Public Expenditure under Revised National Tuberculosis Eradication of Tuberculosis Control Programme (RNTCP)

Case Study of Karnataka

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Chapter 1: Introduction

1.1. Prevalence of Tuberculosis in India

Tuberculosis (TB) remains one of the world's deadliest communicable diseases and also one of the world's single biggest cause of death due to infection among adults. In 2013, an estimated 9 million people developed TB and 1.5 million died from the disease, 360,000 of whom were HIV-positive. Worldwide, an estimated 1.1 million (13 percent) of the 9 million people who developed TB in 2013 were HIV-positive (WHO Report, 2014). As per NFHS-3, TB is a leading cause of death among people who are HIV positive. However, with the available medicines and treatment process, most deaths from TB are preventable. Rate of death due to TB is slowly declining each year and as per the estimation of WHO about 37 million lives were saved between 2000 and 2013 through effective diagnosis and treatment. Nonetheless, death toll from the disease is still very high which is unacceptable and efforts need to be accelerated if the countries have to meet the Millennium Development Goals (MDGs) with respect to TB which is to 'halve prevalence of TB disease and deaths due to TB between 1990 and 2015' and 'detect 70 percent of new infectious cases and to successfully treat 85 percent of detected sputum positive patients' (Goal 6, Target 8, Indicator 23 & 24)[1]. In India, 278,000 persons died from TB in 2013, of which 13.7 percent were HIV positive. Prevalence of TB was found among 2,600,000 persons that means about 211 persons per lakh population had been detected with TB in 2013. The government has allocated US$ 252 million for the National Tuberculosis Control Programme (NTCP) in 2014 (WHO, 2015).

National Family Health Survey (NFHS-3), 2005–06: India, has pointed out few facts about the disease, they are:

- The risk of TB is much higher for men (526/100,000) than women (309/100,000), and much higher for rural residents (469/100,000) than urban residents (307/100,000). TB prevalence increases with increasing age. Person aged above 60 (998/100,000) are much more likely than other age groups to be suffering from tuberculosis. Prevalence in the oldest age group is about twice as high as prevalence in the population age 15-59 (519/100,000) and about nine times as high as prevalence among children below age 15 (110/100,000). Both sex and age differentials are more pronounced in rural areas than they are in urban areas.

[1] Goal 6: "Combat HIV/AIDS, malaria and other diseases"
Target 8: "By 2015, to have halted and begun to reverse the incidence of malaria and other major diseases…"

- The risk of TB is higher among the households using straw, shrubs, or grass for cooking (924/100,000) than among the households using electricity, liquid petroleum gas, natural gas, or biogas (217/100,000). Higher TB prevalence in households cooking in the house without having a special room for cooking (518/100,000), compared with households that cook in a separate room of the house (294/100,000).
- The number of persons suffering from medically treated TB ranges from a low of 96 per 100,000 persons in Jammu and Kashmir to a high of 1,096 per 100,000 persons in Arunachal Pradesh. In Karnataka, 136 per 100,000 persons are suffering from medically treated TB, which is quite lower than the national average of 418 per 100,000.
- People's ignorance about aetiology[2] and transmission of TB is one of the main causes for poor response in accessing the available services to cure TB. As per the survey, 85 percent of women and 92 percent of men age 15-49 have heard of TB. But only about half the population that has heard of TB knows that it is spread through the air by coughing or sneezing. Fifty percent of women and 55 percent of men who have heard of TB mentioned coughing or sneezing as a mode of transmission for TB.

  Thus the prevalence of TB differs between sex, age, settlements, type of households and states. Another aspect that has not been discussed in the NFHS is the high prevalence of tuberculosis among socio-economically disadvantage groups. Only one of the indicators given in NFHS document, which can be related to poor economic status of households, is high risk of TB among households using traditional method of cooking than advance methods. Studies across the world has shown that 'Socio-Economic Status' has a negative correlation with tuberculosis[3&4]. A study by National Tuberculosis Institute has stated that TB prevalence was significantly higher among people living below the poverty line compared to those above the poverty line, among people without land, and among those living in *kutcha* houses. Other indicators of poor socio-economic group are poor level of education, poor nutrition and over-crowding (higher number of people in a house). Poor education is associated with poor knowledge about the cause and transmission pattern of the disease, poor nutrition leads to low immune system, and over-crowding results in increases the risk

[2] In medical terms, aetiology means the cause of a disease

[3] Khan, Jahangir. (2013). A Study of Socio-Economic Status (SES) Associated with Epidemiology of Tuberculosis in General Population of District Buner, Khyber Pakhtunkhwa (KPK), Pakistan. Abdul Wali Khan University, Mardan, Pakistan.

[4] Sociological aspects of Tuberculosis: Summaries of published literature (1939 – 2000). National Tuberculosis Institute, Bangalore, 2002

of disease transmission[5]. Thus, it can be safely said that improving the socio-economic condition of the general population will help in reduction of the tuberculosis incidents.

1.2. TB Control Programme in India

The Mudaliar Committee report in 1959 recorded that disease control programmes of India had made some substantial achievements in controlling certain virulent epidemic diseases, like malaria, cholera, smallpox, etc. in about one decade after independence. However, the tuberculosis program lagged behind as for a million and half estimated open cases of tuberculosis there were not more than 30,000 beds available (CEHAT, 2001)[6]. This had initiated the National Tuberculosis Control Programme (NTCP) in the country. NTCP, established in 1962, was designed for domiciliary treatment using self administered standard drug regimens. A large network of District TB Centers was created with trained staff and infrastructure throughout the country[7].

A review of the programme in 1992 concluded that the NTCP was unable to reduce the required impact because of low priority, managerial weaknesses, over dependence on X-rays for diagnosis and inadequate funding. Incomplete treatment was the norm rather than exception due to low rates of treatment adherence and lack of supervision. Thus, in 1992, the Government of India (GOI) evolved a Revised National Tuberculosis Control Programme (RNTCP) with an objective of achieving a treatment success rate of 85 percent of new smear-positive cases and a 70 percent case detection rate[8]. The programme was based on the DOTS (Directly Observed Treatment, Short-course) strategy which had five major components: i) sustained political and administrative commitment to increase human and financial resources, ii) good quality diagnosis, iii) good quality drugs, iv) right treatment given in a right way, and v) systematic monitoring and accountability.

The programme began as a pilot in 1993 in a population of 2.35 million and thereafter increased in phased manner. A full-fledged programme was started in 1997 and

[5] Gupta D, Kshaunish Das, Balamughesh T, Ashutosh N. Aggarwal and Surinder. K. Jindal (2006). Role Of Socio-Economic Factors in Tuberculosis Prevalence. Indian Journal of Tuberculosis, New Delhi, India (http://medind.nic.in/ibr/t04/i1/ibrt04i1p27.pdf)

[6] Duggal, Ravi (2001). Evolution of Health Policy in India. CEHAT, New Delhi

[7] Technical and Operational Guidelines for Tuberculosis Control (2005). Central TB Division, Directorate General of Health Services, MoHFW, New Delhi

[8] A Health Communication Strategy for RNTCP. Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, GOI

rapidly expanded with excellent results. By the end of 2000, 30 percent of the country's population was covered under the RNTCP, and coverage had increased to 50 percent by the end of 2002. By the end of 2003, 778 million population was covered, and at the end of year 2004 the coverage reached to 997 million. By December 2005, around 97 percent (about 1080 million) of the population had been covered, and the entire country was covered under DOTS by 24th March 2006 with the assistance from the World Bank. RNTCP and its recent progress in DOTS expansion had been encouraging. The programme has consistently achieved treatment success rate of more than 85 percent, and case detection close to the global target. However, in 2007 RNTCP for the first time has achieved the global target of 70 percent case detection while maintaining the treatment success rate of more than 85 percent.

After focusing on the expansion of providing quality DOTS services to the entire country in the first phase (1998-2005) of programme, RNTCP entered the second phase in 2006. The second phase of the programme aimed towards consolidating the gains made to date, to widen services both in terms of activities and access, and to sustain the achievements for decades to come in order to achieve ultimate objective of TB control in the country. Components included in the second phase of RNTCP are:

a. Pursue quality DOTS expansion and enhancement, by improving the cure through an effective patient-centred approach to reach all patients, especially the poor.

b. Address TB-HIV, MDR-TB and other challenges by scaling up TB-HIV joint activities, DOTS Plus, and other relevant approaches.

c. Contribute to health system strengthening, by collaborating with other health programmes and general services

d. Involve all health care providers, public, nongovernmental and private, by scaling up approaches based on a public-private mix (PPM), to ensure adherence to the International Standards of TB care.

e. Engage with people affected by TB and affected communities to demand and contribute to effective care. This will involve scaling-up of community TB care; creating demand through context-specific advocacy; communication and social mobilization.

f. Enable and promote research for the development of new drugs, diagnostics and vaccines. Operational Research will also be needed to improve programme performance.

The emergence of resistance to drugs used to treat tuberculosis (TB), and particularly multidrug-resistant TB (MDR-TB) has compelled the government to introduce

RNTCP- DOTS Plus in 2010. Specific measures are being taken within the RNTCP to address the MDR-TB problem through appropriate management of patients and strategies to prevent the propagation and dissemination of MDR-TB. The programme also incorporated strategies to treat patients of XDR-TB (treatment failed after taking the regimen of MDR-TB).

1.3. Inclusion of RNTCP in National Health Mission

In 2005, GOI launched National Rural Health Mission (2005-12) to provide effective health care services to rural population throughout the country with special focus on 18 states which have weak public health indicators or weak infrastructure. The seven major goals of the NRHM includes: (i) reduction in Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR); (ii) universal access to integrated comprehensive public health services; (iii) child health, water, sanitation and hygiene; (iv) prevention and control of communicable and non-communicable diseases, including locally endemic diseases; (v) population stabilization, gender and demographic balance; (vi) revitalize local health traditions and main-stream Ayurvedic, Yoga, Unani, Siddha and Homeopathy Systems of Health (AYUSH); vii) promotion of healthy life styles.

NRHM has given flexibility to states to plan and implement state specific action plans with in the broad national parameters and priorities. The state Programme Implementation Plan (PIP), which also includes individual district/city health action plans, spells out the key strategies, activities undertaken, budgetary requirements and key health outputs and outcomes. In 2013, National Health Mission was launched and the services of NRHM were extended to urban centers also, especially to urban poor, through the National Urban Health Mission (NUHM).

Under the broad goal of prevention and control of communicable and non-communicable diseases, the NHM (also in NRHM) provided flexible pool for control of communicable diseases, which includes Revised National Tuberculosis Control Programme (RNTCP) also. The flexible pool has facilitated the states in preparing state, district and city specific Programme Implementation Plans (PIPs). As RNTCB came under the purview of NHM, the fund for it is also routed through the NHM to the state.

1.4. Fund flow For TB eradication in Karnataka

NHM integrates all related, inter-linked and standalone schemes in the health sector including RCH, National Disease Control Program (NDCP), Integrated Disease Surveillance as well as new initiatives proposed under NHM and National Commission on Macro Economics and Health (NCMH). A common and flexible fiscal pool has been designed to cover all NHM activities and various financial

resources including external aid have been rationalized and compressed into four categories. These include:

a. operational support to states (released through treasury route)
b. operational cost of institution supported by MoHFW, like support to National Tuberculosis Institute (NFI) in Bangalore, Karnataka
c. activities centrally implemented; and
d. activities in the State Program Implementation Plan (released through State Health Societies). Support for the District Health Action Plan falls under the category of support to activities in the State PIP.

NHM stresses on providing financial autonomy to states and districts, so that local requirements are taken care of through immediate health actions. NHM also aims to increase public health expenditure by 10 percent annually during the mission period and the states are expected to contribute 15 percent of the outlay annually towards health. Following the submission of State PIP, the National Program Co-ordination Committee (NPCC) approves the same and funds are released for the upcoming financial year. The funds are transferred to the State Health Society in four components and additionally, the society will receive the state's share of 15 percent of the total outlay. The funds are generally released to states in 3 or 4 tranches upon submission of Utilization Certificate and other documents.

The major source of funding for tuberculosis programme in the State is NHM, where the fund for RNTCP is released to states through integrated health societies under National Disease Control Programs (NDCP) along with other three components – i) RCH Flexipool, ii) Mission Flexipool, and iii) Routine Immunization (including Pulse Polio). Thus, the fund/resource is allocated through two major windows by central government:

1. Fund through NHM: Of the total budgeted cost for the operation and management of RNTCP (other than procurement of medicine) in the state, 75 percent of the fund is provided by the central government and rest 25 percent is contributed by the state government.
2. Procurement of Drugs: Drugs are supplied directly from GOI to state drug store situated in State TB Centre premises. Drugs are procured based on the demands made by the state TB center.

State TB Society releases funds to District TB Societies as per the sanctioned budget of the year. Quality Drugs are supplied directly from Government of India to State Drug Stores situated in State TB Centre premises, which on demand is supplied to District Tuberculosis Centre, and from there it is passed to the DOTS Provider's,

which can be a PHC, a private practitioner, ANM, ASHA worker or any other person selected by the TB patient as DOTS Provider[9].

Other than NHM, the state had once suggested a special support to the TB patients in the state health budget of 2012-13.

