ព្រះរាជាណាចក្រកម្ពុជា

ជាតិ សាសនា ព្រះមហាក្សត្រ

KINGDOM OF CAMBODIA
NATION RELIGION KING

ក្រសួងសុខាភិបាល

Ministry of Health

របាយការណ៍ស្តីពីជំងឺរបេងឆ្នាំ ២០០៧

TUBERCULOSIS REPORT 2007

រៀបរៀងដោយ មជ្ឈមណ្ឌលជាតិកំចាត់រោគរបេង

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I. Introduction

Cambodia is one of the 22 countries in the world with a high burden of tuberculosis. During the last 16 years, cases of TB notified under the National TB Control Program (NTP) have been increased about five folds, up to 36,495 cases of all forms in 2007. The impact of HIV/AIDS on TB in the coming years will continue to have great concern for the country with high burden of TB / AIDS.

TB control has been given high priority by the Ministry of Health. Encouraged by the strong commitment of the Royal Government of the Kingdom of Cambodia with the Prime Minister, HE Samdech Hun Sen, as the Honorable Chairman of the National Tuberculosis Committee, it is hoped that a combined effort focused on socio-economic development and poverty alleviation will benefit the vast majority of the population affected by tuberculosis.

In line with the Plan and the global strategy of TB control (2006-2015), the National Tuberculosis Control Program (NTP) aims at achieving the objectives set in The 5 years Strategic plan 2006-2010.

- to expand the DOTS strategy to cover all health centers.
- to attain the case detection rate of 70%
- to maintain the high cure rate of more than 85%.

The longer aims are to reduce the prevalence and death rate of tuberculosis in order to contribute to achieving the Millennium Development Goal (MDG) by 2015.

To be able meet its objectives, the NTP requires participation from all sources including health workers, institution concerned, development partners, local authority and communities.

The DOTS expansion to Health centers is believed to help improve the accessibility of the population to TB services which are provided free of charge. It have helped to attain the case detection rate of 70% in 2005. It also has been maintaining the cure rate over 85% .

At the same time, the NTP will focus on improving the management structure, service provision, health information system (HIS), information, education and communication (IEC), research, investment, drugs, financing and partnership with other NGOs, IOs. Staff have been trained locally and also sent abroad for training in various fields in order to upgrade their skills and able to provide quality health care for the patients.

In 2007, with strong support from the Royal Government of Cambodia as well as the Ministry of Health, the impressive achievement were obtained in the field of TB Control in Cambodia. These achievements are due to the efforts made by all stakeholders within and outside the government. This document provides the summarized activities in TB control conducted in the year 2007.

II. Epidemiology of Tuberculosis

1. TB in the world :

Nearly one-third of the global population, i.e. two billion people, is infected with Mycobacterium tuberculosis and at risk of developing the disease. Every year, around nine million people develop active tuberculosis (TB), and nearly two million died.

More people are dying of TB today than ever before. TB is the biggest curable infectious killer of young people and adults in the world today.

More than 90 % of global TB cases and deaths occur in the developing world, where 75 % of cases are in the most economically productive age group (15-54 years). In general, an adult with TB loses on average three to four months of work time. This results in the loss of 20-30 % of annual household income and, if the patient dies of TB, an average of 15 years of lost income.

In addition to the devastating economic costs, TB imposes indirect negative consequences such as children leave school because of their parents ' tuberculosis, and women are abandoned by their families as a result of their disease.

TB/HIV co-infection significantly increases the risk of developing TB. Hence the number of TB cases will be increased particularly for Countries with a high prevalence of both diseases. Multidrug resistance, which is caused by poorly managed TB treatment, is a growing problem of serious concern in many counties around the world.
The main reasons for the increasing burden of TB globally are:

- poverty and the widening gap between rich and poor
- neglect of controlling the disease (inadequate case detection, diagnosis and treatment)
- collapse of the health infrastructure in countries experiencing severe economic crisis or civil unrest
- impact of the HIV pandemic
- increasing population

2. TB in Cambodia :

Cambodia has been classified by the World Health Organization (WHO) as one of the 22 high burden countries with tuberculosis in the world. In 1997, the WHO experts estimated that 64 % of Cambodian population is infected with Mycobacterium tuberculosis. In 2006, the estimated incidence rate of new smear positive pulmonary tuberculosis was 220/100,000 population and incidence rate of all forms of tuberculosis is 500/100,000 population and that the death rate of tuberculosis was 92/100,000 population per year.

Before 1994, the case detection and treatment of tuberculosis were not satisfactory. For instance in 1993, the case detection rate of smear positive pulmonary tuberculosis nationwide was about 44 % and the cure rate was only 69%. So, the priority problem needed to be solved at that time was changing the treatment strategy by applying the Short Course Chemotherapy with Direct Observation, called " DOTS " ; and then, the solution to the problem of low case detection.

Since 1994, the application of method for treating tuberculosis through Short Course Chemotherapy with Direct Observation (DOT), has made the NTP to achieve the cure rate result of more than 85 % as target plan. However case detection rate is still limited in 2007, although there had been reached the target of 70% in 2005.

3. TB/AIDS :

Many people infected with HIV in developing countries developed TB as the first manifestation of AIDS. The two diseases represent a deadly combination, since they are more destructive each together than either disease alone.

-TB is harder to diagnose in HIV/AIDS patient.
-TB develop faster in HIV-infected people
-TB in HIV-positive people is almost certain to be fatal if undiagnosed or left untreated
-TB occurs earlier in the course of HIV infection than many other opportunistic infections.

Worldwide, 14 million people are co-infected with TB and HIV. 70 % of them are concentrated in Africa [1].

TB is the leading killer of AIDS patients. Up to 50 % of people with HIV or AIDS develop TB.

[1] Fight AIDS, Fight TB, Fight Now: WHO

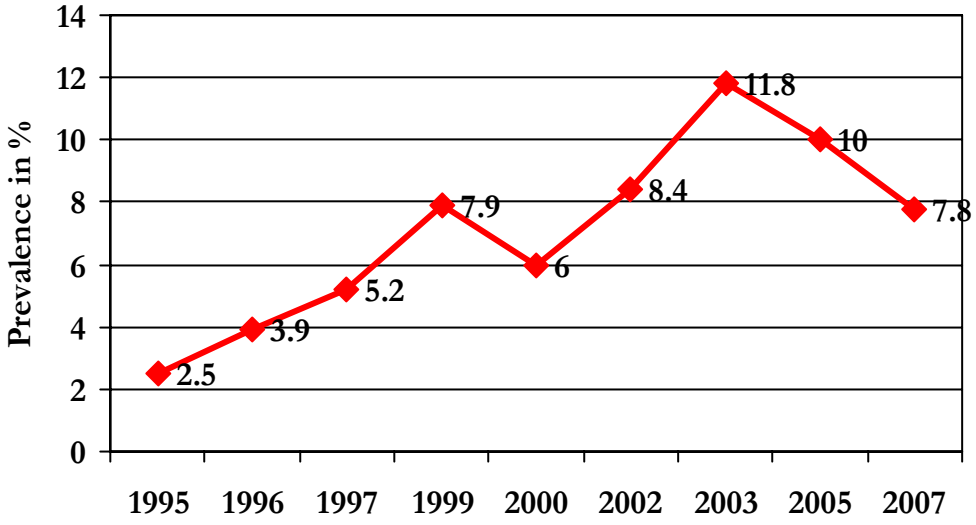
TB can be successfully treated even if someone is HIV-infected. Treatment of TB can prolong and improve the quality of life for HIV-positive people but cannot alone prevent people from dying of AIDS .

Cambodia is also among the countries with high burden of TB and HIV/AIDS.The surveys showed the increase of HIV sero-prevalence among TB patients as follows :

- 1995 : 2.50%
- 1996 : 3.90%
- 1997 : 5.20%
- 1999 : 7.90%
- 2000 : 6.70%
- 2002 : 8.40%
- 2003 : 11.8%
- 2005 : 10%
- 2007 : 7.8 %

The National Tuberculosis Control Programme in collaboration with JICA TB Control Project conducted the National HIV Seroprevalence Survey among TB patients in 2003 for the 1 st round, in 2005 for the 2nd round and by late 2007 for the 3 rd round. The result showed that 11.8 % , 10 % and 7.8% respectively were HIV positive.

Trend in HIV Sero-prevalence among TB patients



III. Policies, Strategy and Guidelines

In addition to the existing important documents (National Health Policies and Strategies for TB Control, 2006-2010, and National Health Strategic Plan for TB Control, 2006-2010), National TB Control Program (NTP) has finalized the two following documents :

- National Strategic Plan on TB Laboratory 2007-2010.
- Guidelines on Diagnosis and Treatment for TB in Children.

NTP has also developed the Annual Operational Plan for TB control form 2007 & 2008

IV. Capacity Building and Human Resources Development

1. Training activities and workshop :

The National Tuberculosis Control Programme (NTP) has organized the trainings and workshops activities in 2007 as follows :

a). Training:

- 19 Training course on TB Health Education
- 29 Training courses on TB / HIV activities.

- 7 Refresher training courses on laboratory activities.

- 11 Training courses on TB in Children, Extra Pulmonary Tuberculosis and its treatment.

- 30 Refresher training courses on TB Management Activities at Health Center level.

- 9 Training courses on Slide Cross-Checkers.

- 7 Laboratory training for newly appointed staff.

- 5 Training Course on chest X-ray film interpretation.

- 1 Training Courses on Drug Resistence Tuberculosis.

- 1 Training of Trainer (ToT) course on TB Laboratory.

- 2 Training Course on TB activities in Factory.

- 2 Training Course on Basic Epidemiology.

- 1 Training Course on TB Supervision.

- 11 Training Course on Smear making.

Besides, Operational District (OD) level organized the refresher training on DOTS for Village Health Support Group (VHSG). In 2007 alone 4 250 VHSG received the refresher training under the support of GFATM.

b). Workshops :

- 4 Workshops on TB Active Case finding among Children.

- 6 Workshops on PPM DOTS Activities.

- 3 Quarterly M & E Workshops.

- 4 Workshops on TB drug Management.

- 1 Annual TB Conference for TB control in year 2006.

- 15 Workshops on Microscopy maintenance.

- 4 Workshops on Community DOT.

- 2 Workshops on TB monotorring activities in Factory.

- 17 Workshop on TB/HIV activities.

- 9 Workshop on improving TB diagnosis Capacity.
- 1 Workshop on indicators development for TB Control Program.
- 1 Workshop on Drug Resistence Tuberculosis.
- 1 Workshop on PC System.
- 1 Workshop on HIV sero-prevalence survey among TB patients.

* NTP also sent the TB staff to attend the international training courses, study tours and meeting/conferences in 2007 as follows:

- United State : 1 staff
- Vietnam : 3 staff
- Japan : 9 staff
- Thailand : 13 staff
- Philippine : 7 staff
- India : 1 staff
- China : 1 staff
- Korea : 2 staff
- Singapore : 2 staff
- Switzerland : 1 staff
- Malayia : 4 staff
- Sri – lankar : 2 staff
- Netherland : 1 staff
- Botswana : 2 staff
- South Africa : 11 staff

The NTP have organized the Study-tours in Country for 8 times.

2. Supervision :

To strengthen the TB control activities and improve the capacity of staff at peripheral level , in 2007 NTP conducted the 332 TB supervision visits throughout the country.

