133	68%	0	0%	0	195
6	No.1MBH (PyinOoLwin)	59	0	59	100%	0	0%	0	59
7	1000 beded Hospital (Nay Pyi Taw)	136	18	105	77%	8	6%	5	136
8	AZG (Yangon)	120	18	87	73%	11	9%	4	120
9	AZG (Kachin)	178	45	80	45%	18	10%	35	178
10	PSI	5261	538	4037	77%	506	10%	180	5261
11	AZG (Shan-North)	199	31	89	45%	36	18%	43	199
12	AZG (Rakhine)	16	3	10	63%	3	19%	0	16
13	MMA	507	37	392	77%	50	10%	28	507
14	AHRN (Shan North)	49	7	38	78%	2	4%	2	49
15	Thingangyun Sanpya Hospital	8	2	4	50%	1	13%	1	8
16	Medecins du monde	19	4	9	47%	3	16%	3	19
17	New Yangon General Hospital	66	10	50	76%	3	5%	3	66
18	West Yangon General Hospital	10	0	9	90%	0	0%	1	10
Total		6999	837	5187	74%	652	9%	323	6999

# TREATMENT OUTCOMES OF NEW SMEAR POSITIVE TB PATIENTS( 2008 COHORT)

Other reporting unit

Sr. No	Reporting units	SMEAR POSITIVE CASES														Total		
		Cured		Completed		TSR		Died		Failure		Defaulted		Transfer out		Total		
		No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate			
1	Aung San TB Hospital	78	32	41%	1	1%	42%	10	13%	7	9%	17	22%	11	14%	78		
2	Patheingyi TB Hospital	26	15	58%	1	4%	62%	3	12%	0	0%	3	12%	4	15%	26		
3	East Yangon General Hospital	9	6	67%	2	22%	89%	0	0%	0	0%	1	11%	0	0%	9		
4	Mingalardon Hospital	102	60	59%	1	1%	60%	37	36%	2	2%	0	0%	2	2%	102		
5	Wabargi Specialist Hosipital	160	89	56%	3	2%	58%	50	31%	7	4%	5	3%	6	4%	160		
6	No.1MBH (PyinOoLwin)	66	55	83%	0	0%	83%	11	17%	0	0%	0	0%	0	0%	66		
7	1000 beded Hospital (Nay Pyi Taw)	138	122	88%	0	0%	88%	2	1%	8	6%	5	4%	1	1%	138		
8	AZG (Yangon)	110	62	56%	7	6%	63%	14	13%	12	11%	9	8%	6	5%	110		
9	AZG (Kachin)	219	149	68%	25	11%	79%	11	5%	14	6%	19	9%	1	0%	219		
10	PSI	4098	2984	73%	476	12%	84%	160	4%	167	4%	222	5%	89	2%	4098		
11	AZG (Shan-North)	244	143	59%	5	2%	61%	16	7%	36	15%	37	15%	7	3%	244		
12	AZG (Rakhine)	4	3	75%	0	0%	75%	1	25%	0	0%	0	0%	0	0%	4		
13	MMA																	
14	AHRN (Shan North)	4	3	75%	0	0%	75%	0	0%	1	25%	0	0%	0	0%	4		
15	Thingangyun Sanpya Hospital	6	4	67%	0	0%	67%	1	17%	0	0%	1	17%	0	0%	6		
16	Medecins du monde	50	26	52%	0	0%	52%	12	24%	0	0%	7	14%	5	10%	50		
17	New Yangon General Hospital	47	35	74%	0	0%	74%	5	11%	3	6%	2	4%	2	4%	47		
18	West Yangon General Hospital	4	4	100%	0	0%	100%	0	0%	0	0%	0	0%	0	0%	4		
	<b>Total</b>	<b>5365</b>	<b>3792</b>	<b>71%</b>	<b>521</b>	<b>10%</b>	<b>80%</b>	<b>333</b>	<b>6%</b>	<b>257</b>	<b>5%</b>	<b>328</b>	<b>6%</b>	<b>134</b>	<b>2%</b>	<b>5365</b>		

# TREATMENT OUTCOME OF RELAPSES (2008 COHORT)

Sr. No	Reporting units	RELAPSE CASES											
		Total	Cured		Completed		Died		Failure		Defaulted		Total
			No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	
1	Aung San TB Hospital	25	7	28%	0	0%	6	24%	2	8%	8	32%	25
2	Patheingyi TB Hospital	39	7	18%	4	10%	3	8%	12	31%	2	5%	39
3	East Yangon General Hospital	2	0	0%	1	50%	0	0%	0	0%	1	50%	2
4	Mingalardon Hospital	12	6	50%	1	8%	4	33%	0	0%	1	8%	12
5	Wabargi Specialist Hospital	27	10	37%	0	0%	15	56%	1	4%	1	4%	27
6	No.1MBH (PyinOolwin)	24	13	54%	11	46%	0	0%	0	0%	0	0%	24
7	1000 beded Hospital (Nay Pyi Taw)												
8	AZG (Yangon)	42	21	50%	6	14%	9	21%	4	10%	1	2%	42
9	AZG (Kachin)	32	21	66%	9	28%	1	3%	0	0%	1	3%	32
10	PSI	336	257	76%	21	6%	18	5%	18	5%	11	3%	336
11	AZG (Shan-North)	49	11	22%	28	57%	4	8%	0	0%	3	6%	49
12	AZG (Rakine)												
13	MMA												
14	AHRN (Shan North)	1	1	100%	0	0%	0	0%	0	0%	0	0%	1
15	Thingangyun Sanpya Hospital												
16	Medecins du monde	17	2	12%	10	59%	4	24%	0	0%	0	0%	17
17	New Yangon General Hospital	3	2	67%	0	0%	0	0%	0	0%	1	33%	3
18	West Yangon General Hospital												
<b>Total</b>		<b>609</b>	<b>358</b>	<b>59%</b>	<b>91</b>	<b>15%</b>	<b>64</b>	<b>11%</b>	<b>37</b>	<b>6%</b>	<b>30</b>	<b>5%</b>	<b>609</b>

Sr. No	Reporting units	SMEAR NEGATIVE CASES											
		Total	Completed		Died		Failure		Defaulted		Transfer out		Total
			No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	
1	Aung San TB Hospital	42	15	36%	13	31%	0	0%	10	24%	4	10%	42
2	Patheingyi TB Hospital	37	16	43%	4	11%	0	0%	3	8%	14	38%	37
3	East Yangon General Hospital	55	44	80%	3	5%	1	2%	6	11%	1	2%	55
4	Mingalardon Hospital	467	305	65%	139	30%	3	1%	17	4%	3	1%	467
5	Wabargi Specialist Hospital	294	188	64%	94	32%	0	0%	6	2%	6	2%	294
6	No.1MBH (PyinOolwin)	54	54	100%	0	0%	0	0%	0	0%	0	0%	54
7	1000 beded Hospital (Nay Pyi Taw)												
8	AZG (Yangon)	231	202	87%	8	3%	3	1%	13	6%	5	2%	231
9	AZG (Kachin)	251	220	88%	20	8%	1	0%	5	2%	5	2%	251
10	PSI	2949	2430	82%	178	6%	33	1%	246	8%	62	2%	2949
11	AZG (Shan-North)	103	86	83%	7	7%	1	1%	8	8%	1	1%	103
12	AZG (Rakine)												
13	MMA												
14	AHRN (Shan North)	5	5	100%	0	0%	0	0%	0	0%	0	0%	5
15	Thingangyun Sanpya Hospital	10	6	60%	4	40%	0	0%	0	0%	0	0%	10
16	Medecins du monde	205	146	71%	32	16%	3	1%	11	5%	13	6%	205
17	New Yangon General Hospital	112	79	71%	13	12%	1	1%	17	15%	2	2%	112
18	West Yangon General Hospital	38	36	95%	0	0%	0	0%	0	0%	2	5%	38
<b>Total</b>		<b>4853</b>	<b>3832</b>	<b>79%</b>	<b>515</b>	<b>11%</b>	<b>46</b>	<b>1%</b>	<b>342</b>	<b>7%</b>	<b>118</b>	<b>2%</b>	<b>4853</b>

# TREATMENT OUTCOMES OF TREATMENT AFTER FAILURE (2008 COHORT)

## Other reporting unit

Sr.No.	Reporting units	TOTAL	Cured		Completed		Died		Failure		Defaulted		Transfer		Total
			No.	CR	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1	Aung San TB Hospital	28	3	11%	1	4%	3	11%	14	50%	6	21%	1	4%	28
2	Patheingyi TB Hospital	12	2	17%	0	0%	1	8%	2	17%	5	42%	2	17%	12
3	East Yangon General Hospital	1	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	1
4	Mingalardon Hospital	6	2	33%	0	0%	4	67%	0	0%	0	0%	0	0%	6
5	Wabargi Specialist Hospital	4	1	25%	0	0%	3	75%	0	0%	0	0%	0	0%	4
6	No.1MBH (PyinOoLwin)														
7	1000 beded Hospital (Nay Pyi Taw)														
8	AZG (Yangon)	20	9	45%	2	10%	8	40%	1	5%	0	0%	0	0%	20
9	AZG (Kachin)	24	12	50%	2	8%	5	21%	2	8%	3	13%	0	0%	24
10	PSI	156	90	58%	9	6%	9	6%	22	14%	12	8%	14	9%	156
11	AZG (Shan-North)	41	24	59%	2	5%	2	5%	6	15%	4	10%	3	7%	41
12	AZG (Rakhine)														
13	MMA														
14	AHRN (Shan North)														
15	Thingangyun Sanpya Hospital														
16	Medecins du monde	8	0	0%	1	13%	4	50%	0	0%	3	38%	0	0%	8
17	New Yangon General Hospital														
18	West Yangon General Hospital														
	<b>Total</b>	<b>300</b>	<b>143</b>	<b>48%</b>	<b>18</b>	<b>6%</b>	<b>39</b>	<b>13%</b>	<b>47</b>	<b>16%</b>	<b>33</b>	<b>11%</b>	<b>20</b>	<b>7%</b>	<b>300</b>

**TREATMENT OUTCOMES OF TREATMENT AFTER DEFAULTER (2008 COHORT)**

Sr.No.	Reporting units	TOTAL	Cured		Completed		Died		Failure		Defaulted		Transfer		Total
			No	CR	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	
1	Aung San TB Hospital	22	5	23%	1	5%	6	27%	2	9%	7	32%	1	5%	22
2	Patheingyi TB Hospital	7	2	29%	0	0%	1	14%	0	0%	2	29%	2	29%	7
3	East Yangon General Hospital	3	0	0%	2	67%	0	0%	0	0%	0	0%	1	33%	3
4	Mingalardon Hospital														
5	Wabargi Specialist Hospital	11	5	45%	0	0%	6	55%	0	0%	0	0%	0	0%	11
6	No.1MBH (PyinOoLwin)														
7	1000 beded Hospital (Nay Pyi Taw)														
8	AZG (Yangon)	2	1	50%	0	0%	0	0%	0	0%	1	50%	0	0%	2
9	AZG (Kachin)	3	0	0%	2	67%	0	0%	0	0%	0	0%	1	33%	3
10	PSI	37	24	65%	2	5%	2	5%	2	5%	7	19%	0	0%	37
11	AZG (Shan-North)	24	12	50%	3	13%	3	13%	2	8%	3	13%	1	4%	24
12	AZG (Rakhine)														
13	MMA														
14	AHRN (Shan North)														
15	Thingangyun Sanpya Hospital	0													0
16	Medecins du monde	5	0	0%	1	20%	2	40%	0	0%	1	20%	1	20%	5
17	New Yangon General Hospital	7	2	29%	5	71%	0	0%	0	0%	0	0%	0	0%	7
18	West Yangon General Hospital														
	Total	121	51	42%	16	13%	20	17%	6	5%	21	17%	7	6%	121



# TREATMENT OUTCOME OF HILAR LYMPHADENOPATHY in 2009 (2008 cohort)

Sr.	TOWNSHIP	Hilar Lymphadenopathy												Other reporting unit		
		Total No.		Completed		Died		Failure		Defaulted		Transfer out				
		Reg: pts:	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate		
1	Aung San TB Hospital															
2	Patheingyi TB Hospital															
3	East Yangon General Hospital															
4	Mingalardon Hospital															
5	Wabargi Specialist Hospital	27	19	70%	7	26%	1	4%	0	0%	0	0%	0	0%	27	
6	No.1MBH (PyinOoLwin)															
7	1000 bedded Hospital (Nay Pyi Taw)															
8	AZG (Yangon)															
9	AZG (Kachin)	23	18	78%	0	0%	0	0%	4	17%	1	4%	1	4%	23	
10	PSI	105	87	83%	7	7%	0	0%	11	10%	0	0%	0	0%	105	
11	AZG (Shan-North)	1	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	1	
12	AZG (Rakhine)															
13	MMA															
14	AHRN (Shan North)															
15	Thingangyun Sanpya Hospital															
16	Medecins du monde															
17	New Yangon General Hospital															
18	West Yangon General Hospital															
	Total	156	125	80%	14	9%	1	1%	15	10%	1	1%	1	1%	156	

# TREATMENT OUTCOMES OF OTHER CASES (2008 COHORT)

Sr. No	Reporting units	OTHER CASES													
		Total	Cured		Completed		Died		Failure		Defaulted		Transfer out		Total
			No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	
1	Aung San TB Hospital	58	4	7%	5	9%	19	33%	9	16%	10	17%	11	19%	58
2	Patheingyi TB Hospital	55	2	4%	18	33%	7	13%	3	5%	14	25%	11	20%	55
3	East Yangon General Hospital	2	0	0%	2	100%	0	0%	0	0%	0	0%	0	0%	2
4	Mingalardon Hospital	137	0	0%	88	64%	41	30%	1	1%	5	4%	2	1%	137
5	Wabargi Specialist Hospital	65	0	0%	27	42%	36	55%	0	0%	1	2%	1	2%	65
6	No.1MBH (PyinOolwin)														
7	1000 beded Hospital (Nay Pyi Taw)														
8	AZG (Yangon)	203	0	0%	154	76%	30	15%	1	0%	15	7%	3	1%	203
9	AZG (Kachin)	36	9	25%	19	53%	1	3%	3	8%	1	3%	3	8%	36
10	PSI	52	0	0%	40	77%	5	10%	0	0%	5	10%	2	4%	52
11	AZG (Shan-North)	2	0	0%	1	50%	0	0%	1	50%	0	0%	0	0%	2
12	AZG (Rakhine)														
13	MMA														
14	AHRN (Shan North)														
15	Thingangyun Sanpya Hospital														
16	Medecins du monde	1	0	0%	0	0%	0	0%	1	100%	0	0%	0	0%	1
17	New Yangon General Hospital	2	1	50%	0	0%	0	0%	0	0%	1	50%	0	0%	2
18	West Yangon General Hospital														
	Total	613	16	3%	354	58%	139	23%	19	3%	52	8%	33	5%	613

Sr. No.	Reporting units	PRIMARY COMPLEX										TB MENINGITIS						
		Total No. Reg pts	Completed		Died	Defaulted		Transfer out	Total	Total No Reg pts	Comple- ted	Died	Defaulted	Transfer out	Total			
			No	Rate		No	Rate											
1	Aung San TB Hospital	1	0	0%	0	1	100%	0	1	1	0	1	0	0	1			
2	Patheingyi TB Hospital	2	2	100%	0	0	0%	0	2									
3	East Yangon General Hospital	116	81	70%	1	30	26%	4	116									
4	Mingalardon Hospital																	
5	Wabargi Specialist Hospital	204	160	78%	40	4	2%	0	204									
6	No.1MBH (PyinOolwin)																	
7	1000 beded Hospital (Nay Pyi Taw)																	
8	AZG (Yangon)	62	54	87%	3	5	8%	0	62	6	3	2	1	0	6			
9	AZG (Kachin)	2	2	100%	0	0	0%	0	2	0	0	0	0	0	0			
10	PSI	2223	2121	95%	11	80	4%	11	2223	5	4	1	0	0	5			
11	AZG (Shan-North)	1	1	100%	0	0	0%	0	1	3	1	0	2	0	3			
12	AZG (Rakhine)	1	1	100%	0	0	0%	0	1	2	2	0	0	0	2			
13	MMA																	
14	AHRN (Shan North)																	
15	Thingangyun Sanpya Hospital	3	3	100%	0	0	0%	0	3									
16	Medecins du monde	7	6	86%	0	0	0%	1	7									
17	New Yangon General Hospital																	
18	West Yangon General Hospital																	
	Total	2622	2431	93%	55	120	5%	16	2622	17	10	4	3	0	17			

**NATIONAL TUBERCULOSIS PROGRAMME  
REPORTING STATUS (2009)**

STATE / DIVISION	DOTS Townships	1st Quarter 2009			2nd Quarter 2009			3rd Quarter 2009			4th Quarter 2009			Annual 2009		
		Received	%	not received	Received	%	not received	Received	%	not received	Received	%	not received	Received	%	not received
Kachin State	<b>18</b>	13	74%	5	14	78%	5	14	78%	4	13	72%	5	15	83%	3
Kayah State	<b>7</b>	7	100%	0	7	100%	0	7	100%	0	7	100%	0	7	100%	0
Chin State (South)	<b>4</b>	4	100%	0	4	100%	0	4	100%	0	4	100%	0	4	100%	0
Chin State (North)	<b>5</b>	5	100%	0	5	100%	0	5	100%	0	4	80%	1	5	100%	0
Sagaing Division	<b>37</b>	37	100%	0	37	100%	0	37	100%	0	37	100%	0	37	100%	0
Magway Division	<b>25</b>	25	100%	0	25	100%	0	25	100%	0	25	100%	0	25	100%	0
Mandalay Division	<b>31</b>	31	100%	0	31	100%	0	31	100%	0	31	100%	0	31	100%	0
Shan State (South)	<b>21</b>	21	99%	0	21	100%	0	21	100%	0	21	100%	0	21	100%	0
Shan State (East)	<b>10</b>	7	70%	1	9	90%	1	9	90%	1	9	90%	1	9	90%	1
Shan State (North)	<b>24</b>	19	79%	5	18	75%	6	18	75%	6	19	79%	5	19	79%	5
Kayin State	<b>7</b>	7	100%	0	7	100%	0	7	100%	0	7	100%	0	7	100%	0
Tanintharyi Division	<b>10</b>	10	100%	0	10	100%	0	10	100%	0	10	100%	0	10	100%	0
Bago (East) Division	<b>14</b>	14	100%	0	14	100%	0	14	100%	0	14	100%	0	14	100%	0
Bago (West) Division	<b>14</b>	14	100%	0	14	100%	0	14	100%	0	14	100%	0	14	100%	0
Mon State	<b>10</b>	10	100%	0	10	100%	0	10	100%	0	10	100%	0	10	100%	0
Rakhine State	<b>17</b>	17	100%	0	17	100%	0	17	100%	0	17	100%	0	17	100%	0
Yangon Division	<b>45</b>	45	100%	0	45	100%	0	45	100%	0	45	100%	0	45	100%	0
Ayeyarwaddy Division	<b>26</b>	26	100%	0	26	100%	0	26	100%	0	26	100%	0	26	100%	0
<b>Total townships</b>	<b>325</b>	<b>312</b>	<b>96%</b>	<b>13</b>	<b>314</b>	<b>97%</b>	<b>12</b>	<b>314</b>	<b>97%</b>	<b>11</b>	<b>313</b>	<b>96%</b>	<b>12</b>	<b>316</b>	<b>97%</b>	<b>9</b>
				<b>4%</b>			<b>4%</b>			<b>3%</b>			<b>4%</b>			<b>3%</b>