3. Nutrition support to TB: As per the Karnataka state budget document of 2012-13, the state initiated a scheme to provide nutrition support in kind to TB & HIV patients through fair price shops. The scheme had budgeted for about 70,000 TB patients in the state. However, as per the discussion with the Director RNTCP, the programme was never implemented because of logistics issues and the fund was transferred to some other programmes on the directives of the State Government.

[9] DOTS Provider should not be related to the patient

Chapter 2 - Objective, Methodology and Sampling

2.1. Objectives of the Study

The overall objective of the study is to carry out an in-depth expenditure analysis of tuberculosis eradication programme (RNTCP) in Karnataka and the linkage between resource allocation and the sector priorities.

Major objectives of the study are as follows:

a. To understand the pattern and trends of fund flow for TB in last 7 years (2007 onwards) in Karnataka
b. To understand the fund flow under the tuberculosis programmes at all the levels
c. To track the distribution and utilization of the fund allotted under the scheme at all the levels.
d. To understand, if the state has prioritized any specific sex/age/settlement as per the prevalence of TB cases for public spending? If yes, then does the priority reflect the need?

The process followed to track the public expenditure under the tuberculosis programme in the state will help to develop a robust methodology and study design for tracking public expenditure under other government initiated scheme.

2.2. Methodology

Desk review for the study comprises two aspects:

a. **Review of literature**: RNTCP programme guidelines, government circulars, statements of allocation and utilization of funds and other related documents released by Ministry of NRHM [10] (http://www. http://nrhm.gov.in//) were reviewed to understand the programme, its implementation processes and total sanctioned and released amount under the programme. Similarly, the website of WHO, state health mission, http://www.tbfacts.org/, Directorate of Economic and Statistics (http://des.kar.nic.in/), Karnataka and other related sites were visited. Other than these, websites of various journals, especially of Indian Medical Journal of India and Economic & Political Weekly (EPW) were visited to review the papers on TB and public expenditure. Also various articles published in daily newspapers related to TB were reviewed.
b. **Document analysis**: Audit reports and other documents related to allotment and expenditure under the NHM as well as of RNTCP were collected from NHM-Karnataka, State TB Society (Bangalore), District Health Societies (Bangalore Rural

[10] Throughout this Report term NRHM is used although it was subsumed under NHM subsequently.

District), and TU (Doddhballapur Taluk). Also, data related to status and achievements of RNTCP at the level of state, district and taluk has been collected from the respective TB centres. These documents have provided information about the fund allotted, releases and expenditures and activities carried out under the programme. PIPs and ROPs of RNTCP are also analyzed for the benefit of the study.

Public Expenditure Tracking Survey (PETS) may be used as following three different tools depending upon the objective of the study:

- As a **diagnostic tool**, where the survey seeks to ascertain concrete facts and identify basic problems without necessarily exploring why the problems are occurring or how they can be solved.
- As an **analytical tool,** it looks for the factors that are correlated with the variable of interests, formulate and test hypothesis and try to discern the underlying relationships that may be in operation. If causes are discovered, then appropriate steps can be taken for better delivery.
- As an **impact evaluation tool,** PETS can be used to examine the impact of a policy intervention that has already taken place. The likely occasion to use PETS for impact evaluation is after an earlier PET, so that results can be compared.

(Refer to Annexure 1 for better understanding)

2.3. Data Sources

The study has focused on analyzing public expenditure for the RNTCP in Karnataka for the FY 2013-14. The study has primarily used the diagnostic tool of 'Public Expenditure Tracking Survey' (PETS) (refer box) to track the flow of funds (allotment, releases and expenditure) along the RNTCP (excluding procumbent) through various hierarchical strata of government institutions in Karnataka.

The following table has given the various methodologies adopted for data collection for each objective of the study.

Table 2.1: Scheme of Analysis

Major Objectives of the study	Major Questions	Methodology	Source of Data Collection
1. To understand the pattern and trends of fund flow for RNTCP in last 7 years (2007 onwards) in Karnataka	a. What is the total state budget for health and how much has been allotted under NRHM in last ten years? b. What is the percentage of total allotted budget for RNTCB in NRHM? (2005 onwards) c. What is the ratio of state and center for NRHM and	▪ Desk Review ▪ Secondary data analysis	Sites visited: ▪ National Health Mission ▪ State TB Society, Karnataka ▪ Ministry of Finance Department, Karnataka ▪ Audit reports ▪ Guidelines ▪ State Budget Documents

Major Objectives of the study	Major Questions	Methodology	Source of Data Collection
	RNTCB? d. Has the trend changed after the prioritizing the issue of TB in 2012 mission document?		
2. To understand the fund flow under RNTCP at all levels (state, district and taluk).	a. How much budget has been allotted to the state and districts under the RNTCP? b. Of the budgeted amount, how much has been released and of that how much expenditure has been incurred? c. When was the fund released? d. How the fund is released?	▪ Desk review ▪ Individual interviews ▪ Secondary data	▪ Audited reports of the state and district ▪ Account books maintained by the State TB Centres and District TB Centres (Bangalore Rural). ▪ Interview of the concerned officials at state, district and TU level. Also interview of ANMs and Asha Workers. ▪ Minutes of the meetings concerned to the RNTCP. ▪ Guidelines of RNTCP
3. To understand the distribution and utilization of the fund allotted under the scheme at all the levels.	a. What are the various heads of expenditure under the programme? b. What is the percentage of allotments under the various heads? c. Are the guidelines clear about the distribution of funds under the various heads in the programme? d. Whether the fund has been utilized for the intended purposes?	▪ Desk review ▪ Individual interviews ▪ Primary/Secondary data	▪ Audited reports of state and district. ▪ Account books maintained by the related departments ▪ Interview of the concerned officials at all the levels ▪ Minutes of the meetings concerned to the TB programmes ▪ Guidelines
4. To understand, if the RNTCP/State has prioritized any	a. What is the percentage of women	▪ Desk review ▪ Discussions	▪ Guidelines ▪ Interviews

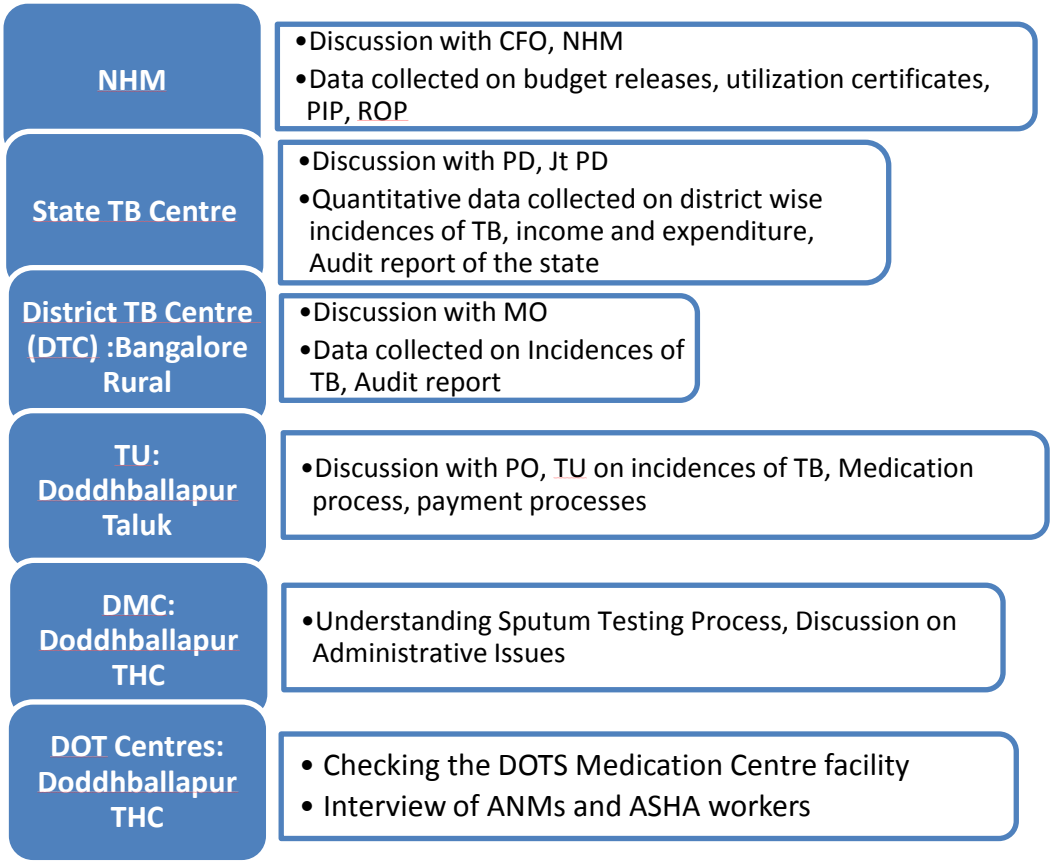
Major Objectives of the study	Major Questions	Methodology	Source of Data Collection
specific sex/age/settlement as per the prevalence of TB cases for public spending? If yes, then does the priority reflects the need?	and children in total cases of TB in the state? b. What is the morbidity rates of women and children vis-a vis men? c. Has the programme made any specific strategies to meet the requirements of women/child/other disadvantaged groups? d. Has the strategies been implemented at the state level? e. Are there any strategies developed by the state to meet the requirements of TB patients?	▪ Primary/Secondary data ▪ Interviews	▪ Data collected from state TB Centers/other data sources ▪ Budgetary documents ▪ PIPs ▪ Audit reports at various levels

3.3. Track to follow for the study

To track the fund flow in hierarchy, the study has tracked it under three distinct divisions – state, district and taluk. At least one unit at each stratum has been covered under the programme – state, district and taluk (sub-division). Also, the study has incorporated the interviews of ASHA workers and ANMs under DOTS centers. The following diagram shows the track of the fund flow under the RNTCP, and a unit has been selected from all the strata.

Data Limitations: Most of the data was sourced from the NHM, Bangalore, State TB Centre and District TB Centre. Mostly the data was not readily available requiring the study team to visit the NHM and State TB office several times. Data was available in a form which could be opened only with a particular software available only with the government offices. Team members had to spend a lot of time with the data entry personnel at State TB office, Bangalore to obtain the data in required format in hard copy. More than 1000 pages were photocopied to collect information about the program from the state TB Office (district level). Later it was entered into a spread sheet and analyzed further as per the requirements of the study.

Figure 1: Source and Methodology of data collection



Chapter 3: Tuberculosis Programme in Karnataka

3.1. Diagnosis of Tuberculosis

Tuberculosis is an infectious diseases caused by *Mycobacterium* tuberculosis, and rarely by other organisms of the 'tuberculosis complex'. Based on the parts of the body affected by tuberculosis, it can be classified in two parts:

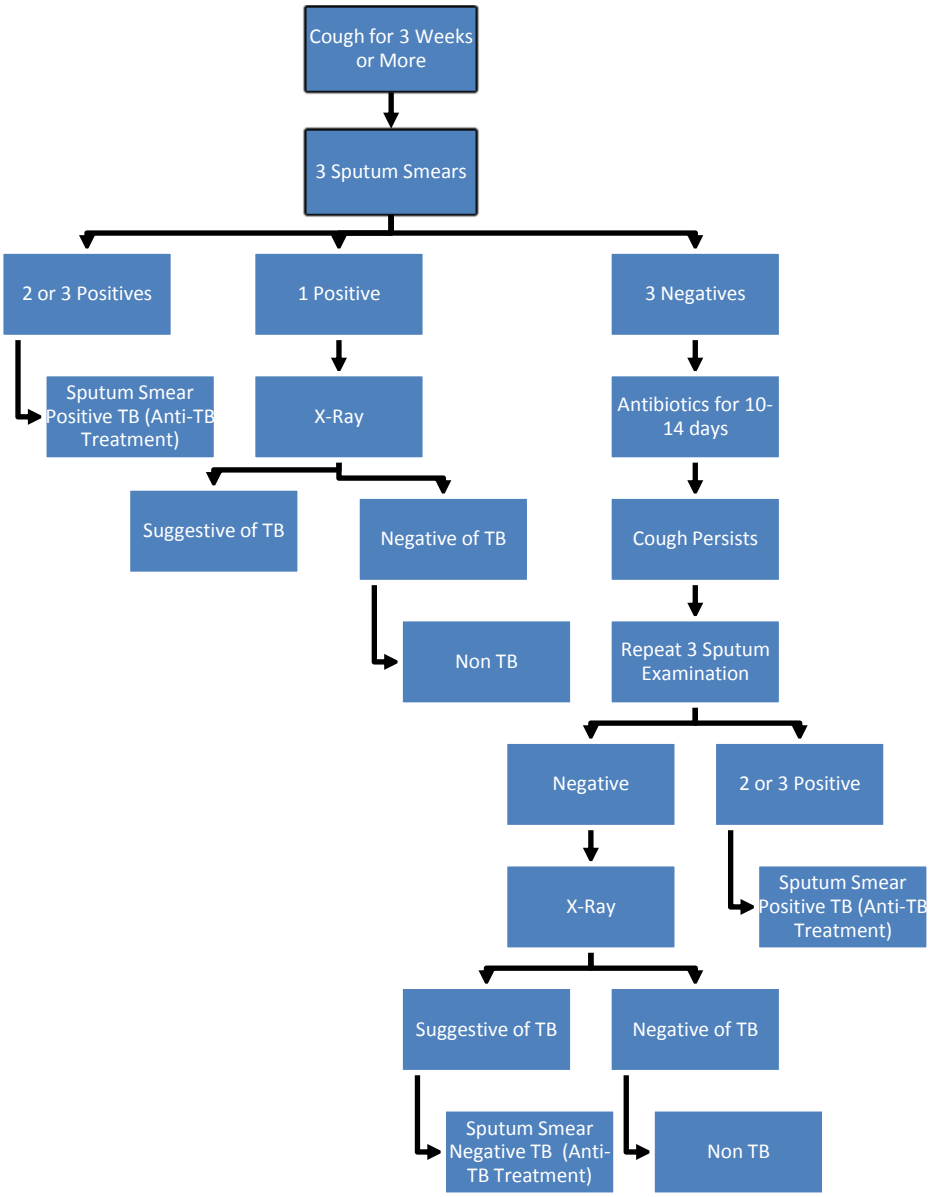
a. **Pulmonary Tuberculosis**: When the tuberculosis affects the lung then it is called 'pulmonary tuberculosis'. More than 85 percent of the cases in tuberculosis are pulmonary tuberculosis. Pulmonary tuberculosis is an infectious disease and spreads mainly by droplet infection. Sputum positive pulmonary TB patient are the main source of infection. It is estimated that an untreated smear positive pulmonary TB patient infects 10-15 persons annually. Therefore, it is very important to identify TB suspects and diagnose them earl in order to effectively treat and make them non-infectious.