V. Financing

NTP formulated 5-year expenditure framework in accordance with the strategic plan with active consultation with major donors and clear indication of funding gaps. Also, budget plan for 2006 was developed based on annual activity plan. NTP negotiated with potential partners for financing the program . These indicate the improved ability of CENAT in terms of financial mobilization for TB control activities.

VI. Drugs and Lab. Reagents

National Tuberculosis Program (NTP) monitors closely the situation of drug consumption, laboratory reagents, estimate future drug requirement and laboratory reagents as well as budget estimation.

TB Drug Management (TBDM) is the one core element of the five elements of DOTS strategy. If each element has not well functioned, it would affect the greater part of the performance of TB Program.

In 2007 NTP in collaboration with Department of Drug and Food, Central Medical Store (CMS) of ministry of health (MoH), and Japan International Cooperation Agency (JICA) has achieved on TBDM issues as follows:

- NTP monitors closely the stock situation, distribution and the use of TB drug through database system and conducting of TBDM survey.

- In 2007, NTP received TB Drugs which is financially supported by Global Fund to Fight HIV/AIDS, TB & Malaria and World Health Organization (TB drug for children).

- Arranged and discussed the need of TB drugs under the support of TB GFATM round 5.
- We always facilitate the additional request for some ODs.
- In every quarterly workshop of NTP, TBDM is the one topic which is always presented especially focusing on distribution and TB drug request.
- NTP officers attended Workshop on drug management and distribution organized by Department of Drug and CMS of Ministry of Health in Siem Reap province .
- NTP officers attended the training to trainers (ToT) on the estimation of drug requirement, reagents, vaccins, for National Program and Public Health in Kg.Cham province.
- NTP send our own officers to attended drug management meetings on drug management and reagents at Phillipine country.
- In December 2007 NTP conducted the Assessment Survey of TB Drug Management in 06 operational districts of 06 provinces to monitor quality of DOTS implementation and to improve TB drug distribution and TB drug use practices. The result of TB Drug Management Survey in this year was better than the previous years.

VII. Service provision

The diagnosis and treatment of tuberculosis are free of charge in all TB services throughout the country. Now, There are 1,066 health facilities providing DOTS.

1. Case Detection Activity :

TB case detection nationwide in 2007 are as follows:

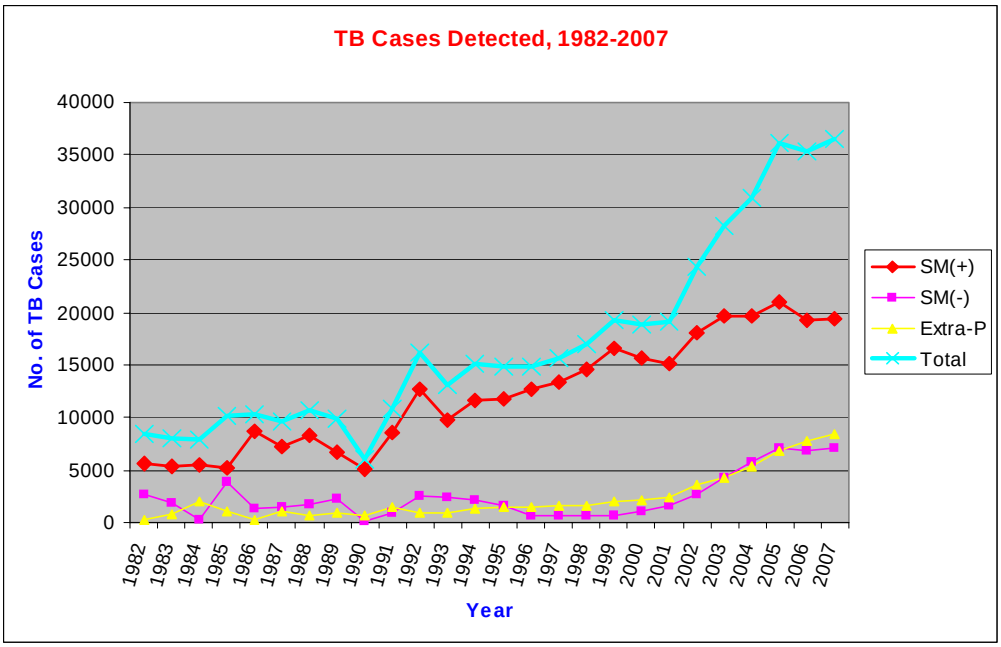
Case Detection in 2007	Number of TB cases
New smear positive pulmonary TB	19,421
Relapse	648
Failure cases	75
Return After Default	20
New smear negative pulmonary TB	7,120
New extra pulmonary TB	8,412
Other Cases	799
Total (all form of Tuberculosis)	36,495

According to the above TB case notification, the case notification rate of new smear positive pulmonary TB in 2007 is 65.4 %

The table below shows the age and sex distribution of the new smear positive pulmonary TB detected in 2007.

Age	0-14	15-24	25-34	35-44	45-54	55-64	> 64	Total	%
M	50	883	1526	2190	2102	1761	1644	10156	52%
F	64	749	1351	1698	2105	1839	1459	9265	48%
Total	114	1632	2877	3888	4207	3600	3103	19421	100%
%	1%	8%	15%	20%	22%	19%	16%	100%	

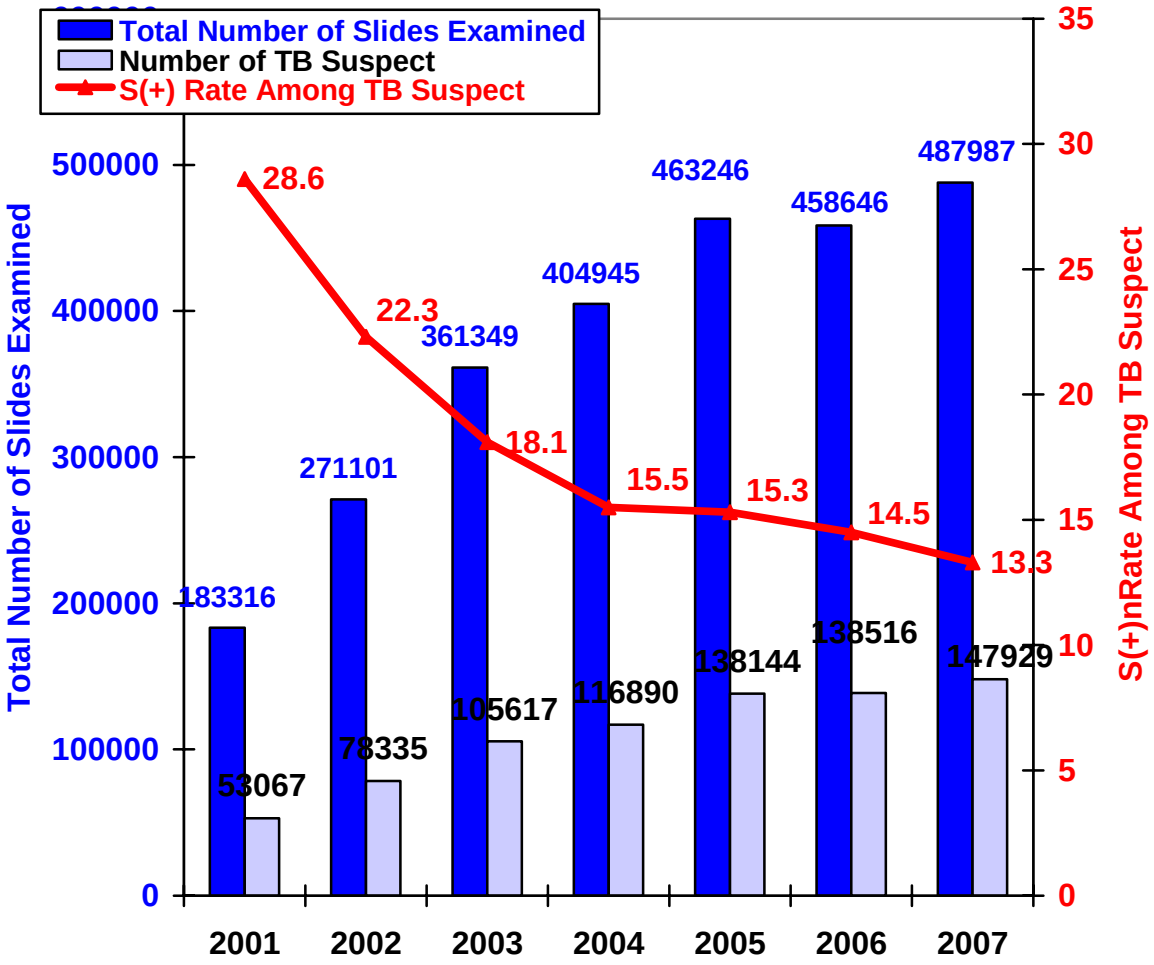
TB Case Notification, 1982-2007



2. Diagnosis by bacteriological examination:

The total slides that the program used to perform microscopy examination in 2007 were 487,987 (detection and follow-up). Of which, 434,901 slides were for detection. The positively rate among suspects was 13.3 %.

To strengthen the quality of laboratory microscopy examination, the NTP re-read (cross-checked) the slides. This is part of laboratory quality assurance (QA) activities. The result shows that false positive is 4.6 %, false negative is 2.5 % and overall agreement rate is around 97.3 %.



3. Sputum Conversion rate at month 2 :

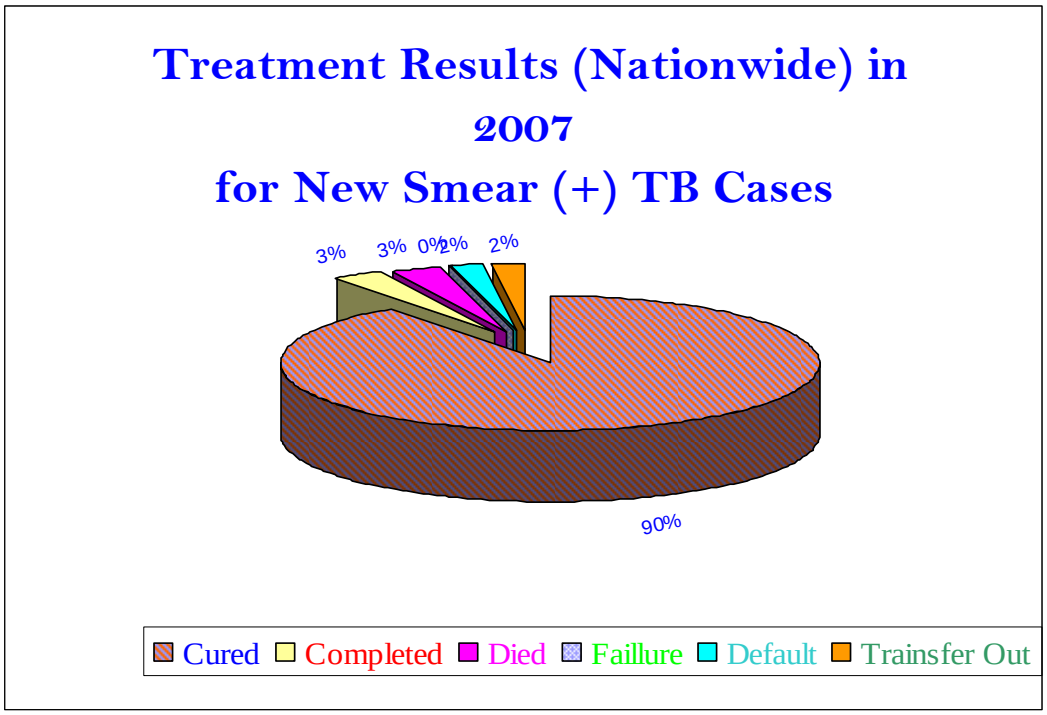
The Conversion rate at month 2 from sputum positive to negative is 93% in 2007.

