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**Private Sector in the Revised National  
Tuberculosis Control Programme: A Study of  
the Implementation of Private-Public  
Partnership Strategy in Tamil Nadu and Kerala  
(India)**

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## Abstract

During the past one decade, the concept of Public-Private Partnership (PPP) has gained much prominence in healthcare sector in India. The foremost objective of such partnerships has been to improve the accessibility and quality of health care at relatively low costs. To control the spread of Tuberculosis (TB), the World Health Organisation (WHO) has promoted the strategy of Directly Observed Treatment, Short course (DOTS). The Revised National Tuberculosis Control Programme (RNTCP) which has adopted this strategy since early 1990s has designed several specific schemes for involving the private sector and Non Governmental Organisation (NGOs) across the country. Our study aims at analysing the experience of PPP in the RNTCP, with special reference to Tamil Nadu and Kerala, two southern states of India. (We use the term PPP to encompass partnerships with NGOs as well as for-profit private providers).

The objectives of the study are:

- 1) To examine the level and extent of involvement of NGOs and Private Practitioners (PP) in the implementation of RNTCP.
- 2) To identify and analyse the institutional and other factors that influence the design and implementation of schemes designed for partnerships with NGOs and PPs.
- 3) To suggest policy measures for promoting and sustaining greater participation of the NGOs and PPs in the control and treatment of TB.

The study was carried out during the period August 2003 - August 2004. The study has adopted both quantitative and qualitative methods of data collection.

Some of the major findings of our study are:

- a) The overall participation of the NGOs has been very limited in both the states. Most of these agencies, in both the states, are vested only with the responsibility of DOTS provision. However, in Kerala many PPs are involved with microscopy activities.
- b) Issues related to contractual arrangements, personnel, supervision of DOTS, financial aid, practice of “dual treatment regimes”, etc. are some among the major factors that influence the implementation of PPP schemes.

The study suggests that there is vast scope for strengthening the PPP strategy. It argues that policy measures in future should aim to (a) encourage private practitioners accept the treatment regimes prescribed by RNTCP through better information and training (b) involve to a greater extent NGOs and PPs through better incentive mechanisms and (c) improve manpower for better monitoring and supervision of the NGOs/PPs involved in RNTCP.

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## ABBREVIATIONS

AFB	Acid Fast Bacilli
ARTI	Annual Risk of Tuberculosis Infection
BPHC	Block Primary Health Centre
CHC	Community Health Centre
COMBI	Communication for Behavioural Impact
CP	Continuation Phase
CV	Community Volunteer
DFID	Department for International Development (UK)
DOT/DOTS	Directly Observed Treatment/ Directly Observed Treatment, Short-course
DTC	District Tuberculosis Centre
DTO	District Tuberculosis Officer
EP	Extra Pulmonary
GH	Government Hospital
HV	Health Visitor
HW	Health Worker
IEC	Information Education Communication
IP	Intensive Phase
JHI	Junior Health Inspector
JPHN	Junior Public Health Nurse
LA	Lab Assistant
LT	Lab Technician
MC	Microscopy Centre
MO	Medical Officer
MO-TC	Medical Officer-Tuberculosis Control
MPW	Multi Purpose Worker
NGO	Non-Governmental Organisation
NA	Not Applicable
NK	Not Known
NSP	New Sputum Positive
NTI	National Tuberculosis Institute
NWTWS	Nilgiris Wynaad Tribal Welfare Society
PHC	Primary Health Center

PP	Private Practitioner
PPP	Private-Public Partnership
RNTCP	Revised National Tuberculosis Control Programme
SHG	Self Help Groups
STC	State TB Cell
STLS	Senior Treatment Laboratory Supervisor
STO	State Tuberculosis Officer
STS	Senior Treatment Supervisor
TB	Tuberculosis
TN	Tamil Nadu
TO	Treatment Organiser
TRC	Tuberculosis Research Centre
TU	Tuberculosis Unit
VHN	Voluntary Health Nurse
WB	World Bank
WHO	World Health Organisation



# 1 Introduction

*“Shared values facilitate the achievement of shared goals. Working together in partnership is both a challenge and an opportunity. The challenge is to work co-operatively towards a common goal, without renouncing our independence and individual mandates and priorities. The opportunity we gain is to learn from one another, and evolve accordingly. Our commitment is to act now - for all, through collective action - and into the future”- quote from first Stop TB Partners’ Forum, Washington DC.*

“Around eighty three percent of the global burden of TB is concentrated in the African, South-East Asian and Western Pacific regions of the globe”<sup>(1)</sup>. This statement is augmented by the fact that 8.8 million people in the world are newly infected by TB every year. Strikingly, around *one-third* of the affected population is in India and around 40% of the adult population is infected with the disease<sup>(2)</sup>. It is estimated that the Annual Risk of Tuberculosis Infection (ARTI) for India overall is 1.5%, i.e. an annual incidence of 75 new smear positive cases per lakh population are expected per year<sup>(3)</sup>. It is in this context, the Government of India “envisaged” a significant role for the private sector in the treatment and control of tuberculosis in the Revised National Tuberculosis Control Programme (RNTCP).

In this context, RNTCP has designed specific “schemes” to involve Non-Governmental Organizations (NGOs) and Private Practitioners (PPs) in implementing the Directly Observed Treatment, Short-course (DOTS) strategy<sup>(4)</sup>. Moreover, there has been a policy level push from the World Bank and the WHO, to promote private sector’s involvement in the implementation of RNTCP. Efforts are now afoot in this direction, though critics mention that the quantum of funds spent on Private-Public Partnership (PPP) is not adequate for achieving the desired goals. In the light of the emerging policy thrust, this study revolves around the following three fundamental questions:

1. Why should private sector and NGOs be involved in the implementation of the RNTCP?
2. What has been the experience so far of the PPP strategy in implementing RNTCP? [To put it differently, how well have the various schemes (under PPP strategy) been implemented? What are the positive developments, challenges and constraints faced so far in implementing the PPP strategy?]; and
3. What policy changes are required to strengthen the PPP as a strategy in implementing RNTCP?

These questions have evoked much debate and policy responses in the recent past<sup>(5)</sup>.

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<sup>1</sup> <http://www.int/mediacentre/factsheets/>

<sup>2</sup> WHO, 2004. Joint Tuberculosis Programme Review: September 2003, New Delhi.

<sup>3</sup> Ibid.

<sup>4</sup> Ogden et al., 2003.

<sup>5</sup> WHO, 2001.

The recent studies on this subject highlight many of the challenges being faced in promoting the participation of non-state providers need for sustained efforts at various levels towards “making PPP a reality” under RNTCP<sup>(6)</sup>. The literature on PPP in TB control should be seen as part of the larger debate on the role of the private sector in healthcare market in India. Ideally, one may expect the PPP experience in TB to provide a basis for shaping PPP strategy in other required areas of health.

A number of policy outcomes are expected from this study. Through a systematic analysis of the role of private sector and NGOs in TB control programme, this study will

- Throw light on specific factors that influence the design and implementation of PPP strategy under the RNTCP;
- Help identify the level and extent of involvement of NGOs and PPs under the RNTCP;
- Identify institutional and other factors that limit the impact of NGOs and PPs; and
- Identify policy measures to promote and sustain greater participation of the NGOs and PPs in the control and treatment of TB.

To put it differently, this study attempts to capture the experience of PPP strategy in order to have an early assessment of the challenges that lie ahead, and make some policy suggestions to effectively overcome such challenges and thereby bring about greater control over the disease in the near future.

The report is structured along the three fundamental questions posed above. The second chapter presents the rationale for PPP strategy and the forms and features of PPP strategy. The third chapter describes the research methodology of this study. The fourth chapter presents our findings from field surveys (in Tamil Nadu and Kerala) on the nature of challenges being faced in the implementation of PPP strategy. The fifth chapter concludes with a number of policy measures, for enhancing the overall impact of PPP strategy in the treatment and control of TB.

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<sup>6</sup>World Bank, 2003.

## 2 PPP in RNTCP: Rationale and Forms of Participation

Before we present our analysis of the experience of the PPP strategy in RNTCP, it is necessary to understand (a) the arguments often put forth from various quarters on the need to involve non-state sector (which comprises independent private practitioners, for-profit institutions and non-profit institutions, including NGOs), and (b) the features of the various PPP schemes being implemented by the government as part of this strategy.

This chapter is organized as follows: Section 2.1 presents the various arguments for involving the “non-state sector”<sup>(7)</sup>. Section 2.2 summarizes the features of various partnership schemes being implemented in various parts of the country.

### 2.1 Rationale for PPP

Various arguments have been put forward for involving the non-state sector in RNTCP. During our field study, we held in-depth discussions with several state and district officials, a number of representatives from NGOs and practitioners to elicit their views on the need for involving, the non-state sector in RNTCP. The four arguments presented below, in a sense, summarize several of their views, which set the overall policy ambience within which the PPP strategy is being implemented.

1) One is the “fundamental assumption” on which the entire edifice of RNTCP rests, namely RNTCP treatment regimes are efficacious and cost-effective compared to the daily regimes which are widely followed by private practitioners<sup>(8)</sup>. Therefore, the logical extension of this argument is that the RNTCP (intermittent) regimes would result in preventing unnecessary consumption of drugs by patients and help in reducing financial burden, in particular, on poor patients.

Therefore, the argument continues, by involving the non-state sector in RNTCP, slowly it would be possible to bring about desired changes in treatment regimes adopted by practitioners in this sector. Such changes will contribute to control of the disease in a cost-effective manner, over a period of time<sup>(9)</sup>.

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<sup>7</sup> In this report, we use both terms to mean the same set of constituents. Wherever and whenever we refer to any specific constituent such as private practitioners, we shall state so explicitly.

<sup>8</sup> The RNTCP regimes are shorter (6 months for categories I and III and 8 months for category II TB patients). Whereas, Private Practitioners usually follow a longer duration (often exceeding 6 months), prescribe different drug combinations and also administer daily dosage of drugs.

<sup>9</sup> The two distinguishing features of RNTCP (from the most prevalent practice among private providers), are the combination of drugs administered on alternate days and the Directly Observed Treatment, Short-Course (DOTS), which means direct supervision (by a volunteer or a programme staff) of patients at the time of consumption of drugs.

From the point of view of “success of PPP” as a strategy, the crucial question is, “how widely do providers accept the efficacy of RNTCP drugs regime?” It is beyond the scope of this study to assess the relative efficacy of drug regimes, but it is clearly well within the scope of this study to record the extent to which individuals within non-state sector “believes in and practices” intermittent regimes as prescribed by RNTCP. Later in this report, we shall raise this issue as a serious challenge in the implementation of RNTCP and the options available to address this issue.

2) A second reason for involving the non-state sector in RNTCP is that a vast majority of patients initially seek care from such providers before they turn to public institutions. Therefore, RNTCP should try to capitalize on ability of this sector to reach patients that who would not, or are unable to, readily access public services. For example, as the Kerala data for 2003 shows, out of 8700 new smear positive cases expected per year in the sampled districts, only 3999 cases were initiated on treatment; the rest 4701 cases were not covered under the RNTCP. In Kannur district, where special efforts supposedly have been made in the past two years to involve private providers, only 835 of the expected total of 1875 sputum positive patients are under the RNTCP. The remaining 1040 are either being treated in private sector or are not being attended to.

Similar observations can be made for the districts of TN. As such in TN State 27% of the expected smear positive TB cases are not covered under RNTCP. In the districts we visited, there were 10650 expected sputum positive new cases per year, of which, only 7252 cases were initiated on treatment. The rest 3098 cases were not covered under the RNTCP (refer Table 1 below). Thus it is argued, it is necessary to extend the coverage through PPP strategy.

**Table 1**

Expected and actual new smear positive cases initiated on treatment under RNTCP, 2003.

Districts	Population (in Lakhs)	New smear positive cases initiated on treatment (A)	Expected new smear positive cases [75/lakh] (B)	Difference between the expected and actual cases (B- A)
<b>For the sampled districts in TN</b>				
Kancheepuram	29	1614	2175	561
The Nilgiris	8	364	600	236
Cuddalore	23	1263	1725	462
Thanjavur	23	1229	1725	496
Salem	31	1529	2325	796
Tiruvallur	28	1253	2100	847
Total for the sampled districts in TN	142	7252	10650	3098
TN - State total	635	34556	47625	13069
<b>For the sampled districts in Kerala</b>				
Trivandrum	32	915	2475	1560
Kollam	26	1116	1950	834
Ernakulam	31	1133	2400	1267
Kannur	24	835	1875	1040
Total for the sampled districts in Kerala	113	3999	8700	4701
Kerala state total	324	10861	24300	13439

Source: Quarterly performance reports of respective districts.

3) There is yet another way of articulating this argument to emphasize the need for private sector involvement. The government infrastructure by itself (although well spread and vast) cannot possibly deliver care to all patients, because it would mean a substantial increase in infrastructure and personnel in public system. There is unanimity of opinion on this issue among the various officials interviewed in this study (Appendix 15 gives the list of officials interviewed in Kerala and TN). Considering the current policy framework and the tight resource constraints under which this programme is being implemented, it is posited that RNTCP should find ways and means to involve the non-state sector in order to increase the access to care, geographically.

4) Another reason for involving non-state sector runs thus: PPP will substantially help reduce the financial burden on the poor, arising due to cost of drugs in particular. This is a very compelling argument from public policy point of view. The financial implication is very large because the RNTCP drugs regime is “considered to be cost-effective”. A conservative estimate of the overall cost of drugs for a period of 6 months treatment period in private sector is about Rs.4000. Therefore, if a patient were to be treated under the RNTCP, which provides drugs free of cost, he/she would save about Rs.4000. Consider for example, the patients we covered in Kerala and TN (refer Appendix 8). In Tamil Nadu, 6 of the 47 patients said that they had spent about Rs.10,000 or more in non-state

sector before seeking care from RNTCP<sup>(10)</sup>. This is a very substantial amount considering that many of them are daily wage earners. There is, therefore, a very compelling argument to involve the non-state sector in RNTCP, as it helps to reduce the impoverishing effects of the disease on the poor.

5) Thus, runs the fifth argument, the net benefit of involving NGOs and PPs in various ways in RNTCP would be seen in the overall increase in the case detection and cure rates and better control of the disease over the years. As many district officials put it, “PPP is expected to increase the overall impact of RNTCP in a cost effective manner and with least financial burden on the poor”. Whether or not this is/was the case in reality is a matter for further empirical research.

In all these arguments, PPP strategy envisages the role of non-state sector only on the delivery side. The Government of India centrally coordinates the financing of the RNTCP throughout the country, with assistance from international donor agencies [such as the World Bank, the Department for International Development (DFID)]. As a policy, in view of the global implications of the disease, this programme is likely to remain a centrally funded programme for many more years to come. Once a patient gets enrolled under RNTCP, the government is expected to bear the entire cost of treatment (including diagnostics, drugs, follow up test, etc.)

There are also vehement arguments against involving private providers and NGOs in the execution of RNTCP. It is important to recognize this aspect, while analysing factors affecting the implementation of PPP strategy. These are discussed later in chapter 4.

## **2.2 Forms and features of partnership schemes**

Given the various arguments presented above for involving NGOs and PPs in the control of TB, it is necessary to understand the important features of “specific schemes” that have been designed and implemented for this purpose. We therefore first summarize the key elements of these government policies before presenting our findings in chapter 4 on the strengths and weaknesses of existing partnership programmes. This section therefore draws heavily from published government policy documents.

In 1993, with the declaration of TB as a global emergency by WHO, the Government of India introduced, on pilot basis in various sites of India, the strategy of “Directly Observed Treatment, Short-course” (DOTS). By 1998, the Revised National Tuberculosis Control Programme (RNTCP)

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<sup>10</sup> In Kerala state, only 18 of the patients provided this information. However, 3 out of these 18 reported to have spent Rs. 5000 or above in non-state sector before being brought under the RNTCP.

was implemented in several states in a phased manner. Pursuing this strategy, the WHO has set the global target to achieve 70% case detection of the new smear positive cases, of which 85% are to be cured/treated by the year 2005.

Given the enormous magnitude of the problem to be addressed, the limited reach of public infrastructure, the vast network of private institutions and practitioners already catering to TB patients, the impoverishing effects of TB particularly of those already living under poor conditions and the national and international commitment to control TB, the logical next step for the government was to design specific ways in which the non-state sector could effectively participate in the implementation of RNTCP in its totality.

The critical design features of partnership schemes are:

1. What components of RNTCP could be effectively implemented by these partnerships?
2. What should be the qualifications of such partners in implementing various components of RNTCP?
3. What forms of assistance to non-state providers could bring about effective implementation of RNTCP? This includes incentives both in cash and kind given to staff and community volunteers involved in the implementation of the programme; and
4. What forms of “contractual arrangements” and monitoring mechanisms should be in place, to identify their performance for effective implementation of RNTCP?

RNTCP has the following components:

- Health Education and Community Outreach
- Provision of Directly Observed Therapy
- In-Hospital Care for Tuberculosis Disease
- Diagnosis and Treatment
- Referral

Keeping the various questions and components mentioned above, the Government of India has designed five specific schemes for involving Non-Governmental Organizations and six specific schemes for involving Private Practitioners in implementing RNTCP. Collectively, we shall call them as PPP strategy<sup>(11)</sup>.

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<sup>11</sup> The reader is strongly urged to refer Appendices 1 and 2, which contain details of the various PPP schemes. Chapter 4, which critiques these schemes, assumes knowledge of these details.

Administratively, respective District TB Officer (DTO), who reports directly to the State TB Officer, (STO) oversees all schemes. Under each DTO, there are several Tuberculosis Units (TUs), each of which covers about 5 lakh population (except in hilly regions, where a TU would cover about 3 lakh population)<sup>(12)</sup>.

## 2.3 Key policy questions

From the policy makers' point of view, the most crucial question is, "are these schemes the best ways to involve NGOs and PPs in fulfilling the objectives of RNTCP?" The proof of the pudding is in the eating. Therefore, perhaps the best way to answer this question is to examine the manner in which these schemes have been implemented, in various settings. Such an examination would throw light on many critical and practical questions such as: are these schemes designed well enough to attract NGOs and PPs to be a part of the RNTCP? How do the providers in the non-state sector view and respond to the features of the various schemes under the RNTCP? Is there sufficient enthusiasm among programme officials in promoting PPP?<sup>(13)</sup> Through an analysis of the factors that have influenced the implementation of these schemes, we may be able to capture some of the inherent characteristics ("design elements") of these partnership schemes that need to be strengthened or redesigned to fulfill the overall objectives of the RNTCP.

Before we proceed, we would like to repeat a caveat already made in the introductory section. It is evident that, the various PPP schemes are at a very early stage of development and need more time to mature and to have significant impact. Hence, this study is not an evaluation of the "success or failure of PPP strategy" in RNTCP. On the contrary, it is an attempt to assess the nature and the range of challenges to be overcome in executing the current PPP strategy and suggest possible ways to strengthen this strategy.

## 3 Methodology

This chapter is organized as follows: Section 3.1 contains some general remarks on the methodology of the study. This is, followed by a description of specific methodological aspects, such as sample selection of districts, TUs, NGOs, PPs, patients and other stakeholders of the study (section 3.2). We conclude with a description of the various instruments used for the study (section 3.3).

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<sup>12</sup> Refer [www.tbcindia.org](http://www.tbcindia.org) for a detailed description of the administrative set up of RNTCP at national, state and district levels. These documents provide a detailed account of the functions of various officers, and facilities established under this programme.

<sup>13</sup> It is naive to assume that programme managers and state level officials whole-heartedly welcome and support the ideas behind these schemes. As our survey showed, the coverage and functioning of these schemes depend significantly on the level of enthusiasm among local officials and the confidence they have on the capacity and commitment of the private sector. These are discussed later in this report.



### 3.1 General remarks

The study was first carried out in Tamil Nadu (TN), then in Kerala. TN was selected due to considerable amount of research work we have already carried out in this region and a high degree of familiarity we have with overall functioning of the existing healthcare system in the state. The state of Kerala offers an interesting comparison with TN because it (Kerala) ranks first in India in terms of health outcomes (Infant Mortality Rate, Life Expectancy, Death Rate, and Birth Rate).

Through a preliminary survey of the literature and discussions with officials, we identified the following stakeholders as relevant to this study:

- State and District TB administrators (which includes STO, DTO, MO - TB, STS, STLS, Health Visitors)
- Non-Governmental Organisations
- Independent Private Practitioners
- Private hospitals
- Private microscopic centres
- Community Volunteers (DOT Providers)
- Field workers from primary health centres (such as VHNs, JPHNs)
- Private funding agencies (supporting NGOs/hospitals)
- State level policy officials

In TUs that were selected for the study, we attempted to include as many NGOs and PPs as possible. Typically, three to four TUs were surveyed in each district. Table 2 (page 12) shows the number of TUs selected in each of the districts covered.

In addition to these TUs, the study also covered a few TUs which did not have any NGO or PP involvement. Methodologically, it is important to include such TUs in the study because an understanding of the existing government functionaries might also throw light on the need for involving non-state sector.

The District TB Officer is located in the District Tuberculosis Centre (DTC). Typically, in each district, the DTO was first met before commencing the survey work. All basic statistics required for selecting TUs, NGOs and PPs were collected from respective DTCs. This usually took about half a day. This also helped us gain the confidence of DTO and his/her fellow-officers.

Similarly within each NGO/hospital chosen for the study, we interviewed the officer-in-charge of TB programme, the MO directly dealing with TB patients, the laboratory assistant (in some cases), and the staff engaged as DOT providers. In private microscopy centres persons directly responsible for diagnostics, were interviewed.

Our definition of this sector was circumscribed by the various “schemes” that represent PPP strategy under RNTCP. Thus, for the purpose of this study we confined our attention to stakeholders who have been involved in various partnership schemes referred in chapter 2.

The State TB cell maintains an official list of PPs and NGOs involved in various schemes under RNTCP (Appendix 4). We used these lists for the selection of districts in both the States. The DTOs were then contacted to confirm the involvement of the listed NGOs/PPs in the programme. Considering the various logistic factors, the degree of involvement of NGOs and PPs and also geographic spread, sample districts in each state were chosen.

We now proceed to give a more detailed description of the methodology of this study.

## **3.2 Sample size and selection**

### **3.2.1 Selection of districts: Tamil Nadu**

In Tamil Nadu the study was confined to five districts: The Nilgiris, Cuddalore, Thanjavur, Salem and Kancheepuram. In all districts, NGOs are employed under various schemes. Special mention should be made about the selection of Salem and The Nilgiris districts. Salem district was chosen because this is the only district with two NGOs under scheme 5 (as Tuberculosis Units). In fact, in the whole state, only this district has NGOs under scheme 5<sup>(14)</sup>. On the contrary, in Kerala, there is none engaged under scheme 5. The Nilgiris district was selected because of the hilly terrain with tribal population and the presence of two NGOs under scheme - four.