   Pulmonary tuberculosis is further classified in two parts to determine the correct combination of drugs and duration of treatment:

   a. **Smear Positive Patient:** A patient will be diagnosed as smear-positive in three cases:
      i. A patient with at least 2 initial sputum smear examinations are diagnosed 'positive' for acid-fast bacilli (AFB); or
      ii. A patient with one sputum examination 'positive' for AFB and radiographic abnormalities consistent with active pulmonary TB as determined by the treating MO; or
      iii. A patient with one sputum specimen 'positive' for AFB and culture positive for M. Tuberculosis.
   b. **Smear Negative Patient:** In two cases, a patient will be diagnosed as 'Smear Negative Patient'.
      i. A patient having symptoms suggestive of TB with at least 3 sputum examinations negative for AFB, and radiographic abnormalities consistent with active pulmonary TB as determined by the treating MO, followed by a decision to treat the patient with a full course of anti-TB therapy; or
      ii. A patient whose diagnosis is based on culture positive for M. tuberculosis but sputum smear examinations negative for AFB.

   A figure depicting diagnosis algorithm for pulmonary tuberculosis is given below.

Figure 2: Diagnostic Algorithm for Pulmonary TB



Source: Technical & Operational Guidelines for Tuberculosis Control, 2005

b. Extra Pulmonary Tuberculosis:

When tuberculosis affects any other body parts other than lungs, such as the pleura (pleurisy), lymph nodes, intestines, genito-urinary tract, skin, joints and bones, meninges of the brain, etc. then it is called 'Extra-Pulmonary Tuberculosis (EPTB). Diagnosis of EPTB is based on one culture-positive specimen from an extra-pulmonary site, or histological or radiological, or strong clinical evidence consistent with active extra-pulmonary TB followed by the treating MO's decision to treat with a full course of anti-TB therapy. Pleurisy is classified as extra-pulmonary TB. A patient diagnosed with both

sputum smear positive pulmonary TB and extra pulmonary TB should be classified as a case of pulmonary TB.

3.2. Medication Process for TB Patients under RNTCP

The objectives of tuberculosis treatment are:

- To decrease mortality and morbidity by ensuring cure, minimizing relapses and preventing development of drug resistance
- To decrease infections and break the chain of transmission of infection
- To achieve the above whilst minimizing side effects due to drugs

These objectives are achieved in RNTCP through timely medication provided to patients under direct observation of DOTS provider. These DOTS providers are regularly trained by the district training team and are under constant vigilance of medical officer at TU level. Development of treatment regimen for TB patients and inclusion of DOTS providers in the program have been the major reasons for achieving the MDGs set for tuberculosis in India. The table below provides the details of the intensive medication process followed among the various categories of TB patients and the following paragraphs gives the details of treatment regimens.

Table: 3.1.: Regimen followed in RNTCP for various categories of TB patients

Treatment group	Type of Patient	Regimen		Total Months
		Intensive Phase	Continuous Phase	
Category I	New	$2H_3$, R_3, Z_3, E_3 (24 doses)	$4H_3$, R_3, Vit B_4	6 Months
	Smear Positive after 22 weeks of medication	$3H_3$, R_3, Z_3, E_3 (36 doses)	$4H_3$, R_3, Vit B_4	7 months
Category II	Previously Treated: 1) Relapse 2) failure 3) Default	$3H_3$, R_3, Z_3, E_3, S_3	$5H_3$, R_3, E_3, Vit B_4	8 months
Category IV[11]	MDR – TB	6–9 Km_7, Lvx_7, Eto_7, Cs_7, Z_7, E_7	18 Lvx_7, Eto_7, Cs_7, E_7	PAS, Mfx, Cm
Category V	XDR – TB	6–12 Cm_7, PAS_7, Mfx_7, highdose H_7, Cfz_7, Lzd_7, Amx/Clv_7	18 PAS_7, Mfx_7, high-dose H_7, Cfz_7, Lzd_7, Amx/Clv_7	Clarithromycin, Thiacetazone

[11] Category III has been discontinued after the implementation of DOTS Plus Guidelines where MDR and XDR patients are treated differently.

The number before the letters refers to the number of months of treatment. The subscript after the letters refers to the number of doses per week. The drugs are as follows: isoniazid (H), rifampicin (R), pyrazinamide (Z), ethambutol (E), Pyradoxine (Vit B supplement) and streptomycin injection (S), kanamycin (Km), levofloxacin (Lvx), ethionamide (Eto), cycloserine (Cs), para amino salicylic acid (PAS), moxifloxacin (Mfx), capreomycin (Cm), clofazimine (Cfz), linezolid (Lzd), amoxyclav (Amx/Clv)

Source: Guidelines and Discussion with the Jt Director, Karnataka and PO from TU, Bangalore Rural

There are four categories of treatment currently followed under the RNTCP in India. Treatment in each category follows two phases: Intensive phase and Continuation phase.

Category I:

Intensive Phase: During the Intensive Phase of Category I, DOTS Provider must directly observe the patient swallowing every dose of medicine. In this phase, medicines are to be taken thrice in a week on alternative days. After the completion of 22 doses[12], the patient should give 2 samples of sputum for testing. So the results are available by the end of intensive phase (24^{th} week). If the test is positive, the MEO may extend the intensive phase by a month. If the test is negative, then the patient should start drugs for the continuation phase.

Continuation Phase: In the continuation phase, DOTS provider directly observes the patient swallowing first medicine of the week and then gives rest of the medicine of the week to the patient for self-administration. In the next week, the patient has to come again to take the first dose of medicine in the presence of the DOTS provider and then takes rest of the medicine with him/her. This continues for 14 weeks. In the 15^{th} week of continuation phase, the patient has to do a lab testing of his/her sputum. If the patient is converted to negative then the medication is stopped after the completion of continuous phase (16 weeks) and patient is declared cured. However, if the patient is tested 'positive', then the drugs are declared failure and the Category II drugs are started.

Category II:

Intensive Phase: In case of failure/default/relapse, category II treatment is started. Intensive phase of category II is for three months, where the patient has to take

[12] In every month 12 doses (3 doses/week x 4 weeks/month) are taken

medicine in alternative days of the week in the presence of DOTS provider. After the completion of 34 doses, the patient has to test his/her sputum. If the test is positive, then the MEO may extend the intensive phase by a month. In case of negative, the patient starts the continuation phase after the completion of drugs for intensive phase (36 doses).

Continuation Phase: The continuation phase for Category II drugs is of five months. Like in Category I, in Category II also the patient has to take the first medicine of the week in the presence of the DOTS Provider and rest are self-administered. In the 3rd last week of fifth month, the patient have to test his/her sputum. Negative result of sputum means that the patient has been cured. In case of positive result, the medication is stopped immediately and patient is suspected of treatment failure and diagnosed as "MDR-TB Suspect'.

Category IV

When the patient does not respond to the Category II regimen then s/he is categorized as 'MDR-TB Suspect[13]' and is immediately referred to go through the Culture & Drug Sensitivity Testing (C&DST). If the 'MDR-TB suspect' patient is confirmed by the C&DST laboratory testing (accredited by RNTCP), or any rifampicin resistance, the patient is treated with the Category IV regimen containing second-line anti-TB drugs.

Once confirmed, the MDR-TB patients and those with any rifampicin resistance are referred to the RNTCP DOTS Plus Centre[14], with their DST result and request for Category IV treatment form. Committee at the DOTS Plus Centre reviews the reports of the patient and comes to a decision in relation to treatment under RNTCP with a Category IV regimen. If the Committee agrees with the Category IV regiment then the patients is initially admitted at designated DOTS-Plus Centre, counseled in regards to their treatment, their treatment card is opened and treatment is initiated. If the patient is able to tolerate the Cat IV drugs s/he can be discharged after 1 week of post treatment initiation. In case patient refuses for hospitalization, after all the counseling, then also the treatment should not be denied and alternative local arrangements should be made for pre-treatment evaluation and initiation of treatment.

In Category IV, regimen, intensive phase is for at least six months. A patient receives all drugs under direct observation on 6 days a week, on the 7th day (Sunday), the oral

[13] **M**DR-TB refers to strains of the bacterium which are proven in a laboratory to be resistant to the two most active anti-TB drugs, isoniazid and rifampicin. Treatment of MDRTB is extremely expensive, toxic, arduous, and often unsuccessful.

[14] For every 1 crore population there is one DOT+ Centre. However, in Karnataka, there are only five DOT+ Centers – one each in Bangalore, Mysore, Dharwad/Hubli, Mangalore and Bellary.

drugs is administered unsupervised whereas injection kanamycin will be omitted. If intolerance occurs to the drugs then they the drugs are split into two dosages and the morning dose is administered under the DOTS provider. The evening dose is self-administered and the patient has to carry the empty blister packs of the self-administered doses next morning to be checked by the DOTS provider. After 6 months of treatment, the patient is reviewed and the treatment changed to 'continuous phase' if the 4th month culture result is negative. If the 4th month culture result remains positive, the treatment is extended by one month. Extension of intensive phase beyond 1 month is decided on the results of sputum culture of 5th and 6th months. The intensive phase can be extended maximum of 3 months after which the patient will be initiated on the 'continuous phase irrespective of the culture results. The recommended duration for continuous phase is 18 months where the patient has to visit the DOTS Provider once in a week and rest of the medicines are self-administered. Category IV patients are evaluated by the respective DTO at monthly intervals during the intensive periods and at 3 monthly intervals during the continuous periods until the end of treatment.

Category V

Patients on Category IV treatment, whose 4th month culture result is positive, should be suspected of treatment failure and will be considered as 'XDR suspects' (extensively drug resistant TB). It must be ensured that the 6th month follow-up culture of such patients is done in time and if found positive, the culture isolate should be sent by the C&DST laboratory to the respective National Reference Laboratory (NRL) for the second line DST. In addition, any Category IV patient who has culture converted but is found subsequently to have 2 consecutive positive cultures, would also be suspected of treatment failure and their culture should also be sent to the NRL for second line DST. The respective NRL will perform second line DST in case of an 'XDR-TB suspect' for at least Kanamycin, Capreomycin and Ofloxacin, and will inform the respective C&DST laboratory of the result as soon as it is available. If a patient is found to have XDR-TB, the DOTS-Plus Committee will stop the category IV treatment, and evaluate the patient for initiation of the RNTCP Category V treatment regimen.

DOTS Provider have to follow the dosage process of Category IV in Category V regiment also where the patient have to take medicine regularly under the supervision of DOTS provider (except one day in a week) during the intensive phase. In Category V treamtn, the intensive phase is of 6 to 12 months, depending on the culture results of the patient which is tested every month after 4th month of intensive phase. Continuous Phase in the Category V regimen is of 18 months.

3.3. Structure of RNTCP

3.3.1. State level

National Rural Health Mission (NRHM) has vertically integrated 'Health and Family Welfare programs' at National, State, Block, and District levels. Therefore, RNTCP came under the purview of NRHM after its formation in 2005, and State Tuberculosis Officer (STO) now reports to the Director of the NRHM.

The State Health Society or the State TB Control Society (STCS) (or its equivalent) is the implementing agency at the State level. It also exercises control over the District/Municipal Health Societies or District/ Municipal TB Control Societies (or its equivalent) in the State. The State TB Cell[15] (STC) which functions as the secretariat of the State Health Society or State TB Control Society (STCS) for all functions pertaining to RNTCP at the State level is the accounting center for the programme.

The State Tuberculosis Officer (STO) is responsible for planning, training, supervising and monitoring the programme at the state level. STO is administratively answerable to the state government and technically follows the instruction of the Central Tuberculosis Division (CTD), and coordinates with CTD and districts for executing the programme at the state level.

State TB Training and Demonstration Centre (STDC), headed by a Director, supports the State TB Cell with i) training, ii) supervision, monitoring and evaluation iii) quality assurance of sputum microscopy, iv) culture and sensitivity, v) operational research, vi) advocacy, and vii) IEC.