4. Treatment Results :

Due to the existence of good recording and reporting system, the National Tuberculosis Control Program can evaluate the treatment results through Cohort Analysis for TB patients registered under treatment in previous 12 months (2006).

For 19,298 new smear-positive TB patients that received Cat-1 (2RHEZ/4RH) treatment regimen, the treatment results in 2007 were as follows (see table2 in the annex for the details by province).

- Cured : 90.4 %
- Treatment completed : 3.0%
- Died : 3.0 %
- Failure : 0.3 %
- Defaulted : 1.6 %
- Transferred out : 1.6 %



5. DOTS provided by CENAT in Phnom Penh :

CENAT provided DOTS to 882 TB patients in Phnom Penh in 2007. Of those, 44 % were Home Care DOT, 16 % Ambulatory DOT and 40 % Hospitalized DOT.

VIII. DOTS Expansion

To obtain the objective of 70 % case detection rate of new smear-positive pulmonary TB, DOTS expansion to HCs level is one of the main activities of the program.

The steps in DOTS Expansion are the followings :

1- Pre-Assessment Visit (Situational Analysis)
2- Sensitizing Workshop for all stake holders
3- Training
4- Workshop before implementation
5- Supervision
6- Follow-up Workshop
7- Evaluation Workshop on DOTS implementation.
8- Monitoring and evaluation

Pilot Phase of DOTS Expansion :
in September 1999, 9 health centers were piloted in Ambulatory DOT.

Phase of Expanding DOTS to Health Centers :

- By 2000, 59 health centers were expanded in DOTS.
- By 2001, 268 health centers were expanded in DOTS.
- By 2002, 392 health centers were expanded in DOTS.
- By 2003, 704 health centers were expanded in DOTS.
- By the end of 2004, the National TB Control Programme expanded DOTS to 841 health centers nationwide.

- By the end of 2005, the National TB Control Programme expanded DOTS to 853 health centers and 40 health posts nationwide. This is a great achievement of the programme.

- In summary , there are 1,066 health facilities providing DOTS across the country by the end of 2007. And NTP have been functioning with sustainable manner .

IX. Community DOTS

1. The Overall Goal of Community DOTS implementation

The Overall Goal of Community DOTS implementation is To improve Case finding through referral of TB suspect by communities and To provide TB drug to patients who are unable taking TB drug everyday at Health Center but for only less severe patients and To ensure that TB patients taking TB drug Correctly, Completely and to support the implementation of the new 6 month treatment regimen, 4 FDC especially in the continuous phase .

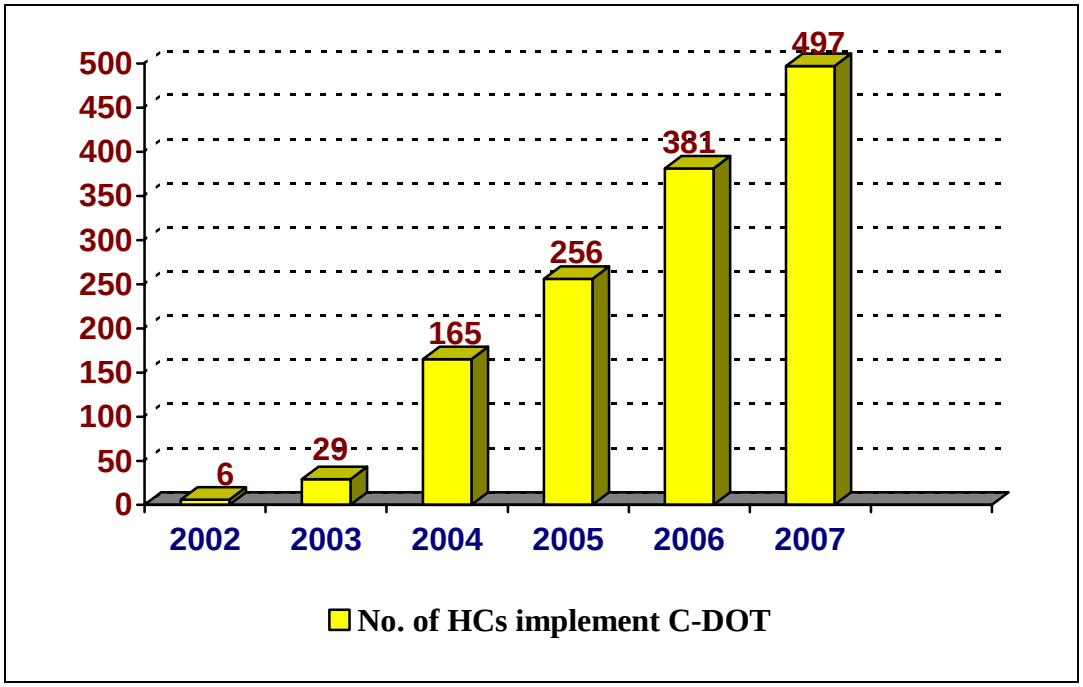
2. Background of Community DOTS

In 2002, in cooperation with CENAT, three ODs began piloting a Community DOTS (CDOTS) programme – Bakan OD (Pursat Province), O'Chrouv and Preah Net Preah ODs (Banteay Meanchey Province) all of which were supported by CARE. In 2003, further pilot projects were established in Angkor Chey OD, Kampot (in collaboration with Racha), Svay Rieng and Chipou ODs, Svay Rieng Province (in collaboration with CHC) and Mongkol Borei OD, Banteay Meanchey (also supported by CARE).In 2004, there were further pilot projects, in kratie OD, Kratie Province (in collaboration with

PFHD),Cheung Prey, Memot, Dambe-Ponheakrek ODs in Kampong Cham Province(in collaboration with SCA), Sangke and Thmarkol ODs in Battambang Province (in collaboration with RHAC) and Kampong Tralach OD, Kampot Province (in collaboration with CHC). In 2004, communty DOTS were started in kratie, Battambang and Kg.Cham by PFHAD , RHAC and SCA respectively.

This year 2007, The total Health Centers implement Community DOTS are 497 HCs in which the Health Centers expanded was 116 HCs.

3. Expansion of CDOTS Health Center



Through this Chart :

- By 2002, 6 health centers were expanded in C-DOTS
- By 2003, 23 health centers were expanded in C-DOTS
- By 2004, 136 health centers were expanded in C-DOTS
- By 2005, 91 health centers were expanded in C-DOTS
- By 2006, 125 health centers were expanded in C-DOTS
- By 2007, 116 health centers were expanded in C-DOTS

In Summary, 497 HCs cumulatively have been implementing Community DOTS (C-DOTS) in 42 ODs by the end of 2007.

4. Achievement of CENAT related to CDOTS

- **GUIDELINES** on **COMMUNITY DOTS IMPLEMENTATION** have been distributed.
- **GUIDELINES** for supporting TB treatment " DOTS Supporter " have been distributed.
- Under funding from GFATM, total of 22, 248 DOTS Supporters have been trained from 2004 to the end of 2006 and 4 250 DOTS Supporters have been retrained in 2007.
- Provided TB basic knowledge to people of 17,400 p in 2007 (76 650 p from 2004-2007) and School Children 27 495 p in 2007 (94 410 p from 2004-2007).

5-Outcome of Community DOTS Treatment

In Battambang Province, under support of "RACHA", in collaboration with Provincial Health Department, Community DOTS was started in Moung Russey Operational District from 2005.

The result of CDOTS treatment in 2006 and first semester 2007 among 5 HCs (Robas mungkul, Karkoh, Thepday, Kea, and Prek Chik)in Moung Russey Operational District is presented below :

The total of patients was 156 p, CDOTS patients was 134 patients : (86%)

	Total	Cured	Complete	Died	Default	Tran. out
BK +	62	61(98%)	0	1	0	0
EP	28	-	28	1	0	0
BK-	42	-	39	3	0	0
Relapse	2	2	0	0	0	0
Total	134	63	66	5	0	0

Cure rate of CDOTS treatment would be higher than the whole country because CDOTS Implemented only on less severe TB patients and as shown above, the sample is small. The cure rate was 98% compared to National cure rate of 90% in 2007.

6- Health Centers implement Community DOTS in 2007 support by NGOs

Svay Rieng Province:

- Svay Rieng OD : 20 Health Centers Support by CHC
- Chiphou OD : 6 Health Centers Support by CHC
- Romeashek OD : 7 Health Centers Support by CHC

Kampot Province :

- Angkor Chey OD : 10 Health Centers Support by RACHA
- Kampong Trach OD : 12 Health Centers Support by CHC
- Chhouk OD : 15 Health Centers Support by CHC
- Kampot OD : 10 Health Centers Support by CHC

Siem Reap Province :

- Siem Reap OD : 14 Health Centers Support by RACHA

- Kralanhn OD : 8 Health Centers Support by RACHA
- Angkor Chum OD : 14 Health Centers Support by RACHA
- Sot Nikum OD : 12 Health Centers Support by PFHAD

Pur Sat Province :

- Sampov Meas OD : 16 Health Centers Support by RACHA
- Bakan OD : 10 Health Centers Support by RACHA.

Battambang Province :

- Mung Russey OD : 13 Health Centers Support by RACHA
- Thmar Kul OD : 9 Health Centers Support by RACHA
  8 Health Centers Support by JICA
- Sangke OD : 13 Health Centers Support by RHAC
- Sampov loun : 8 Health Centers Support by CRS.
- Battambang : 22 Health Centers Support by RHAC

Banteay Meanchey Province :

- Ochrov OD : 10 Health Centers Support by RACHA
- Preh net Preh OD : 12 Health Centers Support by RACHA
- Mungkul Borey OD : 19 Health Centers Support byRACHA
- Thmar Pourk OD : 9 Health Centers Support by PK

Koh Kong Province :

- Sre ambel OD : 7 Health Centers Support by CARE
- Smach meanchey OD : 6 Health Centers Support by CARE

Kampong Speu Province :

- Korng Pisey OD : 19 Health Centers Support by RHAC
- Kampong Speu : 21 Health Centers Support by RHAC

Takeo Province :

- Daun Keo OD : 15 Health Centers Support by RHAC
- Batie OD : 13 Health Centers Support by RHAC
- Prey Kabas OD : 13 Health Centers Support by RHAC

Prehsihaknuk ville :

- Prehsihanuk OD : 7 Health Centers Support by JICA

Kampong Chnnang Province :

- Kampong Tralach OD : 9 Health Centers Support by JICA

Kampong Cham Province :

- Ponheakrek-Dambe OD : 16 Health Centers Support by SCA
- Cheung Prey- Batheay OD : 15 Health Centers Support by SCA
- Memut OD : 10 Health Centers Support by SCA
- Krochmar OD : 10 Health Centers Support by SCA
- Tbong Khmum OD : 16 Health Centers Support by RHAC

Kratie Province :

- Chhlong OD : 10 Health Centers Support by PFHAD
- Kratie OD : 12 Health Centers Support by PFHAD

Kandal Province :

- Ksach Kandal OD : 9 Health Centers Support by WHO
- Mukampoul OD : 6 Health Centers Support by WHO

Total Health Centers implementing Community DOTS, supported by NGOs are 497 HCs in 42 ODs, but many NGOs implemented CDOTS only some parts of Operational District or some village in Health Center.