Annual report had not been received from ( 9 )Townships

Kachin State (3) Tsps 1. N'ganyan, 2.Hsawlaw, 3.Khaunglanbu

Shan (N) State (5)Tsps 1. Kongyan 2. Nanphant 3.Panwine 4.Mongmaw 5. Manphant

Shan (E) State (1)Tsps 1. Matman

**NATIONAL TUBERCULOSIS PROGRAMME (Myanmar)**  
**EVALUATION OF TB CONTROL ACTIVITIES IN TOWNSHIPS (2008-2009)**

No. of Reported Tsp.	No. of total Tsp.	State/Division	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-) cases and EP cases	Ratio of NSS+ to NSS (-) cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP+ other unit	(TSR) NTP only	(TSR) NTP + other unit
15	18	Kachin State	1376067	1032	1255	5169	122%	150%	51%	0.4:1	0.9:1	84%	19	73%	72%	78%	
7	7	Kayah State	288919	217	131	1177	60%	60%	39%	0.1:1	0.5:1	90%	6	63%	63%	82%	
9	9	Chin State	508351	381	151	1213	40%	40%	35%	0.2:1	0.4:1	83%	13	71%	71%	89%	
37	37	Sagaing Division	6325851	4744	2909	8116	61%	70%	66%	0.6:1	1.7:1	89%	13	78%	77%	85%	
25	25	Magway Division	4092771	3070	2052	7900	67%	80%	51%	0.4:1	0.9:1	88%	19	76%	75%	87%	
31	31	Mandalay Division	6983424	5238	3360	11991	64%	82%	54%	0.4:1	1:1	87%	22	81%	79%	86%	
21	21	Shan State (South)	2119301	1589	780	2524	49%	51%	47%	0.5:1	0.8:1	87%	13	80%	80%	86%	
9	10	Shan State (East)	712093	534	483	1511	90%	90%	50%	0.5:1	0.8:1	83%	17	70%	70%	84%	
19	24	Shan State (North)	2712893	2035	1140	3781	56%	71%	52%	0.5:1	1:1	83%	21	69%	68%	80%	
7	7	Kayin State	1537453	1153	1061	3940	92%	97%	33%	0.4:1	0.4:1	87%	19	76%	76%	82%	
10	10	Tanintharyi Division	1646224	1235	885	6092	72%	75%	28%	0.2:1	0.3:1	85%	38	74%	73%	79%	
14	14	Bago (East) Division	2855562	2142	1764	5008	82%	103%	46%	0.6:1	0.7:1	90%	22	78%	78%	87%	
14	14	Bago (West) Division	2025688	1519	1588	4965	105%	114%	38%	0.5:1	0.6:1	88%	24	80%	79%	85%	
10	10	Mon State	2053149	1540	1758	6508	114%	129%	35%	0.4:1	0.5:1	88%	15	81%	80%	86%	
17	17	Rakhine State	3355941	2517	2199	6698	87%	91%	45%	0.5:1	0.7:1	87%	21	74%	74%	86%	
45	45	Yangon Division	5782463	9801	8329	22598	85%	110%	55%	0.7:1	1:1	91%	25	82%	81%	87%	
26	26	Ayeyarwaddy Div.	6531731	4899	4507	11593	92%	102%	55%	0.7:1	1.1:1	91%	23	81%	80%	88%	
316	325	All State and Division	50907881	43645	34352	110784	79%		49%	0.5:1	0.8:1	89%	20	79%		86%	
18		Other Unit			7037	23239			46%	0.5:1	0.7:1	83%	18	71%		80%	
	Total	Union of Myanmar	50907881	43646	41389	134023	95%		48%	0.5:1	0.8:1	88%	20	78%		85%	

# Annex-21 (townships list)

## NATIONAL TUBERCULOSIS PROGRAMME (Myanmar) EVALUATION OF TB CONTROL ACTIVITIES IN TOWNSHIPS (2008-2009)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Kachin State</b>																
1	Bahmo	108113	81	80	358	99%	136%	43%	0.33:1	0.6:1	23	89%	86%	86%	86%	87%
2	Mansi	68836	52	56	135	108%		65%	0.93:1	1.6:1	43	91%	71%		71%	
3	Momaik	93146	70	27	135	39%	49%	41%	0.26:1	0.6:1	25	100%	84%	64%	84%	77%
4	Shwegu	81593	61	30	104	49%	70%	44%	0.43:1	0.7:1	13	73%	82%	81%	97%	94%
5	Mohyinin	201879	151	120	628	79%	95%	45%	0.25:1	0.7:1	21	82%	75%	73%	79%	77%
6	Kamaing	147597	111	190	426	172%	261%	82%	0.97:1	3.7:1	24	71%	54%	71%	65%	79%
7	Mogaung	134989	101	134	594	132%	149%	43%	0.31:1	0.7:1	21	88%	69%	68%	76%	79%
8	Tanai	37899	28	65	138	229%		69%	1.05:1	1.9:1	22	88%	56%		69%	
9	Myitkyina	204102	153	371	1758	242%	291%	49%	0.32:1	0.8:1	17	89%	71%	69%	74%	73%
10	Chipway	18277	14	6	19	44%		53%	0.67:1	0.7:1	32	83%	100%		100%	
11	Hsawlaw	6617	5						Nr.							
12	N Jan Yan	8658	6						Nr.							
13	Waingmaw	115580	87	108	658	125%	155%	47%	0.21:1	0.7:1	13	84%	82%	80%	88%	89%
14	Putao	87194	65	67	210	102%		52%	0.53:1	0.9:1	23	79%	79%		85%	
15	Khaunglanbu	14550	11						Nr.							
16	Machanbaw	20782	16	0	3	0%		33%	0:1	0:1	20	0%	67%		67%	
17	Nogmun	11420	9	1	1	12%		100%	1:0	1:0						
18	Sumprabon	14835	11	0	2	0%		0%	0:1	0:1					0%	
<b>Total</b>		<b>1376067</b>	<b>1032</b>	<b>1255</b>	<b>5169</b>	<b>122%</b>	<b>150%</b>	<b>51%</b>	<b>0.36:1</b>	<b>0.9:1</b>	<b>19</b>	<b>84%</b>	<b>73%</b>	<b>72%</b>	<b>78%</b>	<b>78%</b>

\* Note\* (Nr.) Report had not been received from townships

Nr. 3 Tsp: 1.N'ganyan. 2. Hsawlaw. 3 Khaunglanbu

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop: of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
-------	----------	------------	--------------------------	-----------------------------------	-------------------------	----------------	------------------------	--	--	-------------------------------	------------------------	------------------------	---------------	-----------------------	----------------	------------------------

## Kayah State

1	Bawlake	9856	7	9	27	122%		61%	0.56:1	1.3:1	11	100%	56%		67%	
2	Masai	12406	9	7	11	75%		100%	7:1	7:0	18	100%	50%		100%	
3	Pasaung	34845	26	22	65	84%		79%	0.59:1	3.1:1	14	95%	18%		64%	
4	Loikaw	105384	79	77	945	97%		30%	0.09:1	0.4:1	5	87%	69%		80%	
5	Dimawhso	95499	72	14	95	20%		47%	0.18:1	0.8:1	7	93%	76%		85%	
6	Phruhso	28000	21	2	31	10%		50%	0.08:1	0.4:1	8	50%	63%		100%	
7	Shataw	2929	2	0	3	0%		100%	0:1	0:0	0		0%		100%	
	Total	288919	217	131	1177	60%		39%	0.13:1	0.5:1	6	90%	63%		82%	

## Chin State

1	Falam	52210	39	14	131	36%	36%	46%	0.15:1	0.3:1	18	100%	86%	86%	86%	
2	Hakha	57884	43	20	298	46%		31%	0.08:1	0.4:1	8	85%	87%		87%	
3	Htantalan	70048	53	3	36	6%		18%	0.09:1	0.2:1	22	50%	100%		100%	
4	Tiddim	90408	68	28	290	41%	44%	34%	0.11:1	0.5:1	14	89%	79%	77%	90%	87%
5	Tunzan	32470	24	12	137	49%	50%	17%	0.1:1	0.2:1	24	71%	80%	80%	100%	100%
6	Mindat	43148	32	27	173	83%		40%	0.21:1	0.5:1	12	81%	40%		80%	
7	Kanpetlet	18933	14	0	19	0%		0%	0:1	0:1	0		38%		100%	
8	Matupi	56765	43	15	58	35%		31%	0.37:1	0.5:1	11	71%	67%		100%	
9	Paletwa	86485	65	32	71	49%		65%	0.89:1	1.7:1	19	84%	84%		92%	
	Total	508351	381	151	1213	40%	40%	35%	0.15:1	0.4:1	13	83%	71%	71%	90%	89%

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP+ other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Sagaing Division</b>																
1	Sagaing	396862	298	201	535	68%	85%	71%	0.66:1	2.3:1	16	93%	81%	77%	87%	85%
2	Myaung	183492	138	62	118	45%	46%	89%	1.24:1	7.8:1	10	85%	72%	72%	89%	89%
3	Myinmu	165468	124	88	208	71%		60%	0.79:1	1.3:1	7	98%	97%		97%	
4	Shwebo	350351	263	119	395	45%	58%	56%	0.46:1	1.2:1	12	94%	75%	73%	82%	83%
5	Kanbalu	311018	233	108	304	46%	51%	71%	0.58:1	2.3:1	11	81%	79%	76%	85%	85%
6	Khin-U	195661	147	92	234	63%	65%	87%	0.69:1	6.6:1	7	96%	88%	86%	89%	89%
7	Kyunhla	87987	66	50	130	76%		68%	0.67:1	2:1	10	84%	44%		87%	
8	Tabayin	184205	138	55	112	40%		81%	1.06:1	3.9:1	14	93%	89%		95%	
9	Taze	217437	163	76	172	47%		75%	0.87:1	2.7:1	17	97%	78%		91%	
10	Wetlet	290688	218	127	325	58%	70%	87%	0.71:1	5.8:1	13	95%	83%	79%	85%	84%
11	Ye-U	172050	129	57	215	44%	44%	54%	0.4:1	1.1:1	13	89%	82%	82%	82%	82%
12	Monywa	412070	309	195	452	63%	85%	70%	0.94:1	2:1	18	85%	73%	77%	77%	81%
13	Ayadaw	243833	183	122	195	67%	74%	78%	1.91:1	3.3:1	8	98%	91%	88%	94%	92%
14	Budalin	190532	143	87	261	61%		72%	0.56:1	2.3:1	18	87%	78%		78%	
15	ChaungU	140336	105	54	153	51%	60%	44%	0.57:1	0.7:1	13	85%	79%	80%	85%	85%
16	Kani	169551	127	45	104	35%		66%	0.82:1	1.8:1	29	64%	73%		100%	
17	Pale	183135	137	46	129	33%	34%	70%	0.64:1	2.1:1	8	80%	56%	56%	80%	80%
18	Salingyi	178851	134	88	159	66%	66%	81%	1.33:1	4.2:1	13	92%	74%	74%	76%	76%
19	Yinmabin	174058	131	43	124	33%		52%	0.56:1	1:1	10	93%	92%		94%	
20	Katha	160703	121	90	218	75%		67%	0.8:1	1.8:1	12	89%	80%		81%	
21	Banmauk	104386	78	31	48	40%		88%	2.38:1	6.2:1	14	94%	64%		91%	
22	Htigyaing	123947	93	49	101	53%		68%	1.09:1	2:1	11	69%	65%		79%	
23	Indaw	136394	102	59	147	58%		76%	0.78:1	2.8:1	19	78%	87%		87%	
24	Kawlin	154864	116	74	188	64%	73%	62%	0.75:1	1.4:1	12	89%	67%	66%	77%	77%
25	Pinlebu	134109	101	50	80	50%		81%	1.79:1	4.2:1	11	86%	68%		85%	
26	Wuntho	82337	62	36	62	58%		79%	1.8:1	3.3:1	13	72%	87%		87%	
27	Kalay	318524	239	233	1270	98%	154%	58%	0.23:1	1.2:1	23	85%	79%	78%	79%	80%
28	Kalewa	72826	55	33	84	60%		70%	0.73:1	2.1:1	7	94%	88%		93%	
29	Minkin	129137	97	58	104	60%		79%	1.32:1	3.6:1	15	97%	96%		96%	
30	Tamu	97010	73	185	703	254%	254%	54%	0.38:1	1:1	19	92%	94%	94%	95%	95%
31	Mawlaik	61760	46	11	32	24%		60%	0.55:1	1.4:1	6	82%	71%		94%	
32	Phaungbyin	122349	92	54	129	59%		72%	0.79:1	2.3:1	15	81%	63%		80%	
33	Khamti	40841	31	74	172	242%		63%	0.87:1	1.4:1	16	85%	64%		75%	
34	Homalin	187739	141	111	293	79%		48%	0.7:1	0.8:1	11	90%	57%		80%	
35	Layshi	20340	15	7	30	46%		47%	0.33:1	0.8:1	12	71%	89%		89%	
36	Lahel	54955	41	35	78	85%		75%	1:1	2.5:1	18	86%	68%		88%	
37	Nanyun	76045	57	4	52	7%		23%	0.1:1	0.1:1	31	25%	71%		86%	
<b>Total</b>		<b>6325851</b>	<b>4744</b>	<b>2909</b>	<b>8116</b>	<b>61%</b>	<b>70%</b>	<b>66%</b>	<b>0.61:1</b>	<b>1.7:1</b>	<b>13</b>	<b>89%</b>	<b>78%</b>	<b>77%</b>	<b>85%</b>	<b>85%</b>

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+)	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Magwe Division</b>																
1	<b>Magwe</b>	291526	219	330	1088	151%	171%	56%	0.56:1	1.1:1	27	80%	71%	71%	80%	81%
2	Chauk	212349	159	122	424	77%	116%	52%	0.47:1	0.9:1	26	93%	70%	68%	83%	83%
3	Taungdwingyi	252185	189	132	311	70%	72%	59%	0.86:1	1.4:1	12	91%	89%	84%	89%	89%
4	Myothit	172620	129	129	258	100%		69%	1.29:1	2.1:1	55	100%	96%		96%	
5	Natmauk	243381	183	82	184	45%	56%	69%	0.92:1	2.1:1	28	83%	77%	74%	86%	86%
6	Yenanchaung	163292	122	101	246	82%	111%	63%	0.97:1	1.5:1	21	88%	89%	83%	93%	92%
7	<b>Pakokku</b>	315504	237	113	593	48%	63%	31%	0.26:1	0.4:1	16	89%	67%	67%	88%	88%
8	Yesagyo	252219	189	61	251	32%	38%	32%	0.33:1	0.5:1	8	97%	89%	88%	89%	90%
9	Pauk	167577	126	98	279	78%		74%	0.56:1	2.8:1	22	100%	95%		95%	
10	Myaing	244240	183	89	381	49%		86%	0.31:1	5.6:1	18	94%	47%		92%	
11	Seikphyu	98725	74	22	90	30%	34%	64%	0.33:1	1.7:1	18	100%	89%	89%	95%	95%
12	<b>Gantgaw</b>	122416	92	39	203	42%	42%	42%	0.25:1	0.6:1	14	74%	62%	61%	97%	95%
13	Saw	66502	50	23	43	46%		68%	1.15:1	2.1:1	23	100%	95%		95%	
14	Htilin	53085	40	13	43	33%		57%	0.43:1	1.3:1	12	92%	88%		88%	
15	<b>Minbu</b>	180744	136	109	965	80%	96%	45%	0.13:1	0.7:1	18	85%	70%	66%	74%	74%
16	Ngape	45499	34	23	93	67%		43%	0.38:1	0.6:1	16	91%	54%		79%	
17	Pwintphyu	173892	130	60	112	46%	151%	73%	1.36:1	2.7:1	16	98%	86%	82%	86%	95%
18	Satuketaya	42080	32	17	50	54%		67%	0.59:1	1.7:1	20	76%	21%		63%	
19	Salin	253591	190	82	261	43%	49%	54%	0.5:1	1.1:1	11	91%	71%	71%	91%	91%
20	<b>Thayet</b>	105669	79	111	313	140%	142%	49%	0.62:1	0.8:1	27	54%	63%	63%	73%	73%
21	Minhla	109668	82	68	163	83%		69%	0.81:1	2.1:1	31	93%	98%		98%	
22	Kanma	81208	61	50	191	82%	84%	53%	0.41:1	1:1	38	94%	90%	90%	90%	90%
23	Sinpaukwae	128545	96	18	142	19%		37%	0.15:1	0.5:1	11	100%	100%		100%	
24	Mindon	60306	45	39	778	86%		17%	0.05:1	0.1:1	7	100%	100%		100%	
25	Aunglan	255948	192	121	438	63%	68%	49%	0.43:1	0.8:1	26	88%	73%	73%	73%	73%
<b>Total</b>		<b>4092771</b>	<b>3070</b>	<b>2052</b>	<b>7900</b>	<b>67%</b>	<b>80%</b>	<b>51%</b>	<b>0.39:1</b>	<b>0.9:1</b>	<b>19</b>	<b>88%</b>	<b>76%</b>	<b>75%</b>	<b>86%</b>	<b>87%</b>



# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Mandalay Division</b>																
1	Amarapura	178378	134	93	264	70%	110%	62%	0.65:1	1.4:1	27	85%	67%	70%	88%	86%
2	Aungmyayatharzan	246220	185	219	758	119%	148%	55%	0.47:1	1:1	22	92%	88%	85%	88%	87%
3	Chanayetharzan	233028	175	141	548	81%	102%	53%	0.41:1	0.9:1	18	85%	78%	77%	83%	83%
4	Chanmyatharzi	173490	130	247	774	190%	208%	52%	0.55:1	0.9:1	30	95%	90%	88%	90%	90%
5	Maharaungmyae	218577	164	165	590	101%	120%	54%	0.46:1	1:1	18	95%	90%	89%	90%	89%
6	Pyigyitagonn	145046	109	133	514	122%	150%	51%	0.4:1	0.9:1	25	85%	73%	71%	82%	79%
7	Patheingyi	173723	130	105	393	81%	84%	55%	0.41:1	1:1	18	76%	85%	85%	87%	88%
8	Meiktilar	355886	267	54	851	20%	43%	21%	0.07:1	0.2:1	13	91%	62%	55%	75%	76%
9	Mahlaing	199444	150	44	181	29%	31%	37%	0.37:1	0.5:1	18	89%	78%	79%	86%	87%
10	Tharzi	198752	149	92	212	62%	63%	73%	0.88:1	2.4:1	18	88%	96%	96%	100%	100%
11	Wundwin	299002	224	99	237	44%	53%	72%	0.89:1	2.1:1	50	90%	83%	81%	84%	84%
12	Myingan	286837	215	139	676	65%	77%	47%	0.28:1	0.7:1	19	93%	86%	83%	86%	85%
13	Kyaukpadaung	299881	225	135	281	60%	110%	72%	1.13:1	2.2:1	26	93%	80%	79%	85%	84%
14	Natogyi	234263	176	45	118	26%	27%	61%	0.75:1	1.4:1	26	93%	75%	76%	81%	81%
15	Ngazun	138323	104	46	149	44%	46%	59%	0.51:1	1.2:1	22	93%	79%	75%	86%	87%
16	Taungtha	240534	180	49	233	27%	34%	45%	0.3:1	0.6:1	12	82%	81%	79%	93%	89%
17	NyaungU	269023	202	94	497	47%	50%	40%	0.27:1	0.6:1	16	83%	72%	72%	85%	85%
18	Pyin oo Lwin	175615	132	82	407	62%	67%	51%	0.26:1	1:1	10	96%	95%	95%	95%	95%
19	Madaya	259994	195	107	306	55%	56%	58%	0.63:1	1.1:1	22	72%	70%	70%	76%	76%
20	Mogok	192044	144	68	367	47%	90%	53%	0.27:1	0.9:1	17	87%	80%	74%	88%	88%
21	Sintgu	139133	104	113	327	108%	171%	59%	0.68:1	1.1:1	22	84%	95%	90%	99%	95%
22	Thabeikkyin	111228	83	77	299	92%	158%	54%	0.37:1	1:1	34	79%	70%	75%	84%	86%
23	Yamethin	251473	189	90	290	48%	50%	61%	0.49:1	1.4:1	38	70%	88%	86%	88%	87%
24	Lewei	274514	206	188	280	91%	98%	83%	2.29:1	4.6:1	42	97%	89%	89%	95%	95%
25	Pyawbwei	350636	263	83	271	32%	32%	55%	0.49:1	1:1	23	88%	90%	90%	90%	90%
26	Pyinmana	319219	239	229	758	96%	129%	50%	0.5:1	0.8:1	24	85%	59%	62%	76%	77%
27	Tatone	288263	216	109	235	50%	65%	74%	1.04:1	2.7:1	35	63%	67%	63%	80%	76%
28	Kyaukse	226287	170	137	653	81%	123%	54%	0.28:1	0.9:1	24	79%	79%	79%	85%	85%
29	Myitha	232564	174	89	217	51%	61%	72%	0.77:1	2.3:1	23	94%	74%	72%	88%	87%
30	Sintgine	125155	94	54	223	58%	57%	51%	0.33:1	1:1	20	100%	90%	90%	92%	92%
31	TadaOo	146892	110	34	82	31%	47%	63%	0.89:1	1.4:1	12	97%	77%	74%	77%	77%
<b>Total</b>		<b>6983424</b>	<b>5238</b>	<b>3360</b>	<b>11991</b>	<b>64%</b>	<b>82%</b>	<b>54%</b>	<b>0.44:1</b>	<b>1:1</b>	<b>22</b>	<b>87%</b>	<b>81%</b>	<b>79%</b>	<b>87%</b>	<b>86%</b>

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP+ other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Shan (South) State</b>																
1	Linhkay	61590	46	27	53	58%		62%	1.17:1	1.6:1	16	100%	89%		89%	
2	Maukme	30016	23	19	29	84%		92%	2.71:1	9.5:1	23	95%	89%		89%	
3	Monai	43098	32	15	26	46%		68%	1.67:1	1.9:1	6	100%	100%		100%	
4	Mangpang	37017	28	13	21	47%		80%	2.6:1	3.3:1	21	100%				
5	Loilem	107128	80	26	103	32%		32%	0.37:1	0.4:1	10	88%	87%		87%	
6	Kunhein	74686	56	56	177	100%		56%	0.51:1	1.1:1	22	93%	59%		88%	
7	Kyeethi	35438	27	10	76	38%		20%	0.15:1	0.2:1	50	100%	89%		89%	
8	Laikha	40331	30	35	96	116%		48%	0.64:1	0.8:1	9	100%	100%		100%	
9	Mongkaing	121367	91	19	45	21%		76%	0.95:1	2.4:1	21	74%	43%		74%	
10	Mongshu	63654	48	24	103	50%		34%	0.31:1	0.5:1	27	88%	100%		100%	
11	Namsan	75439	57	42	228	74%		31%	0.24:1	0.4:1	8	69%	68%		70%	
12	Taunggyi	345516	259	149	628	57%		41%	0.35:1	0.6:1	13	83%	68%		74%	
13	Hopone	97136	73	23	55	32%		57%	0.79:1	1.2:1	20	78%	86%		86%	
14	Hpekon	77340	58	21	99	36%		27%	0.29:1	0.3:1	19	86%	83%		87%	
15	Hsising	133276	100	45	119	45%		71%	0.75:1	1.9:1	19	80%	69%		81%	
16	Kalaw	155979	117	64	146	55%		62%	0.86:1	1.4:1	9	86%	82%	81%	83%	83%
17	Lauksauk	133862	100	49	149	49%		38%	0.52:1	0.6:1	15	94%	90%	90%	90%	90%
18	Pindaya	78686	59	12	66	20%		24%	0.23:1	0.3:1	7	100%	91%		100%	
19	Pinlaung	152973	115	43	100	37%		71%	0.8:1	2.3:1	23	81%	86%		95%	
20	Nyaungshwe	181017	136	76	152	56%		68%	1.12:1	2:1	12	96%	99%	99%	99%	99%
21	Ywangan	73752	55	12	53	22%		31%	0.33:1	0.4:1	13	75%	80%		80%	
<b>Total</b>		<b>2119301</b>	<b>1589</b>	<b>780</b>	<b>2524</b>	<b>49%</b>	<b>51%</b>	<b>47%</b>	<b>0.49:1</b>	<b>0.8:1</b>	<b>13</b>	<b>87%</b>	<b>80%</b>	<b>80%</b>	<b>86%</b>	<b>86%</b>
<b>Shan (East) State</b>																
1	Kengtong	188211	141	116	404	82%		51%	0.48:1	0.8:1	10	84%	72%		84%	
2	Mongkhat	29526	22	3	9	14%		100%	0.5:1	1:0	17	100%				
3	Mongyan	94417	71	22	59	31%		67%	0.63:1	1.8:1	38	95%	73%		95%	
4	Monghsat	77793	58	78	142	134%		89%	1.59:1	7.1:1	28	74%	63%		79%	
5	Mongping	53700	40	37	100	92%		69%	0.65:1	1.9:1	35	92%	73%		85%	
6	Mongton	39692	30	32	129	107%		50%	0.37:1	0.8:1	16	81%	53%		65%	
7	Mongphak	40024	30	23	92	77%		55%	0.36:1	1:1	25	100%	83%		91%	
8	Mongyaung	70514	53	35	80	66%		61%	0.95:1	1.3:1	43	83%	62%		86%	
9	Tachileik	118216	89	137	496	155%		34%	0.42:1	0.4:1	15	79%	74%		84%	
10	Matman	Nr.	0	0	0											
<b>Total</b>		<b>712093</b>	<b>534</b>	<b>483</b>	<b>1511</b>	<b>90%</b>		<b>50%</b>	<b>0.53:1</b>	<b>0.8:1</b>	<b>17</b>	<b>83%</b>	<b>70%</b>		<b>84%</b>	

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+)	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop: of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Shan (North) State</b>																
1	Kunlon	151169	113	46	95	41%		63%	1.02:1	1.6:1	31	98%	96%		96%	
2	Hopan	112522	84	60	178	71%		64%	0.55:1	1.6:1	25	65%	37%		88%	
3	Kyaukme	213407	160	90	324	56%	69%	37%	0.42:1	0.5:1	23	93%	72%	69%	78%	79%
4	Hsipaw	175103	131	111	334	85%	95%	52%	0.56:1	1:1	15	95%	100%	95%	100%	98%
5	Mabein	36335	27	25	104	92%		57%	0.34:1	1.1:1	38	100%	90%		100%	
6	Manton	43924	33	9	10	27%		100%	1:0	1:0	26	100%	100%		100%	
7	Mongmeik	75996	57	56	138	98%		63%	0.84:1	1.4:1	21	73%	78%		84%	
8	Namtu	153682	115	49	125	43%		66%	0.7:1	1.8:1	19	94%	67%		83%	
9	Nyaungcho	139287	104	37	125	35%	38%	48%	0.45:1	0.8:1	17	100%	95%	84%	95%	91%
10	Lashio	286720	215	198	679	92%	110%	50%	0.47:1	0.8:1	18	77%	61%	63%	65%	68%
11	Namsam	92215	69	24	94	35%		52%	0.37:1	0.9:1	27	92%	57%		90%	
12	Mongmaw	16017	12													
13	Theinni	78137	59	57	151	97%	98%	63%	0.68:1	1.5:1	33	88%	48%	48%	68%	68%
14	Mongreh	75297	56	33	162	58%		74%	0.26:1	2.8:1	31	85%	82%		94%	
15	Manphant	60947	46													
16	Pangyan	89458	67	20	49	30%		48%	0.77:1	0.8:1	37	20%	18%		45%	
17	Narphant	38841	29													
18	Panwaing	15216	11													
19	Tanyan	203181	152	101	322	66%	66%	50%	0.5:1	0.9:1	18	97%	67%	67%	92%	92%
20	Laukkai	113334	85	46	118	30%		57%	0.73:1	1.3:1	20	39%	36%		55%	
21	Kongyan	48509	36													
22	Muse	159628	120	71	260	59%	71%	52%	0.4:1	1:1	18	77%	65%	65%	73%	73%
23	Kuitai	203860	153	43	313	28%	29%	36%	0.16:1	0.5:1	26	84%	64%	64%	71%	71%
24	Namkham	130098	98	64	200	66%		67%	0.51:1	1.8:1	35	75%	66%		78%	
<b>Total</b>		<b>2712893</b>	<b>2035</b>	<b>1140</b>	<b>3781</b>	<b>54%</b>	<b>71%</b>	<b>52%</b>	<b>0.47:1</b>	<b>1:1</b>	<b>21</b>	<b>83%</b>	<b>69%</b>	<b>68%</b>	<b>80%</b>	<b>80%</b>

\* Note\* (Nr.) Report had not been received from(5) townships

Nr. (5) tsp: 1.Manphant, 2.Panwaing, 3.Mongmaw, 4.Kongyan, 5.Narphant

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
-------	----------	------------	--------------------------	-----------------------------------	-------------------------	----------------	------------------------	--	--	-------------------------------	------------------------	------------------------	---------------	-----------------------	----------------	------------------------

## Kayin State

1	Kawkareik	332438	249	182	435	73%	140%	54%	0.81:1	1:1	26	96%	78%	73%	84%	84%
2	Kyainseikkyi	181508	136	54	143	40%		44%	0.62:1	0.8:1	28	85%	63%		91%	
3	Myawady	62327	47	170	466	364%		60%	0.67:1	1.3:1	33	69%	64%		73%	
4	Hpa-an	501451	376	453	2230	120%		23%	0.26:1	0.3:1	14	88%	79%		84%	
5	Hlaingbwe	292053	219	141	450	64%	109%	38%	0.48:1	0.6:1	15	91%	80%	80%	87%	87%
6	Papun(Kamamaung)	75217	56	49	168	87%		36%	0.43:1	0.5:1	51	98%	83%		83%	
7	Thandaung	92459	69	12	48	17%		33%	0.36:1	0.4:1	21	67%	78%		78%	
Total		1537453	1153	1061	3940	92%	97%	33%	0.39:1	0.4:1	19	87%	76%	76%	83%	82%

## Tanintharyi Division

1	Dawei	218396	164	118	950	72%	77%	26%	0.14:1	0.3:1	16	86%	84%	83%	87%	88%
2	Launglon	211951	159	14	47	9%	9%	70%	0.45:1	2:1	23	100%	92%	92%	92%	92%
3	Thayetchaung	175284	131	18	53	14%	14%	57%	0.55:1	1.2:1	12	89%	78%	74%	83%	79%
4	Yebyu	157458	118	30	122	25%		40%	0.39:1	0.5:1	19	87%	83%		83%	
5	Kawthaung	99586	75	182	488	244%		57%	0.61:1	1.3:1	36	90%	76%		86%	
6	Bokpyin	67834	51	30	239	59%		17%	0.14:1	0.2:1	21	87%	70%		80%	
7	Myeik	309352	232	354	3592	153%	165%	21%	0.11:1	0.2:1	55	77%	70%	69%	73%	74%
8	Kyunsu	157024	118	24	102	20%		49%	0.35:1	0.8:1	22	83%	91%		91%	
9	Tanintharyi	107484	81	43	107	53%		66%	0.77:1	1.7:1	30	98%	81%		83%	
10	Palaw	141855	106	72	392	68%	68%	30%	0.24:1	0.3:1	21	92%	52%	52%	66%	66%
Total		1646224	1235	885	6092	72%	75%	28%	0.18:1	0.3:1	38	85%	74%	73%	79%	79%

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Bago (East) Division</b>																
1	Bago	416700	313	399	1076	128%	169%	56%	0.67:1	1.1:1	25	94%	68%	70%	82%	83%
2	Daik-U	212479	159	143	312	90%	92%	55%	0.95:1	1.1:1	30	92%	89%	89%	90%	90%
3	Kawa	217563	163	67	203	41%	50%	43%	0.55:1	0.7:1	23	94%	72%	73%	86%	86%
4	Kyauktaga	251009	188	139	372	74%	86%	48%	0.64:1	0.8:1	15	83%	87%	87%	93%	93%
5	Nyaunglaybin	234687	176	98	218	56%	72%	64%	0.92:1	1.6:1	18	89%	80%	79%	88%	88%
6	Shwekyin	83566	63	50	160	80%		34%	0.46:1	0.5:1	17	90%	64%		83%	
7	Thanatpin	157795	118	106	391	90%	91%	31%	0.38:1	0.4:1	30	87%	77%	78%	85%	85%
8	Waw	200598	150	146	260	97%	113%	73%	1.45:1	2.5:1	28	86%	84%	82%	88%	88%
9	Taunggoo	230576	173	132	410	76%	188%	45%	0.55:1	0.7:1	21	92%	82%	80%	82%	84%
10	Kyaukkyi	102891	77	68	188	88%		41%	0.6:1	0.6:1	48	72%	72%		96%	
11	Oktwin	153769	115	72	236	62%	71%	41%	0.47:1	0.6:1	24	83%	78%	80%	83%	85%
12	Phyu	287364	216	176	772	82%	85%	29%	0.31:1	0.3:1	28	93%	82%	81%	87%	87%
13	Htantabin	119357	90	51	173	57%	63%	40%	0.47:1	0.5:1	9	100%	90%	91%	95%	96%
14	Yedashe	187208	140	117	237	83%	89%	61%	1.17:1	1.3:1	24	95%	84%	84%	91%	91%
Total		2855562	2142	1764	5008	82%	103%	46%	0.6:1	0.7:1	22	90%	78%	78%	87%	87%
<b>Bago (West) Division</b>																
1	Pyay	234344	176	210	785	119%	179%	31%	0.38:1	0.4:1	20	82%	74%	74%	75%	75%
2	Paukkhaung	117296	88	100	276	114%		40%	0.6:1	0.6:1	16	91%	88%		88%	
3	Paungde	143663	108	93	266	86%	99%	44%	0.6:1	0.7:1	24	99%	80%	80%	80%	80%
4	Padaung	135012	101	86	293	85%	92%	37%	0.45:1	0.5:1	18	86%	76%	76%	84%	84%
5	Shwedaung	142659	107	101	395	94%	103%	36%	0.37:1	0.5:1	23	91%	64%	64%	81%	81%
6	Thegon	134075	101	108	502	107%	110%	24%	0.28:1	0.3:1	23	84%	78%	78%	83%	83%
7	Tharyawady	150725	113	179	371	158%	160%	56%	1.05:1	1.1:1	28	77%	85%	85%	85%	85%
8	Zigon	72806	55	68	242	125%		31%	0.41:1	0.4:1	17	91%	91%		97%	
9	Minhla	119742	90	98	194	109%		60%	1.18:1	1.3:1	22	89%	84%		90%	
10	Moonyo	143078	107	87	181	81%		64%	1.04:1	1.6:1	27	94%	81%		83%	
11	Okpo	140158	105	87	194	83%		48%	0.85:1	0.9:1	29	94%	94%		94%	
12	Gyobingauk	114852	86	105	382	122%	123%	32%	0.4:1	0.4:1	29	96%	88%	88%	89%	89%
13	Nattalin	158878	119	122	353	102%		39%	0.56:1	0.6:1	30	90%	78%		88%	
14	Latpadan	218400	164	144	531	88%	93%	35%	0.41:1	0.4:1	38	91%	70%	70%	84%	84%
Total		2025688	1519	1588	4965	105%	114%	38%	0.5:1	0.6:1	24	88%	80%	79%	85%	85%