3.2.2. District level

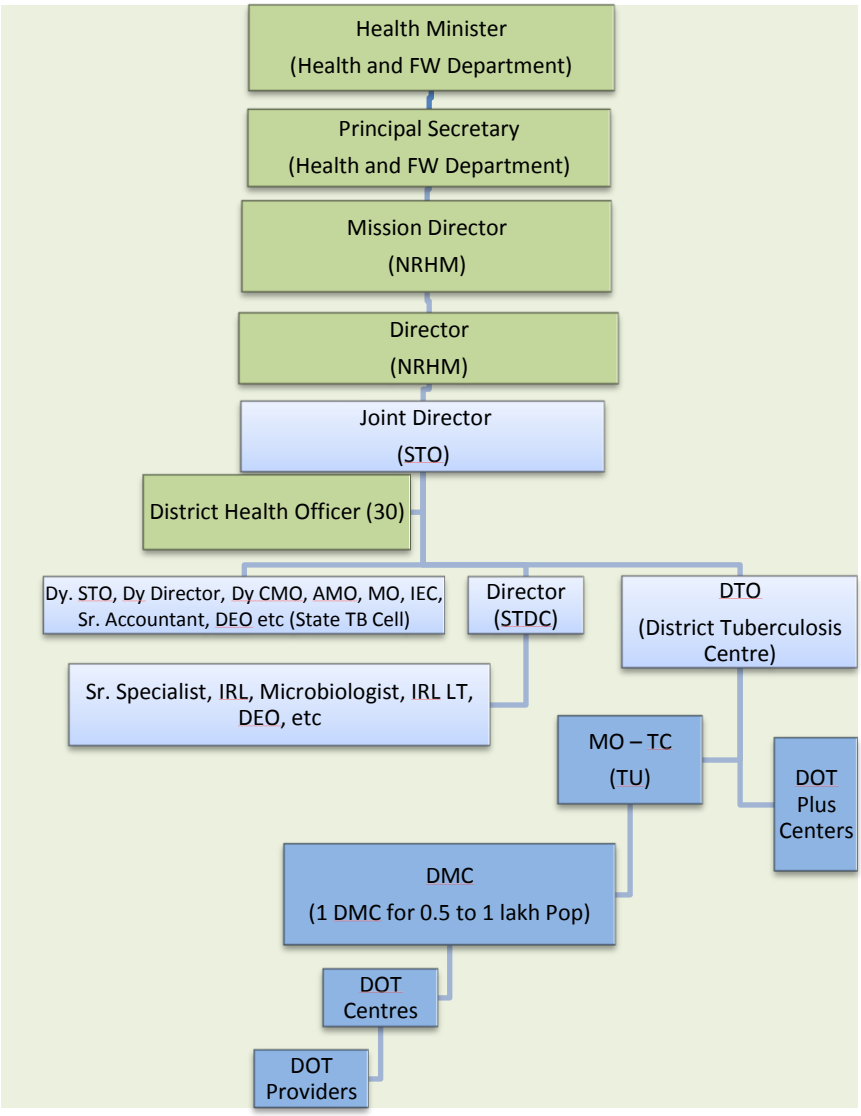
District Health Officer (DHO) is responsible for all medical and public health activities including control of TB in a district. District Tuberculosis Officer (DTO) at the District Tuberculosis Centre (DTC), has the overall responsibility of management of RNTCP at the district level as per the programme guidelines. The DTO is also responsible for involvement of other sectors in RNTCP and is assisted by an MO, Statistical Assistant and other paramedical staff.

As per the guidelines, for every 500,000 population (250,000 population in tribal, desert, remote and hilly region) should have one Tuberculosis Unit (TU). Medical Officer – Tuberculosis Control (MO-TC) at the TU has the overall responsibility of management of RNTCP at the sub-district level and is assisted by the Senior Treatment Supervisor (STS) and a Senior Tuberculosis Laboratory Supervisor

[15] In some places it is mentioned as State TB Centre (STC).

(STLS). TU is responsible for accurate maintenance of the Tuberculosis Register and timely submission of quarterly reports to the district level. TUs are generally based in a Community Health Centre (CHC), Taluk Hospital (TH) or Block primary Health Centre (BPHC).

Figure 3: Organogram of RNTCP in Karnataka



FW	Family Welfare
NRHM	National Rural Health Mission
NHM	National Health Mission
STO	State Tuberculosis Officer
Dy. STO	Deputy State TB Officer
Dy CMO	Deputy Chief Medical Officer
AMO	Assistant Programme Officer
MO	Medical Officer
IEC	Information, Education and Communication Officer
DEO	Data Entry Operator
STDC	State TB Training and Demonstration Centre
DTO	District Tuberculosis Officer
IRL	Intermediate Reference Laboratory
LT	Lab Technician
MO TC	Medical Officer Tuberculosis Control
TU	Tuberculosis Unit
DMC	Designated Microscopic Center
PHC	Public Health Centres
DOT	Directly Observed Treatment

Source: CBPS, 2015

Every 100,000 population (50,000 population in tribal, desert, remote and hilly region) should have one Designated Microscopy Centre (DMC). Every TU will have one DMC along with Medical Colleges, Corporate hospitals, ESI, railways, NGOs, private hospitals etc, depending upon requirements. Every DMC will have a Laboratory Technician/Microscopist or Trained Laboratory Assistant who will be responsible to instruct and demonstrate patient the proper methodology of bringing

out sputum, test the sputum and maintain records, maintain the register and report the results to the MO in a day.

In RNTCP, a DOTS Provider (health worker or a trained community volunteer who is not a family member) watches and supports the patients taking drugs. It is this DOTS provider who ensures that the patient takes right drugs in right doses at right interval for right duration. DOTS providers should be accessible, acceptable and accountable. The successful completion of TB treatment is influenced greatly by 'how' care is delivered to individuals[16]. Therefore, DOTS providers are the key persons in the implementation of the program at ground level. Performance at this level maximally affects the outcome of the program. Usually, the ASHA workers/ANMs and other government enrolled health workers are the DOTS Providers. ASHA and non-government health workers get honorarium after successful completion of the treatment.

3.2.3. Others Service Providers

Peripheral Health Institutions (PHIs) is a health facility which is manned by at least a medical officer. At this level are the dispensaries, PHCs, CHCs, referral hospitals, major hospitals, specialty clinics / hospitals (including other health facilities) / TB hospitals / Medical colleges within the district. All health facilities in the private/NGO sector participating in RNTCP are also considered as PHIs under the programme. Some of these PHIs will also be DMCs. All PHIs with/without DMCs should submit a monthly PHI level report to the respective TUs and the district.

TB Laboratory services are established with two aims, they are: (i) the diagnosis of cases, and (ii) monitoring of treatment. The Laboratory network for RNTCP in India consists of three designated National Reference Laboratories (NRLs) namely Tuberculosis Research Center, Chennai, National Tuberculosis Institute, Bangalore and LRS Institute of Tuberculosis and Respiratory Diseases, Delhi. A Central Laboratory Committee has been constituted with the Microbiologists of the three NRLs and CTD representatives as members. This committee works as a task force to guide Laboratory related activities of the programme. Other than national level laboratories, about 24 Intermediate Reference Laboratories (IRLs) at state level are established. A nodal laboratory in each state will be designated as IRL. Usually the STDCs would be designated as IRL provided that they have a well functioning laboratory.

[16] Kaur A, Balgir RS, Kaur P, Gupta V. Knowledge and Attitude of DOTS Providers in Tuberculosis Unit of Patiala. Online J Health Allied Scs. 2012;11(2):3. Available at URL: http://www.ojhas.org/issue42/2012-2-3.htm. (accessed on July 9, 2015)

3.4. Status of RNTCB in Karnataka (2013-14)

3.4.1. Available Infrastructure for RNTCP

Karnataka has established registered Tuberculosis Control Societies (as per the guidelines) at the state as well as at all the districts. Also, under the National Urban Health Mission, a separate society has been registered to cater to the patients of Bangalore Urban Agglomeration (BBMP[17]).

As per the data provided by State TB Centre, Bangalore, the state has 5 DOTS Plus Centres, 146 TUs, 670 DMCs, and 1837 Sputum Collection Centres by the end of financial year 2013-14[18]. The State has 32901 DOTS Centre, of which 47.8 percent (15731) are community volunteer DOTS Centres. Guidelines of RNTCP has provided the number of TUs, DMCs and DOTS Plus Centres need to be established on the basis of the population. Based on the available data (as on the first quarter of 2014) and the total population of Karnataka (2011 Census), the number of units to be established as per the guideline is calculated and compared with the actual number of establishments. The table below gives the details:

Table 3.2.: Available Infrastructure under RNTCP, Karnataka

	Guideline of RNTCP	Number of centres/Units as per the Guideline[19]	Actual Numbers on 1st Quarter of 2014
District Tb Centre	1 per district	31	31
TU	for every 5 lakh population (and 2.5 lakh population in hilly, forest & difficult areas),	122	146
DOTS Plus Centres	Per 10 million population	6	5
DMC	for 1 lakh population (and 0.5-1 lakh population in hilly, forest & difficult areas),	610	670
DOTS centres			32901

Source: RNTCP Guidelines, Quarterly report acquired from State TB Office

[17] BBMP: Bruhat Bangalore Mahanagar Palike

[18] By the end of 2014, the State has 150 TUs, 679 DMCs and 33159 DOTS Centres.

[19] As per the Census 2011, Total Population of Karnataka was 61095297

It seems from the above table that, other than DOTS Plus Centre, the State has established more than the required number of establishments required as per the guidelines of RNTCP. However, the growth of population in last four years and hilly/tribal areas are not considered during calculation but it can still be said that the state has been able to meet the need of the establishments required for the operation of the tuberculosis programme. Also, as mentioned in the 'action point for the State under RNTCP during FY 2013-14' (ROP, 2013-14), the state has to scale up the existing DOTS Plus services as per the DOTS Plus Guidelines. This invokes not only starting a new DOTS Plus Centre but also providing better medication facility with upgraded facility in the existing Centres.

Chapter 4: Budget and Expenditure Analysis

This chapter provides an analysis of the budget and expenditure under NRHM and RNTCP in Karnataka from the FY 2007-08 to 2013-14. It also provides a broad analysis of the Health Budget at the State level. This chapter is divided into two sections viz:

Section 4.1.: Health Budget and NRHM Fund at State level

Section 4.2.: RNTCP at State level

4.1 Health Budget and NRHM Fund at State Level

Total budget for health of the state is increasing continuously, however total allocation under NRHM/NMH was contributing major share of the total state budget. About 60 percent of the total budget of the state for the health in 2007-08 was contributed through NRHM (see below); thereafter, the contribution of NRHM / NMH in total health budget decreased continuously. NRHM contribution in total state health budget was between 30 to 40 percent between 2008-09 and 2010-11 and it decreased further to below 30 percent from 2011-12 onwards and reached to 22 percent by the financial year of 2013-14. NRHM Mission Document (2005-2012) has stated that State would sign MoU with GOI, indicating their commitment to increase contribution to Public Health Budget (preferably by 10 percent)[20]. Other than 2009-10, the State has contributed more than the said amount towards health in the state.

Table 4.1: Health and NRHM Budget for Karnataka

Financial Year	Total Health Budget for Karnataka (in Lakhs)	Annual Increase in Health Budget of the State	Total allocation under NRHM for Karnataka (in Lakhs)	Percent of NRHM fund in total health budget for the state
2006-07	135320			
2007-08	183609	35.69	109896	59.85
2008-09	207651	13.09	69139	33.30
2009-10	224814	8.27	83529	37.15
2010-11	279652	24.39	86643	30.98
2011-12	331723	18.62	86252	26.00
2012-13	392910	18.45	106847	27.19
2013-14 RE	490419	24.82	107361	21.89
2014-15	590078	20.32	NA	NA

[20] Refer NRHM (2005-2012) Mission Document, pp 12

Source: *http://www.finance.kar.nic.in/* and *http://nrhm.gov.in/*[21] *(from RoP)*

As mentioned in the above paragraph, about 60 percent of the total budget of the state for the health in 2007-08 was contributed through NRHM. Further analysis of the NRHM data revealed that about 61.6 percent of the total budget allocated under NRHM in 2007-08 was state's contribution towards its share under NRHM. The state had not contributed its share amount under NRHM prior to the FY 2007-08, therefore to correct its shortfall; the state contributed its entire due under NRHM in 2007-08. After then, the state contribution under NRHM was between 9 to 12.5 percent for next four years (2008-09 to 2011-12), from 2012-13 onwards, the state contribution has increased to 22 percent. However, as mentioned in the 'Approval of State PIP 2013-14: Karnataka'[22], with effect from 2012-13, State's share would be 25 percent of the total state fund for NHM. According to it, the state has contributed 2.5 percent less than the required contribution.

On the other hand, the GOI contribution under NRHM for Karnataka remained erratic. It increased between 2008-09 and 2010-11, and then it started decreasing for next two years. The GOI allocation remained more or less constant for 2012-13 and 2013-14.