N	Province	Operational District	Number of HCs	NGOs
1	**Svay Rieng**	Svay Rieng	20	CHC
		Chiphou	6	CHC
		Romeashek	7	CHC
2	**Kampot**	Angkorchey	10	RACHA
		Kampong Trach	12	CHC
		Chhouk	15	CHC
		Kampot	10	CHC
3	**Siem Reap**	Siem Reap	14	RACHA
		Kralahn	8	RACHA
		Angkorchum	14	RACHA

		Sot Nikum	12	PHFAD
4	**Pur Sat**	Sampov Meas	16	RACHA
		Bakan	10	CARE
5	**Battambang**	Mung Russey	13	RACHA
		Thmar kul	9	RHAC
		Thmar kul	8	JICA
		Sangke	13	RHAC
		Battambang	22	RHAC
		Sampovloun	8	CRS
6	**Banteay meanchey**	Ochrov	10	RACHA
		Preh net Preh	12	RACHA
		Moungkul Borey	19	CARE
		Thmar Pouk	9	PK
7	**Koh Kong**	Sre ambel	7	CARE
		Smach meanchey	6	CARE
8	**Kampong speu**	Kung Pisey	19	RHAC
		Kampong speu	21	RHAC
9	**Takeo**	Daunkeo	15	RHAC
		Batie	13	RHAC
		Prey kabas	13	RHAC
10	**Sihanuk ville**	Sihanuk ville	7	JICA
11	**Kampong chhnang**	Kampong tralach	9	JICA
12	**Kampong Cham**	Ponheakrek-Dambe	16	SCA
		CheungPrey-Batheay	15	SCA
		Memut	10	SCA
		Krochhmar	10	SCA
		Tbong Khmum	16	RHAC
13	**Kratie**	Chhlong	10	PFHAD
		Kratie	12	PFHAD
14	**Pailin**	Pailin	3	CRS
15	**Phnum Penh**	lech	6	RHAC
16	**Kampong Thom**	Kampong Thom	6	PFHAD
		Staung	6	PFHAD
	TOTAL	**42 ODs**	**497**	

7. Plan of GFATM in Round 7

A Proposal Round 7 to GFATM (2009-2014) not yet approved and the target as following :

N0	Province	Operational District	# of Health Centers	NGOs
1	**Svay Rieng**	Svay Rieng	10	CHC
		Chiphou	6	CHC
2	**Kandal**	Takmao	15	CHC
		Ksach Kandal	9	CHC
		Por nhealeu	10	CHC
		Kean Svay	17	CHC
		Koh thom	12	CHC
		Ang snoul	8	CHC
		Muk kampoul	7	CHC
		Saang	12	CHC
3	**Kampot**	Kampong trach	12	CHC
4	**Battambang**	Thmarkol	8	CRS
5	**Pailin**	Pailin	4	CRS
6	**Uddor meanchey**	Samrong	14	CRS
7	**Kampong som**	Kampong som	10	CATA
8	**Kampong Speu**	Uddong	9	CATA
9	**Kampong chhnang**	Kampongchhnang	23	HEAD
		Kampong tralach	11	HEAD
10	**Prey Veng**	Kamchay mear	11	HEAD
		Neak leung	17	RHAC
		Peareang	16	HEAD
		Kampong trabek	11	RHAC
		Preh sdach	9	RHAC
		Prey Veng	16	HEAD
		Mesang	10	HEAD
11	**Preh Vihea**	Preh Vihea	12	HU
12	**Seam Reap**	Soth nikum	7	PFHAD
13	**Kampong thom**	Kampong thom	21	PFHAD
		Stong	12	PFHAD
14	**Kratie**	Chhlong	10	PFHAD
		Kratie	12	PFHAD
15	**Stung treng**	stung treng	10	PFHAD
16	**Phnum Penh**	Cheung	5	SHCH
17	**Kampong Cham**	Kampong Seam	22	FHI
		Cheung Prey	14	SCA
		Chamkaleu	13	FHI
		Oreang Ov	8	SCA
18	**Takeo**	Ang Rokar	9	RHAC
		Kiri Vong	15	RHAC
19	**Ratanakiri**	Ratanakiri	6	VORORT
	Total		**463**	

8- Constaints and Challenges

- The Quality of Community DOTS not yet so good : limited capacity of staff to : arrange CDOT at Community, to do supervision, to educate patients and DOT Supporters, to do supervision, report, and to encourage TB patients to do DOT at Health Centers.
- The Supervision and Monitoring is not regularly : Due to movement of TB patients to earn their live, there are many CDOT patients in HCs, TB HC staff have a lot of work, less or no support of TB OD Supervisor to do CDOT supervision....
- The co-infection of TB / AIDS.

X. Collaborative TB/HIV activities:

- Training: In collaboration with National Center for HIV/AIDS, Dermatology and STD (NCHADS), National Center for TB and Leprosy Control have been conducted TB/HIV training to 24 Operational Districts more in 2007. Total number of TB/HIV trained OD is 52 as follow:

-2004: 9 ODs in 4 provinces has piloted the TB/HIV collaborative activities with support from FHI, CDC, WHO and JICA

-2005: 10 ODs Smach Meanchey, Seam Reap, Sotnikum, Sampov Meas, Daunkeo, Svay Rieng, Kampong Cham-Kampong Siem, Neak Loeung, Kampong Trach, and Takmao

-2006: 9 ODs ODs Kampong Chhnang, Kampong Speu, Kampot, Prey Veng, Kampong Thom, Kirivong, Memot, Tbaung Khmom and Cheung Prey

-2007: 24 ODs Angroka, Prey Chhor, Srey Santhor, Ponhea Krek, Chamkaleu, Chipou, Romeas Hek, Sre Ambil, Kralanh, Koh Thom, Kien Svay, Kampong Trabek, Messang, Baray Santok, Kmpong Tralach, Boribo, Kratie, Chhlong, Stung Treng, Pailin, Thmorkol, Sampov Loun, and Sangke.

- **JICA also supported some activities for TB/HIV collaboration**

Supported the TB/HIV activity in PNP

- ✓ HIV testing at HCs by selected TB staff from each OD, so-called TB/HIV coordinators
- ✓ Supervision of TB/HIV activity at HC level by TB/HIV coordinators.
- ✓ Support the activities of counseling and testing for HIV at CENAT
- ✓ CENAT Afternoon clinic(TB screening clinic for PLHA)
- ✓ Quarterly TB/HIV stakeholder workshop

After we stared these activities above, the TB/HIV situation in PNP have been improved. Nowadays, about 80% of TB patients who does not know their HIV status receive HIV test during TB treatment and most of the HIV+ TB patients can get HIV services like CPT and OI/HBCT.

Supported the TB/HIV stakeholder meeting at 8ODs

JICA supported TB/HIV stakeholder meeting at 8ODs, Kg.Chunang, Kg. Speu, Kg.Thom, Siem Reap, Sihanoukville, Daunkeo, Neak Loeung and Kg Cham in the 3rd quarter of 2007. All the stakeholders got together and discussed the problems and its solutions in the meeting. After the meeting, they tried to improve their activity and number of TB patients who went to VCCT has been increased.

Developed new IEC materials for TB/HIV activity

In addition to the 3 kinds or TB/HIV leaflets developed in 2006, JICA developed the flipchart and the poster about TB/HIV. They have been distributed to each province.

- **National TB/HIV Conference:** The two national programs in good collaboration with the Development Partners conducted the first National TB/HIV conference. It is a forum where the stakeholders, partners and health workers working for TB control and HIV/AIDS control to meet and discuss how to improve the TB/HIV collaboration by looking at refer TB patients to VCCT for HIV testing and refer PLHA for TB screening and recording and reporting.

The main objectives of the conference are as follow:

1-To share experience among TB and HIV/AIDS staff

2-To strengthen TB/HIV collaboration

-Cross referral between TB and HIV/AIDS

-Share information with regard to TB and HIV and TB/HIV data and consistency of TB/HIV data among TB and HIV/AIDS program

-Monitoring and Supervision (recording and reporting system)

3-To improve TB/HIV collaborative activities

4-The ways forward/ recommendation

Participants to be invited are Provincial TB Supervisor, PAO, OD Director, OD TB supervisor and CoC coordinating and NGOs and partners working in the field of TB/HIV with the total number of around 270.

The Technical Working Group members are agreed that the participants will be divided into 6 groups based on geographic and epidemiological situation. These groups will discus on the whole afternoon session with the topics as follow:

1/-why should be TB patients referred for HIV testing and vice versa?

2/-how to refer patients for TB and HIV screening?

-what are the barriers? (no HBC, Transportation, NGO..)

-how to address these barriers?

3/-Coordinating mechanism.

-what is the strength, weakness?

-how do TB and HIV program work together (OD&PHD level)

-how to strengthen the collaboration between TB and HIV/AIDS program?

4/-Recording and Reporting/ M&E and supervision

-what are the issues of recording of TB&HIV?

-How to share the reporting of the two programs?

-how do they use their information to improve performance and program improvement?

5/-Recommendation and suggestion

6/-Opened questions

At the end of the group work meeting the group comes up with recommendation to improve TB /HIV collaborative activities as below

1/Referral Mechanism

- Increase financial support for referral
- Provide TB/HIV training (counseling skill)
- Expand HBC and VCCT

- Introduce Mobile VCCT
- Increase TB/HIV education to community
- Develop script for pre-counseling

2/Coordination mechanism

- Regular meeting at different levels
- Clear assignment of TB/HIV coordinator role at provincial and OD level
- Clear description of role and responsibility of TB/HIV coordinator
- Filling gap for external support for TB/HIV collaborative activities
- Develop and implement joint TB/HIV action plan
- Provide clear direction/guidance from National level
- Harmonize incentive scheme between 2 programs

3/Recording and Reporting

- joint and consistent RR system
- Explore possibility of integrating TB/HIV RR into Health Information System
- Data of TB screening for PLHA should be collected and filled by HIV/AIDS staff and HIV testing data for TB patients should be reported by TB staff.
- Improve the capacity in data analysis and use for improving performance at provincial and OD levels
- Improve quality of data collection
- Improve accountability for reported data

4/Other

- Joint supervision and regular feedback from National level
- develop tool for joint supervision
- Exchange knowledge/experience in and out
- Annual TB/HIV workshop should be conducted annually
- Incorporate VHSG and PHA into outreach and counseling activities to convince TB patients for HIV testing
- Use all 3 options in Standardized Operating Procedures

- **HIV seroprevalence among TB patients**

With the technical and financial support of GFATM, TBCAP, JICA, the 3rd National HIV seroprevalence among TB patients conducted in November 2007.