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+)	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop: of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP + other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Mon State</b>																
1	<b>Mawlamyaing</b>	274496	206	355	1407	172%	183%	34%	0.37:1	0.4:1	13	90%	81%	81%	87%	87%
2	Chanungzon	153662	115	93	344	81%	83%	30%	0.38:1	0.4:1	13	80%	78%	78%	85%	85%
3	Kyaikmaraw	209698	157	105	543	67%	69%	23%	0.25:1	0.3:1	24	80%	73%	73%	89%	89%
4	Mudon	207832	156	163	819	105%	120%	35%	0.26:1	0.5:1	11	81%	84%	82%	86%	86%
5	Thanbyuzayat	161455	121	120	449	99%	106%	30%	0.38:1	0.4:1	12	89%	84%	84%	84%	85%
6	Ye	240461	180	183	531	101%		46%	0.61:1	0.7:1	23	81%	58%		66%	
7	<b>Thaton</b>	243618	183	227	497	124%	167%	60%	0.95:1	1.3:1	22	90%	80%	80%	83%	83%
8	Belin	168852	127	201	639	159%		36%	0.48:1	0.5:1	11	94%	88%		91%	
9	Kyaikto	154119	116	108	298	93%	172%	46%	0.63:1	0.7:1	22	94%	84%	82%	91%	92%
10	Paung	238956	179	203	981	113%	113%	23%	0.27:1	0.3:1	16	91%	91%	91%	91%	91%
<b>Total</b>		<b>2053149</b>	<b>1540</b>	<b>1758</b>	<b>6508</b>	<b>114%</b>	<b>129%</b>	<b>35%</b>	<b>0.39:1</b>	<b>0.5:1</b>	<b>15</b>	<b>88%</b>	<b>81%</b>	<b>80%</b>	<b>85%</b>	<b>86%</b>
<b>Rakhine State</b>																
1	<b>Kyaukphyu</b>	206016	155	110	397	71%		42%	0.42:1	0.6:1	12	94%	61%		77%	
2	Ann	154829	116	60	610	52%		44%	0.11:1	0.7:1	17	80%	43%		67%	
3	<b>Manaung</b>	104610	78	47	102	60%		71%	0.96:1	2.1:1	31	98%	100%		100%	
4	<b>Rambye</b>	155273	116	51	124	44%		64%	0.84:1	1.6:1	10	90%	71%		77%	
5	Maungdaw	459367	345	153	781	44%		26%	0.25:1	0.3:1	27	69%	61%		87%	
6	Buthidaung	304421	228	265	908	116%		32%	0.43:1	0.4:1	21	95%	83%		92%	
7	Rathedaung	176638	132	137	206	103%		76%	2.4:1	3:1	35	92%	81%		90%	
8	<b>Sittwe</b>	288215	216	276	1125	128%	166%	36%	0.36:1	0.5:1	18	82%	67%		81%	
9	Kyauktaw	253575	190	189	469	99%		47%	0.72:1	0.8:1	46	98%	95%		97%	
10	Minbya	207702	156	167	240	107%		81%	2.61:1	4.1:1	24	81%	84%		87%	
11	Myaukoo	237778	178	181	405	101%		57%	0.9:1	1.2:1	27	95%	91%		91%	
12	Myebon	130011	98	74	173	76%		62%	0.8:1	1.5:1	45	91%	39%		79%	
13	Pauktaw	140818	106	96	198	91%		64%	1.23:1	1.5:1	23	77%	31%		63%	
14	Ponnagyun	139829	105	98	250	93%		45%	0.7:1	0.8:1	13	87%	79%		96%	
15	<b>Thandwe</b>	160363	120	123	266	102%		61%	0.92:1	1.5:1	14	85%	82%		86%	
16	Gwa	83419	63	50	132	80%		45%	0.62:1	0.8:1	33	84%	91%		91%	
17	Taungup	153077	115	122	312	106%		50%	0.67:1	0.9:1	21	80%	66%		81%	
<b>Total</b>		<b>3355941</b>	<b>2517</b>	<b>2199</b>	<b>6698</b>	<b>87%</b>	<b>91%</b>	<b>45%</b>	<b>0.53:1</b>	<b>0.7:1</b>	<b>21</b>	<b>87%</b>	<b>74%</b>	<b>74%</b>	<b>86%</b>	<b>86%</b>

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop. of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP+ other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Yangon Division</b>																
	East District	0	0	1	2			50%	1:1	1:1	23	100%	100%		100%	
1	Botataung	35427	60	40	180	67%	67%	32%	0.33:1	0.4:1	28	98%	87%	87%	89%	89%
2	Dawbon	79892	135	152	376	112%	123%	64%	0.84:1	1.5:1	28	99%	97%	92%	97%	93%
3	Dagon(N)	161732	274	191	536	70%	143%	49%	0.68:1	0.8:1	19	92%	82%	85%	86%	90%
4	Dagon(S)	263867	447	578	1610	129%	154%	55%	0.7:1	0.9:1	35	85%	75%	85%	79%	87%
5	MingalarTN	123264	209	140	630	67%	67%	34%	0.34:1	0.4:1	21	95%	87%	87%	88%	88%
6	Okkala(N)	271003	459	279	1023	61%	112%	41%	0.44:1	0.5:1	23	91%	87%	85%	88%	87%
7	Okkala(S)	160471	272	165	583	61%	143%	48%	0.49:1	0.7:1	28	90%	88%	86%	88%	87%
8	Thaketa	230966	391	477	1034	122%	173%	71%	1.07:1	2.1:1	103	95%	85%	83%	91%	90%
9	Thingangyun	174277	295	240	724	81%	131%	58%	0.63:1	1.1:1	18	95%	85%	79%	85%	82%
10	Yankin	92897	157	146	369	93%	97%	51%	0.79:1	0.9:1	37	95%	89%	89%	92%	92%
11	Tarmwe	143806	244	119	433	49%	61%	49%	0.47:1	0.7:1	21	97%	86%	85%	87%	86%
12	Pazundaung	44765	76	36	161	47%	51%	45%	0.35:1	0.6:1		50%	90%	87%	92%	91%
13	Dagon(E)	85354	145	205	447	142%	167%	66%	1.19:1	1.6:1	39	90%	87%	87%	89%	89%
14	Dagon Seikkan	73888	125	80	338	64%	75%	40%	0.39:1	0.5:1	3	90%	78%	78%	84%	84%
	Total	1941609	3291	2849	8446	87%		52%	0.63:1	0.9:1	31	92%	84%		87%	
<b>West District</b>																
1	Kamayut	46092	78	77	217	99%	121%	54%	0.67:1	1:1		91%	69%	72%	82%	84%
2	Kyauktada	37701	64	20	81	31%	36%	47%	0.39:1	0.7:1		90%	89%	89%	96%	96%
3	Kyinmyintdine	93969	159	149	386	94%	131%	63%	0.83:1	1.3:1	22	81%	78%	79%	78%	80%
4	Sanchaung	75999	129	83	270	64%	71%	54%	0.55:1	0.8:1	14	86%	86%	87%	88%	89%
5	Seikkan	1171	2	4	10	202%		50%	0.67:1	1:1		100%	100%		100%	
6	Dagon	23700	40	35	97	87%	90%	59%	0.71:1	1.2:1	39	100%	87%	87%	87%	87%
7	Pabadan	36644	62	30	96	48%	50%	58%	0.57:1	1.1:1		97%	82%	82%	82%	82%
8	Bahan	71091	120	90	234	75%	102%	55%	0.75:1	1:1		92%	82%	75%	91%	85%
9	Mayangone	146226	248	225	648	91%	140%	58%	0.63:1	1.1:1	29	87%	86%	84%	90%	88%
10	Latha	27690	47	25	67	53%	60%	55%	0.71:1	1:1		84%	70%	71%	70%	71%
11	Lanmadaw	40093	68	36	108	53%	56%	52%	0.61:1	0.9:1		97%	85%	86%	89%	89%
12	Hlaing	114706	194	184	550	95%	99%	48%	0.6:1	0.7:1	13	93%	86%	83%	91%	89%
13	Ahlone	48794	83	61	212	74%	92%	47%	0.52:1	0.6:1		0%	69%	69%	87%	86%
	Total	763876	1295	1019	2976	79%		54%	0.64:1	0.9:1	23	90%	82%		88%	

# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop: of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP+ other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>South District</b>																
1	Seikkikanaungto	30842	52	58	116	111%	113%	66%	1.23:1	1.7:1		0%	87%	87%	93%	93%
2	Dallah	148054	251	179	603	71%	79%	50%	0.51:1	0.9:1	27	94%	77%	76%	81%	82%
3	Cocogyun	976	2	0	0	0%		0%	0:0	0:0						
4	Kawhmu	147749	250	60	179	24%	34%	42%	0.54:1	0.7:1	12	98%	93%	93%	94%	94%
5	Kyauktan	154682	262	134	328	51%	55%	51%	0.77:1	1:1	19	90%	78%	78%	92%	92%
6	Kunggangone	111409	189	104	252	55%	58%	60%	0.8:1	1.3:1	14	87%	83%	83%	87%	87%
7	Kayan	163322	277	162	359	59%	69%	73%	0.94:1	2.4:1	17	95%	92%	90%	94%	93%
8	Twantay	259701	440	150	364	34%	42%	64%	0.82:1	1.6:1	22	95%	82%	80%	91%	91%
9	Thonegwa	171568	291	110	269	38%	38%	56%	0.82:1	1.2:1	23	86%	83%	83%	93%	93%
10	Thanlyin	174282	295	302	653	102%	122%	63%	1.05:1	1.5:1	26	92%	80%	79%	87%	88%
	Total	1362585	2309	1259	3123	55%		58%	0.79:1	1.2:1	20	92%	83%		89%	
<b>North District</b>																
1	Mingalardon	171806	291	481	1303	165%	195%	57%	0.73:1	1:1		80%	72%	72%	86%	85%
2	Shwepyithar	213015	361	376	880	104%	152%	62%	0.88:1	1.4:1	25	88%	62%	66%	87%	87%
3	Hlaingtharyar	321353	545	959	2210	176%	193%	53%	0.89:1	1:1	23	96%	93%	91%	95%	93%
4	Insein	240579	408	512	1366	126%	149%	61%	0.74:1	1.3:1	23	92%	75%	74%	86%	85%
5	Taikkvi	261429	443	220	593	50%	70%	50%	0.67:1	0.9:1	24	97%	85%	87%	85%	87%
6	Htantabin	139628	237	105	211	44%	44%	70%	1.17:1	2:1		89%	79%	79%	90%	90%
7	Hnawbi	180945	307	221	603	72%	75%	62%	0.66:1	1.4:1	17	89%	84%	85%	89%	89%
8	Hlegu	185638	315	241	665	77%	99%	57%	0.62:1	1.2:1	25	98%	96%	93%	96%	93%
	U.T.I	0	0	79	173			57%	0.99:1	1.2:1	25	71%	67%		70%	
	NTP( Diagnostic C)	0	0	8	49				0.22:1	0.5:1	19	88%	71%		93%	
	Total	1714393	2906	3202	8053	110%		57%	0.78:1	1.1:1	23	91%	81%		89%	
<b>Yangon Division</b>		5782463	9801	8329	22598	85%	110%	55%	0.7:1	1:1	25	91%	82%	81%	88%	87%



# Annex-21 (townships list)

Sr.No	TOWNSHIP	Population	Estimated New S(+) cases	Total New Smear Positive detected	Total notified TB cases	(CDR) NTP only	(CDR) NTP + other unit	Prop: of SS(+) pul:TB cases out of all pul: TB cases	Ratio of NSS+ to NSS (-)cases and EP cases	Ratio of NSS+ to NSS (-)cases	Sputum Positivity Rate	Sputum Conversion Rate	(CR) NTP only	(CR) NTP+ other unit	(TSR) NTP only	(TSR) NTP + other unit
<b>Ayeyarwaddy Division</b>																
1	<b>Patheingyi</b>	372927	280	450	1301	161%	178%	53%	0.6:1	1:1	23	87%	79%	77%	85%	84%
2	Kanyidaung	200982	151	61	192	40%	47%	47%	0.52:1	0.8:1	31	90%	95%	91%	100%	100%
3	Yekyi	216600	162	155	403	95%	96%	57%	0.71:1	1.1:1	25	90%	75%	75%	87%	87%
4	Kyaunggon	162484	122	135	354	111%	111%	52%	0.71:1	0.9:1	20	98%	77%	77%	88%	88%
5	Kyongpyaw	281681	211	142	219	67%	73%	81%	2.29:1	3.8:1	33	96%	89%	89%	91%	91%
6	Ngaputaw	297330	223	169	382	76%	76%	59%	0.89:1	1.3:1	20	91%	72%	72%	90%	90%
7	Thabaung	149741	112	109	239	97%	97%	64%	1.03:1	1.6:1	26	86%	78%	77%	87%	87%
8	<b>Hinthada</b>	357161	268	371	933	138%	159%	49%	0.69:1	0.9:1	24	95%	79%	78%	89%	89%
9	Kyankin	95512	72	76	232	106%		42%	0.55:1	0.7:1	16	97%	84%		93%	
10	Myanaung	326243	245	196	592	80%		45%	0.53:1	0.7:1	28	94%	90%		90%	
11	Ingapu	237337	178	243	885	137%		42%	0.39:1	0.7:1	27	94%	84%		88%	
12	Zalun	180798	136	125	329	92%	99%	55%	0.66:1	1.1:1	28	82%	73%	73%	83%	83%
13	Laymyathnar	106825	80	61	180	76%		52%	0.55:1	1:1	21	90%	87%		87%	
14	<b>Myaungmya</b>	344995	259	232	627	90%	112%	59%	0.63:1	1.3:1	31	99%	88%	83%	95%	94%
15	Laputta	304988	229	203	518	89%	101%	50%	0.71:1	0.9:1	13	98%	86%	83%	86%	86%
16	Mawgyun	293333	220	142	289	65%	83%	62%	1.14:1	1.5:1	15	92%	70%	71%	87%	87%
17	Wakema	322100	242	196	388	81%	103%	64%	1.2:1	1.7:1	21	96%	89%	85%	91%	89%
18	Einme	207345	156	155	282	100%		65%	1.5:1	1.7:1	22	79%	78%		82%	
19	<b>Pyapon</b>	321301	241	230	601	95%	110%	52%	0.65:1	1:1	19	85%	80%	80%	84%	85%
20	Bogalay	303013	227	218	602	96%		60%	0.65:1	1.3:1	26	93%	68%		78%	
21	Dedaye	211353	159	51	118	32%	56%	64%	0.88:1	1.6:1	15	86%	60%	69%	85%	84%
22	Kyaikkatt	231608	174	106	249	61%	76%	55%	0.79:1	1.1:1	25	87%	73%	73%	90%	89%
23	<b>Maubin</b>	338848	254	236	628	93%		62%	0.71:1	1.5:1	29	85%	78%		85%	
24	Nyaungdon	215767	162	112	215	69%	110%	71%	1.26:1	2.2:1	23	94%	89%	83%	89%	90%
25	Pantanaw	269134	202	142	363	70%	70%	53%	0.69:1	1:1	29	90%	90%	90%	90%	90%
26	Danuphyu	182325	137	191	472	140%	143%	60%	0.72:1	1.4:1	37	97%	95%	95%	96%	96%
<b>Total</b>		<b>6531731</b>	<b>4899</b>	<b>4507</b>	<b>11593</b>	<b>92%</b>	<b>102%</b>	<b>55%</b>	<b>0.7:1</b>	<b>1.1:1</b>	<b>23</b>	<b>91%</b>	<b>81%</b>	<b>80%</b>	<b>88%</b>	<b>88%</b>

State & Division	Low CR ≤50% Low CDR≤40%	Low CR ≤50%	LowCDR≤40%	LowCR	CR 100% LowCDR	CDR≥100%	CR 100%	CR ≥85% CDR≥70%	Average
Kachin  3 tsp report not receive	sumprabum		Machanbaw nogmum	2	0	Kamaing, PutaO Mogaung, Tanai, mansi Myitkyina, Waingmaw	Chipway	Bahmo	Momauk Shwegu Mohynin
	15	1	0	2	0	7	1	1	3
	Kayah	Shataw	Pasaung	Dimawhso, Phruhso	2	0	Bawlake		Masai, Loikaw
7	1	1		0	0	1		0	2
Chin	Kanpetlet	Mindat	Falam Matupi	2	0	Htantalan			Hakha, Tiddim, Paletwa Tunzan
	9	1	1		0	1	0	0	4
Sagaing			Yinmabin Mawlaik Nanyun Banmauk Pale Kani			Khamti Kalay		Myinmu Tamu Ayadaw	Sagaing, Myaung, Shwebo Khin-U, Kyunhla Tabayin, Taze, Layshi Wetlet, Ye-U, Kanbalu Monywam, Kalewa Buddalin, ChaungU Salingyi, Katha, Homalin Htigyaing Indaw, Kawlin , Lahel Pinlebu, Wuntho Minkin, Phaungbyin
	36	0	0	6	0	2	0	2	26
Magway		Saytoketaya	Yesagyo Seikphyu Htilin		Sinpaukwae	Magway Thayet Chauk Yenanchaung Pwintphyu		Myothit Pauk, Mindon Minhla, Kanma	Taungdwingyi Natmauk Pakokku, Gantgaw Myaing, Minbu, Ngape Saw, Salin, Aunglan
	25	0	1	3	0	1	5	0	10