Unlike in Government, the funds with the State/ District Society do not lapse at the close of financial year. The State/ District Society can utilize the unspent balance during next financial year for the same purpose for which funds were allocated. The amount shall, however, be taken into account while releasing Grant-in-Aid for the next year. The amount remaining unutilized at the close of the Project shall either be refunded or utilized in a manner as decided by Government of India[23]. According to the available data, in the initial years (till 2011-12), the unspent balance was contributing about 15 percent of the total budget. From 2012-13 onwards, it has reduced below 10 percent. High unspent balance also shows low absorptive capacity. According to the given data, the absorptive capacity is increasing as percent of unspent balance is decreasing over years.

[21] Record of Proceedings (RoP) of Karnataka

[22] ROP of Karnataka (www.nrhm.gov.in), pp 7

[23] Financial Management Manual for State and District Societies, Directorate General of Health Services, Ministry of Health and Family Welfare, pp 4-5

Table 4.2.: Total Allocation to NRHM for Karnataka (Rs in Lakh)

	Allocation by GOI	State contribution	Unspent balance	10 -15 percent over and above the resources	Total Allocation
2007-08	23,417 (21.3%)	67,748 (61.6%)	18,731 (17.0%)	0	109,896
2008-09	42,465 (61.4%)	6,500 (9.4%)	12,674 (18.3%)	7500	69,139
2009-10	53629 (64.2%)	9900 (11.8%)	20,000 (23.9%)	0	83,529
2010-11	63412 (73.2%)	9731 (11.2%)	13,500 (15.6%)	0	86,643
2011-12	61281 (71.0%)	10812 (12.5%)	13,471 (15.6%)	688	86,252
2012-13	72148 (67.5%)	24049 (22.5%)	10,650 (10.0%)	0	106,847
2013-14	72582 (67.6%)	24194 (22.5%)	10,585 (9.8%)	0	107,361

Numbers in parenthesis are percentage in total allocation of the year.

Source: *http://nrhm.gov.in*[24]*/*

4.2 RNTCP at the State level

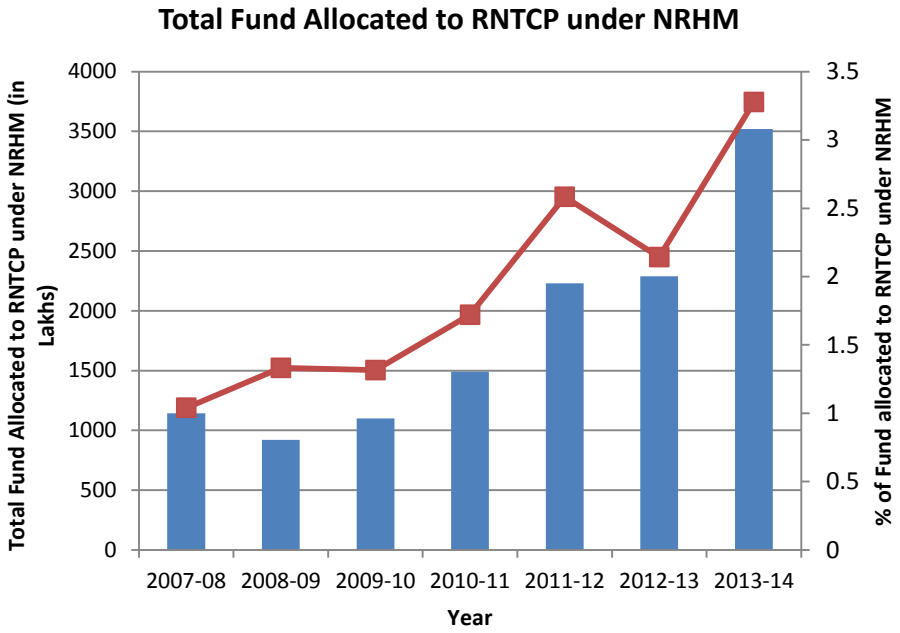
4.2.1. Fund Available for RNTCP under NRHM in Karnataka

Percentage of allocation towards RNTCP from the total budget of NRHM remained below 4 percent till now (2007-08 and 2013-14). Major proportion of NRHM fund goes towards RCH Flexipool and NRHM Additionalities[25]. However, the percentage of allocation from NRHM total fund towards RNTCP has shown a constant increase, with a small depression in 2012-13 (refer the figure below).

[24] From RoP

[25] As per the data received from Directorate of Health & FW Services, Karnataka, RCH Flexipool received 40.6 percent and NRHM Additionalities (any additional activities which are essential for health system improvement but cannot be funded from any other programme are funded from this pool. Some activities include ASHA, RKS, Untied Funds, Annual Maintenance Grants etc) received 47.4 percent of the total NHM budget in the FY 2013-14, and RNTCP received just 3.5 percent in the same year.

Figure 5

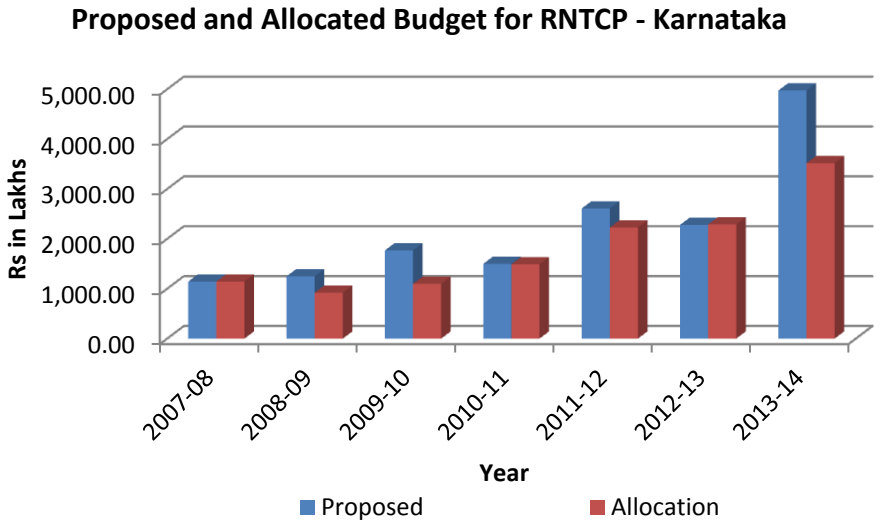


Source: *http://nrhm.gov.in/*

4.2.2. Proposed and Allocated Budget for RNTCP under NRHM

As per the Programme Implementation Plans (PIP) and Record of Proceedings (ROP) available from the site of NRHM, only in two financial years, RNTCP had received the full proposed (or marginally above) fund through the NRHM. On the other years, the funds allotted for RNTCP are deficient by 15 to 38 percent. In the FY of 2009-10, the programme was allocated just 62 percent of the total proposed budget. Similarly, in 2013-14, only 29 percent of the proposed amount was approved for the programme. This means that programme has not received the required financial support through NRHM in the state.

Figure 6



Source: *http://nrhm.gov.in/*

4.3 Per Capita Expenditure over years under RNTCP in Karnataka

The State TB Centre has provided the year wise data for the 'number of patients given DOTS in a calendar year (January to December)'. On the other hand, www.nrhm.gov.in provided the annual expenditure for the FY, i.e. April to March. However, in absence of data, we have calculated the per capita expenditure based on these two available data sets only.

As per the available data sources, per capita expenditure on TB patients (number of patients given DOTS) had decreased by 21 percent for the first year (from 2007-08 to 2009-10) and thereafter it did not register a decrease from the previous year. It had increased by more than 55 percent in two financial years, i.e. 2011-12 and 2013-14. In the FY of 2007-08, the per capita expenditure on TB patients was Rs.1730 which had increased to Rs.5790 by 2013-14 – a jump of 234.6 percent.

Table 4.3.: Year wise Per Capita Expenditure under RNTCP

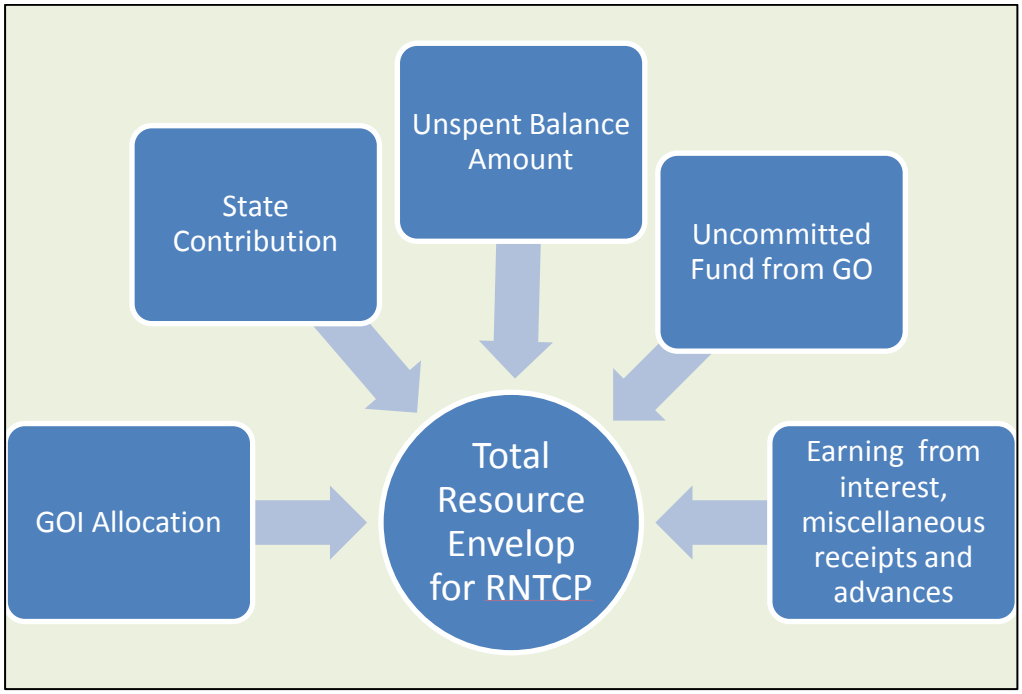
Year	Total Funds allocated (in Rs)	Number of TB Cases Registered	Per Capita Expenditure (in Rs)	% Change
2007-08	114371000	66092	1730	
2008-09	92100000	67828	1357	-21.53
2009-10	109900000	68673	1600	17.85
2010-11	149100000	70586	2112	31.99
2011-12	222891000	67572	3298	56.15
2012-13	228952000	61446	3726	12.96
2013-14	351887000	60772	5790	55.39

Source: http://nrhm.gov.in/ and State TB Office, Bangalore

4.4 Revenue from All Sources for RNTCP – Karnataka

RNTCP resource envelop under NRHM comprises of GOI allocation for the year, state share contribution and unspent funds remaining with the programme from the previous year (since funds do not lapse in case of fund routed through NRHM). Additionally, uncommitted funds from GOI and interest, miscellaneous receipts and advances also contribute to the total fund of RNTCP.

Figure 7: Components of the Resource Envelop for RNTCP



Source: CBPS, 2015

Government of India is the major source of funding for RNTCP in Karnataka, which is routed through NRHM funding to the state. Till, 2011-12, GOI had funded more than 90 percent of the total revenue for the RNTCP. In 2012-13, GOI had funded about 40 percent as grant and another 21 percent was provided as a loan to the State RNTCP. In, 2013-14, the GOI fund to the programme had reduced to 47 percent only. In the same FY, the state government had funded around 43 percent of the total fund for RNTCP[26]. However, the state's contribution to RNTCP was negligible till 2011-12 (other than 2010-12 where the state contributed around 6 percent of the total fund). It is from 2012-13 that the state started contributing significant amount towards RNTCP.

RNTCP had received small grants from GOI through NRHM in 2009-10 and 2011-12. These grants were less than one percent of the total fund of the year. In 2012-13,

[26] Refer next chapter for details

RNTCP had received a loan of about 450 lakhs rupees, which was about 23 percent of the total fund of the year. The loan amount was returned to GOI in the next financial year, i.e. 2013-14.

As discussed before, the funds with the State/ District Society shall not lapse at the close of financial year. The State/ District Society will utilize the unspent balance during next financial year for the same purpose for which funds were allocated. The amount shall however be taken into account while releasing Grant-in- Aid for the next year.[27] Therefore, the unspent amount is added in the total fund received by RNTCP for the FY. As per the data received from State TB Centre, in the period of seven years (2007-08 to 2013-14), the programme has received less than 10 percent of total funds for four years, and above 10 percent for three years from unspent balances of previous FY.

Other than the contributions from centre and state governments, RNTCP also earns about one percent of the total fund through the interest, miscellaneous receipts and advances[28].