Objectives of the survey are

1- to determine HIV prevalence rate among confirmed TB patients (both smear positive pulmonary TB and other forms of TB)

2- to complement the National TB Prevalence survey results by assessing the impact of the HIV epidemic on the TB situation

3- to monitor the trend of the HIV epidemic by comparing the results with those in year 2003 and 2005 and assess the effectiveness of the TB/HIV control strategies

The preliminary result of the survey: 3,023 TB cases were registered at TB register during one month period in November 2007. Of these, 2,594 TB cases (85.8%) were interviewed. 2,572 cases (99.2%) were consent to take blood for HIV testing after provide verbal informed consent. 22 cases were not taken blood due to 1 case died, 1 case with the difficulty of drawing blood, 1 case did not appear and 19 cases refused. Of 2,572 TB cases with HIV testing, 200 cases found HIV positive result. The preliminary result of HIV prevalence among TB patients is 7.8%.

Table of TB/HIV survey in 2007 and comparison with 2003 and 2005 (excluded the case that blood was not collected)

	2003		**2005**		**2007**	
Province	**Total**	**HIV-positive** No(%)	**Total**	**HIV-positive** No(%)	**Total**	**HIV-positive** No(%)
Total	2244	265(11.8)	2632	261(9.9)	2,572	200(7.8)
Phnom Penh	**289**	**99(34.3)**	**235**	**61(26.0)**	**212**	**46(21.7)**
Thai Border	**445**	**57(12.8)**	**568**	**85(15.0)**	**537**	**70(13.0)**

Provinces						
Oudor Meanchey	31	4(12.9)	23	0(0)	14	1(7.1)
B. Meanchey	86	10(11.6)	175	32(18.3)	155	26(16.8)
Siem Reap	216	27(12.5)	184	12(6.5)	235	19(8.1)
Batam Bang	106	14(13.2)	172	39(22.7)	122	24(19.7)
Pailin	6	2(33.3)	14	2(14.3)	11	0(0)
Coastal Provinces	**134**	**22(16.4)**	**154**	**21(13.6)**	**148**	**21(14.2)**
Kampot	77	6(7.8)	108	11(10.2)	95	3(3.2)
Krong Kep	4	1(25.0)	7	0(0)	4	0(0)
Kg Som	33	11(33.3)	24	7(29.2)	28	11(39.3)
Koh Kong	20	4(20.0)	15	3(20.0)	21	7(33.3)
North East Provinces	**58**	**3(5.2)**	**68**	**3(4.4)**	**51**	**3(5.9)**
Stung Treng	15	1(6.7)	15	1(6.7)	17	3(17.6)
Preah Vihear	27	1(3.7)	36	0(0)	24	0(0)
Mondul Kiri	6	0(0)	4	1(25.0)	6	0(0)
Rattanakiri	10	1(10.0)	13	1(7.7)	4	0(0)
Others	**1318**	**84(6.4)**	**1607**	**67(4.2)**	**1624**	**60(3.7)**
Kandal	154	15(9.7)	225	13(5.8)	203	12(6.4)
Svay Rieng	164	6(3.7)	180	5(2.8)	152	2(1.3)
Pursat	72	4(5.6)	61	5(8.2)	99	2(2.0)
Kg.Thom	115	2(1.7)	137	3(2.2)	121	6(5.0)
Takeo	137	9(6.6)	216	26(12.0)	138	9(6.5)
Kg. Speu	105	4(3.8)	112	3(2.7)	147	2(1.4)
Prey Veng	211	22(10.4)	244	5(2.0)	218	9(4.1)
Kg. Chunang	109	6(5.5)	93	6(6.5)	186	6(3.2)
Kratie	46	5(10.9)	46	3(6.5)	29	1(3.4)
Kg. Cham	205	11(5.4)	293	22(7.5)	331	10(3.0)

- **TB/HIV Data**

HIV / AIDS Among TB Patients 2007									
Quarter	Number of TB cases registered for treatment (including HIV+)	Number of TB Cases Registered for treatment (excluding HIV+)	Number of TB Cases Referred to VCT for HIV testing	Number of TB Cases tested for HIV at VCT	**HIV+**	**HIV -**	**CPT**	**OI / HBC**	**ARV**
1	8,258	5,864	2,353	2,116	143	1,973	279	220	130
2	9,152	7,729	3,414	2,847	119	2,728	274	175	134
3	9,797	8,979	3,989	3,584	129	3,455	274	230	184
4	9,211	8,564	3,779	3,273	106	3,167	274	200	162
Total	36,418	31,136	13,535	11,820	497	11,323	1101	825	610

This data information presents TB/HIV activities in many provinces among 24 provinces due to the NTP register book contained the TB/HIV activity data, although there is still remaining operational districts not yet trained.

Based on the above table, 43% (13,535/31,136) of unknown HIV TB patients were referred for HIV testing, then out of them around 84% (11,820/13,535) tested for HIV at VCCT. The positive rate of HIV in TB patients who were referred and tested at VCCT is around 4.2% (497/11,820). Cotrimoxazole preventive therapy is given to all HIV positive TB patients and also anti-retroviral treatment during TB treatment is undertaken to all eligible HIV positive TB patients who are met the criteria set.

TB Among PLHA 2007								
Quarter	Number of HIV + clients registered at VCCT	Number of HIV+ clients at VCCT referred to OI/ART service for TB screening	Number of HIV+ clients screened TB at OI/ART	BK+	**BK-**	**EPTB**	**Total**	**Number of HIV+ received IPT**
1	2,748	1,275	985	182	210	224	605	10
2	4,656	1,160	1,333	118	178	194	490	17
3	1,946	948	1,450	78	97	129	304	24
4	2,291	982	1,550	123	140	139	402	26
Total	11,641	4,365	5,318	501	625	686	1,801	77

XI. Public-Private Mix DOTS (PPM-DOTS)

Public-Private Mix DOTS is an intervention of DOTS Expansion of the National Tuberculosis Program. Since 2005 the National Tuberculosis Program in collaboration with JICA, URC and PATH has been establishing the PPM-DOTS model in which private sectors involve are individual private physicians, private hospital, pharmacist, drug seller and private lab technicians. There have been 37 ODs in 11 provinces that is, Phnom Penh, Sihanuk ville, Kampong Cham, Kandal, Kampong Speu, Takeo, Battambang, Banteay meanchey, Siem Reap, Kratie and Pursat. The PPM-DOTS model just has started in Phase I. In Phase I, the private practitioners need to refer all the TB suspect case to the government HCs or RH to do diagnosis and treatment.

The PPM-DOTS has been contributed to TB Control as follows :

- enhance the quality of TB diagnosis and treatment as well as patient support providing the knowledge an skills through workshop, training which reduce the malpractice and misunderstanding and also limits the unnecessary and often costly treatments.
- increase the case detection rate and reduce the delay in diagnosing TB through private practitioner participation in referring timely all TB suspects to do diagnose and treat at TB network. These prevent emerging the multi-drug resistant
- improve the equitable access to high quality of DOTS by involving private practitioners from whom the poor vulnerable people seek care.
- protect the poor and vulnerable people from inappropriate expense through send them to do diagnosis and receive the free of charge treatment.
- contribute towards completeness of epidemiological surveillance on TB when both private and public sectors who diagnose and treat TB follow proper TB recording and reporting system of the National Tuberculosis Program
- improve the management capacity of both the public and the private sectors and can contribute to health system strengthening.

There are some challenges despite the PPM-DOTS has been in progress,:

- number of drop out of referring TB suspects still high
- limitation of resources in data collection from private and public
- limitation of resources in supervision
- the current diagnosis is a little bit late for the patient
- motivation to service providers in both sectors.
- limitation of confidence on public facilities
- small scale of PPM-DOTS

In summary, the achievement related to case finding and treatment of tuberculosis in 2007 under PPM-DOTS activities are shown in the table below:

	URC	PATH / JICA	RHAC	TOTAL
Total Referral	2217	3384	59	5660
Total Received	1372	1465	62	2899
Smear (+) TB Cases Diagnoed	228	306	1	535
Total TB Cases Treated	**322**	**489**	**3**	**814**

XII. IEC and Advocacy

In 2007, the activities and achievements related to IEC and Advocacy conducted by NTP are as follows:

-Capacity building for TB staff on IEC : 19 courses in 15 ODs.

-Participate in the workshop on ACSM strategies for Tuberculosis, in Bangkok, Thailand.

-Produce IEC materials and disseminate messages to the general population through various means such as radio, TV, newspapers, posters and leaflets. It has also cooperated with other NGOs such as WHO, USAID, FHI, PATH and JICA in providing technical skill, producing and disseminating the IEC materials to population.

In addition, the program provided the updated information on TB situation to MoH and other organizations so as to make them aware of the TB situation as well as the program activities in Cambodia and sought for support to the program. Similarly, for advocacy purpose, NTP promote the World TB Day from central to peripheral level throughout the country.

XIII. Information System

NTP has developed the standardized recording and reporting system for the program monitoring and evaluation. Through this system, the program can analyze and evaluate the TB situation in Cambodia. TB Bulletin, Quarterly TB Report and Annual TB Magazine are regularly published and disseminated to all related agencies.

XIV. Research

The National Tuberculosis Program (NTP) in collaboration with JICA TB Control Project, have conducted the 3rd round of National HIV sero-prevalence Survey among TB patients in late 2007. The preliminary results showed that the prevalence rate of HIV among TB patients nationwide is 7.8 %.

XV. Partnership

Mechanism of coordination with other partners in TB control was established with the set-up of a committee called Inter-agency Coordination Committee for TB Control (ICC) in 2001. The main terms of reference of the committee are to technically advice on the program management and to assist the program in coordination as well as resources mobilization. So far the ICC has been functioning very well with especially its regular and adhoc meeting.

NTP also collaborate with organizations, and research institutes abroad. Through this mechanism, we can identify areas of cooperation and funding for the program.

In addition, the National Program has cooperated with the World Food Program through this, the World Food Program provided the food support to the TB patients nationwide.