State & Division	Low CR ≤50% Low CDR≤40%	Low CR ≤50%	Low CDR≤40%	LowCR	CR 100% LowCDR	CDR≥100%	CR100%	CR ≥85% CDR≥70%	Average
<b>Mandalay</b> 31	0	0	Pyawbwei Mahlaing Natogyi Taungtha	4	0	Pyigyitagonn Amarapura Chanayetharzan Kyaukpadaung Thabeikkyin Pynmana Kyaukse	7	0	Aungmyaytharzan Chanmyatharzi Maharaungmyae Patheingyi Sintgu, Lewei Pyn oo Lwin, Madayar
<b>Shan(south)</b> 21	1	1	Mongpang	7	0	Kunhein	1	2	Linhkaym , Nyaungshwe Namsan, Lauksauk Taunggyi, Kalaw, Hsiseng
<b>Shan(East)</b> 1 tsp not report received 9	1	0	Mongyan	1	0	Monghsat, Mongton Tachileik	3	0	Kengtong, Mongping Monpyak, Mongyaung
<b>Shan(North)</b> 5 tsp: not receive report 19	2	2	Hopan Theinni Laukkai	3	1	Lashio	1	2	Kunlon, Namkham, Mongreh Kyaukme, Mongmeik Namtu, Muse, Tanyan
<b>Kayin</b> 7	0	0	Thandaung, Kyarinseikkayi	2	0	Myawady Hpa-an, Hlaingbwe	3	0	Kawkareik Papun(Kamamaung)
<b>Tanintharyi</b> 10	0	0	Launglon, Kyunsu Thayetchaung, Yebyu	4	0	Kawthaung Myeik	2	0	Dawei, Palaw Bokpyin, Tanintharyi
<b>Bago (East)</b> 14	0	0		0	0	Bago Waw Taungoo	3	0	Kawa, Htantabin Nyaunglaybin, Shwekyin Thanatpin, Phyu Kyaukkyi , Oktwin, Yedashe

# Annex-22

State & Division	Low CR ≤50% Low CDR≤40%	Low CR ≤50%	Low CDR≤40%	LowCR	CR 100% LowCDR	CDR≥100%	CR 100%	CR ≥85% CDR≥70%	Average
<b>Bago(West)</b> 14	0	0	0	0	0	Pyay Thegon Nattalin, Shwedaung	4	0	Paukkhaung, Okpo Tharyarwady Zigon, Gyobingauk
									5
						Mawlamyaing, Kyaikhto Thanbyuzayut Ye, Thaton, Mudon			Chanungzon
<b>Mon</b> 10	0	0	0	0	0		6	0	Kyaikmaraw
									2
<b>Rakhine</b> 17	0	Myebon Pauktaw	2	0	0	Buthidaung Rathedaung Sittwe, Taungup Minbya, Thandwe	6	1	Kyaukphu Ann Rambye Maungdaw, Ponnagyun
									5
									3
<b>Yangon</b> 45	Cocogyun		Kyauktiada Kawhmu, Thongwa			Bahan Thanlyin Mingalardon Shwepyithar, Insein Thaketa, Thingangyun Dagon East, Kamayut Dagon Seikkan Mayangone Kyimyintdaing	12	0	Botataung, Tarmwe, Kyauktan Pazundaung MingalarTN, Hlaing Twantay Htantabin Ahlone Sanchaung, Pabada Dallah, Kunggangone Latha, Lanmadaw, Kayan
									16
									13
<b>Ayeyarwady</b> 26	0		0	0	0	Pathein, Nyaungdon Kyaunggon, Laputta Hinhada, Myaungmya Kyankin Ingapu, Einme	9	0	Kangyidaung, Ngaputaw Yekyi, Thabaung, Zalun Pyapon, Mawgyun Bogalay, Dedaye Kyaiklath, Maubin
									11
									6
315	8		39	0	3	72	4	49	132

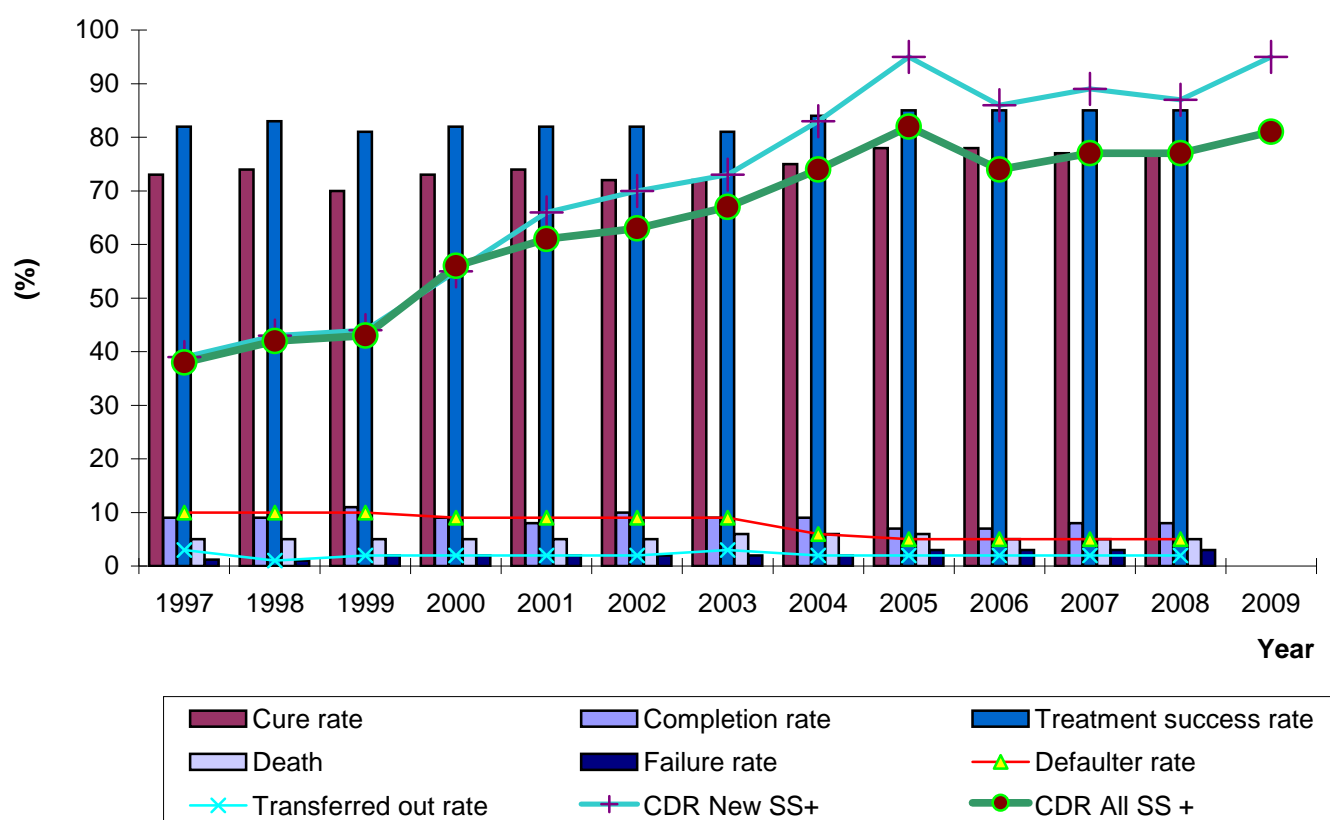
## EVALUATION OF TREATMENT OUTCOME OF NEW SMEAR POSITIVE TB PATIENTS (2009)

States & Divisions	DOTS TOWNSHIPS		
	High Defaulter Rate $\geq 10\%$ *means $\geq 20\%$	Low CR $\leq 50\%$ with TSR $\geq 70\%$	Sputum Conversion Rate $< 80\%$
Kachin	*mansi, mohynin, kamaing, mogaung, tanai, myitkyina	Nil	shwegu, kamaing, putao
Kayah	*bawlakhe	mansi	phruho
Chin		mindat, kanpetlet	htantalan, tunzan, matupi
Sagaing	lahel	kyunhla	kani, htygyaing, indaw, wuntho, layshi nanyun
Magwe	chauk, satoketaya, thayet	myaing	gantgaw, satoketaya, thayet
Mandalay	pyinmana	Nil	patheingyi, madayar, thabeikkyin, yamethin, tatkone, kyaukse
Shan(S)	*mongkaing, taunggyi	mongkaing	mongkaing, namsan, hopone, ywangan
Shan(E)	mongping, *mongton, mongyaung	Nil	monghsat, tachileik
Shan(N)	*lashio, theinni, *pangyan, *laukkai, muse, kutkai, namkhan	Nil	hopan, mongmeik, lashio, pangyan, laukkai, muse, namkhan
Kayin	myawaddy, hpa-an	Nil	myawaddy, thandaung
Tanintharyi	thayetchaung, bokpyin, *palaw	Nil	myeik
Bago(E)	shwekyin	Nil	kyaukkyi
Bago(W)	thegon	Nil	tharyarwady
Mon	ye	Nil	Nil
Rakhine	*ann, myebon, *pauktaw	myebon	maungdaw, pauktaw
Yangon	latha	Nil	Nil
Ayeyarwady	zalun	Nil	einme

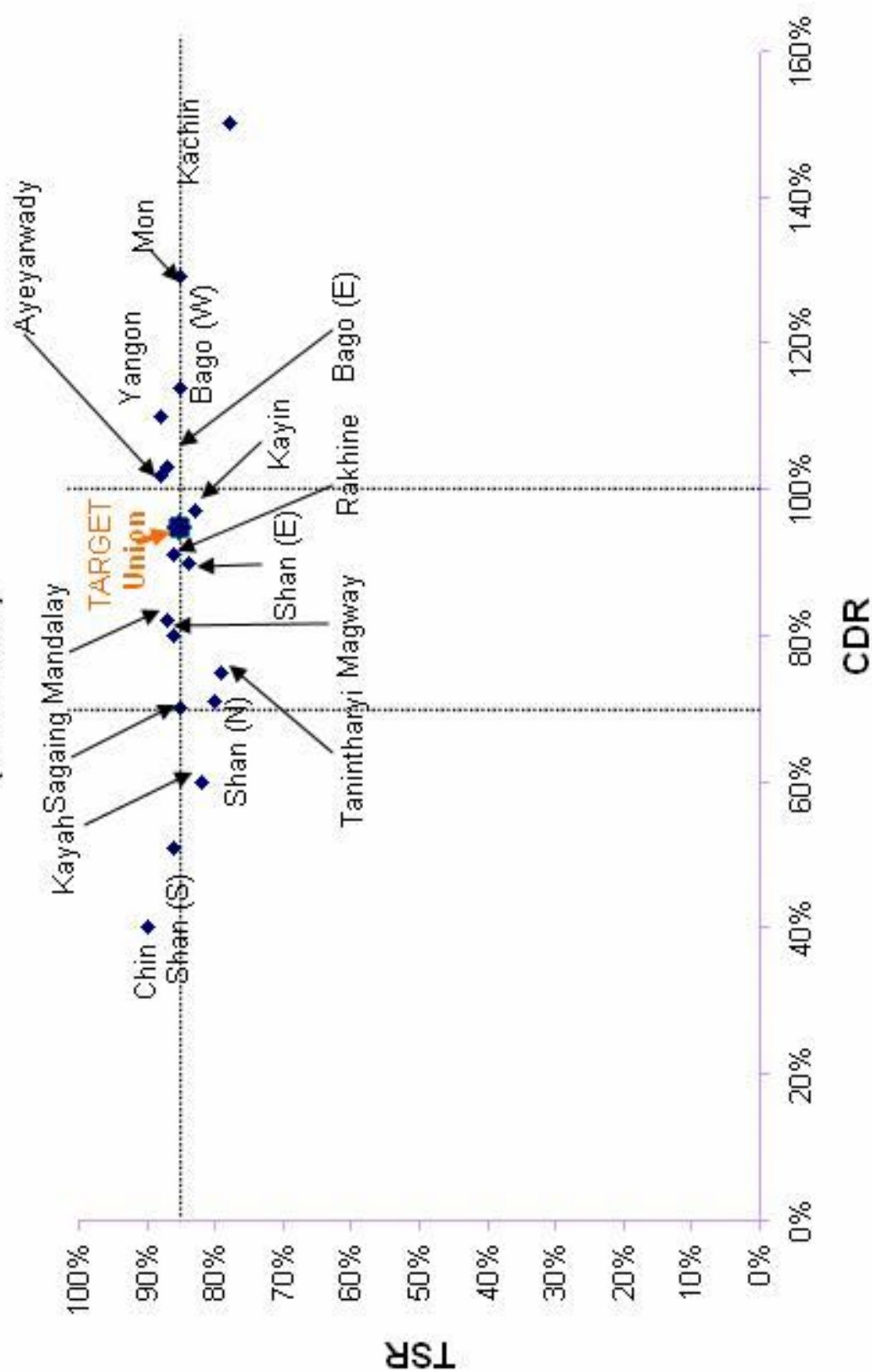
### Progress of NTP (1994-2009)

Indicator\Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>CDR (New SS+)</b>	33%	35%	39%	39%	43%	44%	55%	66%	70%	73%	83%	95%	86%	89%	87%	95%
<b>CR</b>	61%	54%	75%	73%	74%	70%	73%	74%	72%	72%	75%	78%	78%	77%	78%	
<b>TSR</b>	78%	66%	82%	82%	83%	81%	82%	82%	82%	81%	84%	85%	85%	85%	85%	

**Case detection rates with estimated cases as 2006 and treatment outcome  
(1997-2009)**



# **Targets achievement according to States/Divisions and Union (2008-2009)**



## Case Detection Rate (New Smear Positive) of States/Divisions (1999-2009)

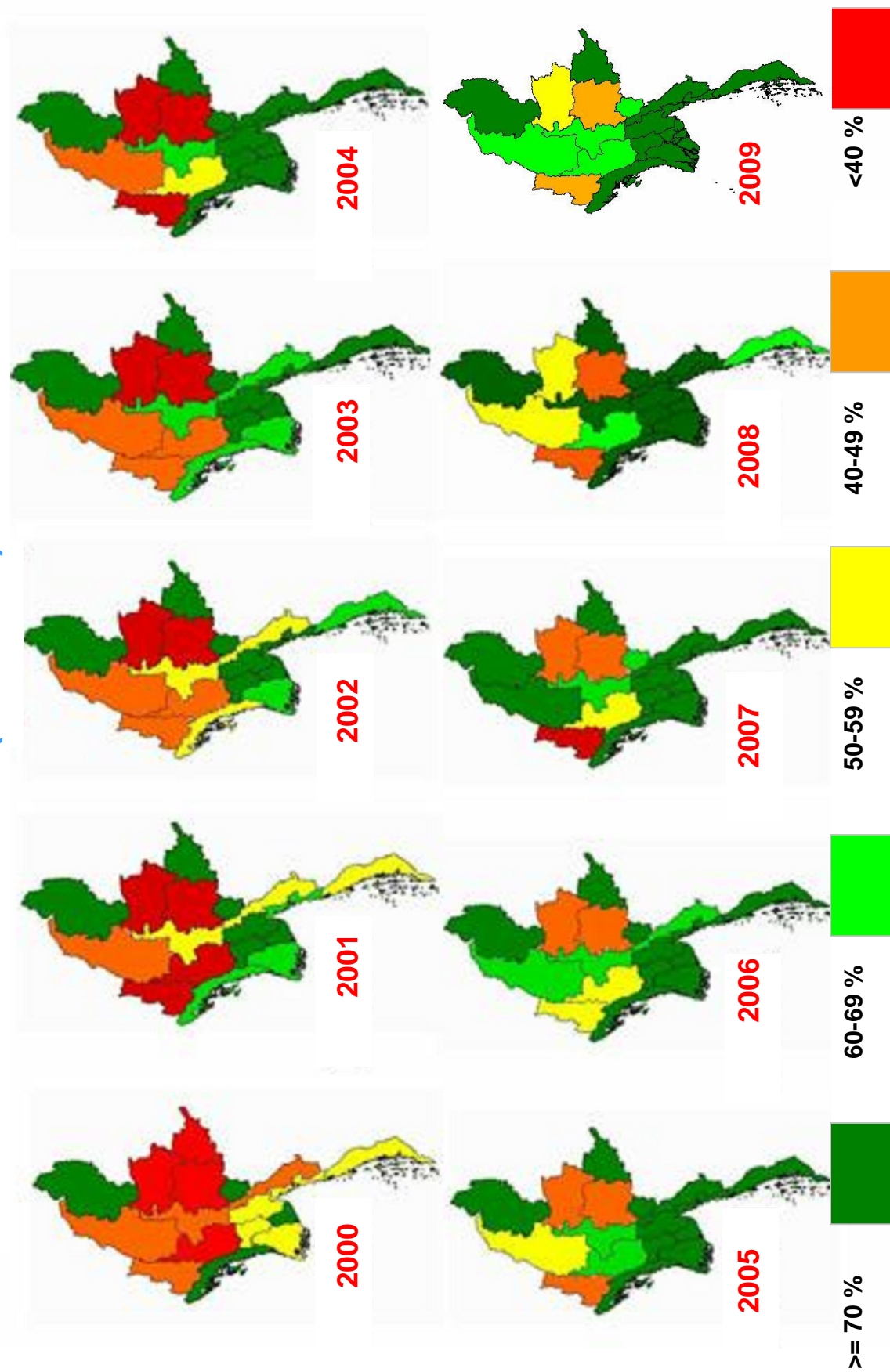
State / Division	CDR										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kachin	54	79	120	127	118	90	116	131	129	109	122
Kayah	106	81	88	76	71	70	83	79	69	70	60
Chin	37	42	37	45	42	38	42	52	39	41	40
Sagaing	27	41	45	42	45	45	53	60	79	59	61
Magway	26	35	38	48	49	57	65	55	56	68	67
Mandalay	38	45	50	52	60	65	67	65	69	70	64
Shan(S)	30	34	34	34	32	38	40	43	48	46	49
Shan (E)			106	134	87	99	103	102	102	106	90
Shan (N)			23	27	31	34	42	46	49	55	56
Kayin	38	47	55	57	68	72	86	65	79	81	92
Tanintharyi	83	59	54	66	72	76	75	71	72	69	72
Bago(E)	43	59	79	78	81	73	87	82	83	79	82
Bago(W)			73	85	81	87	77	91	101	101	105
Mon	54	57	68	71	74	95	108	93	89	94	114
Rakhine	49	73	67	54	64	84	83	81	75	90	87
Yangon	65	81	114	131	148	156	158	70	81	76	85
Ayeyarwady	41	56	66	63	67	78	86	96	92	84	92
Union	44	55	66	70	73	83	95	86	89	87	95