Table 4.4.: Total Fund Available from All Sources for RNTCP, Karnataka

(in Rs Lakhs)

Year	Unspent Amount	GoI	State	Grant from Others (NRHM)**	Other^	Total
2007-08	152.31 (17.56)	710.00 (81.86)	0.00 (0)	0.00 (0)	5.00 (0.58)	867.31
2008-09	143.49 (15.04)	797.00 (83.51)	0.00 (0)	0.00 (0)	13.83 (1.45)	954.32
2009-10	32.36 (2.92)	1064.33 (95.93)	0.00 (0)	7.64 (0.69)	5.10 (0.46)	1109.43
2010-11	33.25 (2.12)	1369.89 (91.14)	87.87 (5.85)	0.00 (0)	12.03 (0.80)	1503.04
2011-12	90.36 (5.27)	1601.68 (93.43)	0.00 (0)	1.07 (0.06)	21.16 (1.23)	1714.28
2012-13	250.76 (12.10)	846.68 (40.86)	502.00 (24.22)	450.00[#] (21.71)	22.91 (1.11)	2072.35
2013-14	339.14 (9.36)	1695.53 (46.79)	1559.86 (43.05)	0.00 (0)	29.04 (0.80)	3623.57

Numbers in parenthesis are percentage in total receipts

** Grants here are extra amount provided by GOI through NRHM for the programme

[27] Ibid, pp 4-5

[28] Advances are defined as money given in advance which are to be adjusted against goods/services to be received in future. Like fund given to NGOs or deposited with Public Works Department/ contractor are treated as advance and only after the receipt of utilization certificate (NGO) or completion/part bill (PWC/Contractor), the fund is booked as expense. As per the 'Financial Management Manual for State and District Societies', advance payment shall continue to be treated as an advance until its final adjustment. (pp 13)

^ Other includes interest, miscellaneous receipts and advance
#This was a loan from GOI, which RNTCP has returned in the next financial year, i.e. 2014-15.
Source: State TB Centre, Bangalore

4.5 Income and Expenditure under RNTCP

The table below shows the total funds received for RNTCP in Karnataka, expenditures and unspent amount over seven years (2007-08 to 2013-14). Allocation data is accessed from the site of www.nrhm.gov.in and total receipts and expenditure data is collected from the State TB Society, Bangalore. In practical, total allocation and total receipts should match, however it is found that only in four FYs, the difference in total receipts from allocation is within 5 percent. In 2007-08 and 2011-12, as per the state TB Society records, the RNTCP has received only 76-77 percent of the total allocation.

Even with lower receipts, the State TB Society has not been able to spend the entire fund. As per the data provided by the State TB Society, overall utilization rates have remained above 80 percent in each of the years, other than in the FY 2013-14 where it is around 69 percent.

Table 4.5.: Total Receipts and Expenditure for RNTCP - Karnataka

(Amounts in Rs Lakhs)

Year	Allocation	Total Receipts	Expenditure	Utilization (in %)
2007-08	1,143.71	867.31 (75.8)	723.82	83.46
2008-09	921	954.32 (103.6)	921.95	96.61
2009-10	1099	1,109.43 (100.9)	1,076.18	97
2010-11	1491	1,503.04 (100.8)	1,412.67	93.99
2011-12	2228.91	1,714.28 (76.9)	1,463.52	85.37
2012-13	2289.52	2,072.35 (90.5)	1,753.44	84.61
2013-14	3518.87	3,623.57 (103.0)	2,488.12	68.66

Source: http://nrhm.gov.in/ and State TB Society, Bangalore

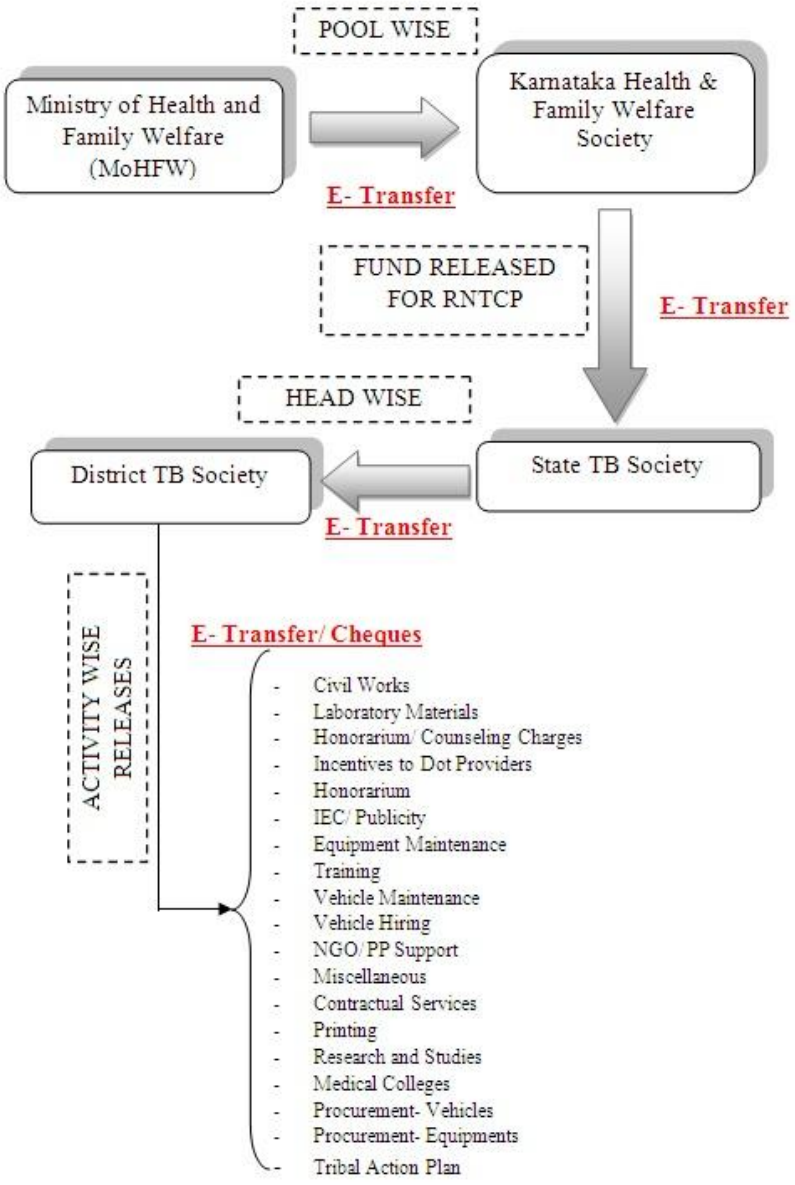
Chapter 5: Fund Flow under RNCTP, Karnataka

This chapter describes the process of fund flows under RNTCP through NRHM in FY 2013-14 from national level till the level of implementation units and the banking arrangements at various levels. At the district level, only the fund flow of Bangalore Rural District for the FY of 2013-14 has been analyzed.

5.1. Flow of Funds and Disbursement Process

Before analyzing the fund flow under the RNTCP, it is important to understand the structure of fund flow for RNTCP in the state. The figure below depicts the same. Funds are transferred from Ministry of Health & Family Welfare (MoHFW) to State, generally in 2 to 4 tranches. It is transferred pool-wise within each broad programme, funds are received in the group bank account at the Karnataka Health and Family Welfare Society (KHFWS), and then transferred to the programme wise sub bank accounts (here, State TB Society). The State TB Society transfers the allocated budget to the District Health Society - RNTCP within 15 days of receiving the fund in their account. The district society releases activity –wise fund as per the approved budget.

Figure 7: Fund Flow under RNTCP, Karnataka



5.2. Total Fund Received by NHM in the FY 2013-14

As per the audit report of FY 2013-14, the state had received Rs.553.43 crores (excluding state share) through GOI under NHM. Of the total fund received, about 47 percent had been released

for RCH Flexipool (40 percent) and NRHM Additionalities (47 percent). Rest, 13 percent was released for eight other programmes and NUHM. RNTCP had received around 3.53 percent of the total grant released for NHM in the FY 2013-14.

Table 5.1.: Total Grants in Aid Received from GOI under NHM in FY 2013-14

Programme	Grant Received (in Rs)	Percent of Fund Received in Total
RCH Flexipool	224,60,26,772	40.58
NRHM Additionalities	262,30,03,279	47.40
RI Strengthening Project	11,03,42,900	1.99
Pulse Polio	10,77,48,841	1.95
RNTCP (TB)	19,53,28,894	3.53
National Vector Borne Disease Control Programme **(**NVBDCP)	6,92,55,049	1.25
NPCB (Blindness Control)	13,19,68,816	2.38
Integrated Disease Surveillance Programme (IDSP)	2,96,60,994	0.54
National Leprosy Eradication Programme **(**NLEP)	1,94,87,243	0.35
NPPCD (Deafness)	6,78,424	0.01
National Urban Health Mission (NUHM)	8,24,122	0.01
Total	**5,53,43,25,334**	

Source: Karnataka Health and Family Welfare Society (NHM), Bangalore

All the funds received under the programme have been utilized or been transferred to the next year's budget, thus expenditure of the FY 2013-14 matches exactly the income received under NHM programme from GOI (Audit Report).

5.3. Income and Expenditure under RNTCP for 2013-14

As per the utilization certificate submitted for RNTCP (FY 2013-14), GOI had released the first installment, i.e. Rs 1379.58 lakhs in the month of July 2013, and released the next installment of another Rs 315.95 lakhs in the month of March 2014[29]. As per the guidelines, the GOI should release the annual budget allocated to each State in two installments during the 1st & 3rd Quarter of each fiscal year or during the subsequent quarters[30] but as the data suggests, GOI released the 1st installment at the end of 1st quarter and 2nd installment at the end of 4th quarter. However, the STC Accounts showed that the 1st installment is credited in their account in the 2nd quarter of the FY. Also, the state had released its 1st installment of

[29] As per the guidelines, the second installment should be released by the end of September.

[30] 'Financial Management Manual for State and District Societies' (2006). Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare. New Delhi.

Rs. 4,59,86,000 in the 2nd quarter (August 28, 2013) of the year and the 2nd installment of Rs. 11,00,00,000 was released in the last month of 4th quarter of the year (STC, Accounts Records).

As per the ROP of Karnataka 2013-14, GOI resource envelop approved for the State RNTCP was Rs 28.86 crore. However, the GOI had released only Rs. 16.95 crore, which was 58.75 percent of the total envelop[31]. Due to the shortfall of fund, the state funded the required amount and contributed around 43 percent of the total fund released to the RNTCP in FY 2013-14, which is around 210.7 percent more than the previous year's state contribution.

On the other hand, by the end of March 2014, the programme had spent about 56.25 percent of the total income, and returned the Rs 4.5 lakhs to the State Health Society which had been taken as a loan from NHM in the previous financial year, i.e. FY 2012-13. About 31.3 percent of the total fund remained unspent. As per the discussion with the Joint Direct (STDC), delay in release of fund from GOI had resulted in such a high percentage of unspent balance under the programme. This can be further authenticated with the U/C (refer table below) where the GOI had released the 2nd installment five days before the end of FY.

Table: 5.2. Income and Expenditure under the RNTCP in Karnataka, 2013-14

Source of Income		**Amount received**	**% in Total Release for the year**
MoHFWS, GOI			
Sanction No.	Date		
L-19015/09/2013-TB	26-06-2013	13,79,58,000	46.79
L-19015/09/2013-TB	25-03-2014	3,15,95,000	
Total		16,95,53,000	
Cheque No.	Date		
Ch.No.304407	28-08-2013	4,59,86,000	43.05
Ch.No.304416	12-03-2014	9,00,00,000	
Ch.No. 304418	29-03-2014	2,00,00,000	
Total State Share		15,59,86,000	
Unspent Balance from Previous Years Grant Received		3,39,14,216	9.36
Income from Interest@		28,38,703	0.78
Other Miscellaneous Receipts @		65,412	0.02
Total Income		36,23,57,061	
Expenditure			
Fund Utilized/Amount Spent under RNTCP		20,38,11,573	56.25
Fund Transferred to SHS Main Account (Loan Amount)		4,50,00,000	12.42
Balance Amount Unspent		11,35,45,488	31.34

[31] As per a discussion with Dr. Anil (Director, STDC), GOI had diverted the NHM fund towards its Urban Mission, thus all the other programmes had received only the first installment.

@ These figures do not match with the figures given in the financial report submitted by NHM for RNTCP (refer annexure 3)

Source: Utilization Certificate for RNTCP, NHM & Audit report of KSH&FWS, 2013-14

5.3.1. Vertical Distribution of RNTCP Fund in the State

If the fund transferred to SHS Main Account is deducted from the total expenditure, then the total expenditure under RNTCP in 2013-14 was Rs. 2038,11,573. Of which, about 95 percent (Rs. 1939,09,203) was spent at the district level and rest 5 percent (Rs. 99,02,370) at the state level.

The study has calculated the district wise per capita expenditure based on the total receipts of the district in the FY 2013-14 and the number of New Sputum Positive patients[32] (New Sputum Negative patients, retreatment patients and extra pulmonary cases are excluded) in the year. As per the available data, the range of per capita expenditure varies among the districts in the state from Rs 6527 in Gadag to Rs 17,377 in *Dakshin* Kannada. The average per capita expenditure of the state for the year is Rs 9,124with a standard deviation of Rs 3,018 (33 percent). The 'norms and basis of costing' for RNTCP (as per the guidelines) is based on the total population of the district, therefore the fund distribution pattern do not match the number of TB patients in the district. Thus, the study has calculated the per capita expenditure based on the total population of the district (2011). According to it, the per capita expenditure of RNTCP release in a district is as low as Rs 1.13 in Bangalore Urban district to as high as Rs 6.20 in Kodagu district. The average per capita expenditure of RNTCP in a district is Rs 5.39 with a standard deviation of Rupees 0.96 (0.2 percent). However, if the 'total population in the district' and 'number of NSP patients in the district' are co-related with the 'total releases to the district' in FY 2013-14, then it is stronger in case of NSP (0.7) than the total population (0.6). However, both the data sets shows that neither of them is the only basis of total releases to a district.