Even though the districts were chosen according to the presence of NGOs under various schemes, the final sample of districts turned out to be a good representation of districts with “good” and “not-so-good” performance (measured in terms of annual new smear positive detection rate and success rate of new smear positive patients).

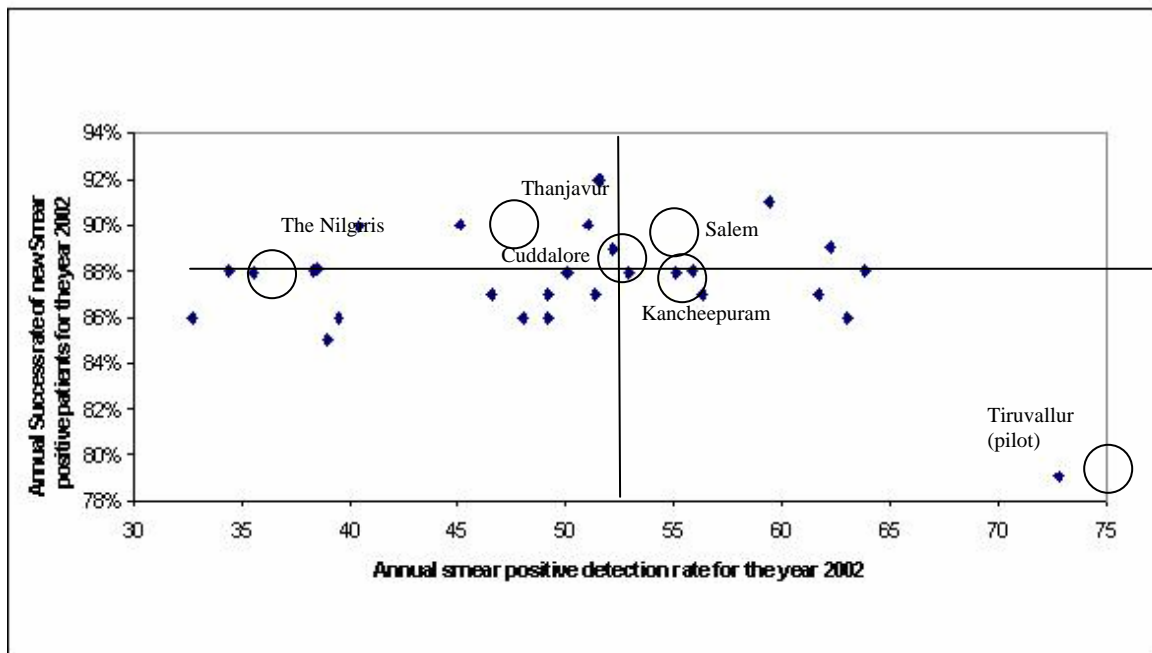
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<sup>14</sup> Scheme 5 encompasses features of schemes 1-4. It covers a population of 5 lakhs, the size of a TU. Typically, only large NGO with adequate resources could be able to implement this scheme. This is why there are very few NGOs implementing scheme 5, not only in TN but in other states as well.

Measured in terms of annual smear positive detection rate (2002 figures), the performance of Cuddalore, Kancheepuram and Salem were higher than state's average (of 50 per lakh), while those of Thanjavur and The Nilgiris were lower than that of state's average. All these districts have a "success rate" very close to or equal to state's average of 88 %, except Tiruvallur (pilot district) whose success rate was 79%<sup>(15)</sup>.

The following Figure 1 shows the relative positions of various districts in Tamil Nadu, in terms of success rate in 2002.

**Figure 1 : Relative performance of districts in TN, 2002**



Source: Quarterly performance report from respective districts, 2002.

Note: The lines drawn on the x and y axes show the State averages, (respectively) for the annual smear positive detection rate and success rate of new smear positive patients. Those circled were the districts sampled for the study.

### 3.2.2 Selection of districts: Kerala

In Kerala, four districts were chosen based on the presence of NGOs and PPs under various schemes, their geographical spread, and performance in terms of annual smear positive detection rate and annual success rate of new smear positive patients.

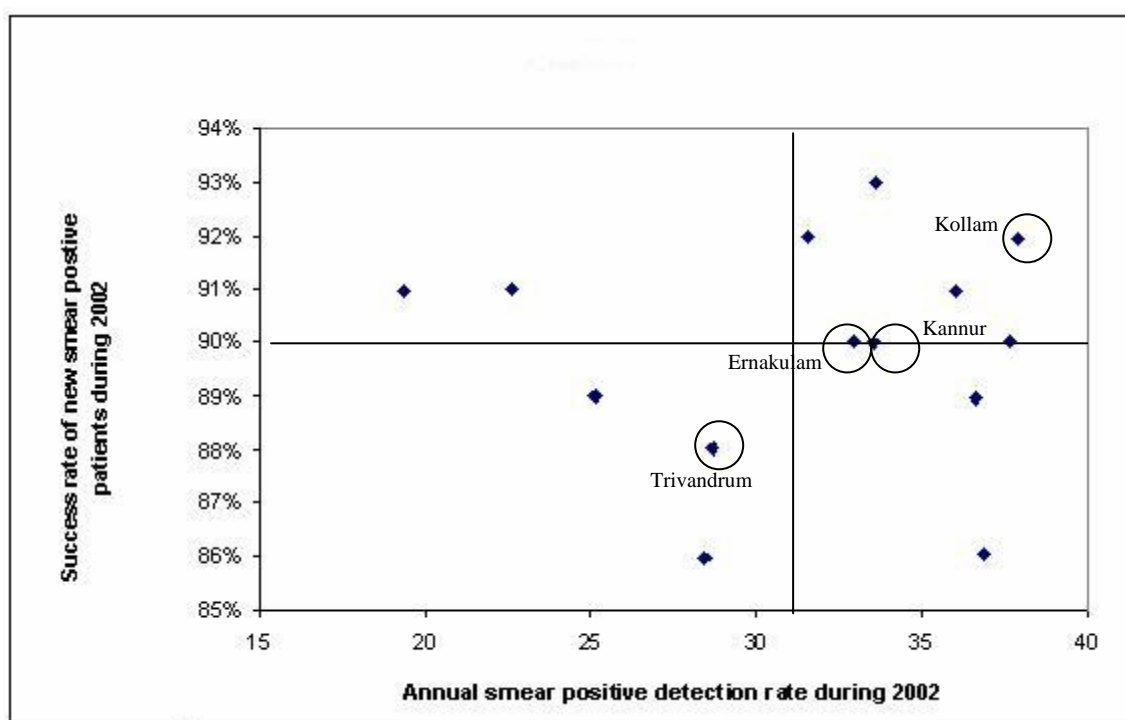
The four districts chosen for this study in Kerala were Kollam, Trivandrum, Ernakulam and Kannur. Overall, Kollam had the highest new sputum positive detection rate (38 per lakh, 2002) in Kerala

<sup>15</sup>Incidentally, the district of Tiruvallur has a combination of having the highest detection rate with the lowest "success rate" in the entire state of TN (2003 data). Refer Appendices 9-11 for further details on the performance of districts in TN.

(which has an average of 31 per lakh). New sputum positive detection rate for Trivandrum was 29 per lakh (2002). The new sputum positive detection rates for the other two districts are close to each other, and are higher than the state's average. The districts of Kollam and Kannur had a much higher participation of private hospitals than other districts. Under RNTCP these two districts have received greater programmatic inputs for increasing the role of private providers. As in Tamil Nadu, many of the NGOs listed in government records in Kerala were actually not involved in the programme.

The following Figure 2 shows the relative positions of various districts in Kerala, in terms of success rate in 2002<sup>(16)</sup>.

**Figure 2 : Relative performance of districts in Kerala, 2002**



Source: Quarterly performance reports from the respective districts.

Note: The lines drawn on the x and y axes show the State averages, (respectively) for the annual smear positive detection rate and success rate of new smear positive patients. Those circled were the districts sampled for the study.

### 3.2.3 Selection of TB Units (TU)

A sample of 11 TUs (out of 24 TUs) from the five districts in TN, and 13 TUs (out of 22 TUs) from the four districts in Kerala were chosen for the study<sup>(17)</sup>.

<sup>16</sup> For more details on the performance of the districts and TUs refer Appendices 9-11

<sup>17</sup> Overall, there are 138 TUs in Tamil Nadu spread across 29 districts, and 63 TUs in Kerala spread across 14 districts. Refer Appendix 5 for the names of the TUs sampled.

Within each district, two to four TUs were chosen, where NGOs or PPs were involved. Though the study was focused on the role of NGOs in RNTCP, in each state, few TUs that had no NGO/PP involvement were also chosen. This was done (as explained earlier) in order to understand the constraints being faced by government institutions and the scope for involving NGOs or PPs in implementing RNTCP in such TUs in the future.

The TU where the DTC is located was always selected irrespective of whether or not it had NGO/PP participation. An effort was also made to select TUs according to their level of performance (detection and success rate) but it proved almost impossible to apply this principle uniformly in all districts due to various operational problems like accessibility, non-availability of field staff to accompany the research team etc.

**Table 2**  
**Number of Tuberculosis Units sampled (Tamil Nadu and Kerala)**

District	Number of TUs in the district	Total number of TUs sampled	Number of TUs sampled with NGO/PP	Number of TUs sampled without NGO/PP participation
<b>Districts in Tamil Nadu</b>				
Kancheepuram	6	2	1	1
Cuddalore	5	2	1	1
Thanjavur	5	2	1	1
The Nilgiris	2	2	1	1
Salem	6	3	2	1
<b>Total (five districts)</b>	<b>24</b>	<b>11</b>	<b>6</b>	<b>5</b>
<b>Districts in Kerala</b>				
Trivandrum	6	3	3	0
Kollam	5	3	2	1
Kannur	5	3	3	0
Ernakulam	6	4	4	0
<b>Total (Four districts)</b>	<b>22</b>	<b>13</b>	<b>12</b>	<b>1</b>

Source: Official statistics (2003-2004), from respective governments.

### 3.2.4 Selection of NGO/PP and government institutions

A total of 11 NGOs/PPs were sampled in Tamil Nadu. In Kerala, a total of 27 NGOs/PPs/Laboratories were sampled. These are shown in Table 3 below. In addition, a sample of 25 government institutions was included together in TN and Kerala. NGOs were selected from the sampled districts based on

their involvement in various schemes under RNTCP. NGOs were selected randomly if many were engaged in any district. The survey made special efforts to include NGOs that had officially signed a contract with RNTCP. If there were only a few NGOs/PPs involved in RNTCP, then all were included in the study.

**Table 3**

**Number of government facilities/NGOs/PPs sampled (Tamil Nadu and Kerala)**

District	Number of sampled institutions				
	Government (GH/PHC/TB clinics)	NGO	PP	Labs	Total
Nilgiris	2	2	-	-	4
Cuddalore	2	1	1	-	4
Salem	3	2	-	-	5
Thanjavur	3	-	4	-	7
Kancheepuram	2	-	1	-	3
<b>Total</b>	<b>12</b>	<b>5</b>	<b>6</b>	<b>-</b>	<b>23</b>
Trivandrum	2	4	-	-	6
Kollam	3	1	6	-	10
Ernakulam	4	2	3	1	10
Kannur	4	1	6	3	14
<b>Total</b>	<b>13</b>	<b>8</b>	<b>15</b>	<b>3</b>	<b>40</b>

Note: PPs includes not only independent Private Practitioners but also health facilities that may offer diagnostic and/or treatment facilities.

In most TUs, we also sampled one or two government health facilities. All of them had MCs and practiced DOTS. In all, 25 government facilities and 38 institutions involved in PPP schemes formed the total sample for the study.

### 3.2.5 Selection of patients

A total of 59 patients from Tamil Nadu and 59 from Kerala were interviewed for the study. Patients who were diagnosed and were receiving treatment or those who had completed treatment from sampled facilities were included in the study. This section describes the method(s) used in identification and selection of patients in various districts.

Sample patients were selected from each of the NGOs, PPs, private MCs and TUs run by government. These patients were interviewed individually at their residence. As a rule, we avoided interviewing patients at their work place in order to protect their privacy. From each of the sample facilities, we selected randomly a few patients based on the following criteria:

- Treatment category<sup>(18)</sup>
- Sex
- Age of the patient<sup>(19)</sup> and
- Treatment status of the patient (cured/completed or ongoing)

The first two criteria were used to give fair representation of patients in categories I, II and III<sup>(20)</sup>. Based on the above-mentioned criteria, we chose 20 patients from the TB treatment registers maintained at the respective TUs. Likewise, the patients from NGOs and PPs were selected randomly from their own records. From among these 20 patients, we located 3 to 6 patients, (with the help of field staff of respective institutions) based on logistics and other local factors. For patients who could not be found at their residence, we tried to locate patients 5 paces residing in the neighbouring areas. Such patients were selected with the help of the supervisory staff. In most cases (more than 95% of patients interviewed) the respondents were the patients themselves. In very few cases the family members were interviewed, as patients were not at home during our visits. In majority of cases, field staff were also present while patients were interviewed but largely remained as observers. On certain occasions they helped in translating patients responses as in Kerala.

Oral consent was taken from all patients/relatives before the interview. Care was taken not to cause strain to the patients during the interviews. In some instances, we discontinued interviews as they had difficulty in breathing or felt tired.

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<sup>18</sup> Refer Appendix 12, for details on category-wise distribution of patients registered in the sample districts.

<sup>19</sup> We excluded children for the survey, because the treatment prescription for them is different from that for adults.

<sup>20</sup> Category I consist of patients diagnosed as smear positive, and those diagnosed as smear negative but seriously ill. Category II includes “patients with smear positive-relapse, smear positive failures and smear positive default”. Category III consists of patients diagnosed as smear negative but not seriously ill. Refer Technical Guidelines for Tuberculosis Control ([www.tbcindia.org](http://www.tbcindia.org)) for a detailed description of various categories of patients.

Table 4 summarizes some of the basic characteristics of the sampled patients<sup>(21)</sup>.

1. Treatment category: Out of 59 patients sampled in TN, 27 patients were from category I treatment regime, 12 from Category II, and 17 patients were from category III<sup>(22)</sup>. In Kerala, out of 59 sampled patients, 38 patients were from category I, 8 from category II and 13 from category III regimen.
2. Sex: In Tamil Nadu, there were 35 male patients and 24 female patients while in Kerala there were 39 male patients and 20 female patients.
3. Age: In Tamil Nadu 24% (14) of the sampled patients were less than 25 years age group, 59% (35) between 26-54 years, and 17% (10) above 55 years age group. In Kerala, 24% (14) of the sampled patients were in the less than 25 years age group, 47% (28) between 26-54 years, and 29% (17) were in the above 55 years age group.
4. Treatment Status: In Tamil Nadu, 58% of the sampled patients had completed their treatment at the time of interview; the rest were under treatment. In Kerala, 83% of the interviewed patients had completed their treatment at the time of the interview. The patients, who were continuing with their treatment, were those who had taken a minimum one-month medication.
5. Out of 118 patients interviewed in Kerala and Tamil Nadu, 67 patients had received treatment from government sector while the rest (51) had received treatment from the non-state sector.

All patients were under DOTS, of which roughly 56% (66) were under the supervision of NGOs/PPs/community volunteers and the remaining 44% (52) were under the supervision of government institutions.

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<sup>21</sup> For more information on characteristics of patients surveyed, refer Appendix 7

<sup>22</sup> For three patients in Tamil Nadu, we do not have information on their treatment categories.



**Table 4** Details of patients sampled (Tamil Nadu and Kerala)

Districts covered	Sector	Category I						Category II						Category III						Total
		>= 25		26 - 54		>=55		>= 25		26 - 54		>=55		>= 25		26 - 54		>=55		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Kancheepuram	Govt.	-	-	3	-	-	-	-	1	2	-	-	-	-	1	-	-	-	-	7
Kancheepuram	NGO	-	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	3
The Nilgiris	Govt.	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
The Nilgiris	NGO	-	-	1	1	-	-	-	-	-	-	-	1	-	-	1	1	-	-	5
Cuddalore	Govt.	-	-	1	1	-	1	-	-	1	-	1	-	-	1	-	1	-	-	7
Cuddalore	NGO	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	4
Thanjavur	Govt.	-	1	1	2	1	-	-	-	1	-	1	-	-	-	1	-	1	-	9
Thanjavur	NGO	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
Salem	Govt.	1	-	1	1	-	-	-	-	2	-	1	-	-	-	-	-	-	1	7
Salem	NGO	-	2	1	1	1	-	-	-	-	-	1	-	1	-	1	2	-	-	10
<b>TN-Total</b>		<b>1</b>	<b>5</b>	<b>11</b>	<b>7</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>56*</b>
Trivandrum	Govt.	1	-	-	-	2	-	-	-	1	-	1	-	-	-	-	-	-	-	5
Trivandrum	NGO	1	1	4	-	1	-	-	1	1	-	-	-	-	-	1	2	1	1	14
Kollam	Govt.	-	-	1	-	1	-	-	-	-	-	1	-	-	-	1	-	-	1	5
Kollam	NGO	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	3
Ernakulam	Govt.	-	-	1	2	1	-	-	-	1	-	-	-	-	-	-	-	-	-	5
Ernakulam	NGO	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Kannur	Govt.	1	3	7	-	2	-	-	-	-	1	-	-	1	1	1	-	-	1	18
Kannur	NGO	-	1	1	1	-	1	-	-	-	-	-	-	1	-	-	1	-	-	6
<b>Kerala –Total</b>		<b>3</b>	<b>7</b>	<b>14</b>	<b>3</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>59</b>

Note: \* The treatment category for 3 patients in Tamil Nadu is not available.

'Govt' refers to Government.

Source: Survey (TN and Kerala)

### 3.2.6 Selection of DOT providers

A total of 68 DOT providers were interviewed from Kerala and Tamil Nadu. In TN, eight of the 29 DOT providers belonged to NGOs/PPs, while in Kerala 20 of the 39 were from NGO/PP sector<sup>(23)</sup>. Among these, very few belonged to Self Help Groups (SHGs)<sup>(24)</sup>. For example, in TN, only Salem district had an explicit policy on using SHGs. Table 5 below shows the sample size and composition of DOT providers in the sampled districts.

**Table 5 Number of DOT providers sampled (Tamil Nadu and Kerala)**

Districts	DOT providers categories				
	Government DOT centres	NGO staff/PP	SHG Members	Anganwadi Workers /JPHN/VHN	Community volunteer
Tamil Nadu					
Kancheepuram	2	1	-	-	-
The Nilgiris	2	4	-	-	1
Cuddalore	2	2	-	-	1
Salem	-	1	2	4	2
Thanjavur	2	-	-	3	-
Total (five sampled districts)	8	8	2	7	4
<b>Total TN</b>	<b>29</b>				
Kerala					
Trivandrum	2	5	1	1	-
Kollam	1	5	-	1	1
Ernakulam	2	2	2	3	2
Kannur	2	8	-	-	1
Total (four sampled districts)	7	20	3	5	4
<b>Total Kerala</b>	<b>39</b>				

Thus, our sample included a variety of DOT providers like the anganwadi teachers, noon-meal organizers, VHNs, CVs, SHG members, nurses etc.

<sup>23</sup> These Community Volunteers (CVs) could be a neighbour of the patient, or a retired postmaster, or a school teacher, or may even be a pharmacist in the town/village where the patient resides.

<sup>24</sup> SHGs are voluntary union of peers, formed for accomplishing a common purpose. In South Asia, SHGs are part of development strategy with preliminary focus on poverty alleviation and empowerment of women. Majority of these groups, consist women as the members, and are supposed to contribute towards income generation and thereby their empowerment. (adapted from K.R. Nayar, *et.al.* 2004)

### 3.2.7 Selection of government officials/NGO staff/PPs

In Tamil Nadu and Kerala, a total 107 State and district officials including field staff engaged in RNTCP were interviewed. It included DTOs, medical officers, supervisory staff (both at the TUs and DTCs), laboratory technicians and assistants from microscopy centres, treatment organizers, health visitors, pharmacists, JPHNs, VHNs, nurses and statistical assistants.

In Kerala, 61 staff members were interviewed from the NGOs, hospitals and laboratories. Similarly, 31 staff members were interviewed in Tamil Nadu. Appendix 14 shows the list of various state officials and other NGOs/PP staff interviewed, district-wise in TN and Kerala.

### 3.2.8 Total sample size of the study

Table 6 below gives an overview of the various stakeholders sampled for the study in Kerala and Tamil Nadu.

**Table 6 Total sample size of the study**

S.No	Description of the sample	Size of the sample
1.	States	2
2.	Districts	9
3.	Tuberculosis Units	24
4.	Health institutions in government sector	25
5.	Non-governmental Organisations	13
6.	Private health facilities (PPs/hospitals/laboratories)	24
7.	Government officials/staff	107
8.	NGO/PP staff	91
9.	DOT providers (government staff/NGO staff/community volunteers)	68
10.	Patients	118

## 3.3 Survey instruments and data collection

Semi-structured questionnaire<sup>(25)</sup> were used for collecting primary data from various stakeholders (Refer Appendix 13 for details). The questionnaires were pilot tested in Tiruvallur district of Tamil Nadu. Secondary data including the performance reports for relevant years were collected from respective district DTOs and the office of the STO.

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<sup>25</sup> These questionnaires were used as guidelines, rather than as rigid structured proforma for data collection.

### **3.3.1 Questionnaire for NGOs/Private Practitioners**

The following information were collected from NGO/PPs.

- The nature of activities of the NGO/PP.
- Reasons for being part of RNTCP.
- The activities they are involved in and their experience in following the RNTCP guidelines.
- The nature of their contract (formal/informal) and their relationship with the government.
- Financial incentives/equipments/consumables they receive or are expected to receive from government and other sources.
- Profile of the population (geographical location and socio-economic background) they cater to.
- Details of staff (their number and the training they received in RNTCP)

### **3.3.2 Questionnaire for DOTS volunteers**

The primary objective of this instrument was to have direct understanding of the constraints and challenges DOT providers faced in implementing the programme. The interview schedule was designed to collect the following information.

- Occupation of the provider (government health service/RNTCP staff, anganwadi teacher, NGO/PP staff, community volunteers etc).
- Reason(s) for becoming a DOT provider.
- Training received in RNTCP and further needs on training.
- Receipt of incentives.
- Place and time of provision of DOT.
- Number of patients provided with drugs and the observation on direct intake of drugs.
- Maintenance of records of patients and their reporting.
- Compliance of patients towards drugs and DOTS
- Supervision of their work by NGO staff, PP staff or government officials.

### **3.3.3 Questionnaire for TB patients**

The interview schedule for the patients was employed to collect the following information.