## Treatment outcomes of smear positive in States/Division (1999-2008)

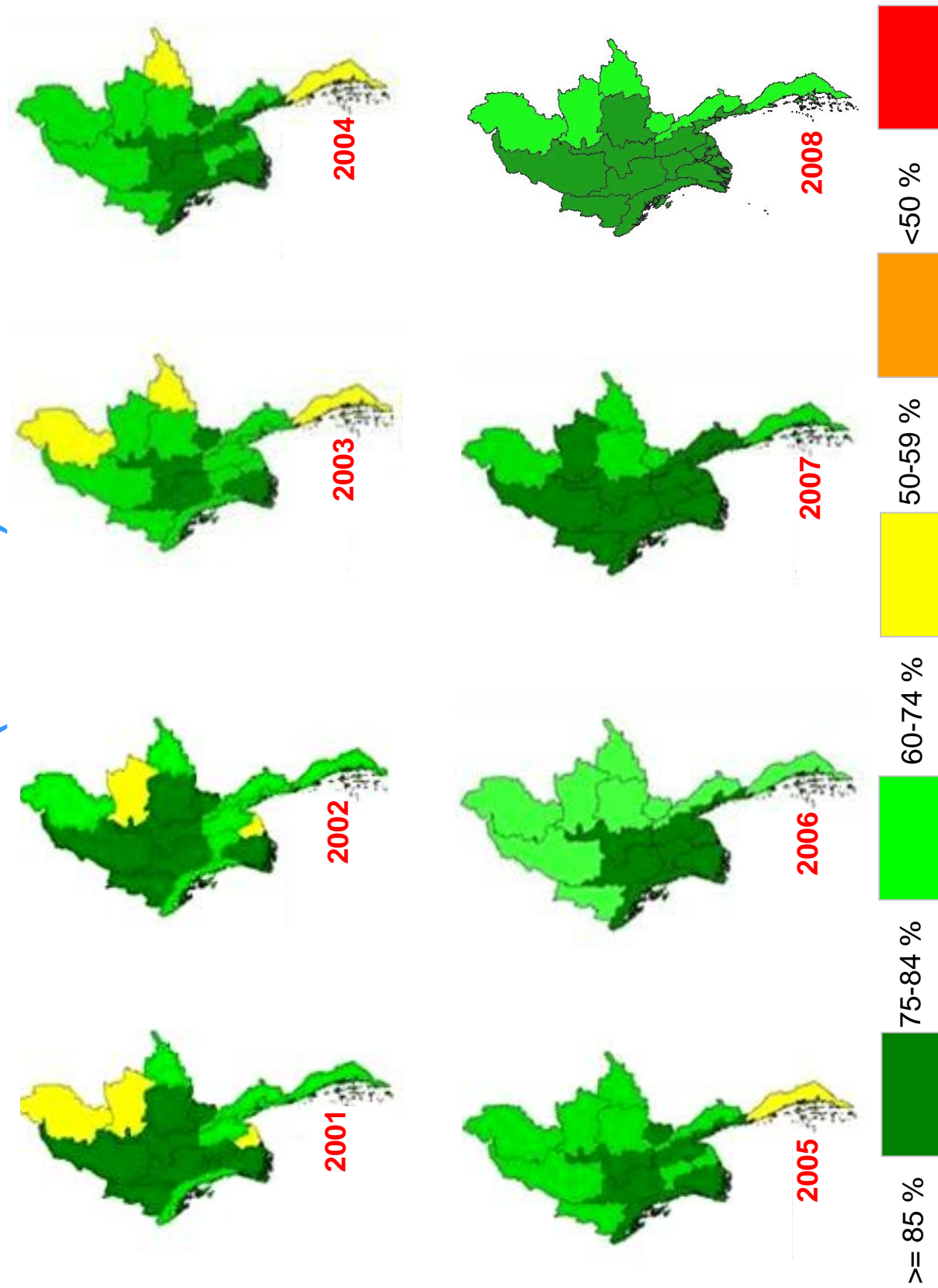
State / Division	1999		2000		2001		2002		2003		2004		2005		2006		2007		2008	
	CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR	CR	TSR
Kachin	69	77	77	78	71	74	69	75	67	73	74	78	75	78	73	81	67	77	73	78
Kayah	94	95	95	95	94	95	95	95	92	92	93	94	83	88	76	83	66	78	63	82
Chin	83	95	42	85	66	86	75	85	50	82	68	84	73	84	65	78	72	87	71	90
Sagaing	63	85	60	82	65	87	55	86	56	80	72	80	74	82	74	82	77	86	78	85
Magway	71	84	74	89	84	90	79	91	73	88	77	90	80	89	81	89	77	88	76	86
Mandalay	66	81	79	87	84	88	84	89	83	89	77	87	75	86	79	86	77	86	81	87
Shan(S)	73	79	76	11	86	88	83	85	76	80	79	83	72	83	73	79	74	81	80	86
Shan (E)			79	81	74	84	64	78	56	68	64	74	64	78	62	80	64	85	70	84
Shan (N)			84	89	66	73	63	71	65	78	69	79	68	81	65	81	68	82	69	80
Kayin	82	87	71	85	66	83	70	78	67	78	68	83	74	83	75	82	78	86	76	83
Tanintharyi	67	74	68	76	72	75	70	76	68	72	56	73	64	73	67	76	71	76	74	79
Bago(E)	76	83	81	86	76	82	74	84	80	84	86	88	89	91	84	90	79	87	78	87
Bago(W)			76	90	75	86	69	81	67	78	74	81	74	84	82	86	79	85	80	85
Mon	61	78	69	76	74	80	76	83	76	84	77	87	80	88	79	87	79	87	81	85
Rakhine	71	81	71	82	72	81	70	84	72	83	74	87	81	87	85	91	77	88	74	86
Yangon	62	75	66	75	67	74	66	73	67	76	73	82	78	84	78	85	81	87	82	88
Ayeyarwady	82	87	78	86	82	88	80	87	81	85	83	87	82	88	82	91	83	90	81	88
Union	70	81	73	82	74	82	72	82	72	81	75	84	78	85	78	85	77	85	78	85



## Categories of State and Division according to Case Detection Rate (2000-2009)



# Categories of State and Division according to Treatment Success Rate (2001-2008)



TAD =	Treatment after Default
TAF =	Treatment after Failure

[illegible]

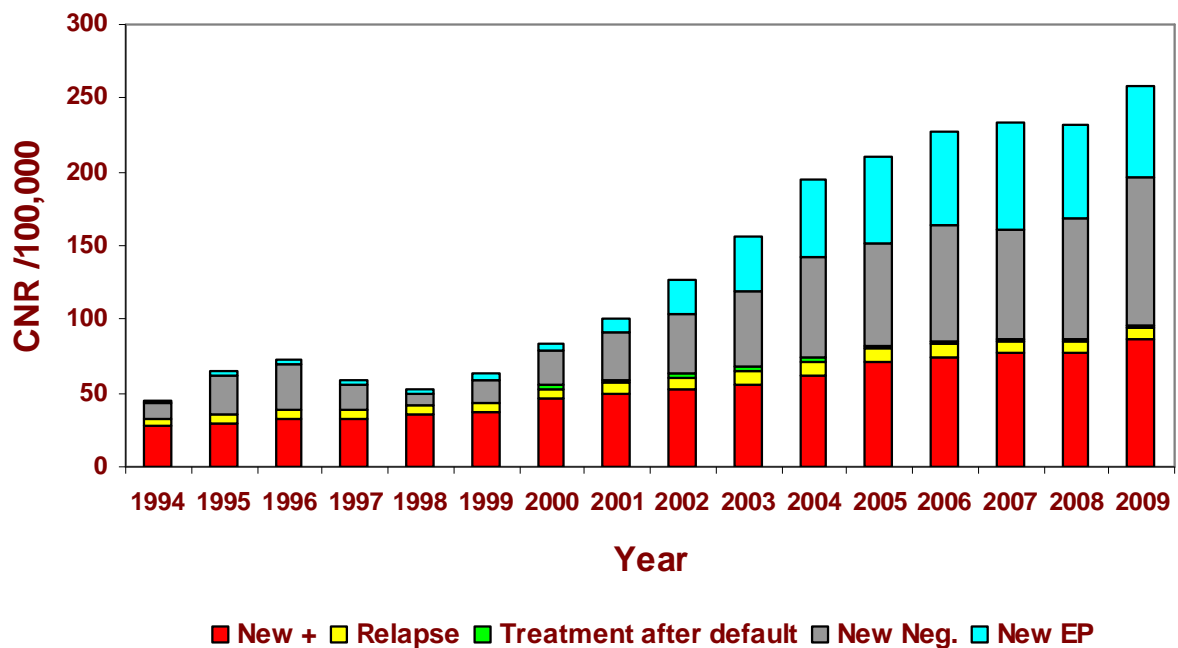
**Annex-30(a)**  
**Treatment Outcome of NS(+), Relapse, NS(-) cases (1994 - 2004), National Tuberculosis Programme**

YEAR	Type of TB patients	Total registered No. of Pul pts:	CURED		COMPLETED		TSR	DIED		FAILURE		DEFAULTER		TRANSFER OUT		Total Evaluated
			No	CR	No	%		No	%	No	%	No	%	No	%	
1994	NS(+)	1473	899	61%	248	17%	78%	68	5%	16	1%	185	13%	18	1%	1434
	Relapse	536	157	29%	160	30%		10	2%	60	11%	53	10%	96	18%	536
	NS(-)	1440	0		1114	77%		28	2%	4	0%	212	15%	82	6%	1440
1995	NS(+)	6995	3781	54%	837	12%	66%	284	4%	267	4%	1290	18%	536	8%	6995
	Relapse	1443	800	55%	122	8%		57	4%	57	4%	273	19%	134	9%	1443
	NS(-)	6084	0		4662	77%		120	2%	28	0%	974	16%	200	3%	6084
1996	NS(+)	8496	6410	75%	550	6%	81%	364	4%	149	2%	805	9%	218	3%	8496
	Relapse	1697	1236	73%	81	5%		104	6%	58	3%	160	9%	58	3%	1697
	NS(-)	8502	0		7187	85%		318	4%	24	0%	760	9%	213	3%	8502
1997	NS(+)	9232	6732	73%	820	9%	82%	422	5%	114	1%	904	10%	290	3%	9232
	Relapse	1745	1059	61%	236	14%		109	6%	65	4%	198	11%	78	4%	1745
	NS(-)	5609	0		4592	82%		165	3%	14	0%	571	10%	267	5%	5609
1998	NS(+)	10313	7622	74%	879	9%	83%	486	5%	99	1%	1033	10%	194	2%	10313
	Relapse	1791	1201	67%	183	10%		103	6%	53	3%	189	11%	62	3%	1791
	NS(-)	2499	0		1982	79%		130	5%	15	1%	328	13%	44	2%	2499
1999	NS(+)	11641	8153	70%	1240	11%	81%	624	5%	194	2%	1205	10%	225	2%	11641
	Relapse	2041	1281	63%	201	10%		142	7%	77	4%	273	13%	67	3%	2041
	NS(-)	4998	0		4080	82%		230	5%	25	1%	533	11%	130	3%	4998
2000	NS(+)	16792	12214	73%	1581	9%	82%	892	5%	283	2%	1556	9%	266	2%	16792
	Relapse	2704	1795	66%	262	10%		194	7%	88	3%	294	11%	71	3%	2704
	NS(-)	9097	0		7566	83%		431	5%	47	1%	883	10%	170	2%	9097
2001	NS(+)	20922	15394	74%	1622	8%	82%	1094	5%	358	2%	1985	9%	469	2%	20922
	Relapse	3294	2169	66%	337	10%		257	8%	132	4%	283	9%	116	4%	3294
	NS(-)	14539	0		11933	82%		662	5%	53	0%	1511	10%	380	3%	14539
2002	NS(+)	23466	16829	72%	2284	10%	82%	1253	5%	445	2%	2135	9%	520	2%	23466
	Relapse	3648	2476	68%	325	9%		289	8%	126	3%	325	9%	107	3%	3648
	NS(-)	16990	0		14114	83%		907	5%	121	1%	1530	9%	318	2%	16990
2003	NS(+)	27419	19616	72%	2486	9%	81%	1562	6%	564	2%	2480	9%	711	3%	27419
	Relapse	4621	2880	62%	580	13%		402	9%	169	4%	414	9%	176	4%	4621
	NS(-)	26607	0		21445	81%		1356	5%	160	1%	2786	10%	860	3%	26607
2004	NS(+)	31413	23634	75%	2617	8%	84%	1731	6%	697	2%	1961	6%	773	2%	31413
	Relapse	4682	3061	65%	538	11%		407	9%	186	4%	335	7%	155	3%	4682
	NS(-)	34385			27821	81%		2045	6%	188	1%	3048	9%	1283	4%	34385

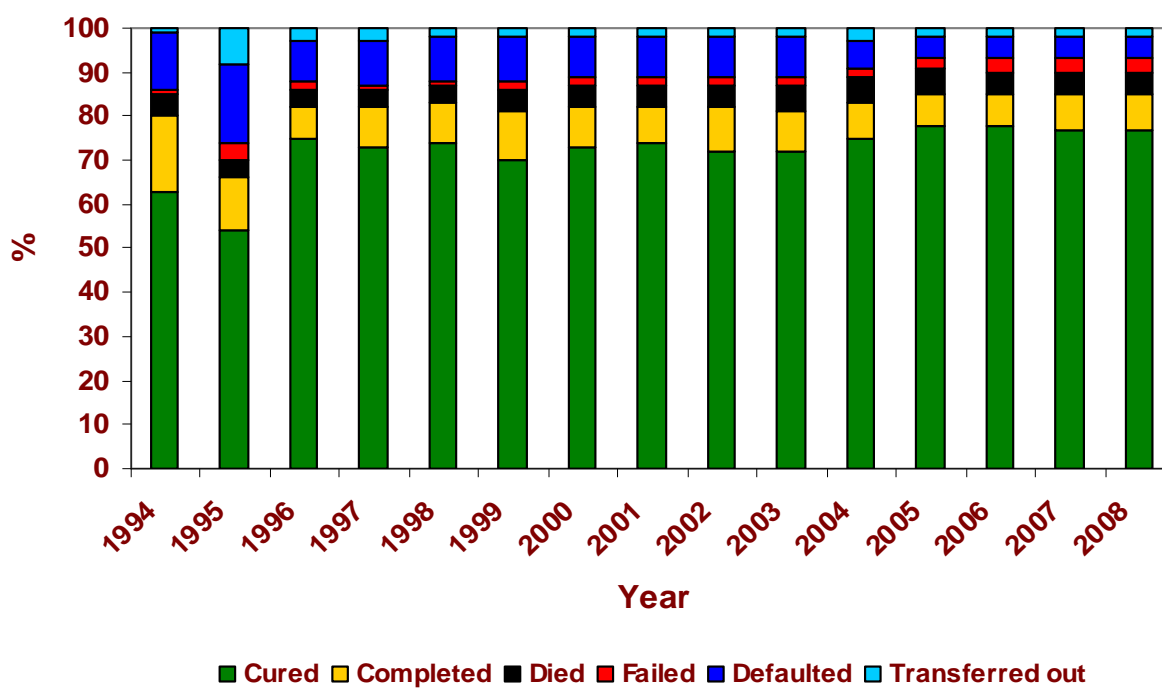
## Treatment Outcome of NS(+), Relapse, NS(-) with HIV(+) cases (2005 - 2007), National Tuberculosis Programme

YEAR	Type of TB patients	Total registered No. of Pul pts:	CURED		COMPLETED		TSR		DIED		FAILURE		DEFAULTER		TRANSFER OUT	
			No	CR	No	%			No	%	No	%	No	%	No	%
2005	NS(+)	34859	27039	78%	2579	7%	85%		1898	5%	825	2%	1787	5%	731	2%
	TB/HIV, NS (+)	1793	1161	65%	41	2%	67%		192	11%	219	12%	139	8%	41	2%
	Relapse	4458	2897	65%	477	11%	76%		401	9%	202	5%	285	6%	196	4%
	TB/HIV, Relapse	370	117	32%	67	18%	50%		111	30%	30	8%	23	6%	22	6%
	NS(-)	34281			28184	82%	82%		2275	7%	149	0.4%	2691	8%	982	3%
2006	TB/HIV, NS(-)	1615			964	60%	60%		406	25%	46	3%	131	8%	68	4%
	NS(+)	39004	30365	78%	2873	7%	85%		1883	5%	1211	3%	1937	5%	735	2%
	TB/HIV, NS (+)	1341	700	52%	89	7%	59%		344	26%	79	6%	82	6%	47	4%
	Relapse	4613	2965	64%	512	11%	75%		418	9%	285	6%	280	6%	153	3%
	TB/HIV, Relapse	296	92	31%	66	22%	50%		106	36%	13	4%	8	3%	11	4%
2007	NS(-)	40425			33825	84%	84%		2253	6%	320	0.8%	3093	8%	934	2%
	TB/HIV, NS(-)	3030			1942	64%	64%		723	24%	56	2%	216	8%	93	3%
	NS(+)	42738	32855	77%	3502	8%	85%		2339	5%	1174	3%	2104	5%	764	2%
	TB/HIV, NS (+)	1120	622	56%	102	9%	65%		283	25%	30	3%	52	5%	31	3%
	Relapse	4680	2955	63%	578	12%	75%		492	11%	225	5%	279	6%	151	3%
2008	TB/HIV, Relapse	158	58	37%	27	17%	54%		57	36%	4	3%	6	4%	6	4%
	NS(-)	42228			34902	83%	83%		2887	7%	267	0.6%	3318	8%	854	2%
	TB/HIV, NS(-)	2530			1553	61%	61%		649	26%	21	1%	210	8%	97	4%
	NS(+)	39984	31427	79%	2944	7%	86%		2038	5%	1043	3%	1907	5%	625	2%
	TB/HIV, NS (+)	1273	640	50%	166	13%	63%		338	27%	22	2%	69	5%	38	3%
2008	Relapse	4115	2745	67%	470	11%	78%		387	9%	203	5%	209	5%	101	2%
	TB/HIV, Relapse	157	70	45%	32	20%	65%		45	29%	4	3%	3	2%	3	2%
	NS(-)	38181		0%	31953	84%	84%		2351	6%	179	0.5%	2859	7%	839	2%
2008	TB/HIV, NS(-)	2565		0%	1671	65%	65%		632	25%	28	1%	149	6%	85	3%