Table 5.3. District wise per capita expenditure

Per Capita Expenditure (in Rs)	Districts
6001 to 7000	Gadag, Chamrajnagar, Bangalore Urban, Chitradurga, Tumkur, Chikkaballapur
7001 to 8000	Belagaum, Bellary, Yadgiri, Koppal, Bangalore Rural, Haveri
8001 to 9000	Raichur, Mysore, Bidar
9001 to 10000	Ramnagara, Davangere, Mandya
10001 to 11000	Kolar, Bagalkote, Shimoga, Bijapur
11001 to 12000	Gulbarga, Hassan, Uttara Kannada

[32] Year wise data of only NSP patients is available at the district level

13001 to 14000	Chikmagalur, Dharwad, Udupi
17001 to 17500	Kodagu, Dakshin Kannada

Source: Department of Economic and Statistics, Karnataka and Audit report of RNTCP, 2013-14

5.3.2. Horizontal Distribution of Expenditure

As per the available audit data, the state had spent around 59.3 percent of the total RNTCP fund for wage expenditure [33] and rest 40.7 percent for non-wage expenditure[34]. Distribution of wage and non-wage level at the state level was 64.8 percent and 35.2 percent, respectively, whereas the distribution was 59 percent and 41 percent for wage and non-wage expenditure, respectively, at the district level. This means that the expenditure is higher towards wage at the state level. This is because the salary of the permanent staff, which includes salary to the director/joint directors and the medical officer at the district level, is released from the state level fund only.

Table 5.4.: Wage and Non-wage Expenditure at the State and District level, 2013-14

(Amount in Rs)

Expenditure	At State level (% in total)	At District level (% in total)	Total (% in total)
Wage Expenditure	64,16,540 (64.8)	11,44,89,989 (59.0)	12,09,06,529 (59.3)
Non-wage Expenditure	34,85,820 (35.2)	7,94,19,214 (41.0)	8,29,05,034 (40.7)
Total	99,02,360 (100)	19,39,09,203 (100)	20,38,11,563 (100)

Source: Audit Report (2013-14), NHM

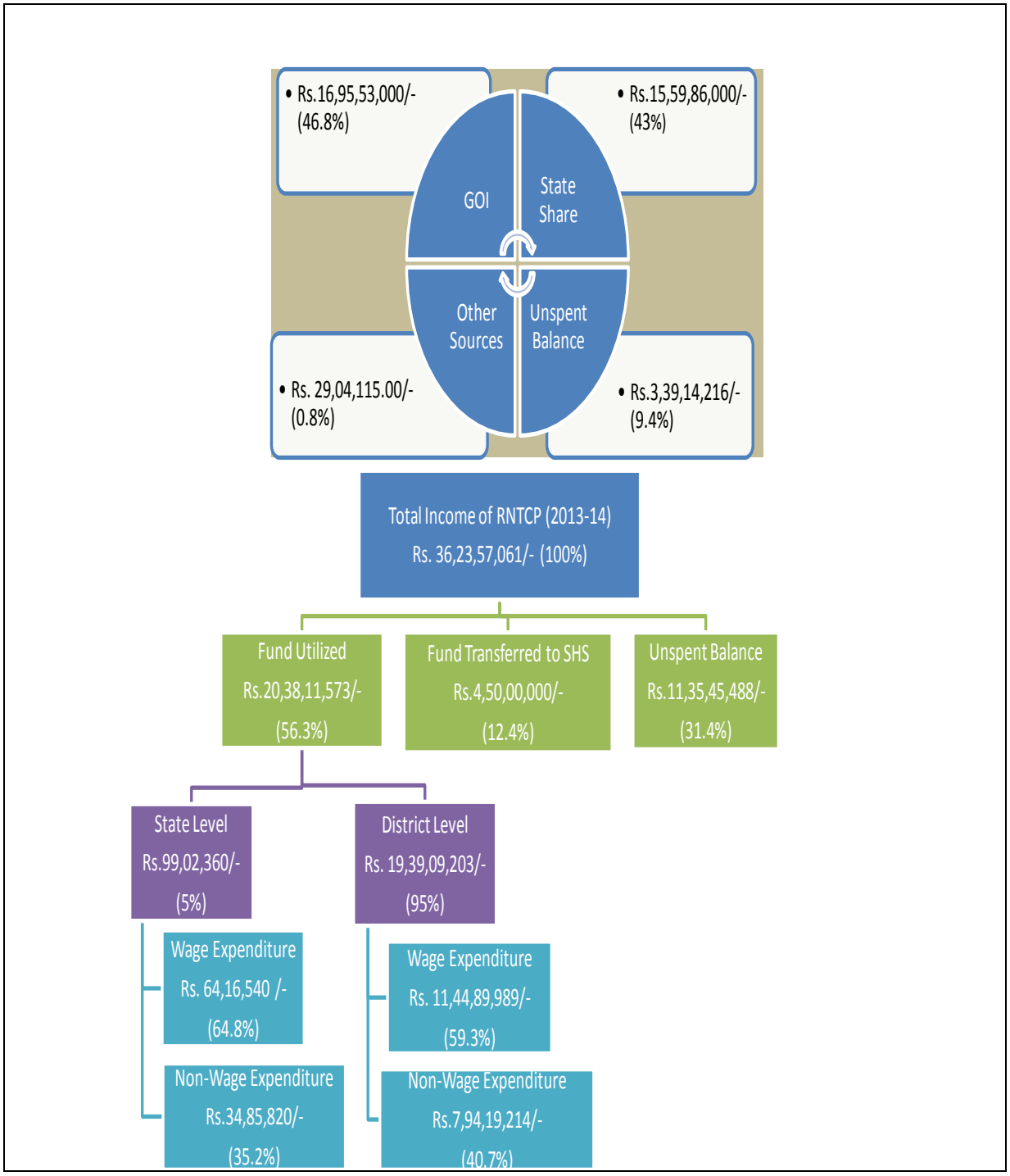
5.3.3. Overall Fund Flow under RNTCP, 2013-14

The figure below shows the fund flow under RNTCP in Karnataka in the FY 2013-14. All this has been explained in the above paragraphs and thus do not need any explanation here.

[33] Here, wage expenditure includes: contractual services, honorarium, DOTS incentive, medical colleges (salary to MO, Lab technician etc)

[34] Non-wage expenditure includes: civil works, ACSM activities, equipment maintenance, IEC-RNTCP (as per the guidelines all the ACSM activities should be part of IEC activities), equipment maintenance, laboratory materials, miscellaneous, NGO/PP Support, printing, procurement of equipment, research & studies, training, vehicle hiring and vehicle maintenance.

Figure 8: Flow of RNTCP Fund, Karnataka, 2013-14



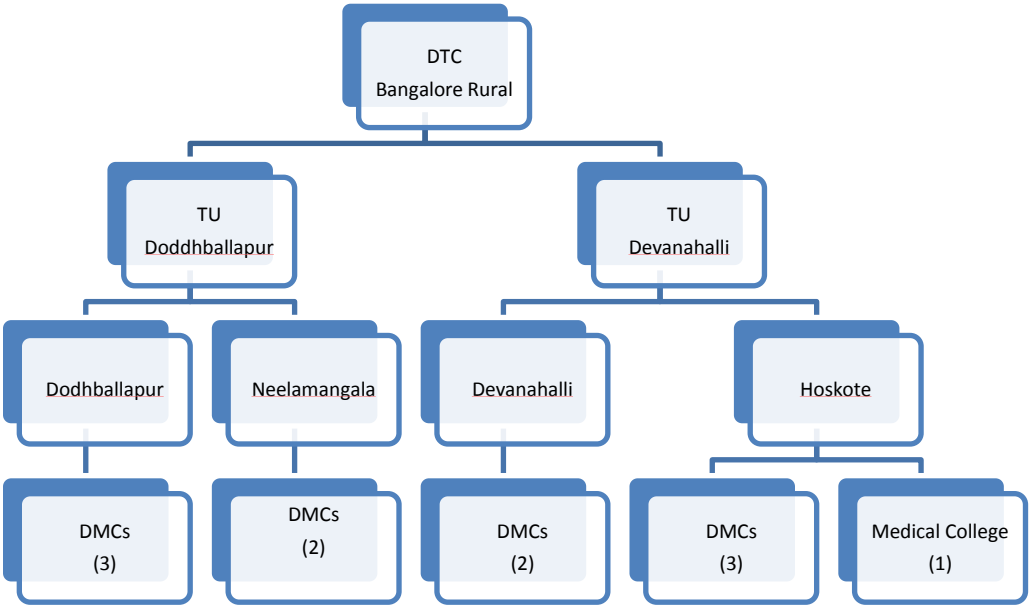
Source: Audit Report, RNTCP, 2013-14

5.4. District level: Bangalore Rural District, 2013-14

5.4.1. Structure of TB Units in Bangalore Rural District

Bangalore Rural district have two TUs – 1) Dodhballapur Taluk Hospital covering Dodhballpur and Neelamangala taluk, and 2) Devanahalli Taluk hospital covering Devanahalli and Hoskote taluks of the district. Three DMCs are located in Dodhballapur taluk, two each in Neelamangala and Devanahalli taluk and three in Hoskote taluk. Hoskote taluk also has a DMC in its medical college. All the PHCs in the districts are also associated with the TUs as they have to report to the TUs about the TB patients (new and on-going) and also work as a DOTS Providing Centre's. As per the available data from DTC, Bangalore Rural, 51 PHCs are reporting to the TUs in the district – 24 to Devanahalli TU and 27 to Doddhballapur TU.

Figure 9: TB Units in Bangalore Rural District



Source: DTO, Bangalore Rural District

5.4.2. Fund available to Bangalore Rural District, 2013-14

Total fund available to the district for the FY 2013-14 was Rs 37.3 lakhs, of which 76.5 percent was grant received from SHS (through NHM), 22 percent was the unspent balance of the previous year and rest 1.4 percent was the bank interest and other receipts. It seems that district was unable to spend around 22 percent of their total fund available in the previous FY, i.e. 2012-13.

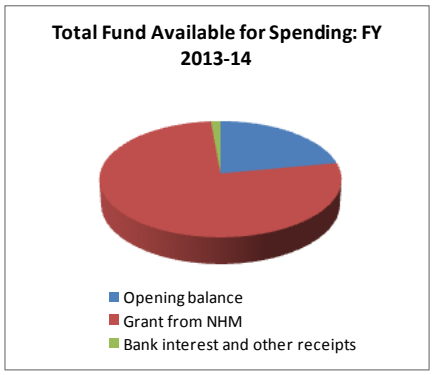


Table 5.5.: Fund Available to DTC, Bangalore Rural District (2013-14)

		Amount	% in total fund received
A.	Opening balance as on 01.04.13	822558.00	22.04966
B.	Grant received from SHS (NHM)	2855668.00	76.54963
C.	Bank interest and other receipts	52253.00	1.400705
	Total Fund available for spending (A+B+C)	3730479.00	100

Source: District Audit Report, Bangalore Rural

5.4.3. Expenditure during the year under RNTCP, 2013-14

As per the available audit report from the District TB Office (Bangalore Rural), the total district had spent about 76.1 percent of the total fund received in the FY 2013-14, remaining 23.9 percent remained unspent.

A district gets funds under 19 major heads under the RNTCP, which includes honorarium/wages to contractual services/incentive to DOTS providers, training, supervision and monitoring, ACSM activities, printings and purchase &maintenance of facilities, vehicles, and laboratory materials, purchase of fixed assets etc. If the major heads are bifurcated in two major sets – wage and non-wage expenditures, then i) civil works, ii) laboratory materials, iii) ACSM, iv) equipment maintenance, v) training, vi) vehicle procurement, hiring and maintenance, vii) NGO/PP Support, viii) printing, ix). Patient support and transport, x) supervision and monitoring, xi) purchase of fixed assets and xii) miscellaneous comes under the non-wage expenditure. Wage expenses includes i) Honorarium, ii) medical colleges, iii) contractual services, and iv) DOTS incentives (refer footnotes for details).

As per the calculation, the district had spent about 28.2 percent of its total fund in non-wage expenditure and rest 71.8 percent on wage expenditure in the FY 2013-14. It is important to mention here that other than District TB Officer (DTO), all the staff's at the DTC, TUs and DMCs are contractual. Many of these staff members are working in RNTCP from last 7 years, and their contract is renewed every year under the program. Other than honorarium and TA/DA, the program pays nothing else to its contractual staff. DOTS Providers (other than salaried/contractual staff), are paid honorarium only after the successful completion of the treatment. Salary to regular staff, wages to contractual staff and honorarium to DOTS provider are directly transferred to their respective accounts in State Bank of Mysore (SBM). In absence of account in SBM[35], the honorarium is paid through the cheque to the DOTS Providers.

[35] All the contractual and salaried staff have to open an account in SBM.

Tenders are called for any construction activity/ies and accessing laboratory materials above one lakh. For any other activity, the payments are made as per the submission of vouchers which should be aligned as per the guidelines of RNTCP.