- Occupation of the patient.
- Ability to work during treatment and implications on their income and financial status.
- History of the disease, diagnosis and treatment.
- Practice of the Direct Observation of Treatment at the intensive and continuation phase of treatment.
- Discontinuation of medication – reasons and default retrieval actions.
- Awareness of the disease, its spread and curability.
- Support received from the family.

### **3.3.4 Questionnaire for RNTCP officials**

The interview schedule for the RNTCP officials was designed to collect the following information.

- The number of NGOs/PPs involved under RNTCP and why/how they were selected.
- Their experience with various schemes under RNTCP.
- Incentives and their distribution.
- Difficulties they faced with respect to (availability of staff, supervision, training) etc.

## **3.4 Field team**

Three of the authors<sup>(26)</sup> were directly engaged in conducting interviews with various stakeholders, though at times in some districts we divided the field work amongst us for logistic reasons. At no point of time, did we employ any assistant for conducting the fieldwork. The interviews with patients were conducted in respective regional languages (Tamil or Malayalam), and in English with officials and other stakeholders. Detailed notes were made based on interviews conducted with each stakeholder. The survey was carried out from August 2003 to August 2004 (refer Appendix 16). Key state officials and a few WHO consultants were consulted in planning our field visits.

## **3.5 Ethical considerations**

Interviewees were assured that the information collected would be used only for research. Oral consent was taken from the patients/relatives before the interview. Interview was stopped if the patient showed any difficulty to answer the questions.

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<sup>26</sup> V.R. Muraleedharan, Sonia Andrews and Bhuvaneswari Rajaraman.

## **4 Challenges and Constraints in the Implementation of the PPP Strategy in RNTCP**

In Chapter 2, we discussed the rationale for adopting PPP strategy under RNTCP. In this chapter, we discuss several of the challenges and constraints being faced in involving the non-state private sector (namely, NGOs, Private Practitioners, and Community Volunteers) in implementing RNTCP.

In understanding the overall impact of PPP strategy on the success of RNTCP, it is useful to reiterate here the arguments put forward in this respect. It is expected that PPP will help (1) increase access and improve detection rate (2) reduce financial burden on poor patients in particular, and (3) make private practitioners adopt “cost-effective” DOTS drug regime.

PPP as a strategy in these states was introduced only in the recent past. It is indeed too early to assess its overall impact and success. The rest of this chapter brings together the evidence we have gathered from primary survey of this study on the constraints and challenges that affect the implementation of PPP.

### **4.1 Contractual arrangements**

RNTCP has laid down specific procedures and forms of contract for each of the partnership schemes<sup>(27)</sup>. They also spell out the nature of assistance (in cash or in kind) given to NGOs/PPs. The nature of contractual relationship between various stakeholders is crucial for the performance of partners and therefore for the overall success in the execution of PPP strategy.

In our survey, we found that several NGOs and PPs listed as partners at district level actually had no formal relationship with the programme. Many of them listed in official documents as having formal agreement under RNTCP had no signed contractual agreement, but were involved in various schemes on “informal basis”. The extent of such informal arrangements with NGOs is more widespread in Kerala than in Tamil Nadu. However, it may be noted that as such Kerala has more PPs than Tamil Nadu formally under PPP strategy.

Two issues need to be raised at this juncture: (1) what are the implications of such informal arrangements for effective implementation of schemes and (2) why has there been such a high level of informality in involving NGOs/PPs?

We shall very briefly deal with them here.

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<sup>27</sup> Refer TBC India website for details of these formal agreements. [www.tbcindia.org](http://www.tbcindia.org).

As a result of the lack of formal contractual arrangements, many officials found it difficult to monitor performance of NGOs/PPs. Also, many district officials who complained against NGOs/PPs for not complying with RNTCP protocols conveyed a sense of inability to “pull them up”, because as one DTO put it,

*“We have no formal contract with them. Therefore, they see themselves as doing some favour to the programme which makes it difficult for us to exercise our authority to monitor their work”.*

Several reasons could be given for the low level of formal contractual arrangements under these schemes. Our discussions with a cross section of officials and other stakeholders reveal that there is perhaps a very low degree of “willingness” amongst themselves to enter into any formal relationship. This, in turn perhaps reveals a low degree of confidence in each other’s ability to comply with conditions required in such contracts. The experience shows that there is greater reluctance in Kerala to involve NGOs than in Tamil Nadu, as one DTO from Kerala put it “*we don’t have much confidence in NGOs’ commitment and their ability*”. Such impressions are often influenced by certain recent episodes of alleged or real misuse of public resources by various partners involved. But such explanations are perhaps valid only up to a point. Deeper causes for lack of faith in NGOs among officials often emerge also due to serious ideological differences on the role of government in health sector. As one senior doctor from Kerala government put it rather bluntly:

*“We should not involve private sector in government health programmes, because they are always driven by profit motive, and are likely to be influenced by monetary considerations. Kerala’s health sector has already a large presence of private providers. We should not increase their presence further through such national programmes. Instead, there should be greater efforts on our part to increase our [government’s] infrastructure and manpower and find innovative delivery mechanisms to reach every TB patient in the state rather than accept our poor infrastructure and invite private sector to deliver what we [government] should be doing”.*

This perhaps sums up the views of several officials in Tamil Nadu as well. Yet, there are perhaps as many officials in favour of promoting private providers. As one highly respected senior consultant from Kerala said:

*“It is imperative that we involve private practitioners in the largest possible manner ..... we should do so, as otherwise we would never be able to control the disease adequately”, he argued.*

Such reasoning reflects the pragmatic aspect of debate at various circles within health sector. It is interesting to note a related detail in this debate. A large number of those who support NGOs (as in TN) are not inclined to involve PPs, and a large number of those who support PPs (as in Kerala) are not inclined to involve NGOs! At first, this might sound paradoxical, but on further inquiry, as we have just alluded above, such views are not without merit and are often well rationalized.

Both in Kerala and TN, only those NGOs that have had some experience in the field of healthcare were involved in RNTCP. Such NGOs are essential because they can integrate RNTCP with other healthcare schemes they are associated with. Such an approach may also give rise to economies of scope. But merely from the point of view of increasing DOTS supervision (access), one can argue that it is not necessary to insist on prior experience in health sector. This means, efforts should be made also to involve NGOs engaged in other developmental schemes (such as education) in implementing PPP schemes.

Another reason why the programme managers are not so willing to enter into formal contractual arrangements is the lack of confidence in their own ability to release funds on time for supporting such initiatives.

In the present context, we should interpret the prevailing level of informality as not only inevitable but also desirable, as it allows partners to build confidence in each other. Viewed in this manner, one could argue that the PPP strategy of the RNTCP is best implemented in this manner for a while (rather than force any form of formality). How long should or would this phase continue depends on several factors, including larger social, political and economic factors that lie outside such programmatic interventional strategies.

## **4.2 DOTS supervision**

Our interviews with the patients formed the basis for observations made in this section. Each patient was asked, “were/are you administered drugs and supervised directly during Intensive phase/Continuation phase?” Out of 55 patients in TN, 15 were supervised as per DOTS protocol. In Kerala, 32 out of 58 patients were supervised as per DOTS protocol. If we exclude the Kannur sample (of 24 patients) from our analysis, the proportion of DOTS compliance from the remaining three districts in Kerala would fall from 55 % to 38 %. The remaining patients were partially supervised. Typically, such patients were supervised only on the 1st day of every week during IP, and were given drugs either for the rest of the week or even for a fortnight and were asked to take these drugs on their own.



**Table 7 Practice of DOTS among the sampled patients (Tamil Nadu and Kerala)**

Sector	DOTS practiced as per protocol		DOTS not practiced as per protocol		Total
	TN	Kerala	TN	Kerala	
Government	7	19	9	14	49
NGO/PP	27	16	18	9	70
Not Known	1	-	2	1	4
Total	35	35	29	24	123

Source: Survey (in TN and Kerala)

### 4.3 Dual treatment regimes

Many PPs engaged in RNTCP (formally or informally) have two different treatment regimes in practice. Typically, we found physicians engaged in RNTCP prescribed DOTS regime to poor patients, and non-DOTS regime to richer patients. As one senior chest physician from Ernakulam district said:

*“I have two lists of patients. One consists of those put under DOTS regime. These are either referred to us by nearby government health centres or poor patients who cannot afford to buy drugs on their own. The second list consists of professionals (such as lawyers, engineers) who can afford to buy medicines on their own. These patients also do not wish to be supervised frequently, and therefore do not wish to be on DOTS regime.”*

The primary reason for this distinction in practice is the lack of belief among practitioners on the efficacy of DOTS regime. This in turn may be due to (a) practitioners’ past experience with different drug regimes and (b) lack of training and orientation to RNTCP. As one senior chest physician in Kerala put it:

*“RNTCP is a new regime. We have been treating tuberculosis patients on the classical basis for several years now and we don’t see any reason in adopting this new regime. My treatment course is for 9 months in most cases and I don’t believe that a six-month course is adequate for TB treatment.”*

Our survey suggests that the success of PPP strategy depends also on RNTCP’s ability to influence the prescription behaviour of professionals in public sector institutions, as several of them are extensively engaged in private practice as well. To the extent public doctors are engaged in private market, and to the extent they have less faith in intermittent regimes, it becomes harder to that extent to influence their prescription behaviour.

“Professionals in teaching institutions have nothing to do with the success of PPP strategy”, said one DTO in Kerala, very emphatically. Such a view, clearly illustrates the overall inadequacy in the

understanding of the challenges involved in the design and successful implementation of PPP strategy. This point is quite missed in the discussion on PPP strategy among most stakeholders.

#### **4.4 Personnel**

Most NGOs and almost all PPs that we have studied do not have any field staff dedicated to implementing DOTS. As a result, the daily supervision of drugs administration is likely to suffer. Shortage of staff also affects NGOs' (or PPs') ability to follow up patients and retrieval of patients in case of default. This problem is more acutely seen where PPs are engaged – however, in many TUs, STS provide them some support in this respect.

Another critical gap in the implementation of partnership schemes relates to training of laboratory technicians. Many laboratory technicians in NGOs were not yet trained under RNTCP. This would have a direct impact on the diagnostic capability as well as other follow up measures required for improving the overall effectiveness of PPP strategy.

We do not have data on financial allocations made for training laboratory technicians and physicians involved in various schemes. Orientation training in RNTCP for medical officers has not been conducted in several government institutions in the past few years, as reported by some of the medical officers. As a result, many physicians relied upon the STS and STLS for better management of patients.

#### **4.5 Financial support**

Perhaps, the most crucial aspects in the success of PPP strategy are (a) whether the incentives provided to NGOs/PPs under various schemes are adequate and (b) how far in practice financial incentives provided under various schemes are implemented as per contractual conditions.

There are two types of financial support extended to NGOs and PPs under various schemes: (1) annual “grant-in-aid” and “in-kind” support and (2) financial incentives for DOT providers (Refer Appendices 1-2). Here, we present our observations on the implementation of these two types of support.

a) Grant-in-Aid and In-Kind Support

- Most NGOs and PPs in our survey (both in TN and Kerala) were not aware of the various design features of the schemes in which they were involved;
- All NGOs and PPs were satisfied with the overall adequacy of drugs, and reagents supplied under RNTCP;
- Most laboratory-related items such as slides, sputum cups, etc. were adequately supplied by the programme although most laboratory technicians reported that “protective masks” were not supplied; and
- Many NGOs reported considerable delay in, receiving the annual grants permitted under various schemes, while some of them did not receive their sanctioned grants beyond staff salary and travel.

b) Incentives to DOT providers and PPs;

It is evident from our surveys that NGOs and PPs in TN have not paid financial incentives to their volunteers. The situation is rather different in Kerala, where most NGOs and PPs that we visited have paid incentives to their volunteers. The reasons for this situation are rather complex. In summary, the incentive schemes may be summarised as follows:

- Under NGO schemes, a DOT provider receives Rs.175 for every patient declared “cured” only;
- Under PP schemes, a DOT provider receives Rs. 175 for every patient declared “cured” or “treatment completed”, and
- Scheme 5 for NGOs has a special clause, which states that DOT providers will be paid incentives only for an “estimated 25% of the patients cured in the population”.

An obvious observation from the above features is that, DOTS providers (under NGO schemes) for smear negative patients are not paid any incentives. Smear negative patients require as much of direct supervision by DOT providers as the smear positive patients. There is no rationale why such incentives are restricted to “only cured patients” under the NGO schemes.

Besides, it is not clear why Scheme 5 of NGO restricts the incentive amount to only 25% of the cases cured. Such a rationing has posed serious difficulties to programme managers in sustaining the interests of NGOs. It is interesting to note that these incentives in Kerala are handed over to NGOs who in turn pass them on to the DOTS volunteers.

The practice of not paying incentives to DOT providers has already had some impact on their performance. As one DOT provider said, *“I do not understand why I have not been paid even this small amount (of Rs 175), which is allowed by the policy. In fact, we never knew that we were entitled to such an incentive until recently.”* One laboratory technician from Thanjavur district, who was a DOT

provider to six patients in 2002, said *“I do not wish to be a DOT provider any longer because I did not receive any incentive money I am supposed to get for this purpose”*.

A more serious issue should be raised here. Some of the NGOs we studied have had a large number of patients treated with the help volunteers. For example, the two NGOs that implemented scheme 5 in 2002 in Salem district (in TN) has treated more than 1000 patients with the help of more than 200 volunteers. Yet, they had not received the incentive amount due to them. Commenting on this, as one representative of a large NGO (in TN) lamented:

*“Even if we get half the incentive amount we are supposed to get, we will still have plenty of money to cover much of our daily expenses and improve our overall performance. For example, we could use that money for purchasing bicycles, for volunteers whose ability to reach patients will increase significantly. We can also use this money for periodic training of our staffs and volunteers. We could use this money also in organizing functions to presenting mementos to volunteers who have contributed substantially to the success of this programme. Such a way of recognizing their efforts will motivate them more than the mere 175 rupees, which is anyway never paid.”*

All NGOs that we visited, without exception, argued in a similar manner. Several PPs have also expressed interest in getting non-financial incentives from government, such as provision of legal protection against “consumer litigation” arising from deaths occurring in their institutions. Such views were more commonly expressed in Kerala than in TN.

Two other observations are in order: (1) there was literally no NGO involved formally or even informally under scheme 1, which covers IEC activities, although many of them have been found in the list maintained by government. It is important to explain why this is so. There are very few NGOs that cover 10 lakh people to become eligible for financial assistance of Rs.5000. However, this amount seems too small and attractive enough to any one to engage in IEC programmes. Moreover, very few NGOs are capable of preparing detailed proposals of the kind expected of them. Several NGOs have expressed their inability to write and develop such proposals. (2) Under scheme 2, while deciding on financial incentives to volunteers, the word “cured” is interpreted differently by various officials. Some have said that it is applicable only to patients who are smear positive, whereas some officials have interpreted it to mean both smear positive and negative patients as in some parts of Kerala, while extending this incentive to volunteers.

## 4.6 Geographic coverage

Another major challenge arises from the very design and concept of TU, which is defined in terms of population coverage. A TU roughly covers a population of 5 lakhs, except in hilly terrain where it covers about 3 lakhs. Large NGOs (implementing Scheme 5) and STS (who are in charge of an entire TU) have often expressed difficulties in providing adequate services because of the vastness of the area to be covered. In urban areas, such as in Salem town in Tamil Nadu, DOTS providers and NGO-staff may not face as much difficulty as in rural areas, because the geographical spread of population is smaller in urban areas.

Most STS and STLS share one vehicle (usually a two wheeler) for the purpose of supervision, and they are paid a fixed allowance for fuel expenses incurred for this purpose. In the recent past, the government has reduced the fuel-allowance to field staff, which has significantly reduced the number of days spent for field supervision. This was obvious in several TUs that we visited. As one STS from Ernakulam TU (in Kerala) put it,

*“Earlier, we had difficulty in getting travel expenses reimbursed. Some of us (STS) had to wait for up to 6 months for such reimbursements. Now, the government tells us that we should limit our supervisory visits. This is definitely detrimental to overall quality of our work; because NGOs and PPs do not have their own staff for follow up work. If we don’t do this follow up continuously, the performance and quality of the programme will suffer”.*

## 4.7 NGOs/PPs: Nature of activities

NGOs’ involvement in RNTCP can be observed at two levels. One is to look at the “number of NGOs” roped into various PPP schemes and the other is to look at the extent to which they are involved in decision making process.

In districts that we surveyed, majority of the NGOs are involved in Scheme 2. Although a very large number of NGOs are enlisted under scheme 1 (Appendix 4), in practice there is hardly anyone involved under this scheme. In TN, there are two NGOs involved in Scheme 5, while there is practically none in Kerala implementing this scheme. It is also interesting to note that there is none in Kerala and Tamil Nadu exclusively engaged in Scheme 3, which provides inpatient care.

The IEC has not been developed much in both states. The various ways in which NGOs can play a significant role with regard to IEC needs further attention. Kerala has moved forward in engaging Rotary Clubs and international NGOs such as German Leprosy Relief Association (GLRA) for IEC

campaigns. This is believed to have increased substantially the overall reporting of patients to RNTCP. Some innovative programmes such as Communication for Behavioural Impact (COMBI) programmes in Kerala (in 2003) were also designed to create awareness among the youth and school children<sup>(28)</sup>. Although these initiatives are still at an early stage, they indicate the potential for substantial impacts in the future.

The role of Christian Missionary Hospitals has been substantial in many districts both in Kerala and TN. Historically, missionary/Christian institutions have played a crucial role in leprosy care in south India, but several of them have now begun to play a role in TB control as well.

Often NGOs' involvement in PPP schemes seems to be determined by District Officers' predilections, which may change from one officer to another over a period of time, thus affecting continuity of their involvement and sustained impact. It is not uncommon to come across NGOs who have a strong interest to be a part of the RNTCP but have not been able to be so due to lack of interest shown by officials. We came across two such instances from Kerala in this regard. As the director of an NGO said:

*“We are interested in being part of the programme. We even approached the DTO [of our district] but he is not interested. He once sent a letter to all the NGOs asking their volunteers for a training programme. After that, they did not even respond to us and this happened an year ago. But, so far we have not been involved in the programme despite our interest”.*

Sometimes, there are also examples of positive stories arising from enthusiasm shown by district officials. For example, in the district of Kannur, special efforts are being made in association with the Indian Medical Association (IMA) to gain the confidence of private providers in RNTCP and their involvement. While one needs to wait for some more time to assess the effects of such efforts, one should recognize their importance as a crucial step in the development of PPP strategy. Such efforts have the potential to have significant impact in the design of PPP strategy not only within this State but also in other parts of the country. Another important development in the recent years, particularly in Kerala, is the emerging trend in engaging NGOs as Technical Resource Partners (TRPs) for enhancing capacity of other institutions through training in the various components of RNTCP.

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<sup>28</sup> But apparently it is precisely the COMBI experience that led to government's reluctance to involve NGOs later (as revealed in a conversation with a DTO in Kerala)

In the next section, we present in narrative form the views and opinions of various stakeholders on many of the issues discussed above. Such narratives would help gain a better understanding of the stakeholders' views.

## **4.8 Narratives**

### **4.8.1 On the “Role of private sector”**

Diverse views are expressed on the desirability of involving private sector. Some argue in favour of private sector for “practical reasons” such as for networking, increasing access to care, while others argue against private sector for both ideological and other reasons. These views are paraphrased below:

*“It is difficult to increase the number of government MCs in the district due to financial reasons. Often, people have to travel long distances to reach government institutions for sputum examinations. Therefore, the private sector participation is necessary.” (An MO-TC from Salem district, TN)*

*“In all government hospitals, the working hours are from 7.30 am to 1.30 pm. This duration is not sufficient because many patients may be able to attend clinics only in the afternoons. There is practically no evening out-patient hours in PHCs. As a result, there is delay in diagnosis in the government sector. Because of this there is no faith on PHCs by the people. Government has to modify its working time. Therefore, I feel that by involving private sector, we will be able to improve access.” (A DTO from Tamil Nadu)*

*“The work of NGOs is not very effective. Also, there are no well-organized NGOs in the area. The NGO sector has to be strengthened if they have to be involved. We have hardly spent resources for the NGO sector till now. In the TB-COMBI programme, one NGO was entrusted in exhibiting posters. But the government is disappointed with their performance. More than 70% of the people go to the private sector for treatment. I feel that Private Practitioners (PPs), but not NGOs, should be involved in the programme.” (A Senior official from Kerala)*

*“The PPs don't know whether their TB patients collect medicines regularly and whether they take medicines in proper doses as prescribed. They also don't know whether the follow-up is done at proper intervals. No proper documentation is done. If a patient becomes a defaulter no retrieval is done by them. Therefore I do not recommend involvement of PPs.” (DTOs from several sample districts, TN and Kerala)*

*“I feel that involving the private sector cannot increase TB cases. Two years ago, the DTO had arranged a sensitisation meeting for the PPs. Many attended the meeting but nothing happened after that. The PPs don't ask their suspected TB patients to have a*

*sputum examination. Only poor people get TB and PPs are not interested in poor patients.” (An MO-TC from Kerala)*

*“In my opinion, Government is not keen on involving PPs or NGOs but some of us are involved because of the pressure exerted by the WHO. Though we as NGOs are involved in the programme, we are never called to attend official meetings and we do not have regular communication with them, except when some bigger officials visit our area.” (Director of an NGO in Tamil Nadu)*

*“For the last one year, the government has not been doing anything to involve more private practitioners in RNTCP. They are maintaining the position attained earlier.” (A Pharmacist from Kerala)*

#### **4.8.2 On “Practice of DOTS”**

The narratives in this section provides insights on why it wasn't possible to follow DOTS. There are also certain narratives depicting the quality of DOTS in the government and the private sector.