XV. Annexes

Case Detection rate by Provinces , year 2007

Table 1

Nº	*Province*	Case Detection Rate of New S(+) PTB
1	*Kandal*	62%
2	*Svay Rieng*	91%
3	*Phom Penh*	48%
4	*Pursat*	73%
5	*Battambang*	50%
6	*Pailin*	33%
7	*BMC*	65%
8	*Siem Reap*	66%
9	*Oddar MC*	91%
10	*Kg Thom*	83%
11	*Takeo*	62%
12	*Kg Speu*	77%
13	*Kampot*	62%
14	*Kep*	61%
15	*Kg Som*	52%
16	*Koh Kong*	43%
17	*Prey Veng*	91%
18	*Kg Chhnang*	67%
19	*Kratie*	38%
20	*Kg Cham*	50%
21	*Stung Treng*	55%
22	*Preah Vihear*	49%
23	*Modulkiri*	23%
24	*Rattanakiri*	18%

Cure rate by Provinces , year 2007

Table 2

Nº	*Province*	**Cure Rate**
1	***Kandal***	90%
2	***Svay Rieng***	95%
3	***Phom Penh***	92%
4	***Pursat***	93%
5	***Battambang***	87%
6	***Pailin***	65%
7	***BMC***	91%
8	***Siem Reap***	90%
9	***Oddar MC***	89%
10	***Kg Thom***	93%
11	***Takeo***	92%
12	***Kg Speu***	89%
13	***Kampot***	95%
14	***Kep***	87%
15	***Kg Som***	80%
16	***Koh Kong***	51%
17	***Prey Veng***	93%
18	***Kg Chhnang***	96%
19	***Kratie***	91%
20	***Kg Cham***	89%
21	***Stung Treng***	95%
22	***Preah Vihear***	92%
23	***Modulkiri***	67%
24	***Rattanakiri***	74%
Total		**90%**

ANTI-TUBERCULOSIS ACTIVITIES BY PROVINCES, 2007 (NTP)

Table 3

PROVINCES	CASES FINDING ACTIVITIES									BK+(%)	(%)	(%)	(%)	DETECTION RATE				
	NC									New				New S(+)	S(+)	Smear(-)	EP/	TOTAL
	BK+	Relap	Fail	RAD	ReTt	BK-	EP	OTER	Total		ReTt	BK-	EP	100,000 habitants				
KANDAL, 8 (OD)	1,812	59	6	1	66	597	811	32	3,318	55%	2%	18%	24%	140	144	46	62	255
SVAY RIENG, 3 (OD)	1,113	44	0	1	45	639	483	200	2,480	45%	2%	26%	19%	206	214	118	90	460
PHNOM PENH 4 OD	1,148	73	36	4	113	866	1,211	100	3,438	33%	3%	25%	35%	82	87	62	87	246
PURSAT, 2 (OD)	726	28	1	0	29	277	386	38	1,456	50%	2%	19%	27%	165	171	63	88	330
BATTAMBANG, 5 (OD)	1,042	28	11	3	42	336	531	15	1,966	53%	2%	17%	27%	112	115	36	57	212
PAILIN, 1 (OD)	56	1	0	1	2	18	56	3	135	41%	1%	13%	41%	75	76	24	75	180
BANTEAY MEANC. 4 (OD)	977	25	5	2	32	481	284	56	1,830	53%	2%	26%	16%	148	152	73	43	277
SIEM REAP, 4 (OD)	1,347	37	0	0	37	933	803	67	3,187	42%	1%	29%	25%	149	153	103	89	353
ODORMEANCHEY,1 (OD)	305	3	0	0	3	37	34	1	380	80%	1%	10%	9%	207	209	25	23	257
KOMPONG THOM, 3 (OD)	1,208	28	1	1	30	100	167	15	1,520	79%	2%	7%	11%	188	193	16	26	237
TAKEO, 5 (OD)	1,274	39	5	1	45	662	588	78	2,647	48%	2%	25%	22%	140	144	73	65	291
KOMPONG SPEU, 3 (OD)	1,322	39	1	0	40	169	318	7	1,856	71%	2%	9%	17%	173	178	22	42	243
KAMPOT, 4 (OD)	872	20	1	0	21	167	304	26	1,390	63%	2%	12%	22%	141	144	27	49	225
KEP, 1 (OD)	47	0	0	0	0	22	19	0	88	53%	0%	25%	22%	137	137	64	55	257
KOMPONG SOM, 1 (OD)	198	11	1	0	12	85	157	16	468	42%	3%	18%	34%	117	124	50	93	277
KOH KONG, 2 (OD)	127	6	2	3	11	37	32	8	215	59%	5%	17%	15%	97	102	28	24	164
PREY VENG, 7 (OD)	2,190	88	1	1	90	510	888	31	3,709	59%	2%	14%	24%	206	214	48	83	349
KOMPONG CHHNANG, 3 (OD)	814	29	0	0	29	145	196	5	1,189	68%	2%	12%	16%	151	157	27	36	221
KRATIE, 2 (OD)	305	12	0	0	12	77	147	4	545	56%	2%	14%	27%	87	90	22	42	155
KOMPONG CHAM, 10 (OD)	2,160	69	2	2	73	844	880	88	4,045	53%	2%	21%	22%	113	116	44	46	211
STUNG TRENG, 1 (OD)	136	1	0	0	1	16	35	0	188	72%	1%	9%	19%	124	125	15	32	171
PREAH VIHEAR, 1 (OD)	167	8	0	0	8	80	49	4	308	54%	3%	26%	16%	112	117	53	33	206
MODULKIRI,1 (OD)	24	0	0	0	0	11	9	3	47	51%	0%	23%	19%	51	51	23	19	100
RATANAKIRI, 1 (OD)	51	0	2	0	2	11	24	2	90	57%	2%	12%	27%	40	40	9	19	70
24 PROVINCES	19,421	648	75	20	743	7,120	8,412	799	36,495	53%	2%	20%	23%	148	154	53	60	273

Table 4

ANTI-TUBERCULOSIS ACTIVITIES BY PROVINCES, 2007 (NTP)

PROVINCES	NEW CASE ACTIVITIES OF BK+ BY AGE																
	0-14Y		15-24Y		25-34Y		35-44Y		45-54Y		55-64Y		>=65Y		TOTAL		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
KANDAL, 8 (OD)	3	6	88	66	125	124	153	153	176	175	162	189	204	188	911	901	1,812
SVAY RIENG, 3 (OD)	3	1	39	38	77	82	115	118	106	162	88	130	85	69	513	600	1,113
NATIONAL HOSPITAL	2	2	40	32	76	38	92	37	54	24	37	21	28	16	329	170	499
PHNOM PENH, 4 (OD)	1	0	59	43	90	63	94	38	77	45	52	29	36	22	409	240	649
PURSAT, 2 (OD)	1	5	29	22	44	49	81	70	84	86	79	74	52	50	370	356	726
BATTAMBANG, 5 (OD)	4	2	39	27	98	72	165	78	137	85	85	74	106	70	634	408	1,042
PAILIN, 1(OD)	1	0	2	4	7	4	6	4	9	7	5	2	1	4	31	25	56
BANTEAY MEANCHEY. 4 (OD)	0	2	44	39	76	60	124	84	126	103	124	75	71	49	565	412	977
SIEM REAP, 4 (OD)	1	3	61	45	108	85	170	142	164	159	145	119	70	75	719	628	1,347
ODORMEANCHEY 1 (OD)	1	0	17	14	19	19	39	43	51	43	14	21	13	11	154	151	305
KOMPONG THOM, 3 (OD)	3	7	64	57	113	117	126	129	124	114	101	103	90	60	621	587	1,208
TAKEO, 5 (OD)	2	1	43	33	77	84	135	107	132	128	113	146	120	153	622	652	1,274
KOMPONG SPEU, 3 (OD)	0	1	63	68	94	89	148	96	139	143	118	146	99	118	661	661	1,322
KAMPOT, 4 (OD)	1	1	41	26	60	56	105	71	91	85	82	57	109	87	489	383	872
KEP, 1 (OD)	0	1	3	3	3	2	7	2	6	6	4	2	5	3	28	19	47
KOMPONG SOM, 1 (OD)	0	0	15	10	19	20	26	10	20	15	22	14	11	16	113	85	198
KOH KONG, 2 (OD)	0	0	9	4	12	11	19	9	19	12	11	6	8	7	78	49	127
PREY VENG, 7 (OD)	8	16	64	87	145	148	217	211	213	309	171	260	169	172	987	1203	2,190
KOMPONG CHHNANG, 3 (OD)	4	2	27	29	46	47	70	64	91	107	77	84	92	74	407	407	814
KRATIE, 2 (OD)	1	0	7	8	24	11	34	28	41	29	31	24	36	31	174	131	305
KOMPONG CHAM, 10 (OD)	14	9	114	86	184	148	228	169	206	223	185	222	203	169	1134	1026	2,160
STUNG TRENG, 1 (OD)	0	0	4	1	7	8	13	11	17	17	18	19	14	7	73	63	136
PREAH VIHEAR, 1 (OD)	0	3	10	3	13	9	16	16	12	23	24	16	16	6	91	76	167
MODULKIRI,1(OD)	0	0	0	2	4	1	0	5	2	0	4	3	3	0	13	11	24
RATANAKIRI, 1 (OD)	0	2	1	2	5	4	7	3	5	5	9	3	3	2	30	21	51
24 PROVINCES	50	64	883	749	1,526	1,351	2,190	1,698	2,102	2,105	1,761	1,839	1,644	1,459	10,156	9,265	19,421

Table 5

TB Cases Notified by Operational District in 2007

Operational District (OD)	AFB pos					AFB neg	EP	OTHER	
of Province	**New**	**Re**	**Fail.**	**RAD**	**ReTt**				**TOTAL**
KANDAL :									
TAKMOV (OD)	253	29	0	0	29	322	266	19	889
SAANG(OD)	294	8	0	0	8	11	75	2	390
KOH THOM(OD)	195	2	1	0	3	134	18	6	356
KIEN SVAY(OD)	400	10	0	0	10	48	217	3	678
KHSACH KANDAL(OD)	123	1	2	0	3	20	108	0	254
MOUK KAMPOL(OD)	89	3	2	1	6	32	43	0	170
PONHEA LEU(OD)	135	3	0	0	3	22	37	0	197
ANG SNOUL(OD)	323	3	1	0	4	8	47	2	384
subtotal	**1,812**	**59**	**6**	**1**	**66**	**597**	**811**	**32**	**3,318**
SVAY RIENG									
SVAY RIENG (OD)	659	30	0	0	30	363	298	117	1,467
ROMEAS HEK(OD)	223	7	0	1	8	105	48	34	418
CHIPOU (OD)	231	7	0	0	7	171	137	49	595
subtotal	**1,113**	**44**	**0**	**1**	**45**	**639**	**483**	**200**	**2,480**
NATIONAL HOSPITAL									
CENAT	294	35	30	1	66	170	303	49	882
IOM	28	0	0	0	0	3	0	0	31
MDM	22	1	2	0	3	28	25	0	78
PREAS KOSMAK	4	0	0	0	0	15	16	0	35
ANGKOR HOSPITAL FOR CHILDREN	3	0	0	0	0	10	46	19	78
HOPE HOSPITAL	44	7	1	1	9	31	94	16	194
NORODOM SIAHNOUK	78	3	0	2	5	60	121	3	267
PREAH KET MELEAH	25	0	0	0	0	49	119	0	193
NATIONAL PEDIATRIQUE	1	0	0	0	0	70	69	0	140
subtotal	**499**	**46**	**33**	**4**	**83**	**436**	**793**	**87**	**1,898**
PHNOM PENH									
CENTER (OD)	56	3	0	0	3	60	72	0	191
NORTH(OD)	161	9	3	0	12	116	102	4	395
SOUTH(OD)	165	9	0	0	9	180	149	9	512
WEST(OD)	267	6	0	0	6	74	95	0	442
subtotal	**649**	**27**	**3**	**0**	**30**	**430**	**418**	**13**	**1,540**
PURSAT									
SAMPOVMEAS (OD)	501	24	1	0	25	179	273	25	1,003
BAKAN (OD)	225	4	0	0	4	98	113	13	453
subtotal	**726**	**28**	**1**	**0**	**29**	**277**	**386**	**38**	**1,456**
BATTAMBANG									
BATTAMBANG (OD)	357	8	8	0	16	109	260	1	743
THMAR KOUL (OD)	189	3	2	3	8	61	78	3	339
MAUNG RUSSEY (OD)	205	7	1	0	8	103	139	7	462
SAMPOEV LONE (OD)	138	4	0	0	4	26	14	1	183
SANG KE (OD)	153	6	0	0	6	37	40	3	239
subtotal	**1,042**	**28**	**11**	**3**	**42**	**336**	**531**	**15**	**1,966**
PAILIN CITY									
PAILIN (OD)	**56**	**1**	**0**	**1**	**2**	**18**	**56**	**3**	**135**