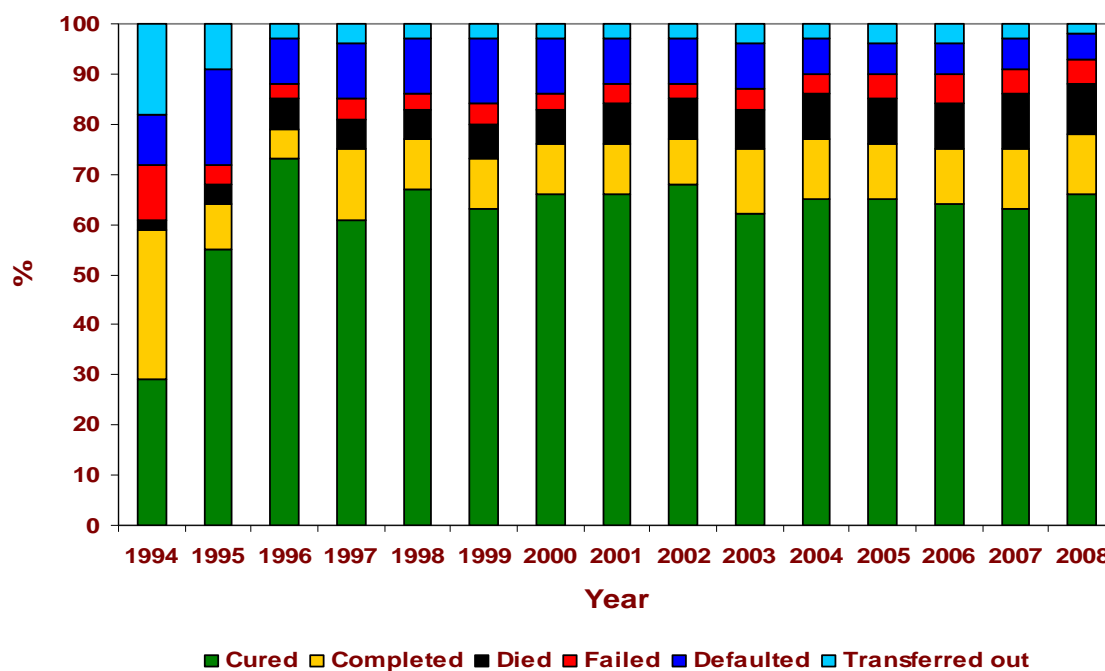
Case notification rate by type of TB patients  
(1994 -2009)



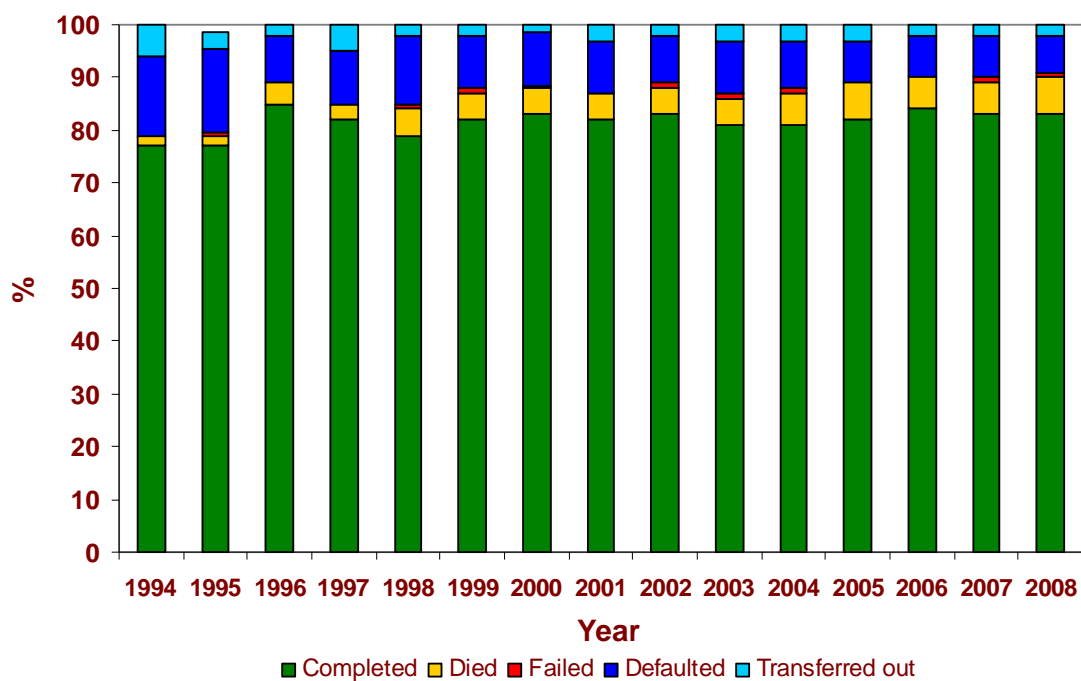
Treatment outcomes of new smear positive TB patients  
(1994 to 2008 cohorts)



**Treatment outcomes of relapse cases  
(1994 to 2008 cohorts)**

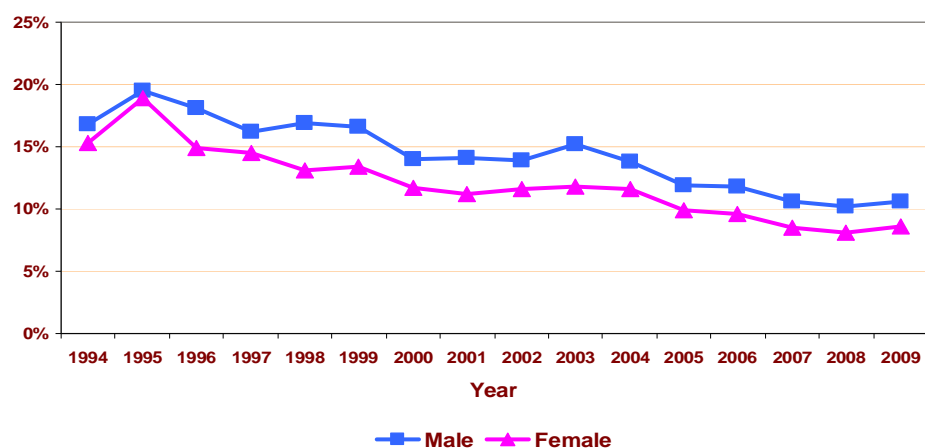


**Treatment outcomes of new smear negative TB patients  
(1994-2008 cohorts)**

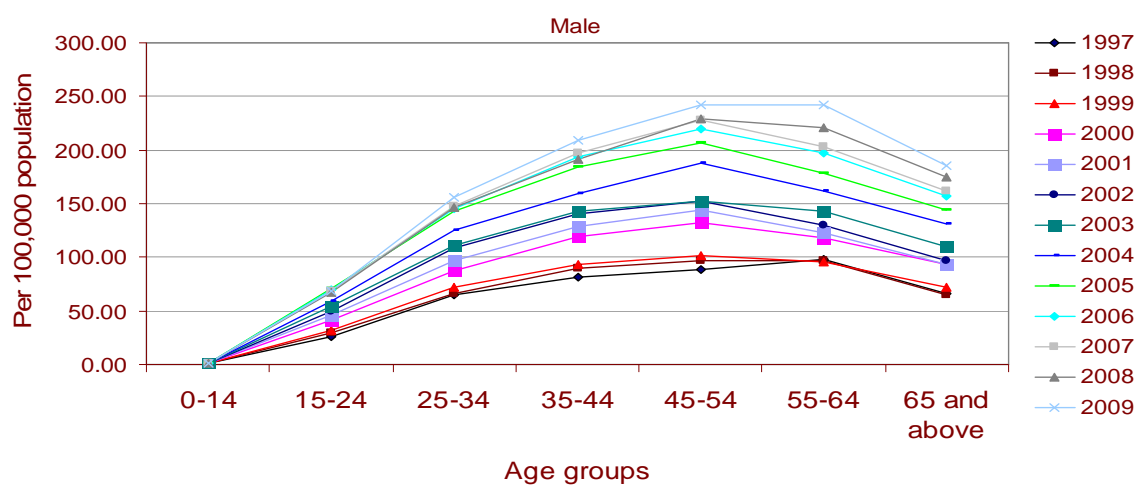




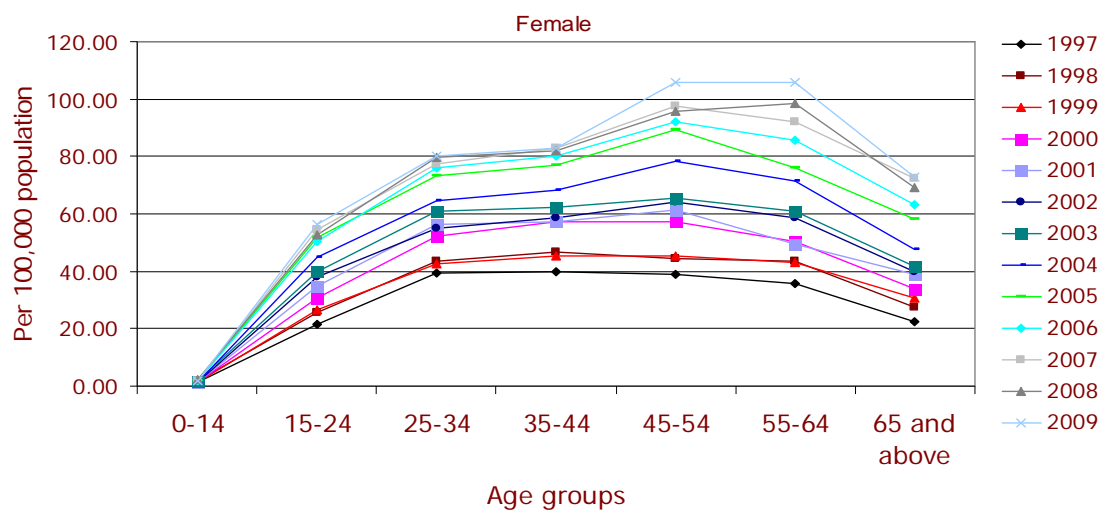
**Proportion of Relapses among New Smear (+) cases  
+ Relapse cases (1994-2009)**



**Age specific notification rate of new smear positive TB patients  
(1997-2009) (Union)**

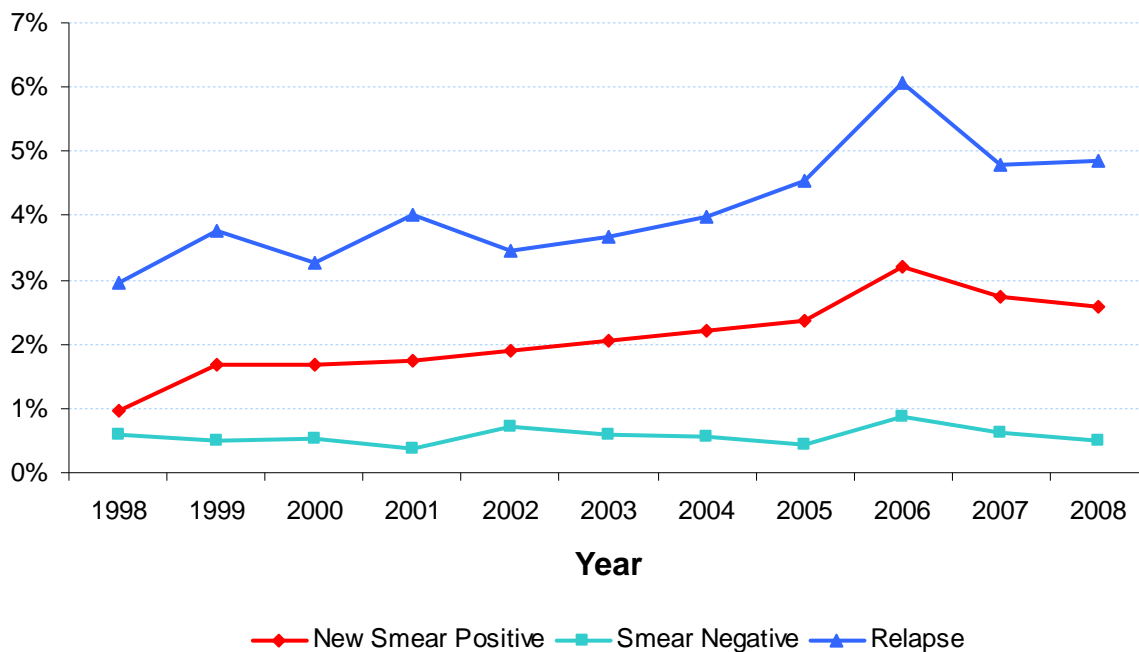


**Age specific notification rate of new smear positive TB patients  
(1997-2009) (Union)**

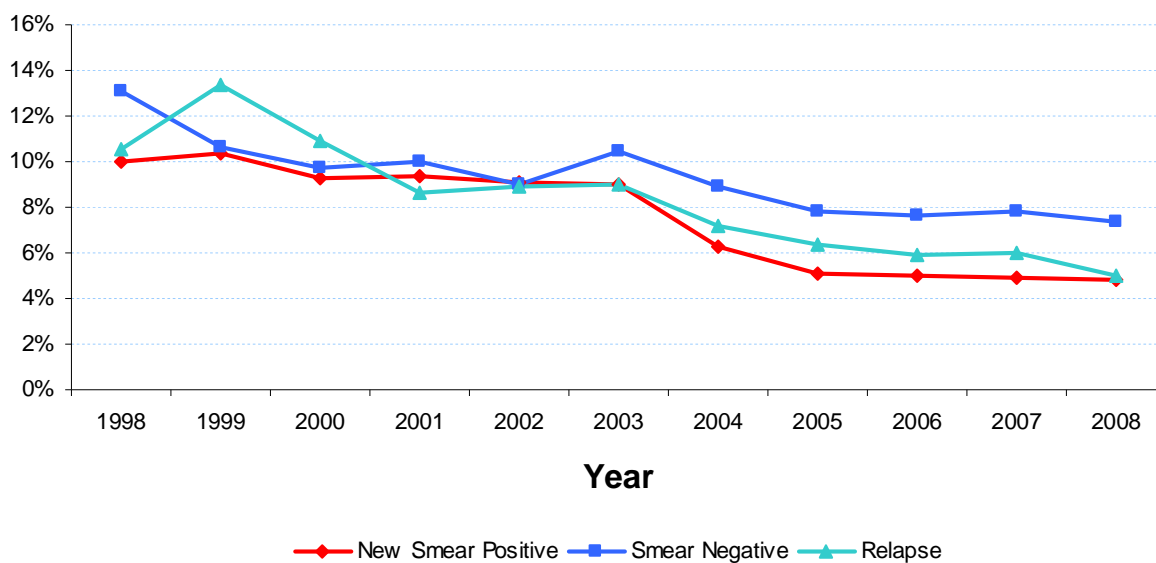




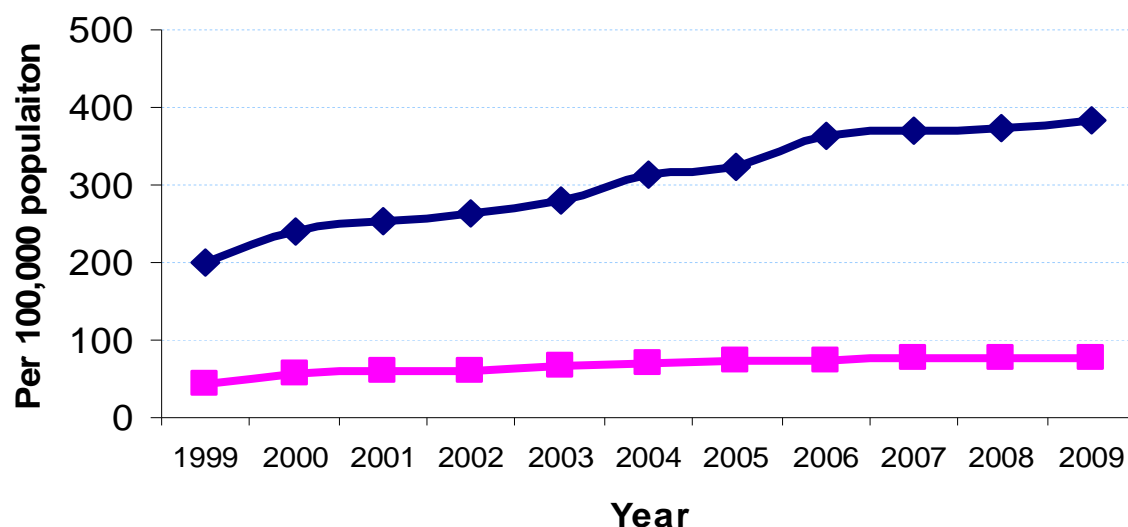
**Failure Rate of New Smear Positive, Smear Negative and Relapse cases in Myanmar (1998-2008)**