*“Aged and migrant labour patients can't always come and collect the medicines on alternate days from the hospital. In such circumstances if I refuse to give medicine to the proxies of patients, they may not bother to continue the treatment.” (a DOT provider from Cuddalore district, TN)*

*“The provider denied giving drugs for a week together for my wife when I went to collect the drugs on her behalf. My wife was unable to collect the drugs since she had delivered a baby. Then I told the provider ‘if you don't give me her drugs, let her die of the disease’. The provider then allowed me to collect drug on behalf of my wife till the treatment was completed.” (husband of a patient at Cuddalore district)*

*“My husband [the patient] collects the drugs every week from the NGO and he finds it is very easy to collect drugs from the NGO. It would cost us Rs.12 if we have to collect it from the government hospital, while it costs us only Rs.4 if we have to collect it from the NGO. The NGO people were very helpful. Sometimes they provided us with 2 weeks medicine together during the Continuation Phase (CP)” (Wife of a patient from TN)*

*“The STS came to my house about 10 days after sputum tests and told me that the VHN would provide me medicines and I should take it for 6 months. They told me ‘I would get the disease again, if I discontinued medicines’. Therefore, I collect the*



*tablets from the VHN every Wednesday when she visits the village. If I am not able to collect it, the VHN would send it through the Dai.” (A patient from Thanjavur, TN)*

*“I collect it (medicine) from the pharmacist on alternate days after my dinner. The pharmacy is very close-by to my house. I carry boiled water with me and I swallow the tablets in the presence of pharmacist. Whenever I go to collect drugs somebody in my family accompanies me.” (A patient from Salem, TN)*

*“Kudumbasree and Ayalkootams<sup>(29)</sup> will be very helpful in RNTCP activities especially in DOT provision. The government is now going to concentrate more on ayalkootams. Cured patients ‘under the name ‘MUKTHI’ give DOT to patients.” (WHO Consultant, Kerala)*

### **4.8.3 On “Supervision”**

Several operational difficulties in supervising the implementation of DOTS were expressed by programme managers and other stakeholders. Some of them are highlighted here:

*“At present the supervisor in TU covers about 5 lakh population. It is very difficult to supervise such a large population by one supervisor. The workload is very heavy. Many days I start my work at 6 am, going to the field to collect the sputum samples. In many houses even if we go that early, some of the “collie labourers” might have left. In such cases we leave the sputum container with other household members of patients and collect them the next day morning.” (An STS and STLS from Salem, TN)*

*“Private doctors and hospitals don’t employ staff for supervisory work. There is lack of manpower in the private sector. So, retrieval action has to be done by the STS if patients are not taking medicines regularly.” (A DTO from Kerala)*

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<sup>29</sup> Kudumbashree and Ayakootams promoted by the State government of Kerala are examples of SHGs.

*“As a supervisor employed in hilly areas, it very difficult for me to effectively supervise all DOT providers. Even a scooter will be of limited use in such hilly places. An additional STS post needs to be created.” (A STS from TN)*

*“I have to follow up the patients and DOT providers in areas where community volunteers provide the medicines. The community volunteers do not make proper recordings in the treatment cards. Though it is advantageous to have community volunteers, it is difficult to supervise them.” (A STS from Kerala)*

*“It is very difficult to monitor the quality of sputum examinations done in the private sector. The private lab technicians do not like us (the government staff) cross verifying the slides.” (An STLS from Kerala)*

*“The lab assistants in many PHCs do not co-operate with the supervisory staff. Sometimes I myself do the microscopy when I take samples from the field. The lab assistants feel that their workload is very high and they do not behave well with the patients.” (An STLS from an NGO in Salem district, TN)*

*“When patients stop collecting their medicines at the DOT centre it is very difficult to trace them especially as the stigma attached to TB is high and the patients take medicines without the knowledge of the other family members” – (An STS from Kerala)*

*“Our travel allowance has been reduced compared to last year. This has substantially reduced my coverage during the last few months. We cannot afford to spend money for fuel from our pocket. We have one scooter which we two (STS and STLS) share in this TU but we can no longer travel as much as we used to due to reduction in travel allowance for supervision. (An STS from Kerala)*

#### **4.8.4 On “Staffing and training”**

Lack of staff and training continue to affect the implementation of PPP.

*“Lots of Private Practitioners are involved in RNTCP but they lack training. The staffs involved in RNTCP in the private hospitals are usually not trained or are not inclined to get trained. Many of the lab technicians who had been given training have resigned. Therefore, many untrained newly appointed lab technicians perform AFB tests. So training is essential.” (A Pharmacist from Ernakulam, Kerala)*

*“The Private Practitioners are not properly sensitised or trained in RNTCP. At present the STS are assigned the job of sensitising PPs. But I believe PP should be sensitised by DTOs.” (WHO Consultant, Kerala)*

*“Two lab technicians are required for each MC. Now there is only one lab technician here. Many technicians are on leave or the vacancy is not filled up. Thus, when patients visit the lab, the technician is not available. Every year about 140 lab technicians graduate from the medical colleges in the state, so there is no shortage of lab technicians. But there are not enough sanctioned posts. There is no separate lab technician post for RNTCP. They are all basically posted under the Malaria programme.” (An MO-TC from Kerala)*

#### **4.8.5 On “Incentives”**

As mentioned in Chapter 2 both financial and non-financial incentives play an important role in engaging private sector, but in practice this is not fully appreciated.

*“I am not for providing incentives to NGOs and PPs. If we start giving incentives all the government staff will demand.” (A DTO from TN)*

*“We signed the contract in the year 2000 under a certain scheme. We have received a few lakhs per year for two years from the government. It is not enough. We are contributing some amount from other funding sources. Forty students were employed for leprosy and they also did TB related activities. These students were paid Rs.600 per month and Rs. 400 for their transport expenses. Since we are funded through other agencies we are able to support the activities and run the institution. The coverage can be improved if more money is given by the government.” (Director of an NGO, TN)*

## 5 Concluding Remarks

By way of conclusion, we present a number of policy measures to strengthen the design and implementation of PPP strategy in RNTCP. Many of these suggestions are very specific to the issues encountered in the regions covered by this study, but we believe these suggestions would be relevant also to other regions facing similar issues. Needless to say, every single point made here arises from the foregoing analysis and insights gained from the extensive fieldwork undertaken in the sample districts. In particular, they reflect several of the concerns expressed by the various stakeholders.

1. At present, as part of PPP strategy under RNTCP, there are more NGOs in urban areas than in rural areas. There should be greater efforts in increasing involvement of NGOs in rural areas.
2. Efforts should be made to involve NGOs engaged in sectors other than health, such as education, environment, micro credit financing, as DOTS providers and for IEC campaign. Most states already have Public-Private Partnership programmes for HIV/AIDS control. At present, NGOs engaged for HIV/AIDS control by respective State AIDS Control Societies, are rarely engaged by RNTCP. RNTCP should make efforts to learn from these experiences and possibly piggy-back on such NGOs in implementing the PPP strategy for TB. There is considerable scope for learning from the policy and operational research being conducted with respect to HIV/AIDS.
3. At present most PPs and NGOs are engaged without any “formal contractual” arrangement. While “informal contractual” arrangements are common and may even be seen as a preferred method by both partners in the present situation, it is important to formalise all partnerships, because it helps better monitoring and commitment from both parties.
4. Programme managers must ensure that grant-in-aid and incentives are sanctioned and released to partners as per contracts on time in order to sustain their services. Involving private sector requires consistent flow of funds to support their activities.
5. The schemes for involving NGOs/PPs require considerable modifications. For example, several PPs do not find the incentives under the present PPP schemes attractive enough. Similarly, it is necessary to evolve an uniform structure/forms of financial incentives for DOTS providers under NGOs’ and PPs’ schemes.
6. Another issue relates to the population-norm used in scheme 1 and 2 for NGOs. There is hardly any NGO in TN or Kerala (perhaps in any part of the country) that would be eligible to receive the full amount (of Rs.5000) for IEC campaign based on the population

criteria (of one million) laid under this programme. Evidently, such criteria require immediate changes in order to attract NGOs.

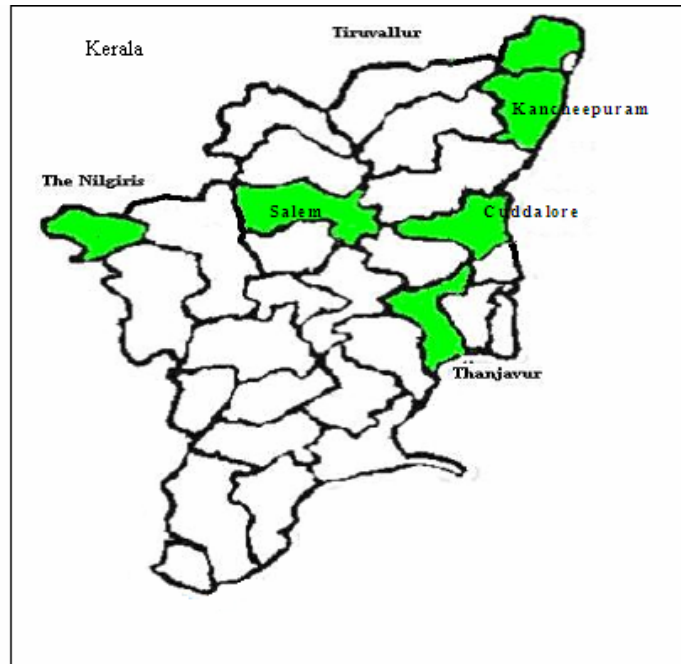
7. At present, very few Self-Help Group members are engaged as DOTS providers. More efforts should be made to involve them across all TUs, as SHGs are in operation in most parts of the state. This approach will also considerably reduce the out-of-pocket expenditure as well as the physical burden of patients travelling to respective institutions for consultations and collection of drugs.
8. Most NGOs and PPs do not have adequate field staff for DOTS supervision. RNTCP should provide more support toward hiring of field staff particularly to NGOs in hilly regions to improve their supervisory role. Also, the inadequacy of Government staff at TU level has a direct bearing on the performance of NGOs and PPs.
9. Several officials and field staff expressed the need for regular training programme. Such a training programme would enhance field staffs' ability to give appropriate advice to patients on issues related to sexual behaviour, consumption of alcohol, medication, food, etc. Similarly, field staffs should be trained to interact with patients in a friendly manner and to avoid "rude behaviour".
10. Many NGOs and PPs have laboratory technicians and medical officers without any training in RNTCP. This needs to be addressed at the earliest. Many districts officials expressed their dissatisfaction with the amount of money allocated for training programme. Several officials cited inadequacy of funds for not conducting training programmes for MOs employed by NGOs and private hospitals during the past one or two years.
11. Many NGOs and PPs apparently do not have much interaction with programme officials. This is evident from the fact that most of them have not participated in the periodic review meetings conducted by officials. Programme managers should make greater efforts to involve NGOs/PPs in planning process.
12. Regular inspections and servicing of equipment (such as microscopes) supplied by RNTCP to NGOs have to be carried out for improving their performance.
13. Patients require counselling before getting initiated into treatment. This would help the programme implementers in many ways. Firstly, the counselling could help patients understand the importance of completing the treatment. Secondly, it would also help remove the fear and stigma attached to the disease, which in turn would also enable patients in making use of the services of the DOTS-volunteers.

14. The “billion dollar” question is: how far are practitioners convinced of the efficacy of the RNTCP treatment regime? Evidence from our study show that, very few in private sector believe in and practice DOTS regime prescribed under the RNTCP. The more worrisome question is: How far physicians in public sector institution believe in and practice the drugs-protocol prescribed by the RNTCP? We argue that this remains as the most central issue and challenge in the implementation of PPP strategy under RNTCP. One physician from a large tertiary hospital in Tamil Nadu graphically summed up the crucial issue thus:

*“We are not allowed to prescribe any regime that is different from that of RNTCP, although my experience in the past 15 years has been that it is inadequate. I wear two hats always: I prescribe the RNTCP regime for patients admitted into government hospital where I work, whereas I prescribe quite another regime for patients I examine in my private practice. I firmly believe in the latter, but I can not say this in the presence of my state officials because I am “supposed” to believe in the national regime of the RNTCP”* [a chest physician in TN]

15. The progress and impact of PPP strategy has perhaps suffered much from bureaucratic pressures and pulls. Although this may be true of several other developmental programmes, it is particularly so in health sector and more so with respect to RNTCP. The attitude of STOs and DTOs towards NGOs/PPs varies substantially across districts and states, despite the overall policy level support for PPP strategy. But this policy level support has no definitive “legislative authority” to force the bureaucracy and programme managers into implementing the PPP strategy more vigorously. It is difficult to visualize successful implementation of the PPP strategy in the years to come without greater political and bureaucratic commitment to and clarity on the overall PPP strategy. The practicality of PPP strategy is often misconstrued or confused with more fundamental arguments on the role of private sector in healthcare. Clearly, the RNTCP is in need of better designed PPP strategy.
16. One final word on the PPP strategy: Changing the practice style of private providers is perhaps the most difficult challenge for the successful implementation of PPP strategy. The success of PPP strategy in the implementation of RNTCP in the future depends much on careful nurturing of NGOs and community volunteers committed to promotion of public health.

Maps of Kerala and Tamil Nadu



Sample Districts

Source: <http://www.mapsofindia.com>

Note : Maps not to scale

**Appendix 1 Summary of NGO schemes in RNTCP**

<b>Scheme</b>	<b>Title</b>	<b>General Description</b>	<b>PP Role</b>	<b>DTCS / DTC Role</b>	<b>Commodity Assistance</b>		<b>Requirements/ Eligibility Criteria</b>	<b>Approval and Registration</b>
					<b>In kind</b>	<b>Grant-in-aid</b>		
1	<b>Health Education and Community Outreach</b>	NGO staff and volunteers provide advocacy, information, education, and communication. Another important area could be retrieval of defaulters.	Train volunteers, disseminate information, counsel patients and families, and, if agreed, retrieve defaulters in their area of operation	Orient and train trainers from the NGO who will in turn train NGO volunteers.	Literature for training and orientation as available and appropriate.	Rs 5000 for covering 10 lakh population.	The NGO must be registered under the Societies Registration Act, should have a minimum of one year experience with IEC or training in health or related field. Letter from the NGO, with specific plan for activities.	The DTCS establishes collaboration without consultation with a higher authority, then informs the State TB Cell of the collaboration established.
2	<b>Provision of Directly Observed Therapy</b>	Staff or volunteers of the NGO provide directly observed therapy (DOT) to patients on RNTCP treatment.	Identify, train, and supervise volunteers engaged in provision of DOT. The NGO ensures continuous service delivery and treatment observation as per policy. Records must be maintained as per RNTCP policy. The policy of free diagnostic and treatment services must be strictly adhered to. The DOT provider is also responsible for ensuring collection of sputum during treatment, and for defaulter retrieval.	Orient and train volunteers who provide DOT. TB Programme Staff (including Senior Treatment Supervisors, TB Health Visitors, etc.) supervise volunteers providing DOT. In case of any adverse reactions to medications,	Literature for training and orientation is given as available and appropriate. Medications are provided for the patients placed on treatment. Sputum containers are provided for follow-up examinations. Formats as required.	Rs 10000 for every 1 lakh population or its proportionate amount. If required, Rs175 to the individual volunteer for each patient cured, to be disbursed after the patient is cured. Alternatively, the District TB Control	The NGO must be registered under the Societies Registration Act, should have a minimum of one year experience in outreach work in health or in related fields and have the necessary infrastructure. The NGO must provide a plan of action and should preferably have volunteers who live or work in the area.	The District TB Control Society can approve collaboration at its level. A copy of the relevant application, including formats, will be sent to the State TB Cell and the Central TB Division for information.



				the DOTS provider will refer the patient to the treating medical facility.		Society may pay an agreed-upon amount to the NGO based on Rs175/ patient.		
3	<b>In-Hospital Care for Tuberculosis Disease</b>	The NGO provides in-hospital care for tuberculosis patients. The hospital performs AFB smears and participates in quality control of the District TB Centre. The Hospital may also be a microscopy centre (see Scheme 4) and/ or DOT provider (see Scheme 2) for patients on outpatient	The NGO must strictly adhere to diagnostic and treatment policies as laid down in the RNTCP guidelines. Treatment is to be given as per the RNTCP policy. The hospital must ensure proper follow-up sputum examinations as well as record- keeping as per the RNTCP policy. RNTCP treatment should be given only to those patients who live in areas covered by the RNTCP.	The TB programme will provide orientation, training, technical assistance, referral of patients with active tuberculosis who require hospitalization, quality assurance of laboratory services, and supervision and monitoring of activities.	Literature for training and orientation is given as available and appropriate. Medications for RNTCP treatment are provided for patients who live in an RNTCP area and who will continue RNTCP treatment after discharge from the hospital. Required formats are provided as required.	Rs 20,000	The NGO must be registered under the Societies Registration Act, should have a minimum of 3 years experience in the area of operation, and must have availability of the infrastructure, staff/ volunteers required. They must have a functioning microscopy laboratory as well as trained medical staff.	For provision of drugs from the national supply, recommendation must be obtained from the District TB Centre and State TB Cell. This must be approved of by the Central TB Division. The Central TB Division will maintain registration of all such hospitals.
4	<b>Microscopy and Treatment Centre</b>	The NGO serves as a microscopy and treatment	Provide AFB microscopy and TB treatment services free of charge. Technical policy for	The TB Programme will provide training and	Laboratory materials and reagents as well as laboratory	Rs 50,000	The NGO must be registered under the Societies Registration Act,	After completion of the application including

		centre and is designated as such by the RNTCP.	diagnosis, treatment, and record-keeping strictly per RNTCP policy. The NGO is responsible for ensuring the treatment or referral of all patients found to have a positive AFB smear. The NGO must ensure referral for treatment of patients found to be smear-positive but who live outside the NGO's catchment area.	technical guidance and perform laboratory quality control. In addition, the programme will assist the NGO in ensuring evaluation of smear-positive patients who live outside the catchment area of the NGO and who the NGO referred for treatment. The TB Programme will monitor diagnostic quality and will list the facility as an approved RNTCP microscopy centre, as long as performance is satisfactory.	forms and TB Laboratory Register. Anti-TB drugs will be provided for the patients who live in the NGO catchment area. If needed and available, the TB Programme may provide a microscope.		should have a minimum of 3 years experience in the area of operation, and must have availability of necessary infrastructure. It must have a trained microscopist, a room for the laboratory, and regular services of an MO.	formats and upon recommendation by the District TB Control Society, approval is made by the State TB Cell. A copy of the relevant application, including formats, will be sent to the Central TB Division for information.
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Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance			Requirements/ Eligibility Criteria
					In kind	Grant-in-aid		
5	<b>Tuberculosis Unit Model</b>	NGO provides all RNTCP services for a Tuberculosis Unit (approximately 5 lakh population). Strict compliance with the Technical and the Operational Guidelines of the RNTCP is mandatory. In general, this should only be considered in areas where the governmental infrastructure is not sufficient to ensure effective RNTCP implementation, <b>and/or</b> where an effective NGO is currently working in the health field in this area.	The NGO ensures full services for microscopy, treatment, direct observation, defaulter retrieval, recording and registration, supervision, etc. The NGO must also coordinate closely with all public and other health facilities in the area. The NGO must ensure the fulfilment of all roles delineated in Scheme 2 and Scheme 4, as well as the more general functions of the Tuberculosis Unit. Accurate and timely quarterly reporting is essential.	Provides technical orientation, guidance, and supervision. Ensures good integration of the Tuberculosis Unit operated by the NGO with other Tuberculosis Units in the District. Includes the staff of the Tuberculosis Unit in all regular meetings of nodal RNTCP implementing staff.	Materials for training and implementation, anti-TB drugs and microscopes. Upgradation of microscopy facilities may be done as commodity assistance by the District TB Control Society. Provision of a 2-wheeler for mobility of STS/STLS, if required. Laboratory consumables may be in kind.	The available budget is given in the text (see p. 11).	Must be registered under the Societies Registration Act, have a minimum of 3 years experience in the area of operation, and have available infrastructure and staff. Must qualify for Schemes 2 and 4 also. Must have an established health facility with a proven track record.	After completion of the application including formats and upon recommendation by the District TB Control Society as well as the State TB Cell, approval is made by the Central TB Division. A copy of the signed Memorandum of Understanding is to be sent to the State TB Cell and the Central TB Division.

Note: The normal period of agreement will be three years, to be renewed only on the basis of satisfactory annual reports of activities, evaluation of performance by the DTCS and recommendation for extension. In case of poor performance and non-diligence, the contract can be terminated at any time without prior notice.