Table 5 (continued)

TB Cases Notified by Operational District in 2007

Operational District (OD) of Province	AFB pos New	Re	Fail.	RAD	ReTt	AFB neg	EP	OTHER	TOTAL
BANTEAY MEANCHEY									
MONGKOL BOREI (OD)	267	9	2	0	11	225	158	35	696
PREANEATPREAS (OD)	233	7	2	1	10	144	41	19	447
OCHROV (OD)	280	8	1	1	10	70	46	2	408
TMORPOUK(OD)	197	1	0	0	1	42	39	0	279
subtotal	**977**	**25**	**5**	**2**	**32**	**481**	**284**	**56**	**1,830**
SIEM REAP									
SIEM REAP (OD)	438	7	0	0	7	271	345	28	1,089
SOTNIKUM(OD)	389	16	0	0	16	62	140	16	623
ANGKOR CHUM	307	7	0	0	7	179	142	8	643
KRALANH (OD)	213	7	0	0	7	421	176	15	832
subtotal	**1,347**	**37**	**0**	**0**	**37**	**933**	**803**	**67**	**3,187**
ODOR MEANCHEY									
SAMRONG (OD)	**305**	**3**	**0**	**0**	**3**	**37**	**34**	**1**	**380**
KOMPONG THOM									
KG THOM (OD)	474	10	0	1	11	67	98	11	661
BARAY (OD)	515	11	1	0	12	19	35	1	582
STUNG(OD)	219	7	0	0	7	14	34	3	277
subtotal	**1,208**	**28**	**1**	**1**	**30**	**100**	**167**	**15**	**1,520**
TAKEO									
DAUNKEOV (OD)	396	14	2	0	16	145	258	0	815
BATI (OD)	220	7	1	0	8	79	103	24	434
PREY KABAS (OD)	303	13	0	0	13	264	65	49	694
ANGROKA (OD)	111	3	0	0	3	136	89	2	341
KIRIVONG (OD)	244	2	2	1	5	38	73	3	363
subtotal	**1,274**	**39**	**5**	**1**	**45**	**662**	**588**	**78**	**2,647**
KOMPONG SPEU									
KOMPONG SPEU (OD)	703	24	1	0	25	40	147	0	915
KARNG PISEY(OD)	423	15	0	0	15	84	98	7	627
OUDONG(OD)	196	0	0	0	0	45	73	0	314
subtotal	**1,322**	**39**	**1**	**0**	**40**	**169**	**318**	**7**	**1,856**
KAMPOT									
KAMPOT (OD)	210	2	1	0	3	36	82	0	331
ANGKOR CHEY(OD)	237	4	0	0	4	34	41	1	317
KOMPONG TRACH(OD)	208	6	0	0	6	14	56	4	288
CHHOUK(OD)	217	8	0	0	8	83	125	21	454
subtotal	**872**	**20**	**1**	**0**	**21**	**167**	**304**	**26**	**1,390**
KEP									
KRONG KEP (OD)	**47**	**0**	**0**	**0**	**0**	**22**	**19**	**0**	**88**
KOMPONG SOM									
PREASIHANOUK(OD)	**198**	**11**	**1**	**0**	**12**	**85**	**157**	**16**	**468**

Table 5 (continued)

TB Cases Notified by Operational District in 2007

Operational District (OD)	AFB pos					AFB neg	EP	OTHER	
of Province	**New**	**Re**	**Fail.**	**RAD**	**ReTt**				**TOTAL**
KOH KONG									
SMUCH MEANCHEY(OD)	65	5	2	0	7	24	14	3	113
SRE AMBIL(OD)	62	1	0	3	4	13	18	5	102
subtotal	**127**	**6**	**2**	**3**	**11**	**37**	**32**	**8**	**215**
PREY VENG									
PREY VENG (OD)	511	41	0	0	41	88	249	0	889
KAMCHEY MEAR(OD)	265	1	0	0	1	30	160	0	456
PEARING(OD)	392	8	0	1	9	70	128	0	599
KG TRABECK(OD)	225	0	0	0	0	38	30	6	299
MESANG(OD)	246	9	1	0	10	76	124	2	458
PREAH SDACH(OD)	220	12	0	0	12	12	78	4	326
NEAK LOEUNG (OD)	331	17	0	0	17	196	119	19	682
subtotal	**2,190**	**88**	**1**	**1**	**90**	**510**	**888**	**31**	**3,709**
KOMPONG CHHNANG									
KG. CHHNANG (OD)	332	23	0	0	23	36	100	4	495
KG TRALACH (OD)	232	3	0	0	3	29	62	0	326
Bar Bo (OD)	250	3	0	0	3	80	34	1	368
subtotal	**814**	**29**	**0**	**0**	**29**	**145**	**196**	**5**	**1,189**
KRATIE									
KRATIE (OD)	200	7	0	0	7	64	135	4	410
CHHLAUNG(OD)	105	5	0	0	5	13	12	0	135
subtotal	**305**	**12**	**0**	**0**	**12**	**77**	**147**	**4**	**545**
KOMPONG CHAM									
KG CHAM (OD)	254	11	1	0	12	312	261	33	872
KRAUCH CHMAR (OD)	137	1	0	0	1	63	29	2	232
TBONG KHMUM(OD)	146	1	0	0	1	48	55	0	250
CHOEUNG PREY(OD)	375	36	0	0	36	207	200	27	845
SREY SANTHOR(OD)	190	4	1	0	5	42	30	8	275
CHAMCAR LEU(OD)	501	4	0	0	4	22	112	0	639
PREY CHHOR (OD)	175	1	0	0	1	38	42	2	258
PONHEA KREK(OD)	187	8	0	2	10	68	85	14	364
ORAING OV(OD)	111	3	0	0	3	27	30	0	171
MEMOT(OD)	84	0	0	0	0	17	36	2	139
subtotal	**2,160**	**69**	**2**	**2**	**73**	**844**	**880**	**88**	**4,045**
STUNG TRENG									
STUNG TRENG (OD)	**136**	**1**	**0**	**0**	**1**	**16**	**35**	**0**	**188**
PREAH VIHEAR									
TBENG MEAN CHEY(OD)	**167**	**8**	**0**	**0**	**8**	**80**	**49**	**4**	**308**
MONDOLKIRI									
SEN MONORUM(OD)	**24**	**0**	**0**	**0**	**0**	**11**	**9**	**3**	**47**
RATTANAKIRI									
BANLUNG (OD)	**51**	**0**	**2**	**0**	**2**	**11**	**24**	**2**	**90**
TOTAL	**19,421**	**648**	**75**	**20**	**743**	**7,120**	**8,412**	**799**	**36,495**

Table 6

Treatment Outcomes of New Smear Positive TB Cases by Operational District in 2007

Operational District (OD) of Province	patients	Cure	%	Complete	%	Death	%	Failure	%	default	%	Trans	%
KANDAL :													
TAKMOV (OD)	304	286	94%	8	3%	7	2%	1	0%	1	0%	1	0%
SAANG(OD)	308	304	99%	0	0%	2	1%	0	0%	2	1%	0	0%
KOH THOM(OD)	211	196	93%	0	0%	6	3%	4	2%	0	0%	5	2%
KIEN SVAY(OD)	363	269	74%	34	9%	23	6%	1	0%	33	9%	3	1%
KHSACH KANDAL(OD)	158	140	89%	6	4%	6	4%	2	1%	4	3%	0	0%
MOUK KAMPOL(OD)	81	74	91%	0	0%	4	5%	1	1%	1	1%	1	1%
PONHEA LEU(OD)	144	128	89%	4	3%	7	5%	0	0%	3	2%	2	1%
ANG SNOUL(OD)	260	248	95%	2	1%	8	3%	1	0%	0	0%	1	0%
subtotal	**1,829**	**1,645**	**90%**	**54**	**3%**	**63**	**3%**	**10**	**1%**	**44**	**2%**	**13**	**1%**
SVAY RIENG													
SVAY RIENG (OD)	780	738	95%	7	1%	20	3%	3	0%	4	1%	8	1%
ROMEAS HEK(OD)	221	204	92%	7	3%	7	3%	0	0%	1	0%	2	1%
CHIPOU (OD)	279	270	97%	0	0%	5	2%	0	0%	1	0%	3	1%
subtotal	**1,280**	**1,212**	**95%**	**14**	**1%**	**32**	**3%**	**3**	**0%**	**6**	**0%**	**13**	**1%**
NATIONAL HOSPITAL													
CENAT	324	240	74%	3	1%	15	5%	4	1%	14	4%	48	15%
HOPE HOSPITAL	26	21	81%	0	0%	2	8%	2	8%	1	4%	0	0%
NORODOM SIAHNOUK	66	45	68%	4	6%	4	6%	0	0%	5	8%	8	12%
PREAH KET MELEAH	23	22	96%	0	0%	1	4%	0	0%	0	0%	0	0%
NATIONAL PEDIATRIQUE	4	0	0%	3	75%	1	25%	0	0%	0	0%	0	0%
subtotal	**443**	**328**	**74%**	**10**	**2%**	**23**	**5%**	**6**	**1%**	**20**	**5%**	**56**	**13%**
PHNOM PENH													
CENTER (OD)	99	89	90%	5	5%	0	0%	1	1%	3	3%	1	1%
NORTH(OD)	176	166	94%	0	0%	0	0%	4	2%	4	2%	2	1%
SOUTH(OD)	169	158	93%	1	1%	4	2%	1	1%	1	1%	4	2%
WEST(OD)	154	138	90%	7	5%	2	1%	0	0%	2	1%	5	3%
subtotal	**598**	**551**	**92%**	**13**	**2%**	**6**	**1%**	**6**	**1%**	**10**	**2%**	**12**	**2%**
PURSAT													
SAMPOVMEAS (OD)	521	472	91%	21	4%	25	5%	0	0%	2	0%	1	0%
BAKAN (OD)	228	221	97%	1	0%	2	1%	0	0%	3	1%	1	0%
subtotal	**749**	**693**	**93%**	**22**	**3%**	**27**	**4%**	**0**	**0%**	**5**	**1%**	**2**	**0%**
BATTAMBANG													
BATTAMBANG (OD)	387	323	83%	12	3%	14	4%	5	1%	19	5%	14	4%
THMAR KOUL (OD)	207	184	89%	1	0%	7	3%	3	1%	6	3%	6	3%
MAUNG RUSSEY (OD)	200	179	90%	0	0%	16	8%	2	1%	1	1%	2	1%
SANG KE (OD)	171	160	94%	3	2%	8	5%	0	0%	0	0%	0	0%
SAMPOVLOUN (OD)	154	131	85%	0	0%	11	7%	1	1%	5	3%	6	4%
subtotal	**1,119**	**977**	**87%**	**16**	**1%**	**56**	**5%**	**11**	**1%**	**31**	**3%**	**28**	**3%**
PAILIN CITY													
PAILIN (OD)	**48**	**31**	**65%**	**9**	**19%**	**1**	**2%**	**0**	**0%**	**7**	**15%**	**0**	**0%**