**Defaulting of New Smear Positive, Smear Negative and Relapse cases in Myanmar (1998-2008)**

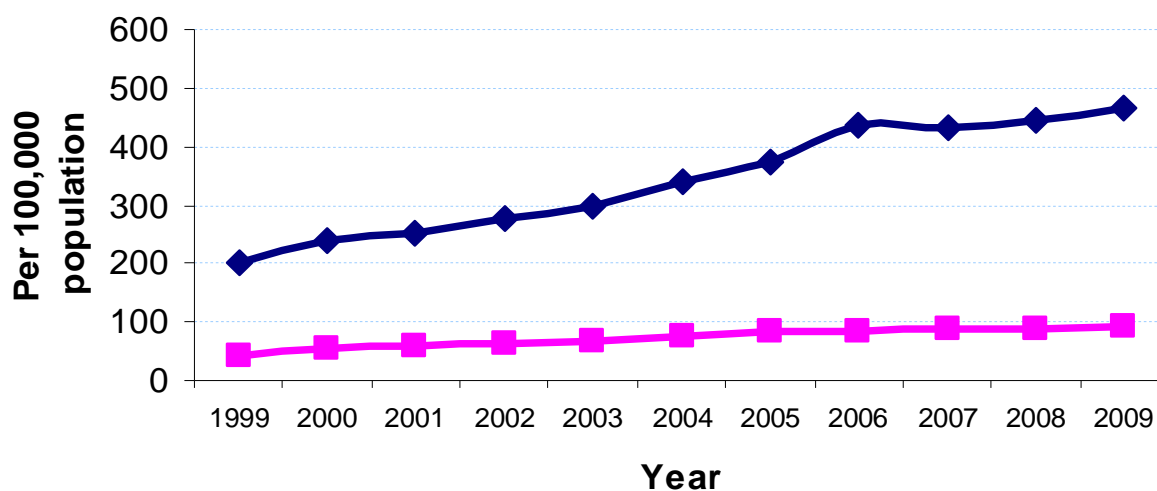


### NTP:TB suspect' examination rate & S (+) notification rate



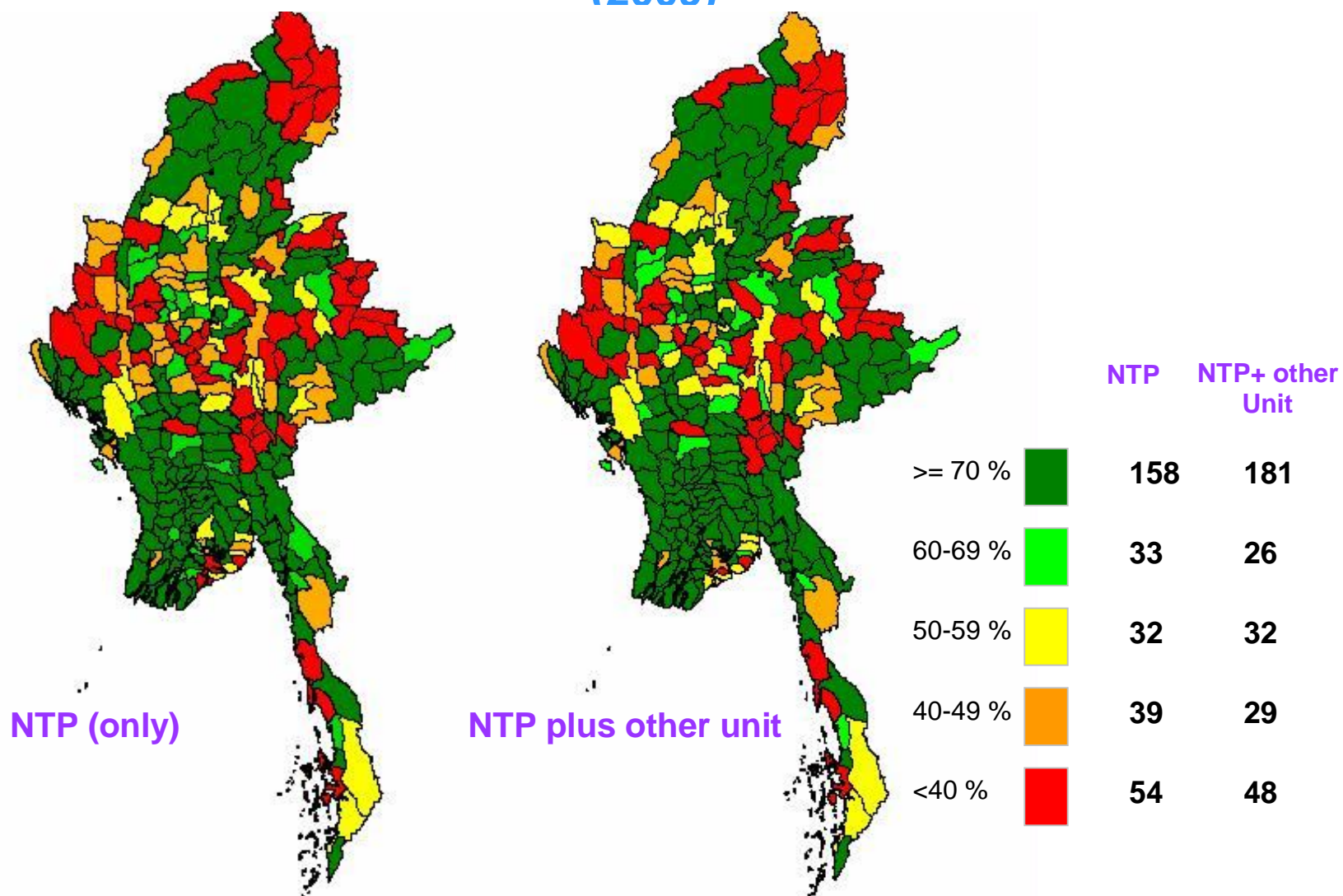
◆ TB suspect's examination rate    ■ Smear positive notification rate

### NTP + Other Unit: TB suspect' examination rate & S (+) notification rate

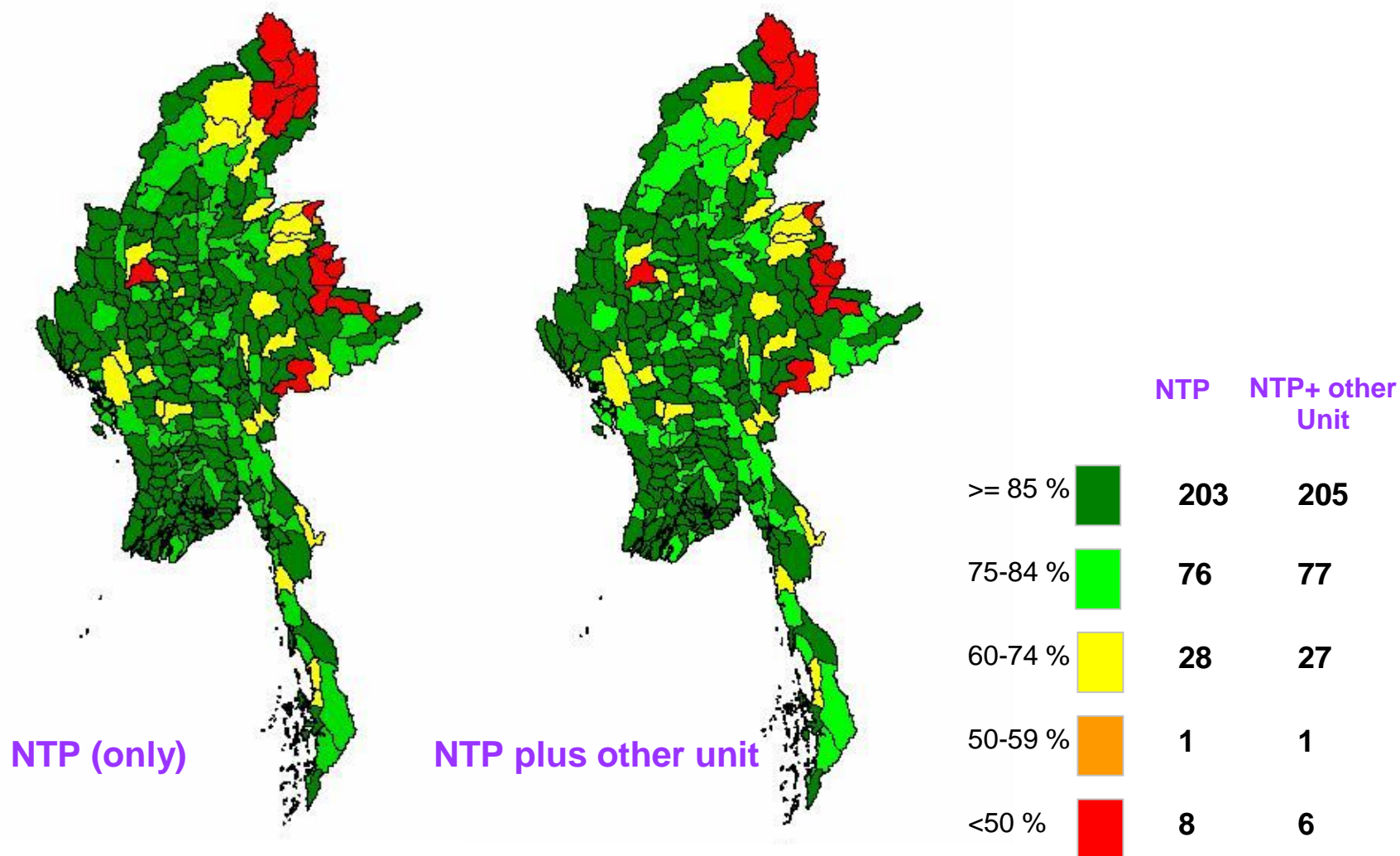


◆ TB suspect's examination rate    ■ Smear positive notification rate

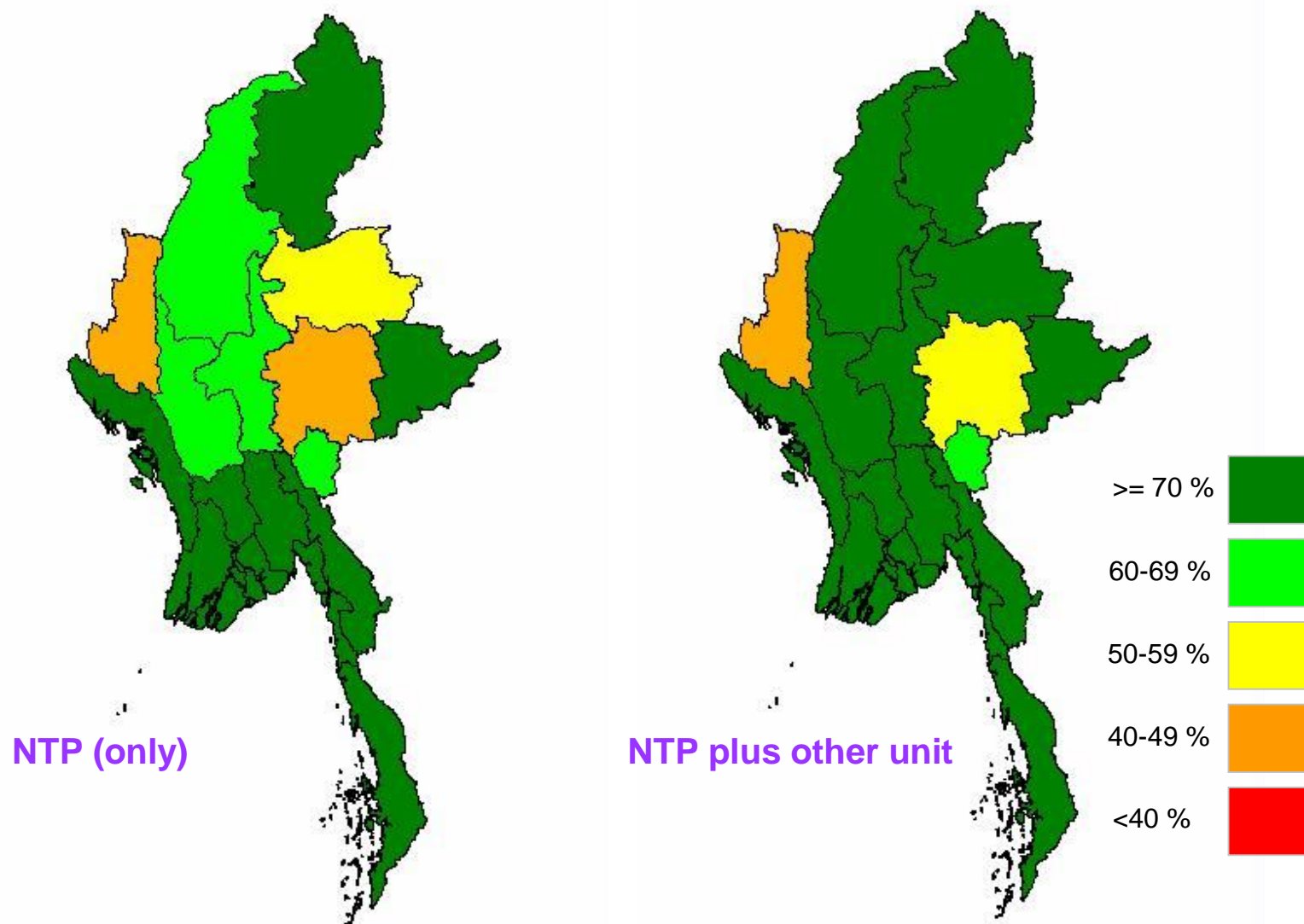
## Categories of Townships according to Case Detection Rate (2009)



## Categories of Townships according to Treatment Success Rate (2008)



## Categories of State and Division according to Case Detection Rate (2009)



**Achievement of NTP according to the indicators and targets set in five years strategic plan (2006-2010)**

No	Indicator	Base line		Target	Achievement			
		Value	Year		Year 1 (2006)	Year 2 (2007)	Year 2 (2008)	Year 4 (2009)
1.	% of DOTS Covered Population	95 %	2005	95 %	95 %	95%	95%	95%
2.	Case Detection Rate	83 %	2004	At least 70 %	86%	89%	90%	95%
3.	Treatment Success Rate	82 %	2004	At least 85 %	85 %	85%	85%	85%
4.	Proportion of sputum smear positive cases out of all pulmonary TB cases	52 %	2003	52%	52%	54%	52%	48%
5.	No. of new smear positive cases detected under DOTS	31405	2004	66,405	40,241	42,588	41, 248	41,389
6.	No. of additional microscopy centers established	0	2004	30	30	0	0	13
7.	No. of microscopy centers under Q/C	194	2003	260	268	290	405	370
8.	No. of deaths (all forms of TB) per 100,000 population	27	2005	26	17	13	12.3	13
9.	No. of health facilities where both TB and HIV services are available	7	2005	17	7	11	11	11
10.	No. of partners (NGOs, CBOS, public, private and others participating in a national stop TB partnership)	15	2005	20	15	15	15	15
11.	No. of MDR-TB patients enrolled on treatment	0	2005	0	0	0	0	64

## Indicators of Partners for National TB Programme

### Objective 1. Pursuing high quality DOTS expansion and enhancement

Annex-39

No.	Indicators	2009											
		NTP*	PSI	MMA	Union	Pact	WV	AHRN	MRCS	MSF-Switz	IOM	JICA	Malteser
1	% of DOTS covered population	50907881											
2	Case Detection Rate (CDR)	95%											
3	No. of new smear positive TB patients detected	41389	5292	560				63		267	334		413
4	No. of new TB patients (all forms) registered for treatment	134023	15438	1658				152		547	1,430		1,681
5	Proportion of sputum smear positive cases out of all pulmonary TB cases	48%	60%	40%				50%		67%	23%		
6	Ratio of male to female among new sputum positive TB cases detected	1.96:1	1.93:1	1.84:1				4.4:1		1.8:1	1.6:1		
7	Cure Rate (CR)	78%	73%	78%				21%		66%	89%		80%
8	Treatment Success Rate (TSR)	85%	84%	87%				35%		78%	97%		86%
9	No. of deaths (all forms of TB)	7298	411	74				13		64	23		46
10	No. of microscopy centers using for diagnosis of TB	415	136	13				2		2	7		2
11	No. of microscopy centers under External Quality Assessment (EQA) system	370	136	13						0	7		1
12	No. of treatment units reporting no stock out of first line anti TB drugs	325	623							2	0		
13	No. of township/clinic supervised	308	145	13/98				2		2	7		
14	No. of patients receiving incentives/patient support	14216	1294	4325				265			7367		965

\* Numbers are national figures including partners' contributions.

### Objective 2. Addressing TB/HIV, MDR-TB and other challenges

No.	Indicators	2009											
		NTP *	PSI	MMA	Union	Pact	WV	AHRN	MRCS	MSF-Switz	IOM	JICA	Malteser
15	No. of TB patients tested for HIV	9194	1516		2610		33	92		599	170		
16	No. of health facilities implementing TB/HIV activities	652	623		7			2		2	7		
17	No. of laboratory confirmed MDR-TB patients enrolled on treatment	64								0			
18	No. of TB/HIV, MDR-TB management units implementing infection control measures	30			3								
19	No. of new smear positive TB patients registered in targeted border townships	749											260

\* Numbers are national figures including parterers' contributions.

### Objective 3. Contributing to health system strengthening

No.	Indicators	2009											
		NTP *	PSI	MMA	Union	Pact	WV	AHRN	MRCS	MSF-Switz	IOM	JICA	Malteser
20	No. of Basic Health Staff (BHS) trained on selected modules of management of TB for health facility staff	3186	814					68					

\* Numbers are national figures including parterers' contributions.



#### Objective 4. Engaging all care providers

No.	Indicators	2009											
		NTP *	PSI	MMA	Union	Pact	WV	AHRN	MRCS	MSF-Switz	IOM	JICA	Malteser
21	No. of GPs trained under PPM-DOTS	1318	682	576								60	
22	No. of GPs implementing PPM-DOTS	1293	623	610								60	
23	No. of townships implementing PPM-DOTS	190	145	41						6	4		
24	No. of TB patients (all types) registered for treatment in PPM-DOTS (Scheme III)	17239	15438	1801						0			
25	No. of microscopy centers using for diagnosis of TB (PPM-DOTS)	415	136	49						13		28	
	-public laboratory		101	41						6			
	-private laboratory		35	8						7			
26	No. of microscopy centers under External Quality Assessment (EQA) system (PPM-DOTS)	370	136	49						13			
	-public laboratory		101	41						6			
	-private laboratory		35	8						7			

\* Numbers are national figures including parterers' contributions.

#### Objective 5. Empowering patients and communities

No.	Indicators	2009											
		NTP *	PSI	MMA	Union	Pact	WV	AHRN	MRCS	MSF-Switz	IOM	JICA	Malteser
27	No. of community members or volunteers trained for TB control	1839	678			433	314		338		76		
28	No. of villages where advocacy, communication and social mobilization (ACSM) activities for TB are undertaken	1671	678			430	206		281		76		

\* Numbers are national figures including parterers' contributions.

#### Objective 6. Enabling and promoting research

Country's Ending and Promising Action													
No.	Indicators	2009											
		NTP *	PSI	MMA	Union	Pact	WV	AHRN	MRCS	MSF-Switz	IOM	JICA	Malteser
29	No. of Operational Research projects completed	2		1									
30	No. of Survey	2											

\* Numbers are national figures including parterers' contributions.