Source: [www.tbcindia.org](http://www.tbcindia.org)

**Appendix 2 Summary of PP schemes in RNTCP**

Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance			Requirements/ Eligibility Criteria
					In kind	Grant-in-aid		
1	<b>Referral</b>	PP refers patients or sends sputum samples to the designated microscopy centre providing treatment, which evaluates patient, provides treatment for TB if diagnosed, and refers patients or sends sputum results back to PP for ongoing non-TB care	Refer patients or sputum samples to RNTCP designated microscopy centre before prescribing anti-tuberculosis treatment. If agreed, PP collects spot sputum specimen and provide patient container for early-morning collection, and can also collect the 2 <sup>nd</sup> and 3 <sup>rd</sup> samples on the next day.	Inform PPs of location and timings of designated MCs; Ensure quality of microscopy in designated MCs; Orient and sensitize PPs to RNTCP policies and procedures, including, if desired, method of demonstrating to patients the manner in which sputum sample should be collected; Provide Laboratory Forms and if desired, containers for sputum examination to PPs; Ensure that designated MCs provide feedback on results of evaluation of patients referred by PPs; Issues a certificate to PPs completing sensitization training	Laboratory forms for sputum examination  If desired, containers for sputum examination (initial stock to be replenished on use)	Rs.10 per sputum sample to PP or staff for dispatch of sputum samples to MCs provided it is dispatched in maximum of two batches within two days.	PP must complete sensitization training provided by DTCS. PP must be willing to refer patients to designated microscopy centres before initiating anti-tuberculosis treatment.	Upon recommendation by MO-IC/MO-TC, DTCS establishes collaboration with PP at its level with intimation to State TB Cell/State TB Control Society.
2.	<b>Provision of Directly Observed Treatment</b>	PP or staff of PP office provides directly observed treatment to patients as per	Identify, train, and supervise those who provide directly observed treatment. Records (TB Treatment Card)	TB patients will be given the option of either receiving treatment observation at the Govt DOT Centre or from a participating PP. If patient opts for PP, nearest governmental DOT centre gives direct observation of at least the first three doses of	Literature for training and orientation is given as available and appropriate. Medications	Rs.175 to the treatment observer for each patient cured/completed treatment, to be disbursed after	PP must: - Successfully complete Modules 1-4 of Managing the RNTCP in Your Area -	The DTCS can approve collaboration at its level with intimation to State

		<p>RNTCP guidelines. Patients may either have been referred by PP, or diagnosed elsewhere and referred to PP for direct observation. May be individual physician or other private sector provider (e.g., PSU, industry)</p>	<p>must be maintained strictly as per RNTCP policy. The policy of free diagnostic and treatment services must be strictly adhered to. The DOT provider is responsible for following up the patient till treatment is completed including ensuring that sputum samples are collected during treatment, and for defaulter retrieval.</p>	<p>RNTCP treatment on alternative days as per policy. During this time, the patient's name is written on the treatment box, and it is repeatedly emphasized to the patient that all diagnosis and treatment is free of charge. During visits for follow-up sputum examination, the patient will be reminded that all TB services are free and if he is not satisfied with the services of the PP, he can opt for the Government sector again. DTCS orients and trains persons who provide directly observed treatment. TB Programme Staff (including Senior Treatment Supervisors, TB Health Visitors, etc.) supervise those who give observed treatment and assist with initial visit, address verification and defaulter retrieval, whenever required. In case of adverse reactions to medications, the DOT provider refers the patient to the treating medical facility Provide a signboard to be displayed by PP "DOT centre under RNTCP: All anti-TB drugs given under RNTCP are free of charge."</p>	<p>are provided for the patients placed on treatment. Sputum containers are provided for follow-up examinations. Formats (TB Treatment Cards, Identity Cards) as required.</p>	<p>cure/completion of the treatment.</p>	<p>Prominently display a sign in local language "DOT centre under RNTCP: All anti-TB drugs given under RNTCP are free of charge."  - Provide plan of action for defaulter retrieval.  - Allow on-site monitoring by STS/ DTO and RNTCP supervisory staff.  - Ensure that treatment observation occurs as per RNTCP policy;</p>	<p>TB Cell/State TB Control Society</p>
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Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance		Requirements/ Eligibility Criteria	
					In kind	Grant-in-aid		
							<ul style="list-style-type: none"> <li>- Ensure follow-up sputum examinations are done as per schedule</li> <li>- Sign an undertaking with DTCS indicating that he will adhere to RNTCP diagnostic and treatment policy and will not charge patients.</li> </ul>	
3A.	<b>Designated Paid Microscopy Centre- Microscopy only</b>	A private health facility serves as an approved microscopy centre under RNTCP. Microscopy policy is as per RNTCP, including record keeping. The approved microscopy centre is supervised by the STLS/MO-TC/DTO of the DTCS. Microscopy centre may	The health facility must strictly adhere to RNTCP policies on sputum microscopy as outlined in the Manual for Laboratory Technicians and the Laboratory Technician Module, including proper maintenance of a TB Laboratory Register, and following guidelines of RNTCP quality assurance protocol. The MC should provide reports in time and inform referring PPs in case its services are	DTCS provides: <ul style="list-style-type: none"> <li>- Training to the LT and other staff of the facility;</li> <li>- Technical monitoring of the quality of microscopy</li> <li>- Review of approval as microscopy centre on an annual basis</li> <li>- Ensure that MCs provide feedback on results of evaluation of patients referred by PPs in time.</li> <li>- Provide a signboard that it</li> </ul>	Literature for training and orientation is given as available and appropriate. Required formats are provided as required, including Laboratory Form for Sputum Examination and Laboratory Register.	Nil	The LT must have successfully completed modular RNTCP training in sputum microscopy, Only specified LTs who have been trained are to conduct sputum examinations; the Laboratory Forms and Laboratory Register are to be maintained as per RNTCP policy, and the facility will be open to onsite monitoring by STLS/ DTO and RNTCP supervisory staff. Binocular microscope should be used for carrying out sputum microscopy. Reagents of good quality should be used and properly maintained. Must maintain adequate quality of diagnosis (ratio of positive to negative pulmonary cases of not more than 1:2 to start	Health facility provides for training of LTs and submits letter of undertaking. The DTCS reviews the letter, the performance and technical skills of the LTs as evidenced by their performance during training, and conducts on-site inspection of microscopy facilities confirming presence of

		charge patients for its services.	disrupted. Monthly reports will be collected by STLS during his visits.	is a govt. approved paid RNTCP laboratory for carrying out sputum microscopy for TB			with and 1:1.2 after one year)	functional binocular microscopes, all necessary reagents and materials for microscopy. Approval is by DTCS which signs a letter of agreement with the health facility and issues a certificate of approval in specified format, clearly stating the period of designation (1 year, to be evaluated annually for re-designation). Designation is communicated to State TB Cell and Central TB Division for information
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Continued,

Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance			Requirements/ Eligibility Criteria
					In kind	Grant-in-aid		
3B	<b>Designated Paid Microscopy Centre – Microscopy and Treatment</b>	In addition to the policies outlined in 3A, the microscopy centre serves as a treatment centre, providing categorization and treatment of patients	In addition to role in 3A, physician of approved microscopy centre performs diagnosis and categorization and provides treatment. Staff of the health facility designated for treatment observation should undertake address verification, initial visit, and defaulter retrieval. The centre must also ensure that the DOT provider is trained and performs his duty including maintenance of treatment cards, defaulter retrieval as per RNTCP guidelines and also as detailed in Scheme 2. Coordinate with TB programme staff for address verification, initial visit, and defaulter retrieval if required. Should not cover more population than that of the TB Unit.	In addition to role in 3A, provides training to MO of approved microscopy centre, monitoring of quality of care, and assistance with address verification, initial visit and defaulter retrieval, if required.  Provide a signboard that it is govt. approved paid RNTCP laboratory for carrying out sputum microscopy for TB , but anti-TB drugs are given free of cost	As above, and also TB Treatment Cards, TB Identity cards, patient-wise boxes tallied against specific patients begun on treatment. Anti-TB drugs will be provided for the patients who live in the catchment area.	As per Scheme 2	In addition to 3A above, the health facility should have a MO with minimum MBBS qualification who must successfully complete Modules 1-4 of Managing the RNTCP in Your Area.  Note: in order to be a treatment observation center, the approved microscopy centre also has to meet the criteria and perform roles as in Scheme 2 above.	In addition to 3A provisions of Scheme 2 would also apply. Approval is by the DTCS.

Continued.....



Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance		Requirements/ Eligibility Criteria	Approval and Registration
					In kind	Grant-in-aid		
4A	<b>Designated Microscopy Centre- Microscopy only</b>	The health facility serves as a microscopy centre and is designated as such by the RNTCP. Patients are not charged for AFB microscopy, and the materials for microscopy are provided to the microscopy centre.	The health facility must strictly adhere to RNTCP policies on sputum microscopy as outlined in the Manual for Laboratory Technicians and the Laboratory Technician Module, including proper maintenance of a TB Laboratory Register, and following guidelines of RNTCP quality assurance protocol. All diagnosed TB patients must be informed of the availability of free services and referred to Government MCs or DOT centres under	The DTCS will provide training and technical guidance and perform laboratory quality control. In addition, the programme will assist the microscopy centre in ensuring referral of smear positive patients who live outside the catchment area and also ensures that the system guarantees initiation of treatment within a week of diagnosis. The TB Programme will monitor diagnostic quality and will list the facility as a designated RVTCP	Laboratory materials and reagents as well as laboratory forms and TB Laboratory Register. If needed and available, the TB Programme should provide a microscope unless functioning binocular microscope is already available.	Rs 15 per slide but subject to a cap and revocation if fewer than 4% of suspects examined are found to be AFB positive. Specifically, if less than 4% of TB suspects are found to be positive, then only 25 times the number of positive slides would be reimbursed, and the laboratory would be intensively Supervised concerning selection of patients and performance of microscopy.	Must have availability of necessary infrastructure. Must have a trained microscopist, and availability of a room for the laboratory. The health facility staff must undergo modular training in microscopy as per RNTCP guidelines; only specified LTS who have been trained are to conduct sputum examinations; the Laboratory Forms and Laboratory Register are to be maintained as per RNTCP policy, and the facility will be open to on-site monitoring by STLS/DTO and NTCP supervisory staff. Binocular microscopes should be used to carrying out sputum microscopy. Reagents of good quality should be used and properly	Health facility provides for training of LTs and submits letter of undertaking. The DTCS reviews the letter and the performance of the LTs in training, and conducts on-site inspection of microscopy facilities confirming presence of functional binocular microscope and all necessary reagents and materials for microscopy. Upon recommendation by DTCS, approvals by State TB Control Society. DTCS then designates the

Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance		Requirements/ Eligibility Criteria	Approval and Registration
					In kind	Grant-in-aid		
			3B and 4B this policy for categorization and treatment. The MC should provide reports in time and inform the referring PP in case its services are disrupted. Monthly reports will be collected by STLS during his visits.	Microscopy centre, as long as services are free and performance is acceptable. Provide a signboard that it is govt. approved RNTCP laboratory for carrying out sputum microscopy for TB free of cost.			Maintained. Must maintain adequate quality of diagnosis (ratio of positive to negative pulmonary cases of not more than 1:2 to start with and 1:1.2 after one year) Preference should be given to involving the most heavily utilized laboratories. The laboratory should, on an average, have a census of at least 2 chest symptomatics for sputum examination/day after 1 year of participation in the programme.	centre as microscopy centre, provides certificate in specified format clearly stating the period of designation (1 year, to be evaluated annually for re-designation), and lists it in RNTCP directories. Designation is communicated to the State TB Cell and the Central TB Division for information.

4B	<b>Designated Microscopy Centre- Microscopy and Treatment</b>	In addition to the policies outlined in 4A, the microscopy centre serves as a treatment centre, providing categorization and treatment of patients	In addition to role in 4A, physician of approved microscopy centre performs diagnosis and categorization and provides treatment. Staff of the health facility designated for treatment observation should undertake address verification, initial visit, and defaulter retrieval. The centre must also ensure that the DOT provider is trained and performs his duty including maintenance of	In addition to role in 4A, provides training to MO of approved microscopy centre, monitoring of quality of care, and assistance with initial visits, address verification and defaulter retrieval if required. Provide a signboard that it is govt. approved RNTCP laboratory offering sputum microscopy and anti-TB drugs free of cost.	As above, and also TB Treatment Cards, TB Identity cards, patient-wise boxes tallied against specific patients begun on treatment. Anti-TB drugs will be provided for the patients who live in the catchment area.	Rs 15per slide, but subject to a cap and revocation if fewer than 4% of patients examined are found to be AFB positive. Specifically, if less than 4% of TB patients are found to be positive, then only 25 times the number of positive slides would be reimbursed, and the laboratory would be intensively supervised concerning	In addition to 4A above, the health facility should have a MO with minimum MBBS qualification who must successfully complete Modules 1-4 of Managing the RNTCP in Your Area. Note: in order to be a treatment observation centre, the approved microscopy centre also has to meet the criteria and perform roles as in Scheme 2 above.	In addition to 4A above, provisions of Scheme 2 would also apply. Upon recommendations by DTCS, approval is made by the STCS.
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Scheme	Title	General Description	PP Role	DTCS / DTC Role	Commodity Assistance		Requirements/ Eligibility Criteria
					In kind	Grant-in-aid	
			treatment cards, defaulter retrieval as per RNTCP guidelines and also as detailed in Scheme 2 Coordinate with TB programme staff for address verification, initial visit, and defaulter retrieval if required. Should not cover more population than that of the TB Unit.			selection of patients and performance of microscopy. <i>Plus</i> As per Scheme 2	

Source: [www.tbcindia.org](http://www.tbcindia.org)

**Appendix 3 Number of health institutions under RNTCP in the sampled districts, TN and Kerala**

<b>Tamil Nadu Districts</b>	<b>TU</b>	<b>Population of the TU (in lakhs)</b>	<b>Government Hospital</b>	<b>Sanatoria/ TB hospital</b>	<b>PHC</b>	<b>CHC</b>	<b>BPHC</b>	<b>MC</b>
Cuddalore	Cuddalore	4.8	1	1	8	-	2	5
	Kammapuram	4.7	2	-	5	-	3	5
	Mangalur	3.5	1	-	9	-	2	4
	Marungur	4.8	2	1	3	1	2	5
	Orathur	4.9	2	-	9	-	4	4
	<b>TOTAL</b>	<b>22.7</b>	<b>8</b>	<b>2</b>	<b>34</b>	<b>1</b>	<b>13</b>	<b>23</b>
Kancheepuram	Kancheepuram	5.3	2	-	6	-	2	5
	Maduramangalam	4.8	1	-	6	-	3	4
	Acharapakam	4.2	1	-	7	-	2	4
	Nandivaram	5	2	1	4	-	1	4
	Medavakam	4.9	-	-	4	-	1	5
	Sadras	4.9	3	-	6	-	3	5
	<b>TOTAL</b>	<b>29.1</b>	<b>9</b>	<b>1</b>	<b>33</b>	<b>0</b>	<b>12</b>	<b>27</b>
Salem	Salem Urban	5	1	-	-	5	-	5
	Karipatti	4.8	-	-	13	2	3	5
	Konganapuram	4.9	3	-	16	-	5	5
	Nangavalli	5	2	-	14	-	5	5
	Malliakarai	4.9	2	-	10	-	3	4
	Chettipatti	4.9	2	-	9	-	4	5
	<b>TOTAL</b>	<b>29.5</b>	<b>10</b>	<b>0</b>	<b>62</b>	<b>7</b>	<b>20</b>	<b>29</b>
Thanjavur	Thanjavur	4.8	1	1	7	-	2	4
	Murugankudi	5.3	5	-	8	3	3	5
	Melattur	3.6	3	-	7	-	3	5
	Thondarampattu	3.2	1	-	12	-	3	4
	Siruvavidudhi	4.9	3	-	10	-	3	14
	<b>TOTAL</b>	<b>21.8</b>	<b>13</b>	<b>1</b>	<b>44</b>	<b>3</b>	<b>14</b>	<b>32</b>
The Nilgiris	Ooty	4.8	4	-	17	-	3	5
	Pandalur	4.9	2	-	7	-	1	3
	<b>TOTAL</b>	<b>9.7</b>	<b>6</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>4</b>	<b>8</b>

Source: III and IV Quarterly reports of 2003, obtained from DTC: Cuddalore, Kancheepuram, Salem, Thanjavur and The Nilgiris.

Kerala Districts	TU	Population of the TU (in Lakhs)	Government Hospital	Sanatoria/TB hospital	PHC	CHC	BPHC	MC
Trivandrum	Neyatinkara	6.5	2	Nil	13	2	3	8
	Nedumangadu	5.8	1	Nil	13	2	2	6
	Chirayinkil	4.8	2	Nil	13	2	0	4
	Puthenthope	4.7	1	Nil	10	1	1	5
	Trivandrum DTC	6.2	5	1	7	1	1	7
	Peroorkada	4.3	1	Nil	11	1	1	5
	<b>TOTAL</b>	<b>32.3</b>	<b>12</b>	<b>1</b>	<b>67</b>	<b>9</b>	<b>8</b>	<b>35</b>
Kollam	Kollam DTC	6.0	4	Nil	10	1	2	5
	Nedungolam	5	1	Nil	6	0	2	4
	Karunagapally	5	2	1	8	2	2	15
	Punnalur	5	2	Nil	13	2	1	5
	Kottarakara	5	1	Nil	21	0	4	5
	<b>TOTAL</b>	<b>26.0</b>	<b>10</b>	<b>1</b>	<b>58</b>	<b>5</b>	<b>11</b>	<b>34</b>
Kannur	Kannur_DTC	5.5	2	1	20	3	1	6
	Thalaserry	5.5	1	Nil	11	1	1	2
	Kuthuparamba	4	1	Nil	7	1	1	3
	Irrity	4	1	Nil	13	2	1	3
	Payyanur	5.12	4	Nil	17	0	4	7
	<b>TOTAL</b>	<b>24.1</b>	<b>9</b>	<b>1</b>	<b>68</b>	<b>7</b>	<b>8</b>	<b>21</b>
Ernakulam	Kochi_DTC	5	NR	Nil	NR	NR	NR	NR
	Ernakulam	4.5	3	Nil	10	0	3	6
	Aluva	5.64	0	Nil	15	1	3	4
	Paravoor	6.08	6	Nil	11	2	1	4
	Perambavoor	3.4	1	Nil	9	2	2	5
	Muvattupuzha	3.41	2	Nil	10	1	3	5
	Kothamangalam*	2.89	1	Nil	7	1	2	2
	<b>TOTAL</b>	<b>30.9</b>	<b>13</b>	<b>0</b>	<b>62</b>	<b>7</b>	<b>14</b>	<b>26</b>

Note: \* - After restructuring the TUs in Ernakulam district, Kothamangalam TU was added as a new TU after the III quarter of 2003.

Source: III and IV\_Quarterly reports of 2003, obtained from DTC: Trivandrum, Kollam, Ernakulam and Kannur.

**Appendix 4 List of NGOs/PP enlisted in the official documents in Tamil Nadu.**

State	Total number of NGOs officially listed	NGO Schemes								
District		1	2	3	4	5	1 & 2	1,2,4	2,3,4	1,2,3,4
TN state	85 ( <i>131</i> )*	42	24	-	6	2	4	2	2	3
The Nilgiris	9	-	5	-	1	-	-	-	2	1
Cuddalore	2	-	1	-	-	-	1	-	-	-
Thanjavur	19	11	8	-	-	-	-	-	-	-
Kancheepuram	-	-	-	-	-	-	-	-	-	-
Salem	2	-	-	-	-	5	-	-	-	-
Kerala state	57	7	21	-	3	-	24	2	-	-
Trivandrum	6	4	-	-	2	-	-	-	-	-
Ernakulam	3	1	-	-	1	-	1	-	-	-
Kollam	6	-	6	-	-	-	-	-	-	-
Kannur	5	-	-	-	-	-	5	-	-	-

State	Total number of PPs listed	PP Schemes						
District		1	2	3A & 3B	4A & 4B	1 & 2	2 & 3	3 & 4
TN state	272 ( <i>398</i> ) *	163	15	2	11	70	9	2
The Nilgiris	86	22	-	-	3	61	-	-
Cuddalore	01	-	1	-	-	-	-	-
Thanjavur	26	25	1	-	-	-	-	-
Kancheepuram	07	-	7	-	-	-	-	-
Thiruvallur	00	-	-	-	-	-	-	-
Kerala state	177	All 177 are presumably functioning as microscopy centres. However we are not sure of their exact status as per PP schemes.						
Trivandrum	12							
Ernakulam	16							
Kollam	73							
Kannur	48							

Note: \* The numbers within brackets (*in italics*) is the actual number of NGO/PP listed as existing by the state TB office; though only some of them are listed along with the schemes they are involved

**Appendix 5 List of Tuberculosis Units visited in sample districts.**

SL. NO	District	Total number of TUs in the district	Name of TUs visited
<b>Kerala State</b>			
1	Trivandrum	6	Neyyattinkara
			Nedumangad
			DTC Trivandrum
2	Kollam	5	DTC Kollam
			Punalur
			Karunagappally
3	Kannur	5	DTC Kannur
			Thalassery
			Kuthuparamba
4	Ernakulam	6	Ernakulam
			DTC Kochi
			Aluva
			Muvattupuzha
<b>Tamil Nadu State</b>			
5	Cuddalore	5	DTC Cuddalore
			Marungur
			Orathur
6	Kancheepuram	6	DTC Kancheepuram
			Nandhivaram
7	The Nilgiris	2	Ooty
			Pandalur
8	Thanjavur	5	Thanjavur
			Thondarampattu
9	Salem	6	Salem Urban
			Chettipatti
			Konganapuram



## Appendix 6

### Resume of NGOs included in the study, TN and Kerala.

#### NGOs visited in The Nilgiris District, TN

The Nilgiris Wynaad Tribal Welfare society (NWTWS) is a registered society started in 1979. The organisation supports the tribal population (of about 50,000) in the Pandalur taluk of Nilgiris district. Most of the tribals in this region are engaged in agriculture. The main focus of the NGO is to provide primary health care facilities to the tribals. The NGO also gives attention to the treatment for TB and leprosy. It has in-patient facility with a capacity of 12 beds. Since 1992, the NGO is involved in TB control activities and from 1996, it has followed DOTS strategy. The NGO has signed a MoU for scheme 4 (microscopy and treatment centre) under RNTCP in April 2001.

The NGO also receives financial support from the Damien foundation (Belgium) for TB control. It received Rs.50,000 from RNTCP in the year 2002, as part of the provisions under Scheme 4. The organisation also raises funds at the local level through farming activities.

The NGO provides TB diagnosis, treatment and supervision of patient's treatment. Health education and out-reach activities on TB and Leprosy are organised through street plays, group discussions, campaigning through loud speakers and broadcasting of video films. The para-medical staff and the community volunteers (DOTS volunteers) assist the NGO in strengthening the DOTS.

The Action for Community Organisation, Rehabilitation and Development (ACCORD), was established during the year 1986-87. The organisation fights against the unjust alienation of Adivasi lands and other human rights violation by organising the adivasis as strong pressure groups.

In 1990, ACCORD realized the necessity of a hospital with a separate legal entity and it took shape as Association for Health Welfare in the Nilgiris (ASWINI). ASHWINI deals with the health issues pertaining to the *Adivasis* (the tribal community) and the poor people of Gudalur taluk, which has a population of about 25000. It offers in-patient facility with a capacity of 20 beds.

The NGO has been involved in the control of TB since 1990. In 2001, the organisation has signed a MoU for Scheme- 4 (Microscopy and Treatment centre) under the RNTCP. It has received Rs.50,000 during 2001 as part of this scheme. The NGO also receives national and international financial support to manage its activities. Apart from these funds the hospital generates income through health insurance schemes from the non-tribal inhabitants of the area. Some among these *Adivasis* are trained as village health workers and nurses.

#### NGO visited in Tiruvallur District, TN

The HOPE foundation was established in 1991. It is an affiliate of HOPE World Wide, based in Philadelphia (USA). The foundation conducts medical, educational and other vocational training programmes. Apart from these, it also offers rehabilitation programmes for the orphans. The NGO covers the slum population in the area of Ambattur and Padi. The organisation has engaged in active TB case finding and has made one of the slums TB-free. The NGO has also collaborated in the past with NTI, (Bangalore) and TRC, (Chennai) towards the tackling of TB.

In 2003, they signed formally under RNTCP for implementing scheme-4. The organisation provides microscopy service and supports DOTS provision. It has trained a few community volunteers to act as DOTS providers and also to follow up with the patients. The organisation conducts street plays, skits, and poster campaigns as tools for campaigning to tackle TB. All the activities of the NGO are supported by domestic funding sources.

#### NGO visited in Kancheepuram district, TN

JSP hospital (private) Limited was established in the year 1993. The hospital offers, obstetrics & gynaecology, paediatrics, general medicine and surgery. It has 38 beds to accommodate in-patients. It has been implementing DOTS since 2003. The hospital functions as a sputum examination and treatment centre. It provides free microscopy and treatment to the TB patients

#### NGO visited in Cuddalore district, TN

The Better Living Environment Service Society (BLESS) was established in 1989. It is a developmental NGO involved in environment, education, employment, health, childcare and women's issues. The NGO has been involved in IEC activities (for TB) since 1999. The NGO became part of the RNTCP in October 2003. It is involved as DOT centre under 'scheme 2'. It caters to the population in the old town of Cuddalore consisting of 15 blocks. The organisation plans to extend its services for TB.

#### NGOs visited in Thanjavur district, TN

The Don Bosco Health Centre, Madhakottai was established in 1983. It is one of the Christian missionary hospitals in Thanjavur, which provides general health care and maternal facilities. The health centre provides homeopathy, siddha and allopathic forms of treatment. It has an inpatient facility with 10 beds exclusively to serve maternity and emergency purpose.

The health centre has been involved as a DOTS centre since January 2003. The Nurse of the health centre acts as the DOTS volunteer. Out patients suspected of TB are referred to the government hospital.