Table 6 (continued)

Treatment Outcomes of New Smear Positive TB Cases by Operational District in 2007

Operational District (OD) of Province	patients	Cure	%	Complete	%	Death	%	Failure	%	default	%	Trans	%
BANTEAY MEANCHEY													
MONGKOL BOREI (OD)	303	285	94%	1	0%	12	4%	1	0%	2	1%	2	1%
PREANEATPREAS (OD)	215	205	95%	3	1%	4	2%	1	0%	1	0%	1	0%
OCHROV (OD)	255	223	87%	7	3%	13	5%	0	0%	10	4%	2	1%
TMORPOUK(OD)	186	160	86%	23	12%	2	1%	0	0%	0	0%	1	1%
subtotal	**959**	**873**	**91%**	**34**	**4%**	**31**	**3%**	**2**	**0%**	**13**	**1%**	**6**	**1%**
SIEM REAP													
SIEM REAP (OD)	403	366	91%	0	0%	11	3%	1	0%	7	2%	18	4%
ANGKOR CHUM	306	266	87%	25	8%	8	3%	0	0%	5	2%	2	1%
SOTNIKUM(OD)	353	318	90%	16	5%	12	3%	0	0%	4	1%	3	1%
KRALANH (OD)	312	283	91%	6	2%	13	4%	0	0%	4	1%	6	2%
subtotal	**1,374**	**1,233**	**90%**	**47**	**3%**	**44**	**3%**	**1**	**0%**	**20**	**1%**	**29**	**2%**
ODOR MEANCHEY													
SAMRONG (OD)	**254**	**225**	**89%**	**16**	**6%**	**7**	**3%**	**2**	**1%**	**2**	**1%**	**2**	**1%**
KOMPONG THOM													
KG THOM (OD)	478	453	95%	0	0%	10	2%	0	0%	7	1%	8	2%
BARAY (OD)	495	461	93%	6	1%	21	4%	1	0%	2	0%	4	1%
STUNG(OD)	236	208	88%	14	6%	7	3%	0	0%	2	1%	5	2%
subtotal	**1,209**	**1,122**	**93%**	**20**	**2%**	**38**	**3%**	**1**	**0%**	**11**	**1%**	**17**	**1%**
TAKEO													
DAUNKEOV (OD)	415	374	90%	6	1%	17	4%	2	0%	4	1%	12	3%
BATI (OD)	243	203	84%	31	13%	5	2%	1	0%	2	1%	1	0%
PREY KABAS (OD)	294	291	99%	0	0%	3	1%	0	0%	0	0%	0	0%
ANGROKA (OD)	165	160	97%	2	1%	3	2%	0	0%	0	0%	0	0%
KIRIVONG (OD)	244	218	89%	5	2%	10	4%	1	0%	6	2%	4	2%
subtotal	**1,361**	**1,246**	**92%**	**44**	**3%**	**38**	**3%**	**4**	**0%**	**12**	**1%**	**17**	**1%**
KOMPONG SPEU													
KOMPONG SPEU (OD)	609	524	86%	48	8%	14	2%	1	0%	6	1%	16	3%
KARNG PISEY(OD)	383	354	92%	12	3%	12	3%	0	0%	3	1%	2	1%
OUDONG(OD)	223	198	89%	15	7%	4	2%	1	0%	3	1%	2	1%
subtotal	**1,215**	**1,076**	**89%**	**75**	**6%**	**30**	**2%**	**2**	**0%**	**12**	**1%**	**20**	**2%**
KAMPOT													
KAMPOT (OD)	227	215	1	0	0	8	0	2	0	0	0	2	0
ANGKOR CHEY(OD)	192	176	92%	0	0%	3	2%	0	0%	6	3%	7	4%
KOMPONG TRACH(OD)	265	252	95%	0	0%	11	4%	0	0%	1	0%	1	0%
CHHOUK(OD)	232	223	96%	0	0%	3	1%	1	0%	5	2%	0	0%
subtotal	**916**	**866**	**95%**	**0**	**0%**	**25**	**3%**	**3**	**0%**	**12**	**1%**	**10**	**1%**
KEP													
KRONG KEP (OD)	**31**	**27**	**87%**	**3**	**10%**	**1**	**3%**	**0**	**0%**	**0**	**0%**	**0**	**0%**
KOMPONG SOM													
PREASIHANOUK(OD)	**195**	**156**	**80%**	**12**	**6%**	**10**	**5%**	**1**	**1%**	**5**	**3%**	**11**	**6%**

Table 6 (continued)

Treatment Outcomes of New Smear Positive TB Cases by Operational District in 2007

Operational District (OD) of Province	patients	Cure	%	Complete	%	Death	%	Failure	%	default	%	Trans	%
KOH KONG													
SMUCH MEANCHEY(OD)	97	42	43%	31	32%	12	12%	2	2%	7	7%	3	3%
SRE AMBIL(OD)	45	30	67%	9	20%	1	2%	0	0%	4	9%	1	2%
subtotal	**142**	**72**	**51%**	**40**	**28%**	**13**	**9%**	**2**	**1%**	**11**	**8%**	**4**	**3%**
PREY VENG													
PREY VENG (OD)	564	536	95%	2	0%	16	3%	0	0%	8	1%	2	0%
KAMCHEY MEAR(OD)	231	223	97%	2	1%	4	2%	1	0%	1	0%	0	0%
PEARING(OD)	356	335	94%	0	0%	10	3%	0	0%	5	1%	6	2%
KG TRABECK(OD)	231	220	95%	0	0%	6	3%	0	0%	3	1%	2	1%
MESANG(OD)	230	211	92%	5	2%	7	3%	0	0%	1	0%	6	3%
PREAH SDACH(OD)	218	203	93%	6	3%	6	3%	0	0%	2	1%	1	0%
NEAK LOEUNG (OD)	282	246	87%	28	10%	1	0%	0	0%	2	1%	5	2%
subtotal	**2,112**	**1,974**	**93%**	**43**	**2%**	**50**	**2%**	**1**	**0%**	**22**	**1%**	**22**	**1%**
KOMPONG CHHNANG													
KG. CHHNANG (OD)	303	282	93%	4	1%	11	4%	0	0%	3	1%	3	1%
BARBO (OD)	162	160	99%	0	0%	1	1%	0	0%	0	0%	1	1%
KG TRALACH (OD)	248	240	97%	0	0%	4	2%	0	0%	2	1%	2	1%
subtotal	**713**	**682**	**96%**	**4**	**0**	**16**	**0**	**0**	**0**	**5**	**0**	**6**	**0**
KRATIE													
KRATIE (OD)	176	162	92%	7	4%	5	3%	0	0%	2	1%	0	0%
CHHLAUNG(OD)	89	78	88%	5	6%	3	3%	0	0%	3	3%	0	0%
subtotal	**265**	**240**	**91%**	**12**	**5%**	**8**	**3%**	**0**	**0%**	**5**	**2%**	**0**	**0%**
KOMPONG CHAM													
KG CHAM (OD)	289	229	79%	29	10%	9	3%	0	0%	12	4%	10	3%
KRAUCH CHMAR (OD)	131	125	95%	1	1%	4	3%	0	0%	0	0%	1	1%
TBONG KHMUM(OD)	189	139	74%	24	13%	5	3%	1	1%	10	5%	10	5%
CHOEUNG PREY(OD)	365	344	94%	5	1%	8	2%	0	0%	8	2%	0	0%
SREY SANTHOR(OD)	192	167	87%	4	2%	11	6%	2	1%	8	4%	0	0%
CHAMCAR LEU(OD)	396	389	98%	1	0%	2	1%	0	0%	2	1%	2	1%
PREY CHHOR (OD)	163	156	96%	0	0%	5	3%	0	0%	0	0%	2	1%
PONHEA KREK(OD)	182	149	82%	10	5%	7	4%	0	0%	8	4%	8	4%
ORAING OV(OD)	106	100	94%	4	4%	0	0%	0	0%	1	1%	1	1%
MEMOT(OD)	99	79	84%	8	0%	1	5%	1	1%	3	4%	7	6%
subtotal	**2,112**	**1,877**	**89%**	**86**	**4%**	**52**	**2%**	**4**	**0%**	**52**	**2%**	**41**	**2%**
STUNG TRENG													
STUNG TRENG (OD)	**135**	**128**	**95%**	**0**	**0%**	**4**	**3%**	**0**	**0%**	**3**	**2%**	**0**	**0%**
PREAH VIHEAR													
TBENG MEAN CHEY(OD)	**197**	**182**	**92%**	**6**	**3%**	**7**	**4%**	**0**	**0%**	**0**	**0%**	**2**	**1%**
MONDOLKIRI													
SEN MONORUM(OD)	**21**	**14**	**67%**	**3**	**14%**	**0**	**0%**	**0**	**0%**	**4**	**19%**	**0**	**0%**
RATTANAKIRI													
BANLUNG (OD)	**72**	**53**	**74%**	**12**	**17%**	**2**	**3%**	**0**	**0%**	**2**	**3%**	**3**	**4%**
TOTAL	**19,349**	**17,483**	**90%**	**595**	**3%**	**584**	**3%**	**59**	**0%**	**314**	**2%**	**314**	**2%**

Table 7. Number of TB Cases Registered under NTP from 1982 to 2007

Year	Smear (+)			Smear (-)	Extra PTB	Total
	New	Relapse	Sub-total			
1982			5,579	2,663	233	8,475
1983			5,316	1,823	833	7,972
1984			5,507	316	2,007	7,830
1985			5,235	3,891	1,019	10,145
1986			8,715	1,295	271	10,281
1987			7,173	1,406	1,027	9,606
1988			8,246	1,714	731	10,691
1989			6,740	2,251	965	9,956
1990			5,132	163	672	5,967
1991			8,507	990	1,406	10,903
1992			12,685	2,491	972	16,148
1993	9,560	200	9,760	2,417	912	13,089
1994	11,058	540	11,598	2,195	1,319	15,112
1995	11,150	605	11,755	1,575	1,501	14,831
1996	12,065	607	12,672	708	1,477	14,857
1997	12,686	634	13,320	721	1,588	15,629
1998	13,865	705	14,570	705	1,671	16,946
1999	15,744	792	16,536	725	2,005	19,266
2000	14,826	814	15,640	1,108	2,144	18,892
2001	14,361	721	15,082	1,658	2,430	19,170
2002	17,258	789	18,047	2,852	3,711	24,610
2003	18,923	754	19,677	4,307	4,232	28,216
2004	18,978	645	19,623	5,800	5,415	30,838
2005	21,001	718	21,719	7,057	6,759	35,535
2006	19,294	691	19,985	6,875	7,800	34,660
2007	19,421	648	20,069	7,120	8,412	35,601

XVII. Acknowledgement

Impressive achievements obtained by the National TB Program, regarding especially maintaining the high cure rate of tuberculosis of more than 85 %, and 100 % DOTS coverage as planned, even though the case detection rate of 65.4% in 2007, have been associated with the support from the Royal Government of Cambodia as well as the Ministry of Health who have given high priority to TB Control. These achievements have also related to active participation of all health workers throughout the country together with the support and collaboration from various other partners including local authorities, community and financial and technical partners encompassing International and Non Governmental Organizations.

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