St. Gabriel hospital, Ayyampettai is a Christian missionary hospital with inpatient facility of 10 beds is about 100 years old. It addresses the health needs of patients within 5 km radius. The hospital provides DOTS to the TB patients.

#### NGOs visited in Salem District, TN

St. Mary's Hospital is a hospital cum NGO at Arisipalayam. It was established in the year 1961. It was initially started with the goal of eradicating leprosy. The hospital's main activities include providing rehabilitation to the leprosy patients, caring women and children in distress, the terminally ill and those with stigmatised diseases etc. The NGO has Voluntary Counselling and Testing cum Sexually Transmitted Diseases clinic for HIV/AIDS patients supported by AIDS Prevention and Control. It also provides care and support to the HIV/AIDS patients. The hospital has more than 200 beds, of which 20 are exclusively for HIV care. It caters to a population of about 5 lakhs in the urban area of Salem.

The NGO began to work on TB programmes since 2001 as there was a decline in leprosy caseload. Being a very reputed hospital in Salem it joined hands with the government for controlling TB under RNTCP. It is one of the two NGOs in the entire state of Tamil Nadu, which has signed for scheme 5 under RNTCP (The other NGO under scheme 5 mentioned below is also in Salem district). The Damien Foundation also supports the TB programme. The organisation has more than 700 volunteers as DOTS providers.

The Leprosy Relief Rural Centre (LRRC) is involved in Scheme-5. It is located at Chettipatti, Omalur (Salem district). It was set up in 1956 for treatment and control of Leprosy. It also provides maternity and general care services. Apart from these they have a physiotherapy unit for the children who are mentally retarded. It covers a population of about 5 lakhs within 4 blocks of Chettipatti TU.

Since 1988 the organisation has involved itself in TB control activities and in 2000 signed an agreement with the government to be part of the RNTCP. The organisation is supported by the German Leprosy Relief Association (GLRA.). It has inpatient facility mainly for leprosy patients.

#### NGOs visited in Trivandrum, Kerala

St. Johns Hospital and Leprosy Services at Pirappancode was established in 1963. It is a charitable organisation run by the Catholic Church under the Bethany congregation. It has 35 beds and the main activity of the organisation is to serve the leprosy patients. Though it's not signed into any schemes in the RNTCP it offers AFB facilities and also provides DOTS to the patients staying near the hospital.

During 1985 St. Johns opened another clinic in a neighbouring TU at Manacaud in the same district. This clinic has signed an agreement under scheme 4 in 2003. The hospital has been rendering microscopy activities for TB since 2000. The Damien Foundation supports St. Johns Hospital, Manacaud financially for the TB programme. All the activities except in patient facility are offered by the hospital. The hospital provides diagnosis through AFB, treatment through DOTS strategy and also does the follow-up of the patients under medication. The organisation's paramedical staffs are involved in active case finding methods for increasing the TB case detection. The field workers of the organisation spread messages about TB to the community.

The Santi Tuberculosis Elimination Programme (STEP) was established in 1990. STEP had earlier worked with Missionaries of Charity, Mother Teresa's congregation at Calcutta. In 1986 with the help of the funding agency called GOAL based at Ireland, STEP extended its work along the coastal regions of Kerala from Vizhijam to Poovar.

The NGO has been part of scheme 4, since January 2002. The hospital provides all facilities for TB treatment including AFB, X-ray, free drugs supplied by the government and DOTS. The funding from GOAL has stopped after the year 2000. The organisation has very good recognition/acceptance among the community people. The field workers of the organisation create TB awareness through home visits.

#### NGO visited in Ernakulam district, Kerala

The Cochin Urban Leprosy Treatment and Education Schemes (CULTES) is involved in urban leprosy programme in Cochin. It is supported by the international leprosy agency, German Leprosy Relief Association. Though the main thrust of the organisation is to eradicate leprosy, it has been involved in the control of TB since 1993. During 2003, it became a part of the RNTCP and the Cochin DTC has recognized the agency as DOT and Microscopy centre.

The NGO has all facilities including inpatient facility, mainly for the leprosy patients. For the TB programme the NGO offers diagnosis facility, treatment and follow up. The field staff of the NGO provide information on TB along with information about leprosy to the community people. Some among the field workers also act as DOT volunteers to the patients receiving medicines from the NGO.

## Appendix 7

### Characteristics of Sample Patients<sup>1</sup>

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T1	Kancheepuram	M	45	Flower Merchant	I P	C	Govt.	DTC provider	Yes	NK	NK	Not practiced	No	E	E	1000	“Symptoms exists after one year”
T2	-do-	F	18	Student	III - EP	C	Govt.	DTC provider	Yes	PP - refer	NK	Not practiced	No	NA	NA	1000	“The Lump exists after TB treatment”
T3	-do-	M	45	Casual Labourer	II - P	O	Govt.	Uthiramerur PHC	Yes	Tambaram Hospital	500	Not practiced	No	UE	UE	NIL	“Cough exist”
T4	-do-	M	40	Casual labourer	I P	C	Govt.	Uthiramerur PHC	Yes	Chengelpet MCH	NK	Not practiced	NK	UE	UE	400	“Have no problems”
T5	-do-	M	35	Cotton Mill worker	I- P	C	Govt.	Uthiramerur PHC	Yes	Uthiramerur PHC	400	Not practiced	Yes	UE	E	960	“Cough exists since about a week”
T6	-do-	M	34	Casual labourer	NK	C	Govt.	Nandhivaram GH	Yes	Tambaram sanatorium	NK	Not practiced	No	UE	UE	700	“No problem”
T7	-do-	F	17	Helper Garment Factory	NK	C	Govt.	Nandhivaram GH	Yes - referred	Tambaram	Nil	Practiced	No	UE	E	3000	“No problem”

<sup>1</sup> Source: Survey. Note : 'E' refers to employed; UE - un employed.  
Continued,

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T8	-do-	F	19	Worker Garment Factory	II - P	O	Govt.	Nandhivaram GH	Yes - pharmacist	PP	200	Not practiced	No	UE	UE	4000	“Feel better”
T9	-do-	M	52	UE	II	O	Govt.	Nandhivaram GH	Yes	Tambaram Hospital	2000	Not practiced	Yes	NA	NA	1500	“Have cough and sputum”
T10	Kancheepuram	M	53	Security	I - P	C	NGO	NGO- JSP	Yes	PP	2000	Practiced	No	E	E	4000	“I Suffer due to Asthma”
T11	-do	F	18	Student	III - P	C	NGO	NGO- JSP	Yes	PP	1500	Not practiced	Yes	NA	NA	2000	“I am weak and taking medication for weakness”.
T12	-do-	M	22	Workshop - helper	III P	O	NGO	NGO- JSP	Yes	Tambaram sanatorium	4000	Not practiced	Yes	UE	E	NIL	“Feel Better”
T13	Nilgiris	F	24	Pharmacist	I - P	O	Govt.	TU Ooty	No	OOTY - DTC	Nil	Not practiced	No	UE	UE	2600	“Better, suffer from diabetes”
T14	-do-	F	28	UE	I - P	C	Govt.	TU Ooty	Yes - referred	DTC	900	Practiced	Yes	NA	NA	1050	“No health problem”
T15	-do-	M	17	Agriculturalist - tribal	NK	O	ACCORD - NGO	NGO volunteer	No	Accord	NK	Not practiced	NK	UE	NA	1050	“Feel tired”
T16	-do-	F	26	Home Maker - Tribal	I - P	O	ACCORD - NGO	NGO volunteer	No	Accord	1500	NK	NA	NA	NA	NK	Not reported

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T17	-do-	M	42	UE	I - P	O	NWTWS – NGO	Community volunteer - Home maker	No	NWTWS	NK	Practiced	Yes	NA	NA	NK	“Better”
T18	-do-	M	35	Casual Labourer – Tribal	III EP	O	NWTWS – NGO	NGO volunteer	No	NWTWS	NK	Practiced	No	UE	NA	1200	“Feel better”
T19	-do-	F	55	Home Maker – Tribal	II	C	NWTWS - NGO	NGO volunteer	No	ACCORD	NK	NK	NK	NA	NA	NK	“Body ache, and many other problems”
T20	-do-	F	34	Home Maker	III EP	O	NWTWS - NGO	NGO volunteer	NK	Govt. MCH - Calicut - referred	NK	Practiced	No	NA	NA	300	“Breathing problem and feel weak”
T21	Cuddalore	F	25	Home Maker	III EP	C	Govt.	PHC	Yes	GOVT.	300	Not practiced	No	NA	NA	1500	“Chest pain exists”
T22	-do-	M	27	NK	I P	O	Govt.	GH	NK	GH	NK	Not practiced	Yes	NK	NK	NIL	“ Have Jaundice therefore admitted at Tambaram hospital”
T23	-do-	M	35	Fisherman	I P	O	NGO-BLESS	NGO volunteer	Yes	GH	2000	Not practiced	No	UE	E	2000	“Feel better”

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T24	-do-	F	16	UE	I P	O	NGO BLESS	NGO volunteer	Yes	PP-refer GH	300	Not practiced	Yes	NA	NA	NIL	Not Reported
T25	-do-	M	35	Worker-Lathe	III P	O	NGO BLESS	NGO volunteer	Yes	PP-refer GH	800	Not practiced	Yes	E	NA	1000	“No problem”
T26	-do-	M	38	Municipality Sweeper	III EP	O	NGO BLESS	NGO volunteer	Yes	GH	400	Not practiced	Yes	UE	UE	4900	“Have fever, Chills and Body ache”
T27	-do-	F	60	Home Maker	I P	C	Govt.	Panruti GH	Yes	PP-refer GH	350	NK	No	NA	NA	600	“Have Cold, and cough”
T28	-do-	M	62	UE	II	C	Govt.	Panruti GH	Yes	GOVT	15000	Not practiced	No	NA	NA	NIL	“Severely ill”
T29	-do-	M	35	Hotel Owner	II	C	Govt.	Panruti GH	Yes	GH	250	Practiced	No	E	E	1000	“Diabetic but no problem”
T30	-do-	F	30	Home Maker	I P	C	Govt.	Panruti GH	No	JIPMER	NK	Practiced	No	NA	NA	1000	“No problem”
T31	-do-	F	45	Home Maker	III P	C	Govt.	Panruti GH	Yes	GH Panruti	NK	Practiced	No	NA	NA	NIL	“Weight loss
T32	Thanjavur	M	40	Factory worker	III P	O	NGO-Don Bosco health centre	PP	Yes	DTC	600	Not practiced	No	UE	E	NIL	“Feel better”
T33	-do-	M	54	Hotel Worker	I P	O	NGO 7th Day Adventist	PP	No	DTC	1000	Not practiced	No	E	E	NK	“Feel better”



ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T34	-do-	M	26	Casual Labourer	II EP	O	Govt.	Orathanadu GH	No	Orathanadu GH	NK	Not practiced	No	UE	UE	NIL	“Have rashes”
T35	-do-	F	26	Home Maker	I P	C	Govt.	Tiruvonam PHC	No	Tiruvonam PHC	Nil	Not practiced	No	NA	NA	NIL	“Feel better”
T36	-do-	M	31	Casual Labourer	III P	C	Govt.	Tiruvonam PHC-VHN	Yes	Tiruvonam PHC	1000	Not practiced	No	UE	UE	NIL	“Have weight loss. Lack of appetite”
T37	-do-	F	28	Home Maker	I P	C	Govt.	Tiruvonam PHC	No	PHC	Nil	Not practiced	No	NA	NA	NIL	No problem
T38	-do-	M	60	Agriculturalist	I P	C	Govt.	Orathanadu GH	Yes-ref	Orathanadu GH	200	Not practiced	No	E	E	400	“Have weight loss and feel weak”
T39	-do-	M	75	Agriculturalist	III P	C	Govt.	Orathanadu GH	Yes-ref	Orathanadu GH	NK	Not practiced	Yes	E	E	NK	“Have problems”
T40	-do-	M	40	Coolie – vegetable market	I P	O	Govt.	DTC provider	No	Pattukottai hospital/ DTC	4000	Not practiced	No	UE	UE	NIL	“Get fever and chills,”(HIV +ve)
T41	-do-	M	59	UE	II	O	Govt.	DTC provider	No	DTC	Nil	Practiced	No	NA	NA	NIL	“Have severe cough and cold”
T42	-do-	F	20	Home Maker	I P	O	Govt.	DTC provider	Yes	DTC	NK	Practiced	No	NA	NA	NIL	“Better”

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T43	Salem	M	52	Lock repairer	IP	C	NGO - ST. Mary's Hospital	NGO - ST. Mary's Hospital	Yes	GH-DTC	100	Not practiced	No	UE	UE	2000	“Better but loosing weight”
T44	-do-	F	38	Coir Making	IP	C	NGO - ST. Mary's Hospital	NGO - ST. Mary's Hospital	Yes	PP	500	Not practiced	Yes	E	E	600	“Weight loss, and lack of appetite”
T45		F	17	Student	IP	O	NGO - ST. Mary's Hospital	Volunteer - Pharmacist	Yes	GH	300	Practiced	No	NA	NA	NIL	“Better”
T46	-do-	F	17	Student	IP	C	NGO - ST. Mary's Hospital	Volunteer - Neighbour	No	GH	Nil	Practiced	No	NA	NA	NIL	“Better”
T47	-do-	M	50	Agriculturalist	II	O	Govt.	SHG	Yes	PP - Sanatoria	20000	Not practiced	No	UE	UE	NIL	“Have breathing problem”
T48	-do-	M	45	Weaver	IP	O	Govt.	SHG - relative	No	Govt.	Nil	Not practiced	Yes	UE	UE	NK	“Don't feel better”
T49	-do-	F	33	Shepherdess	IP	C	Govt.	Volunteer - Health inspector/ neighbour	Yes	GH	600	Not practiced	No	E	E	2000	“Have phlegm and cough”
T50	-do-	M	23	Weaver	I - P	C	Govt.	Edapadi GH	Yes	Nursing home	10000	Not practiced	No	UE	E	1400	“Better”

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
T51	-do-	M	41	Weaver	II	C	Govt.	Edapadi GH	No	Erode GH	Nil	Not practiced	NK	E	E	NK	Not reported
T52	-do-	M	56	Shepard	II	C	Govt.	Volunteer - noon meal organizer	NK	GH	NK	Not practiced	NK	UE	UE	NIL	“Cough persists”
T53	-do-	F	60	Home Maker	III - EP	C	Govt.	Volunteer - Post master	Yes	Nursing home	12000	Not practiced	No	NA	NA	NIL	“Better”
T54	-do-	F	50	Home Maker	III	C	NGO - ST. Mary's Hospital	Volunteer - Relative	No	DTC	Nil	Practiced	Yes	NA	NA	NIL	“Cough persists”
T55	Salem	M	65	Watchman	II - Failure	C	NGO St. Mary's Hospital	NGO - ST. Mary's Hospital	No	Mettur GH	Nil	Not practiced	Yes	E	E	NK	“Health condition is worse” (MDR)
T56	-do-	F	33	Coolie	III P	C	NGO - LRRC	VHN	Yes	St. Mary's Hospital	250	Not practiced	No	E	E	600	“Better, but have sputum and get fever at times”.
T57	-do-	M	55	Shop Owner	I P	C	NGO - LRRC	Volunteer - pharmacist	Yes	DTC	1500	Practiced	No	E	E	1500	“Feel better”
T58	-do-	M	21	Electrician	III P	C	NGO LRRC	VHN	NK	GH	500	Not practiced	NK	E	E	NK	“Better”
T59	-do-	M	35	Coolie	III P	O	NGO - LRRC	VHN	Yes	GH	1000	Not practiced	No	E	E	660	“Feel better but breathing problem exists”

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
K1	Trivandrum	M	32	Balloon Seller	II - Default	O	NGO	St. Johns Hospital, Manacaud	No	NGO	Nil	Practiced	No	E	E	300	"Better"
K2	-do-	M	30	Head load worker	I -ve	O	NGO	St. Johns Hospital, Manacaud	Yes	Medical college	5000	Not practiced	No	E	E	2000	"Better but difficult to work hard"
K3	-do-	F	40	Home maker	III - EP	C	NGO	St. Johns Hospital, Manacaud	No	Govt. Hospital	Nil	Practiced	No	NA	NA	NK	"In Good health"
K4	-do-	F	32	Home Maker	III - P-ve	C	NGO	St. Johns Hospital, Manacaud	Yes	PRS hospital	1600	Not practiced	No	NA	NA	3000	"No health problems"
K5	-do-	M	47	Casual labour	I P +ve	C	NGO	St. Johns Hospital, Pirappanco	No	DTC	NK	Not Practiced	No	E	E	1600	"At times cough persists"
K6	-do-	M	36	Wood carving designer	I P-ve	C	NGO	St. Johns Hospital, Pirappancode	Yes	TB sanatoria	5000	Not practiced	No	UE	UE	2250	"Gastritis problem"
K7	-do-	M	64	Petty shop Owner	III EP	C	NGO	St. Johns Hospital, Pirappancode	No	Medical college	2000	Practiced	No	E	E	NK	"No health problems"
K8	-do-	F	24	Home Maker	I P +ve	C	NGO	STEP	No	STEP	95	Not practiced	Yes	NA	NA	NK	"No health problems"
K9	-do-	M	19	Fisherman	I P-ve	C	NGO	STEP	Yes	STEP	190	Not practiced	No	E	E	NK	"Better"

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
K10	-do-	M	70	Fisherman	I P +ve	C	NGO	STEP	No	STEP	NK	Practiced	No	UE	UE	NK	"Asthma and cough persists"
K11	-do-	F	24	Home Maker	II – Relapse	C	NGO	STEP	No	STEP	175	Practiced	No	NA	NA	NK	"Better"
K12	Trivandrum	M	48	Fisherman	III P-ve	C	NGO	STEP	No	STEP	70	Practiced	No	UE	UE	NK	"Unhappy with medication-cough exists."
K13	-do-	M	45	Fisherman	I P +ve	C	NGO	STEP	No	STEP	90	Practiced	Yes - 3 weeks	UE	UE	NK	" Having cough"
K14	-do-	F	62	Home maker	III	C	NGO	STEP	No	STEP	95	NK	No	NA	NA	NK	"Fever and persistent cough"
K15	-do-	M	62	Casual labour	I P +ve	O	GOVT	Sub centre-SHG Member	No	GH	NK	Not practiced	No	UE	NK	500	Not Reported
K16	-do-	M	20	Waste collection	I P +ve	C	GOVT	Sub centre	Yes	GH	5000	Not practiced	No	E	E	NK	"Better but No appetite"
K17	-do-	M	60	UE	II relapse	C	GOVT	Sub centre	No	TB sanatoria	NK	Not practiced	No	NA	NA	Nil	"Have cough and feel weak"
K18	-do-	M	40	UE	II Relapse	C	GOVT	Sub centre	No	DTC	NK	Not practiced	No	NA	NA	NK	"Not well"
K19	-do-	M	56	UE	I	C	GOVT	Sub centre	No	DTC	NK	Not practiced	No	NA	NA	NK	Not Reported
K20	Ernakulam	F	19	Tailor	I EP	C	NGO	CULTES	Yes	Lourde Hospital	900	Not practiced	NO	UE	UE	NK	"Have problem with eyes" - EYE TB

ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
K21	-do-	M	62	Coolie - shipyard	I P +ve	C	NGO	CULTES	No	GH	2500	Not practiced	NK	UE	UE	NK	"Fever and breathlessness exist"
K22	-do-	M	65	Bricklin worker	I P +ve	C	GOVT	CV- Neighbour	Yes	PHC	400	Practiced	Yes	UE	UE	NK	"Better"
K23	Ernakulam	M	54	Milk Vendor	II - Failure	C	GOVT	Initially anganwadi later PHC	No	GH - koothattukulam	NK	Not practiced	NO	UE	UE	NK	"Worse health condition"
K24	-do-	M	45	Shop keeper	I P +ve	C	NGO	CAPS	Yes	Private hospital	5000	Non practiced	No	UE	E	NK	"At times have cough"
K25	-do-	M	45	Mechanic	I P +ve	C	GOVT	GH	No	GH	NK	Not practiced	No	UE	UE	NK	"Good health"
K26	-do-	F	45	Home Maker	I P +ve	C	GOVT	Anganwadi	Yes	GH	800	Not practiced	No	NA	NA	NK	"feel Weak and tired"
K27	-do-	F	40	House maid	I P +ve	C	GOVT	SHG member	Yes - Many	GH	400	Practiced	No	UE	UE	NK	"Breathlessness"
K28	Kollam	M	50	Hosp. Attender	III P-ve	C	GOVT	Staff nurse -GH	No	GH	Nil	Not practiced	No	E	E	NK	Not reported
K29	-do-	F	68	Home maker	III P-ve	C	GOVT	Anganwadi	Yes	GH	NK	Not practiced	No	NA	NA	NK	Not reported
K30	-do-	M	75	Agriculture	II - failure	C	GOVT	Anganwadi	Yes	GH	NK	Not practiced	No	NK	NK	NK	"Fine"
K31	-do-	M	75	UE	I	C	GOVT	Anganwadi	Yes - Homeo/PP	GH	NK	Not practiced	No	NA	NA	NK	"Fine"
K32	-do-	M	54	Labour	II - Failure	C	PP	Deen hospital	Yes	Deen hospital	NK	Practiced	No	NK	NK	NK	Not reported

ID No	District	Sex	Age	Occupation	Category of treatment	Medication status	PP/NGO /Govt. patient	DOT Provider Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or Not?	Discontinued medication - Yes/No	Employment during Illness		Family Income (Per month)	Health status as reported by the patients
														IP	CP		
K33	-do-	M	45	UE	I	C	GOVT	CV	Yes	GH	NK	Not practiced	No	NA	NA	NK	"Fine"
K34	-do-	M	70	Milk Vendor	IP +ve	C	PP	Parrakkat hospital	Yes	GH	NK	Not practiced	No	E	E	NK	Not reported
K35	-do-	F	18	Student	IP +ve	O	PP	Aradhana Hospital	Yes	Aradhana hospital	90	Not practiced	No	NA	NA	NK	"Better".
K36	Kannur	F	47	UE	III S -ve	O	NGO	Pratyasha Bhavan	No	DTC	NK	Practiced	No	UE	UE	NK	Not reported
K37	Kannur	M	28	Worker-spare part shop	I	O	GOVT	CHC Panoor	Yes	GH	NK	Practiced	No	E	E	NK	"Fine"
K38	-do-	F	19	UE	I	O	GOVT	CHC Panoor	Yes (Refer To Govt.)	Govt.	NK	Practiced	No	UE	UE	NK	"Fine"
K39	-do-	M	42	Wood cutter	I	O	GOVT	CHC Panoor	No	Govt.	NK	Practiced	No	UE	E	NK	Not reported
K40	-do-	M	45	Road tarring	IP +ve	C	GOVT	CHC Panoor	No	Govt.	NK	Practiced	No	UE	E	NK	Not reported
K41	-do-r	M	19	Student	III EP	C	GOVT	Anganwadi	Yes	PP(MO-TC)	NK	Practiced	No	NA	NA	NK	Not reported
K42	-do-	M	30	Worker - Fish Market	IP +ve	O	GOVT	GH	NK	Govt.	NK	Practiced	No	E	E	NK	"Fine"
K43	-do-	M	63	NK	I	O	GOVT	Govt.	NK	Govt.	NK	Practiced	No	NK	NK	NK	Not reported
K44	-do-	M	19	Helper	IP +ve	C	GOVT	JPHN	Yes	PP (MO_TC)	NK	Practiced	No	NK	NK	NK	Not reported

ID No	District	Sex	Age	Occupation	Category of treatment	Medication status	PP/NGO /Govt. patient	DOT Provider Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or Not?	Discontinued medication - Yes/No	Employment during Illness		Family Income (Per month)	Health status as reported by the patients
														IP	CP		
K45	-do-	F	65	Home Maker	I P +ve	C	PP	Tely hospital	No	Govt	NK	Practiced	No	NA	NA	NK	Not reported
K46	-do-	F	75	Home Maker	III P-ve	C	GOVT	Anganwadi	Yes	PP (MO_TC)	NK	Practiced	No	NA	NA	NK	Not reported
K47	-do-	M	15	Student	III P-ve	C	PP	Speciality hospital	No	GH	NK	Practiced	No	NA	NA	NK	Not reported
K48	-do-	M	50	Helper shop	I P +ve	C	PP	Speciality hospital	Yes	Specialty hospital	NK	Practiced	No	E	E	NK	Not reported
K49	-do-	M	33	Carpenter	I P +ve	C	GOVT	DTC	Yes	PP referred	NK	Practiced	No	E	E	NK	Not reported
K50	-do-	F	15	Student	III EP	C	GOVT	Anganwadi	Yes	PP	NK	Not practiced	No	NA	NA	NK	Not reported
K51	-do-	M	53	Flour mill worker	I	C	GOVT	DTC	No	Govt.	NK	Practiced	No	UE	UE	NK	"Asthma and unable to go for work"
K52	Kannur	F	18	UE	I	C	GOVT	DTC	No	Govt.	NK	Practiced	No	NA	NA	NK	"Fine"
K53	-do-	F	32	Home Maker	II EP	C	GOVT	DTC	Yes	PP referred	NK	Practiced	No	NA	NA	NK	Not reported
K54	-do-	M	48	Mechanic	I P +ve	C	GOVT	Govt.	Yes	AKG hospital	NK	Practiced	No	E	E	NK	Not reported
K55	-do-	F	23	Home Maker	I P +ve	C	GOVT	Govt.	Yes	AKG hospital	NK	Practiced	No	NA	NA	NK	Not reported
K56	-do-	M	53	Milkman	III EP	C	GOVT	ESI doctor	No	ESI doctor	350	Not practiced	No	E	E	NK	Not reported
K57	-do-	M	64	UE	I P +ve	C	GOVT	GOVT.	Yes	Referred to govt.	NK	Practiced	No	NA	NA	NK	Not reported



ID NO	District	Sex	Age	Occupation	Category of Treatment	Medication status	NGO/ Government Patient	DOT Provider - Government/ NGO volunteer/ Community volunteer	PP consultation prior DOTS	Who Identified TB?	Money spent before starting treatment for TB	Practiced DOT or not.	Discontinued medication - yes/No	Employment during Illness		Family Income per month	Health status as reported by the patients
														IP	CP		
K58	-do-	F	42	Home Maker	IP +ve	C	PP	Mission Hospital	Yes	Mission hospital	NK	Practiced	No	NA	NA	NK	Not reported
K59	-do-	F	22	Home Maker	IP +ve	C	PP.	Mission Hospital	Yes	Mission hospital	NK	Practiced	No	NA	NA	NK	Not reported

**Appendix 8**  
**Cost of seeking care in private sector.**

Amount spent (in Rs.)	Tamil Nadu state		Kerala State	
	Those who have visited PP and have spent	Those who have not visited PP but have spent <sup>2</sup>	Those who have visited PP and have spent	Those who have not visited PP but have spent
>100	1	0	1	4
100-500	12	0	3	2
500-1000	6	1	2	0
1000 and above	14	2	6	2
Unknown	7	6	18	14
Not spent	1	9	-	5
Total	41	18	30	27

Source: Survey

<sup>2</sup> These are the people who have spent money either because they went themselves to the medical shops and therefore spent money or they had been to a government institution/sanatoria and they have spent money. There was one patient who had been to the NGO and they prescribed medicines and some test and thus incurred expenses.

**Appendix 9 Performance indicators of RNTCP for TN and Kerala, 2002**

State	District	Population (In Lakh)	Total cases treated	Total detection rate	New sputum positive cases treated	New Smear positive detection rate (per lakh)	Cure rate of new smear positive patients (in %)	Annual Success rate of new Smear positive patients (in %)
<b>Tamil Nadu</b>	Chennai	42	6438	153	2158	51	86	87
	Coimbatore	42	4323	103	1582	38	88	88
	Cuddalore	23	3170	138	1151	50	88	88
	Dharmapuri	28	2221	79	996	36	88	88
	Dindigul	19	2962	156	1060	56	87	88
	Erode	26	3025	116	1464	56	87	87
	Kancheepuram	29	4356	150	1534	53	88	88
	Kanniyakumari	17	2054	121	652	38	86	88
	Karur	9	1233	137	499	55	88	88
	Madurai	26	2594	100	852	33	85	86
	Nagapattinam	15	1448	97	593	40	86	86
	Namakkal	15	1962	131	698	47	87	87
	Perambalur	12	1465	122	590	49	87	87
	Pudukottai	15	2136	142	891	59	89	91
	Ramanathapuram	12	2053	171	747	62	89	89
	Salem	30	3072	102	1566	52	89	89
	Sivaganga	12	1434	120	485	40	88	90
	Thanjavur	22	2646	120	992	45	90	90
	The Nilgiris	8	613	77	275	34	88	88
	Theni	11	2073	188	705	64	88	88
	Thiruvallur	27	4756	176	1966	73	7%	79
	Thiruvarur	12	1182	99	468	39	85	85
	Tiruchirapalli	24	2759	115	1256	52	92	92
	Tirunelveli	28	5515	197	1772	63	75	86
	Tiruvanamalai	22	2375	108	1134	52	92	92
	Toothukudi	16	2269	142	987	62	87	87
Vellore	35	4130	118	1786	51	90	90	
Villupuram	29	3729	129	1393	48	86	86	
Virudhunagar	18	2870	159	885	49	86	86	
TN State	Total	624	80863	130	31137	50	87	88

State	District	Population (In Lakh)	Total cases treated	Total detection rate	New sputum positive cases treated	New Smear positive detection rate (per lakh)	Cure rate of new smear positive patients (in %)	Annual Success rate of new Smear positive patients (in %)
<b>Kerala</b>	Alappuzha	21	1958	93	756	36	89	91
	Ernakulam	31	2446	79	1022	33	89	90
	Idukki	11	530	48	213	19	90	91
	Kannur	24	1993	83	805	34	90	90
	Kasargod	12	771	64	341	28	86	86
	Kollam	26	2284	88	985	38	92	92
	Kottayam	20	1695	85	753	38	89	90
	Kozhikode	29	1888	65	728	25	87	89
	Malappuram	36	2008	56	814	23	89	91
	Pallakkad	26	2187	84	958	37	85	86
	Pathanamthitta	12	835	70	379	32	92	92
	Trivandrum	32	2334	73	918	29	88	88
	Thrissur	30	2272	76	1099	37	88	89
Wayanad	8	723	90	269	34	93	93	
Kerala State	Total	318	23924	75	10040	31	89	90

Source: TBC India, New Delhi. ([www.tbcindia.org](http://www.tbcindia.org))

**Appendix 10 District - wise actual and expected total case detection, TN and Kerala, 2003**

District	Population (In Lakhs)	Actual total cases initiated on treatment (A)	Expected total TB cases (B) (135/lakh)	Gap between actual and expected (B-A)	District	Population (In Lakhs)	Actual total cases initiated on treatment (A)	Expected total TB cases (B) (135/lakh)	Gap between actual and expected (B-A)
Chennai	43	6955	5805	-1150	Tirunelveli	29	5426	3915	-1511
Coimbatore	43	4832	5805	973	Tiruvanamalai	22	2607	2970	363
Cuddalore	23	3375	3105	-270	Thoothukudi	16	2488	2160	-328
Dharmapuri	29	2977	3915	938	Vellore	36	4984	4860	-124
Dindigul	20	3080	2700	-380	Villupuram	30	4438	4050	-388
Erode	26	2977	3510	533	Virudhunagar	18	3088	2430	-658
Kancheepuram	29	4710	3915	-795	<b>State Total - TN</b>	<b>635</b>	<b>89616</b>	<b>85725</b>	<b>-3891</b>
Kanniyakumari	17	1660	2295	635					
Karur	10	1358	1350	-8	Alappuzha	21	1979	2835	856
Madurai	26	4498	3510	-988	Ernakulam	32	2473	4320	1847
Nagapatinam	15	1539	2025	486	Idukki	11	523	1485	962
Namakkal	15	1971	2025	54	Kannur	25	2025	3375	1350
Perambalur	12	1444	1620	176	Kasargod	12	909	1620	711
Pudukottai	15	2201	2025	-176	Kollam	26	2605	3510	905
Ramanathapuram	12	1954	1620	-334	Kottayam	20	1799	2700	901
Salem	31	4523	4185	-338	Kozhikode	29	2104	3915	1811
Sivaganga	12	1637	1620	-17	Malappuram	37	2322	4995	2673
Thanjavur	23	3097	3105	8	Pallakkad	27	2175	3645	1470
Theni	11	2210	1485	-725	Pathanamthitta	13	789	1755	966
The Nilgiris	8	540	1080	540	Trivandrum	33	2266	4455	2189
Thiruvallur	28	4363	3780	-583	Thrissur	30	2227	4050	1823
Thiruvarur	12	1528	1620	92	Wayanad	8	682	1080	398
Tiruchirappalli	24	3156	3240	84	<b>State Total - Kerala</b>	<b>324</b>	<b>24878</b>	<b>43740</b>	<b>18862</b>

Note: The sample districts are in bold. Data are compiled based on the quarterly reports for the year 2003.

Source: TBC India, New Delhi, www.tbcindia.org

**Appendix 11 TU wise performance indicators of RNTCP for the sampled districts, Tamil Nadu and Kerala, 2003**

<b>Tamil Nadu Districts</b>	<b>TU</b>	<b>Population (In lakhs)</b>	<b>New Smear positive detection rate (per lakh)</b>	<b>Total detection rate (per lakh)</b>
Cuddalore	Cuddalore	4.8	73	172
	Kammapuram	4.7	59	184
	Mangalur	3.5	55	153
	Marungur	4.8	60	164
	Orathur	4.9	32	73
	<b>Total</b>	<b>22.7</b>	<b>56</b>	<b>149</b>
Kancheepuram	Kancheepuram	5.3	48	142
	Maduramangalam	4.8	56	153
	Acharapakam	4.2	38	109
	Nandivaram	5	62	192
	Medavakam	4.9	70	203
	Sadras	4.9	58	167
	<b>Total</b>	<b>29.1</b>	<b>55</b>	<b>162</b>
Salem	Salem Urban	5	60	241
	Karipatti	4.8	49	164
	Konganapuram	4.9	57	141
	Nangavalli	5	60	134
	Malliakarai	4.9	34	97
	Chettipatti	4.9	51	141
	<b>Total</b>	<b>29.5</b>	<b>52</b>	<b>153</b>
Thanjavur	Thanjavur	4.8	63	166
	Murugankudi	5.3	45	110
	Melattur	3.6	48	134
	Thondarampattu	3.2	85	172
	Siruvavidudhi	4.9	50	140
	<b>Total</b>	<b>21.8</b>	<b>56</b>	<b>142</b>
The Nilgiris	Ooty	4.8	22	59
	Pandalur	4.9	26	52
	<b>Total</b>	<b>9.7</b>	<b>24</b>	<b>56</b>

Source: Quarterly performance reports of the DTC: Cuddalore, Kancheepuram, Salem, Thanjavur and The Nilgiris.

Continued....

<b>Kerala Districts</b>	<b>TU</b>	<b>Population (In Lakhs)</b>	<b>New Smear positive detection rate (Per Lakh)</b>	<b>Total detection rate (Per Lakh)</b>
Trivandrum	Neyatinkara	6.5	25	57
	Nedumangadu	5.8	40	59
	Chirayinkil	4.8	26	48
	Puthenthope	4.7	26	48
	Trivandrum DTC	6.2	45	121
	Peroorkada	4.3	25	51
	<b>Total</b>	<b>32.3</b>	<b>31</b>	<b>64</b>
Kollam	Kollam DTC	6.0	60	150
	Nedungolam	5	27	57
	Karunagapally	5	36	80
	Punnalur	5	52	98
	Kottarakara	5	37	83
	<b>Total</b>	<b>26.0</b>	<b>42</b>	<b>94</b>
Ernakulam	Kochi_DTC	5	7	11
	Ernakulam	4.5	45	91
	Aluva	5.64	35	68
	Paravoor	6.08	31	58
	Perambavoor	3.4	60	122
	Muvattupuzha	3.41	41	69
	Kothamangalam*	2.89	58	86
	<b>Total</b>	<b>30.9</b>	<b>39</b>	<b>72</b>
Kannur	Kannur_DTC	5.5	43	84
	Thalaserry	5.5	35	82
	Kuthuparamba	4	25	64
	Irrity	4	32	60
	Payyanur	5.12	35	72
	<b>Total</b>	<b>24.1</b>	<b>34</b>	<b>73</b>

Source: Quarterly performance reports of the DTC: Trivandrum, Kollam, Ernakulam and Kannur.

**Appendix 12**  
**Category wise distribution of patients registered under RNTCP, TN and Kerala, 2003.**

TN Districts	Year		2003					
	Category of Treatment		Category I		Category II		Category III	
	TU	Popula tion	New Smear Positive	New Smear Negative/Ne w EP	Smear Positive	Smear negative	New smear negative	Ne w EP
Cuddalore	Cuddalore	4.8	348	80	82	22	215	79
	Kammapuram	4.7	278	81	48	53	315	90
	Mangalur	3.5	192	46	40	36	175	48
	Marungur	4.8	286	84	94	18	218	88
	Orathur	4.9	159	33	43	25	79	20
	Total		1263	324	307	154	1002	325
	Grand Total	22.7	1587		461		1327	
Kancheepuram	Kancheepuram	5.3	252	57	90	0	140	213
	Maduramangalam	4.8	268	107	40	10	200	107
	Acharapakam	4.2	160	14	19	0	148	115
	Nandivaram	5	309	128	80	1	302	139
	Medavakam	4.9	341	93	66	9	265	221
	Sadras	4.9	284	85	56	4	271	116
	Total		1614	484	351	24	1326	911
	Grand Total	29.1	2098		375		2237	
Salem	Salem Urban	5	298	0	90	3	560	256
	Karipatti	4.8	235	0	67	1	317	168
	Konganapuram	4.9	281	0	105	0	205	99
	Nangavalli	5	298	0	68	2	225	78
	Malliakarai	4.9	167	0	35	0	168	104
	Chettipatti	4.9	250	1	61	1	241	139
	Total		1529	1	426	7	1716	844
	Grand Total	29.5	1530		433		2560	
Thanjavur	Thanjavur	4.8	301	42	77	3	128	246
	Murugankudi	5.3	238	116	44	12	128	46
	Melattur	3.6	174	40	40	6	86	137
	Thondarampattu	3.2	271	38	53	3	122	63
	Siruvavidudhi	4.9	245	22	44	6	271	97
	Total		1229		258	30	735	589
	Grand Total	21.8	1229		288		1324	
The Nilgiris	Ooty	4.8	107	32	24	0	48	74
	Pandalur	4.9	127	35	5	0	60	28
	Total		234	67	29	0	108	102
	Grand Total	9.7	301		29		210	

Continued...



Kerala Districts	Year		2003					
	Category of Treatment		Category I		Category II		Category III	
	TU	Population	New Smear Positive	New Smear Negative/New Extra pulmonary	Smear Positive	Smear negative	New smear negative	New Extra Pulmonary
Trivandrum	Neyatinkara	6.5	162	97	33	11	36	76
	Nedumangadu	5.8	116	49	8	12	13	44
	Chirayinkil	4.8	124	61	14	5	20	23
	Puthenthope	4.7	123	54	20	5	19	30
	Trivandrum DTC	6.2	280	144	81	31	220	113
	Peroorkada	4.3	110	51	12	10	20	39
	Total	32.3	915	456	168	74	328	325
	Grand Total		1371		242		653	
Kollam	Kollam DTC	6	361	49	27	1	414	77
	Nedungolam	5	133	43	19	2	97	12
	Karunagapally	5	181	30	14	0	139	52
	Punnalur	5	258	54	16	4	118	61
	Kottarakara	5	183	51	19	7	129	54
	Total	26	1116	227	95	14	897	256
	Grand Total		1343		109		1153	
Ernakulam	Kochi_DTC	5	234	85	62	25	95	60
	Ernakulam	4.5	164	66	45	26	56	44
	Aluva	5.64	191	52	37	7	56	54
	Paravoor	6.08	204	34	48	23	119	57
	Perambavoor	3.4	140	25	38	8	25	44
	Muvattupuzha	3.41	167	14	23	9	29	38
	Kothamangalam^	2.89	33	5	9	7	7	8
	Total	30.92	1133	281	262	105	387	305
	Grand Total		1414		367		692	
Kannur	Kannur_DTC	5.5	239	36	50	29	58	129
	Thalaserry	5.5	190	72	44	27	93	95
	Kuthuparamba	4	101	27	26	21	69	60
	Irrity	4	128	29	12	4	34	50
	Payyanur	5.12	177	59	19	12	59	76
	Total	24.12	835	223	151	93	313	410
	Grand Total		1058		244		723	

Source: Quarterly performance reports of the DTC: Cuddalore, Kancheepuram, Thanjavur, Salem, The Nilgiris, Trivandrum, Kollam, Ernakulam and Kannur.

## Appendix 13 Guidelines for Interviews

### NGO interview guideline

#### 1. NGO characteristics and details of involvement in TB control programmes

Name		
Address		
Year of establishment & registration details		
Work(s)/activities involved in		
Number of years of involvement in TB control	RNTCP/ DOTS	
NGO experience with respect to TB in the pre-DOTS period		
Why/how the NGO is selected for being a part of the programme?		
Scheme(s)/activities involved with in RNTCP/ signed or not?		If signed when?
Is there an in-patient facility? If yes, what is the bed strength?		Has there been any expansion ?
Geographical area/population covered		
Socio-economic features of the population covered	SC ST Major Occupational categories	
Sources of funding for TB control activities. (Is it tied funds)	Amount	

#### 2. Details of staff involved in TB control activities

Designation	No: of staff employed	Role/job profile	Years of experience	Qualification / training

### 3. Details of DOTS volunteers

Name and address	Age	Sex	Education	Salaried staff of the NGO Yes/No	If yes, designation & if no, the selection procedure	Whether a TB patient before	Years of experience as a DOTS provider

### 4. Characteristics of Patients

Year	Category 1									Category 2	Category 3								
	Pulmonary Smear positive			Pulmonary Smear negative			Extra Pulmonary				Pulmonary Smear negative			Extra Pulmonary					
	M	F	C	M	F	C	M	F	C		M	F	C	M	F	C	M	F	C
xx																			
xx																			
Total																			
Grand Total																			

Number of defaulters: M:                      F:                      C

### NGOs response on the TB control programme

#### 5. Drugs

- Adequacy

#### 6. Equipments/consumables

- Adequacy of microscopes and X-ray machines
- Adequacy of lab consumables
- Cost incurred

#### 7. Training details

Name	Designation	Nature of training	Period	Place	By whom?	Is the training adequate?	Financial support for attending

#### 8. Supervision

- Who supervises?
- How often it is done?

- Does it help?
9. Follow up
- Who does it?
  - Difficulties: with examples of dropout cases
10. Compliance of patients
- Degree of compliance among patients of different categories during IP and CP
11. Transport
- Do you have any vehicle?
  - Its use for DOTS
12. Records
- Records maintained
  - Reporting format
13. Funds
- Is it sufficient to sustain the programme?
  - Difficulties faced
14. Charging of patients
- Services for which patients are charged and amount
  - Exemption criteria if any
15. WHO consultants
- Consultation and services received
  - Services required
16. Government/RNTCP programme - Schemes

Scheme 1

- Who, how and where do they provide health education and counselling?
- Are they trained - for how long and by whom?
- Effectiveness of health education
- Difficulties faced

Scheme 2

- Number of volunteers involved
- Difficulties faced by the volunteers

Scheme 3

- Amount spend for in-patient care (TB) last year; per patient with respect to food, fee etc

Scheme 4

- Microscopes received from the government - Is it in working condition?
- Adequacy of essential consumables
- Payment of incentives

Scheme 5

- Adequacy of staff
- Supervision
- Funding
- Coordination with government staff
- Difficulties in effective coverage of population (e.g. geographical access)

**Patient interview schedule**

Patient Number

Date:

Category:

District:

TU:

Completed treatment/ongoing:

Treated at Government/NGO/PP facility:

1. Personal details

Name and address	Age	Sex	Marital status	Family size	Education	Occupation	Loss of work/income during treatment	Are you currently employed?

Treatment/facility details

History of the disease/previous treatment	NO: of Sputum examination done (under RNTCP)			Did you start treatment immediately after being diagnosed? If no, why?
	Initial diagnosis	Follow-up at 2 months	End of treatment	

3. Provision of medicines

Who is the DOTS Provider	Where is the medicine provided and the time of provision (IP&CP)	Is direct observation practiced (IP&CP)	Did you receive medicines regularly	Discontinuation Reasons Retrieval

4. Expenses for undergoing treatment and under RNTCP

- a) Travel
- b) Medicines
- c) Services

5. Awareness

- a) Precautions to be taken
- b) Diet to be followed

6. Side effects of treatment

7. Are you satisfied with the treatment you received

8. How supportive has been your family

9. Did you take any other medicine while undergoing treatment for TB? If yes, for what and who prescribed it?

10. Behaviour of the staff (government and non government)

11. Patients knowledge of NGO involvement and their volunteers

**Interview schedule - DOTS provider/volunteer of an NGO/government**

DOTS Provider Number  Date:

District: TU:

NGO/Government/PP

1. Personal information

Name	Sex	Age	Education	Occupation

2. Volunteer Characteristics

How long have you been associated with the NGO/PP/government?	Years of experience as a DOTS volunteer Reason to become a DOTS provider	To how many patients you provide DOTS, category 1, 2, 3		Were you a patient before?	Are you trained? Where? Duration? By whom?	How much do you spend out of your pocket per week for being a DOTS provider	Have you received any incentives? How much?	Where do you provide medicine and when
		Completed so far	Ongoing					

Other relevant information

3. Health Education

What do you advice the patient with respect to diet and other lifestyle issues?

4. Drugs

- From where do you collect it and difficulties faced in collection and storage?
- Are drugs supplied for the entire course of treatment?
- Any interruption in supply?

5. Supervision

- Does the patient collect drugs from you (thrice weekly, weekly once or once in 2 weeks)?
- Do you observe direct intake of drugs?
- Supervision of your work by NGO/PP staff/government officials and difficulties faced

6. Records

- Records Maintained
- Reporting

7. Patient compliance

- Default (Cat 1/2/3)
- Reasons for default
- Motivating the patients
- Other difficulties faced

8. Precautions you take while providing medicines for a TB patient
9. Do you know the name of the disease the patient is suffering?
10. Are you interested in providing medicines for more patients?

### **Government staff/officer interview guidelines**

#### **1. DTO**

- Reason for choosing the particular NGO/PP (under various schemes) as a participant in RNTCP
- Experience with the NGO/PP
- Regarding the contribution to TB control
- Relationship with the government
- Supervision by government
  - How it is done
  - Problems faced
  
- Maintenance of records
- Provision (from government) of
  - Drugs
  - Consumables
  - Equipments
  - Incentives (allocation of funds for NGOs/PPs)

Reasons for low involvement of NGOs/ PPs in RNTCP

Efforts made to increase their role

Overall fund management of district TB control programme

Role/functioning of the District TB Control Society (DTCS)

#### **2. STS/ STLS - Adequacy of**

- Drugs
- Consumables
- Equipments
- Staff
- Perception of NGO performance with respect to case detection, DOTS, follow-up etc.



**Appendix 14 Number of state and non- state officials/staff interviewed, T N and Kerala.**

SL. No	Staff Position of the state officials/Staff	Total	Districts								
			Kancheepuram	The Nilgiris	Cuddalore	Thanjavur	Salem	Trivandrum	Kollam	Ernakulam	Kannur
1.	District Tuberculosis Officer	8	1	1	1	1	1	1	-	1	1
2.	Ex- District Tuberculosis Officer	1	-	-	-	-	-	-	-	-	1
3.	District Medical Officer	1	-	-	-	-	-	-	-	-	1
4.	Medical Officer – TB Control	11	-	-	2	-	1	1	2	2	3
5.	MO_TB	4	-	-	1	-	-	-	1	1	1
6.	STS	19	4	1	2	1	1	2	2	3	3
7.	STLS	16	2	1	2	1	-	3	2	2	3
8.	Treatment supervisor	1	1	-	-	-	-	-	-	-	-
9.	Treatment Organiser	6	1	-	-	-	1	2	1	1	-
10.	Statistical Assistant	6	1	-	1	-	-	1	1	1	1
11.	Lab technician/Assistant	9	-	-	1	2	3	1	1	-	1
12.	TB_HV/HV	9	1	1	2	2	1	1	-	1	-
13.	Staff Nurse	2	-	-	-	-	-	2	-	-	-
14.	DOT Provider	1	-	-	-	-	-	-	-	-	1
15.	VHN/JPHN	5	-	-	-	3	1	-	-	1	-
16.	Radiographer	1	-	-	-	-	-	-	1	-	-
17.	Computer Operator	2	-	-	-	-	1	-	1	-	-
18.	Pharmacist	5	-	-	-	-	-	-	1	3	1

SL. No	Staff Position (non-state persons)	Total	Districts								
			Kancheepuram	The Nilgiris	Cuddalore	Thanjavur	Salem	Trivandrum	Kollam	Ernakulam	Kannur
1.	Director /Chief executive officer	16	1	1	1	-	1	3	5	1	3
2.	General secretary	1	-	1	-	-	-	-	-	-	-
3	Medical officer	14	-	3	-	-	-	2	1	3	5
4.	Private Practitioner/RMP	1	-	-	1	-	-	-	-	-	-
5.	Administrative officer	8	1	-	-	2	1	3	1	-	-
6.	Programme coordinator/officer	4	-	1	-	-	-	-	1	2	-
7.	STS	2	-	-	-	-	2	-	-	-	-
8.	STLS	1	-	-	-	-	1	-	-	-	-
9.	Health worker/visitor	7	-	3	-	-	1	3	-	-	-
10.	Para medical Staff	2	-	2	-	-	-	-	-	-	-
11.	Pharmacist	2	-	-	-	-	-	-	2	-	-
12.	Lab Technician/Assistant	23	1	3	-	1	1	2	4	3	8
13.	X-ray technician	1	-	-	-	-	-	1	-	-	-
14.	Nurse	1	-	-	-	-	-	-	-	-	1
15.	DOT Provider	8	-	-	2	-	-	-	2	2	2

Source: Our sample

## Appendix 15 Name/designation of persons interviewed

### TAMIL NADU

Dr. Perumal State TB Officer Tamil Nadu.	Dr. Nandakumar Menon Director, ACCORD.	Usha Rani TO/DOT provider Kancheepuram.
Dr. V. Sanjeev Nair WHO Consultant	Dr. Shylaja Menon Medical Officer, ACCORD.	Kala Rani HV/DOT provider Kancheepuram.
Dr. Jerard Maria Selvam WHO Consultant	Dr. Bharath Medical Officer, ACCORD.	Mr. Sundaramurthy Statistical Assistant Kancheepuram.
Dr. K. V. Rao WHO Consultant	Mrs. Rosily LT, ACCORD.	Mr. Inbarajan STS, Nandivaram
Dr. Oomen George WHO Consultant	Mrs. Jayanthi Lab Technician, ACCORD.	Mr. Shankar STLS, Nandivaram.
Dr. Nevin Wilson WHO Consultant	Mr. Madhan, Mr.Parasu, Ms. Uma. Tribal Health worker's ACCORD.	Mr. Babu Sudhandiranath TS, Nandivaram.
Dr. Saulina Arnold Director, TNVHA.	Mrs. Deepika Wilson General secretary NWTWS.	Mr. Paramasivan STS, Sadras.
Dr. Kumarasamy Director, TRC	Mr. Soman Programme coordinator NWTWS.	Mrs. Nirmala Devi STLS, Sadras.
Dr. Rajeswari Deputy Director,TRC	Dr. Liju Krishnan Medical Officer, NWTWS.	Mr. Chandranchetty STS, Medavakkam.
Dr. Manjula Datta Head of the Dept. of Epidemiology, TN Dr. MGR Medical University.	Mr. Devu LT, NWTWS.	Dr. O.V. Jayakumar Managing Director JSP Hospital.
<b>The Nilgiris District</b>	Mr. Narayana & Mr. Shivdas, Paramedical Staff, NWTWS.	Mr. Shanmugapriyan Administrative Officer JSP Hospital.
Dr. Vasanthan, DTO, Ooty	Mrs. Sheeja Community volunteer	Ms. Mohanalakshmi LT/DOT Provider JSP Hospital.
Ms. Hamsaveni STLS, Ooty	<b>Kancheepuram District</b>	<b>Tiruvallur District</b>
Mr. Sriramachandra STS, Pandalur.	Dr. Murugesan DTO, Kancheepuram.	Dr. Ashok Prabhat Chief Executive Officer HOPE
Mr. Marudhumuthu TB HV, Pandalur.		

Mr. Vijayakumar  
Coordinator TB programme  
HOPE

Mrs. Rajalakshmi  
LT/DOT Provider  
HOPE

Mr. Susairaj  
DOT Provider  
HOPE

Mr. Deva  
Community volunteer  
HOPE

**Cuddalore District**

Dr. Chinnasamy  
DTO, Cuddalore.

Dr. Baskar  
MO\_TC, Cuddalore.

Dr. Arunachalam  
Medical Officer, Cuddalore.

Mr. Krishnamurthy  
STS, Cuddalore.

Mr. Velayutham  
STLS, Cuddalore.

MS. Girija  
HE/HV/DP, Cuddalore.

Mr. Lakshmanan  
Statistical Assistant, Cuddalore.

Mr. Immanuel  
STLS, Marungur.

Mrs. Vijayalakshmi  
HV/DP, Marungur.

Mr. Anthony Samy  
Director, BLESS.

Ms. Buela & Ms. Latha  
DOT Provider, BLESS.

Dr. Desigan  
Private Practitioner  
Annai Nursing Home.

Mrs. Banumathy  
Shop Keeper  
Community volunteer.

**Thanjavur District**

Dr. Murugesan  
DTO, Thanjavur.

Ms. Jayalakshmi & Mr.  
Mohankumar  
HV/DP, Thanjavur.

Mr. Sundararaj & Mrs. Amutha  
LT, Thanjavur.

Mr. Appakannu  
STS, Thondarampattu.

Mr. Muruganandam  
STLS, Thondarampattu.  
Sr. Mercy

Administrative Officer  
Don Bosco Hospital,

Sr. Sicily Jain  
Administrative Officer  
St. Gabriel's Hospital.

Mr. Stalin Jebaraj  
Lab Technician  
Seventh Day Adventist  
Hospital.

**Salem District**

Dr. Udayashankar  
DTO, Salem Urban.

Mr. Ganesan  
STLS, Salem Urban.

Ms. Sumathi  
TO, Salem Urban.

Ms. Jyothi  
LT, Salem Urban.

Dr. Jayasankar Narayan  
MO\_TC, Konganapuram.

Mr. Ganesh  
STS/STLS, Konganapuram.

Ms. Kavitha  
LT, Konganapuram.

Mr. Ayyan Perumal  
Assistant LT, Konganapuram.

Mr. Masillamani  
HV, Konganapuram.

Mr. Kandasamy  
Noon Meal Organiser  
Konganapuram

Mrs. Nirmala  
SHG leader, Konganapuram

Mr. Venkatesh  
Health inspector,  
Konganapuram.

Ms. Thangam  
SHG leader, Konganapuram  
Director

St. Marys Hospital

Mr. Anthony  
STS, St. Marys Hospital

Mr. Thiyagarajan  
Lab Technician, St. Marys  
Hospital

Mr. Anthony  
HV/DP, St. Marys Hospital

Mr. Raman  
Community volunteer,  
Salem urban.

Mr. Arokiaraj  
Pharmacist/DP  
Salem urban.

Mr. Dhandapani  
Administrative Officer  
LRRC

Mr. Raju  
STS, LRRC.

Mr. Sankaranarayana  
STLS, LRRC.

Russia China  
VHN, Chettipatty.

Mr. Saravanan  
RMP, Chettipatty.

### **KERALA**

Dr. Mahila Mani  
STO, Kerala.

Dr. Rita Cross  
Director, STDC, Trivandrum.

Dr. Asha Raghavan  
MO, State TB cell  
Trivandrum.

Mr. C.G. Wipin  
Accountant, State TB cell  
Trivandrum.

Dr. Hemachandran  
WHO consultant

Dr. Rajendran  
WHO consultant

Dr. Shibu Balakrishnan  
WHO consultant

Dr. Janardhanan Nair  
WHO consultant

Dr. Prabhakaran Nair  
GLRA, State consultant

Mr. Prajin Babu  
District chairman for the Rotary  
RNTCP project

Dr. Joseph  
DTO, Trivandrum

Dr. Sreelatha  
MO\_TC, Trivandrum.

Mr. Satya Kumar  
STS, Trivandrum.

Mr. Santhosh  
STLS, Trivandrum.

Mrs. Bindu  
TO – Pharmacy in-charge  
Trivandrum.

Mr. Sunil  
TO – PPM in-charge  
Trivandrum.

Ms. Athira  
TB HV, Trivandrum.

Ms. Rema Devi  
Statistical Assistant,  
Trivandrum.

Indira Bai. V & Indira Bai. K.,  
Nurse/DOT provider,  
Trivandrum.

Mrs. Rossama  
STLS, Peerorkada.

Mr. Robi  
STS., Neyatinkara.

STLS, Nedumangadu.

Dr. Ravichandran  
Medical Officer  
St. Johns Hospital, Manacaud

Dr. Chidambarampillai  
Medical Officer  
St. Johns Hospital, Manacaud.

Ms. Mini Mathew, HW  
St. Johns Hospital, Manacaud.  
Sr. Havana  
Administrative In charge  
St. Johns Hospital, Manacaud.

Mrs. Sreedevi  
SHG Member  
Trivandrum.

Mr. Joseph Vazhakala  
Director, STEP.

Mrs. Mary Joseph  
Administrative Officer, STEP.

Mrs. Girija  
LT, STEP.

MR. C.T.Jacob  
X-ray technician, STEP.

Ms. Thangam &  
Ms. Krishnamma, HW/DP,  
STEP.

Sr Judith  
Administrative Officer  
St. Johns Hospital,  
Pirappancode

Sister. Agnel  
LT, St. Johns Hospital,  
Pirappancode

MS. Vijayamma  
Nurse/DP  
St. Johns Hospital,  
Pirappancode

### **Kollam District**

Mr. Soman  
STLS, Kollam.

Ms. Sheeba  
Computer Operator, Kollam.

Dr. Ramachandran  
MO\_TC, Karunagapalli.

Dr. Bindu  
MO, Karunagapalli.

Mr. Radhakrishna Pillai  
STS, Karunagapalli.

Mr. Basanan  
TO, Karunagapalli.

Ms. Chandrika  
STLS, Karunagapalli.

Ms. Noor Jahan  
LT, Karunagapalli.

Ms. Saramma Vargheese  
Pharmacist, Karunagapalli.

Ms. Sreelatha  
Radiographer, Karunagapalli.

Dr. Jayashankar  
MO\_TC, Punnalur.

Mr. Gigi K. George  
STS, Punnalur.

Mr. Lathif  
Chairman, Abahya Charitable  
Society.

Mr. MSB Nair  
Director, KASWW.

Dr. V.M. Pillai  
Programme Officer, KASWW.

Mr. Mohammed  
Administrative Officer  
Star Hospital.

Ms. Vidhu & Ms.  
Sudha  
LT, Star Hospital.

Ms. Valsamma  
LT, SBP Hospital.

Mrs. Thamarakshi  
Anganwadi Teacher  
Karunagapalli.

Dr. Asokan  
IMA President/Director Dean  
Hospital, Punnalur.

Mrs. Gracy Rajan  
LT, Dean Hospital.

Mrs. Latha  
PRO/DP, Dean Hospital.

Mrs. Daliya  
Staff nurse/DP, Dean Hospital.

Dr. Narayanan Nair  
Director, Pranavam Hospital.

DR. Reene Rajan  
Director, Jayabharatam  
Hospital.

Sr. Beneja  
Missionaries of Charity.

Mr. Baby  
Owner Mechanic workshop  
Punnalur.

Dr. Yogesh  
Medical Officer  
St. Joseph's Hospital.  
Sr. Ancytta  
Pharmacist, St. Joseph's  
Hospital.

#### **Ernakulam District**

Dr. P.B.Prasad  
Ex-DTO, Cochin

Dr. Mouli  
Medical Officer, Cochin.

Mr. Francis D'Cruz  
STS, Cochin.

Mrs. Remini  
STLS, Cochin.

Mr. Rajendran  
Pharmacist, Cochin.

Mrs. Kochu Mary  
Statistical Assistant, Cochin.  
Mrs. Shakuntala  
JPHN, Cochin.

Mr. Baiju  
STS, Ernakulam.

Mrs. Lakshmi  
Pharmacist/DP  
Ernakulam.

Mr. Ajesh P.S.  
HV, Ernakulam.

Dr. Sukumaran  
MO\_TC, Aluva.

Mr. Babu  
STS, Aluva.

Dr. Rakhee  
MO\_TC, Moovattupuzha.

Mrs. Seemandhini  
STS, Moovattupuzha.

Mrs. N. Radhamani  
STLS, Moovattupuzha.

Mr. C.N.Chandran  
Pharmacist/DP  
Moovattupuzha.

Dr. A.G. Thomas  
Medical Officer CULTES.

Ms. Lizy  
LT, CULTES.

Sr. Mercy  
DP, CULTES.  
Director  
HI TECH Lab.

Ms. Rose Mary  
LT, HI TECH Lab.

Mr. Chellam  
Shop Keeper, Cochin.

Mr. Mani  
Volunteer, HOPE.  
Mr. Sony  
Project Coordinator CAPS.

Mrs. Jalaja  
SHG chairperson  
Ernakulam.

Mrs. Raliya  
SHG Member, Ernakulam.

Mrs. Indira  
Anganwadi Teacher,  
Ernakulam.

Mrs. Mary Sebastian  
Project Coordinator  
Little Flower hospital.

Dr. Shiek Parid, Medical  
Officer  
Anwar Hospital.

Mrs. Lizzy  
LT, Anwar Hospital.

Ms. Lilly Baby  
Anganwadi Teacher, Aluva.

Dr. Vinod Sebastian  
Medical Officer  
Deva Matha Hospital.

Mrs. Lucy,  
House wife.  
Moovatupuzha.

Mrs. Subhadra  
Anganwadi Teacher  
Moovatupuzha.

**Kannur District**

Dr. Sainudheen  
DTO, Kannur.

Dr. Rameshwari  
District Medical Officer  
Kannur.

Dr. Jayashree  
MO\_TC, Kannur.

Mr. Manoj Kumar  
STS, Kannur.

Mr. Umeesh  
STLS, Kannur.

Mr. Thankachan  
Pharmacist/DP, Kannur.

Mr. C.O. Jose  
Statistical Assistant, Kannur.

Dr. Hamsraj  
Medical Officer  
Speciality hospital.

Ms. Sheela  
LT/DP, Speciality hospital.

Dr. Chandrasekharan  
Director/Chief MO  
Kannur Hospital.

Dr. Muraleedharan  
Medical Officer  
St. Martins De Porres Hospital.

Mrs. Alphonsa  
LT/DP, St. Martins De Porres  
Hospital.

Mrs. Sheela  
LT, AKG Hospital.  
Dr. Sukumaran  
MO\_TC, Kuthuparamba.

MO and LT Panoor CHC,  
Kuthuparamba.

Mr. Surendhran  
STS, Kuthuparamba.

Mr. Srinivasan  
STLS, Kuthuparamba.

Dr. Arun  
Ex-DTO, Thalassery.

Dr. Madhusudan  
MO\_TC, Thalassery.

Mr. Pradeep  
STS, Thalassery.

Mr. Madhusudanan  
STLS, Thalassery.

Mr. Padmanabhan Nambiar  
Nurse/DP, Pratyasha Bhavan.

Sr. Naomi & Sr. Alpo Grace  
DP, Pratyasha Bhavan.

Mr. Sahir  
LT, Noble diagnostic Ltd.  
Proprietor, Bio Lab.  
Lab Technician  
Muslim Jammath.

Mr. Thomas  
Proprietor  
Bharath Lab.

Dr. Ramachandran  
Medical Officer  
Christuraja Hospital.

Sr. Alice  
LT/DP  
Christuraja Hospital.

Dr. Baburam &  
Dr. Balakrishnan  
Senior MO  
Tele Hospital.

### Appendix 16 Itinerary of study team

District	Dates of Visit	Visited by
Tiruvallur	29 <sup>th</sup> - 31 <sup>st</sup> October 2003,	VRM <sup>32</sup> & Sonia <sup>33</sup>
Kancheepuram	3 <sup>rd</sup> - 5 <sup>th</sup> November 2003, 5 <sup>th</sup> - 6 <sup>th</sup> December 2003	VRM, Sonia & Bhuvana <sup>34</sup>
The Nilgiris	11-14 <sup>th</sup> November	VRM & Sonia
Cuddalore	16 <sup>th</sup> - 8 <sup>th</sup> December 2003	Sonia & Bhuvana
Thanjavur	29 <sup>th</sup> - 31 <sup>st</sup> December 2003	VRM & Bhuvana
Salem	21 <sup>st</sup> - 25 <sup>th</sup> January 2004	VRM, Sonia & Bhuvana
Trivandrum (includes time spent for preliminary data collection for other districts & contacting higher officials such as WHO consultants & STO)	May 2004 (spent almost 20 days.)	Sonia & Bhuvana
Kollam	27-29 <sup>th</sup> May 2004	Sonia & Bhuvana
Ernakulam	22 <sup>nd</sup> - 26 <sup>th</sup> June 2004	VRM & Bhuvana
Kannur	25-28 <sup>th</sup> July 2004.	VRM & Sonia

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32 V.R. Muraleedharan

33 Sonia Andrews

34 Bhuvaneswari Rajaraman

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**Useful web links**

Tuberculosis control India - <http://www.tbcindia.org>

Tuberculosis Research Centre - <http://www.trc-chennai.org/>

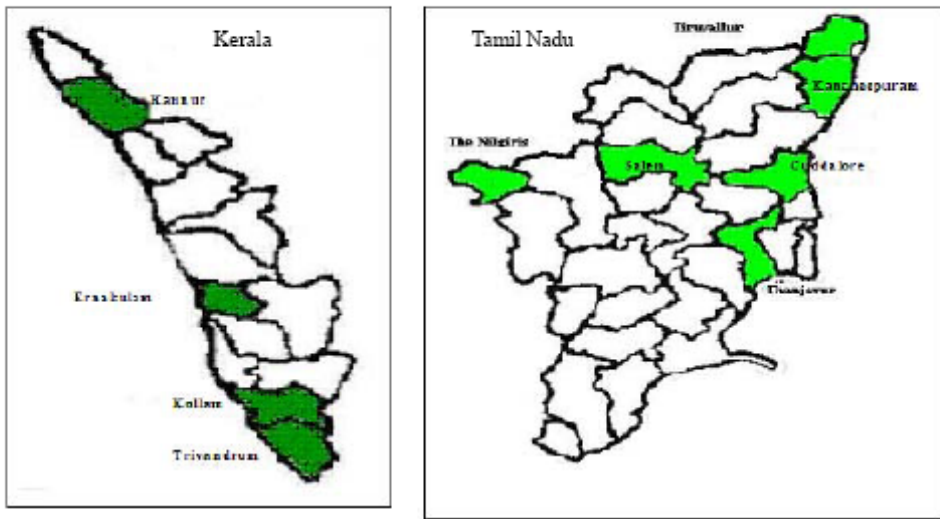
World Health Organisation (TB) - <http://www.who.ch/gtb>

Stop TB Partnership - <http://www.stoptb.org/>

National Tuberculosis Institute - <http://ntiindia.kar.nic.in/>

Links to other TB related sites - <http://ntiindia.kar.nic.in/othersites.htm>

Maps of Kerala and Tamil Nadu



■ Sample Districts

Source: <http://www.mapsofindia.com>

Note : Maps not to scale