Table 5.6.: Expenditure during the FY -2013-14 under Major Heads of the Programme

(in Rs)

S. No	Major Head	PIU[36] Level	Dist Level	Total Fund
A.1	Civil works[37]	0	4900	4900
A.2	Laboratory materials[38]	0	121693	121693
A.3	Honorarium[39]	0	51250	51250
A.4	Advocacy, Communication and Social Mobilization[40]	58500	4855	63355
A.5	Equipment maintenance[41]	0	10500	10500
A.6	Training[42]	0	74050	74050
A.7	Vehicle maintenance[43]	0	158559	158559
A.8	Vehicle hiring[44]	0	76500	76500
A.9	NGO/PP Support[45]	0	0	0
A.10	Medical colleges[46]	0	599910	599910
A.11	Miscellaneous[47]	0	33118	33118

[36] PIU: Project Implementation Unit (DOTS Centres)

[37] It includes construction and maintenance of any infrastructure under TB Programme

[38] All laboratory consumables including reagents, sputum containers, slides, phenol, methylated spirit and other consumables required for use at the district and TU level laboratory.

[39] Includes incentive/honorarium to ASHA and Community Workers only

[40] Expenditure incurred on advocacy meetings, community meetings, campaigns, publicity in mass and local media, publication of IEC materials, sensitization meetings with other sectors etc. No fixed assts or equipment can be bought under this head.

[41] It includes expenditure on maintenance, upkeep and consumables including computer and accessories (internet connectivity, printer costs), photocopier, OHP, Fax, Binocular Microscopes, C& S Equipment for IRL etc at District TB Centre (DTC) only. Equipments at TUs are maintained by State TB Centre.

[42] All training related expenses conducted by DTC which includes training materials, refreshments, TA/DA for trainers (only where required) and trainees, honoraria to trainers and trainees, venue expenses etc.

[43] DTO in a district have been provided a four wheeler and STS and STLS have been provided with a two wheelers from RNTCP. All expenses related to fuel, insurance, servicing, repairs and maintenance are borne to of this head. STS & STLS send the vouchers of their expenses regarding the vehicle to DTC and then it is released from district.

[44] Medical Officer at TB Centre (MOTC) at TU is not provided with a vehicle. Therefore, whenever, MOTC hire a vehicle then the expenses are incurred under this head. However, MOTC can hire vehicle only for 7 days in a month (as per the guidelines).

[45] Payments made to NGOs and Private Practitioners for their participation in signed schemes of RNTCP.

[46] Medical Colleges: Includes salary of 1 MO, 1 Lab Technician, 1 Tuberculosis Health Provider (TBHP)

[47] Expenditure incurred for the purpose of the program as per the PIP, and which cannot be classified in any of the other heads, is to be booked as Miscellaneous, specifically, TA/DA expenses.

A.12	Contractual services[48]	0	1387060	1387060
A.13	Printing[49]	0	19025	19025
A.14	Procurement of vehicle[50]	0	142760	142760
A.15	Patient support & transport[51]	0	300	300
A.16	Supervision & Monitoring[52]	0	95319	95319
	Sub total	**58500**	**2779799**	**2838299**
B.	Purchase of fixed assets	0	0	0
	Sub total	**58500**	**2779799**	**2838299**
C.	Refunded to SHS	0	0	0
D.	Fund Transfers	0	0	0
E.	**Unspent balance as on 31.03.2014**			**892180**
	Total			**3730479**

Source: Audit Report, Bangalore Rural, 2013-14

5.5. Key Issues/Observation

Based on the discussion with the DTO and MO-TU (Doddhballapur), the study has listed the issues in the fund flow of RNTCP:

5.5.1. Issues at District Tuberculosis Centre level

1. **Lack of staff at district level**: As per the 'Technical and Operational Guidelines for Tuberculosis (2006)', a District Tuberculosis Centre (DTC) should have 1 DTO, who is assisted by an MO, Data Entry Officer, Driver and support staff. However, Bangalore Rural DTC in Bangalore city has 1 DTO, 1 Driver and 1 Data Entry Operator (contractual). The DTC lacks MO and other support staff. As per the discussion with STO, Bangalore Rural, lack of Group D staff impacts the regular operation and management of DTC.

[48] It includes salary of 2 Senior Treatment Supervisors (STS) at TUs, 2 Senior TB Laboratory Supervisor (STLS) at TUs, 3 Lab Technicians (2 at TUs & 1 at District), 1 Data Entry Operators at District level, and 1 Driver at District level. All the staff at TU and DMC level are contractual. Even at the DTC, all the staff, other than the District TB Officer, are contractual. Still, there is a shortage of three staff in the district under the RNTCP.

[49] Expenditure on printings of RNTCP modules, registers, forms etc is to be paid under this head of account. However, printing of IEC material is to be booked under the ACSM head and not under this head.

[50] District can purchase a two wheeler for TUs. However, no purchase of four-wheeler can be undertaken without specific written approval of Central TB Division. Replacement of vehicle should be booked under this head only.

[51] This includes patient travelling cost to DOT Plus Sites (especially of MDR and XDR patients who travel to DOT Plus sites) and travelling to investigation centres, if the facility is not available in the centre (only if referred by the MO at TU, PHC).

[52] DA of all the contractual staff and DTO is paid under this head. DTO can also claim state meeting expenses under this head.

2. **Late Release of Fund**: As observed in the previous sections, late release of fund impacts the operation of DTC, especially payment of wages to the contractual staff and payment to contractors got delayed as they are paid from the fund released by the NHM through RNTCP. Also, DTC is unable to initiate many activities in absence of fund and eventually when the fund is received (usually at the end of the financial year), the DTC cannot take up any activity because of closing of FY.
3. Tender Process: DTC, Bangalore Rural needs laboratory consumables of Rs. 4.5 lakhs annually. For every lakh laboratory consumables, the district needs to get a tender. This delays the process of accessing laboratory consumables for the centre, especially during the emergencies.

5.5.2. Issues at TU level

1. **Denial of Honorarium in case of Treatment failure**: Non-salaried DOTS providers which includes ASHA workers and other private DOTS providers (excludes health staff at PHCs, Medical Colleges, and ANM workers) get their honorarium only after the successful completion of treatment. As per the new norms, the DOTS providers get Rs.1000 for Category 1 & 2 patient and Rs.1500 for Category IV & V after the successful completion of treatment. However, if the patient is tested positive after the completion of treatment (treatment failure) then the DOTS Provider is not given any honorarium. Also, honorarium is not given to the DOTS Provider if the patient dies during the treatment or in case of default. Reasons of failure of treatment are many, other than irregular intake of medicines, thus denying DOTS Provider their due honorarium is not ethical as in most of the cases they have observed their duties sincerely.
2. **Contractual Staff**: All the staff at TU and DMC level in the bnagalore Rural District are contractual and as per the guidelines they are eligible only for TA/DA other than their honorarium. As per the discussion at TU (Doddhballapur), probability of being affected by tuberculosis is very high among those staff members who remain in regular contact with the TB patients, like lab technician, STS etc. Thus, the program should at least provide them a medical coverage/insurance. Also, many of the staff members in Dodhballapur TU & DMC are working with the programme from last 7 years as contractual staff. The government should make a provision of regularizing these contractual staff after successful performances of two consecutive years.

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Annexure 1: PETS as A Tool

1. PETS as a diagnostic tool:

A diagnostic survey seeks to ascertain concrete facts and identify basic problems without necessarily exploring why the problems are occurring or how they can be solved. Two common problems that PETS studies have diagnosed are leakage of funds, usually through non-wage funds, salaries to ghost employees; and provider absenteeism. Ugandan study on schools in 1996 is prompted by the observation that despite a substantial increase in public spending on education since the late 1980s, officially reported stagnant enrolment. The PETS showed that, on average, only 13 percent of the per-student nonwage funds distributed annually by the central government reached schools during the survey period. Rest is either used for private gain or was used for purposes unrelated to education. Ugandan government have made reforms based on the study to prevent leakages, which is further confirmed by the follow-up PETS in 2000 which showed that about 80 to 90 percent of the nonwage funds are reaching schools. Another study conducted in Tanzania to investigate the frontline service facilities in health and education found that local councils diverted a large part of funds disbursed by the center for nonwage education and health expenditures, salaried paid to ghost workers and frontline staff suffered delays in pay. The study findings have made the Treasury of Tanzanian government to publish the budget allocations for the selected pro-poor spending programs in both Swahili and English in daily newspapers.

2. PETS as an analytical tool:

Policy intervention/reform needs not only identification of problems but also the identification of causes of the problems so that the factors could be changed for better implementation. Analyst looks for the factors that are correlated with the variable of interests, formulate and test hypothesis and try to discern the underlying relationships that may be in operation. If causes are discovered, then appropriate steps can be taken for better delivery. Uganda PETS study on schools has revealed that degree of leakage is inversely proportionate to the income of the communities; means higher the income of the community lower the leakage in schools and vice-versa. The study further elaborated that a 10 percent increase in household income decreases the leakage to school funding by three percentage points. An examination of schools that succeeded to claim the funds to which were entitled suggested that better informed community, well-trained teacher and quality of leadership are able to voice claims to their funds.

3. PETS data for impact evaluation

PETS can be used to examine the impact of a policy intervention that has already taken place. The likely occasion to use PETS for impact evaluation is after an earlier

PETS, so that results can be compared. Ugandan study of schools in 1996 and revisiting the same schools in 2001 revealed that leakage had fallen from 78 to 18 percent. To test the effectiveness of campaign that took over based on the findings of the first study, the second study included questions related to the schools access to source of information, particularly newspapers. Findings of the study suggested that the information campaign accounts for three-quarters of the improvement.

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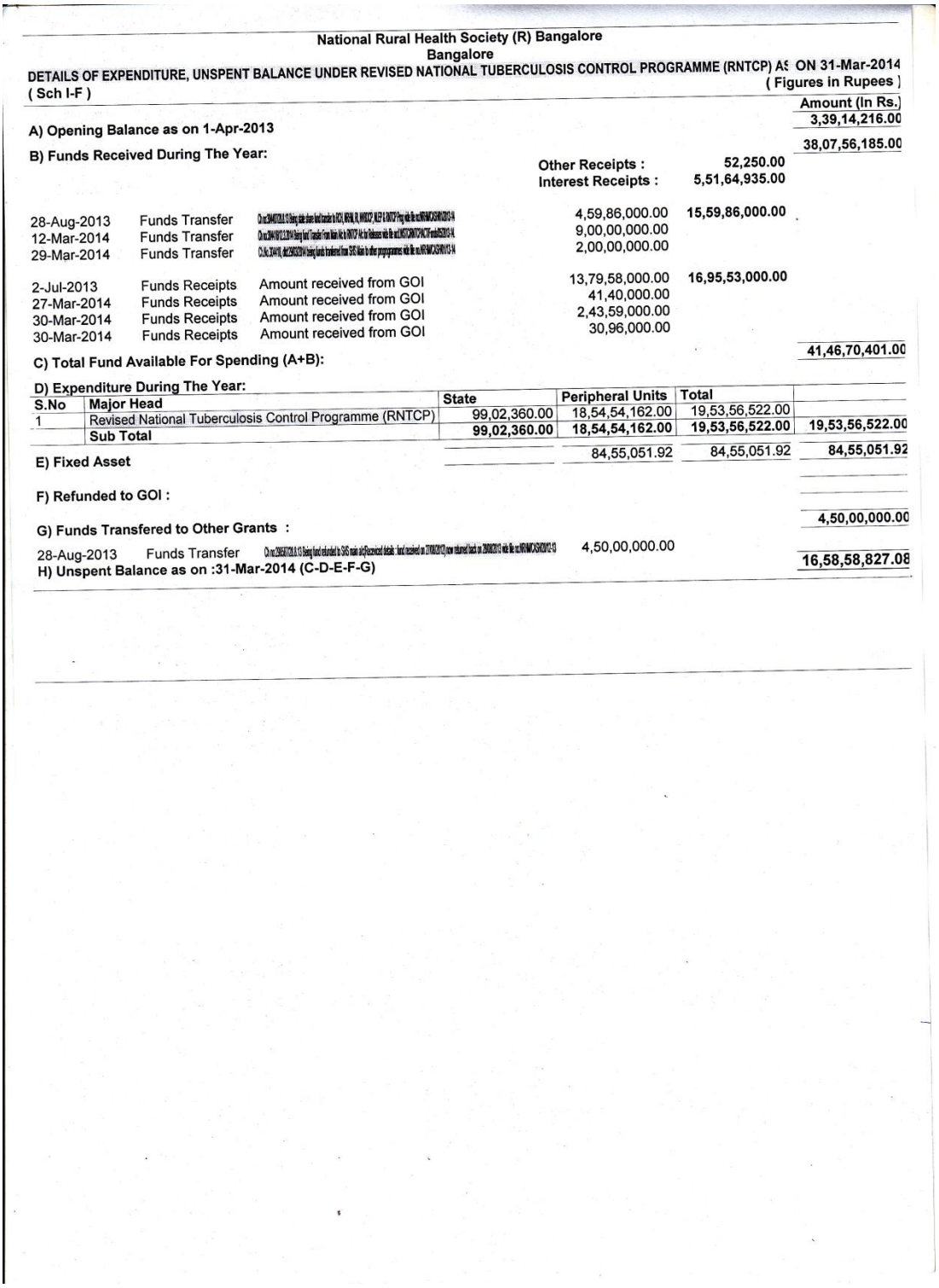
Annexure 2: Details of Field Visit / Data Collection

Date of visit	Visited by	Place of visit	Purpose
13.01.15	Surashree	NHM, Bangalore	To meet CFO, NHM
21.01.15	Surashree	NHM, Bangalore	To meet Director, NHM Bangalore to access permission letter for the study
06.02.15	Surashree	State TB Office	To meet the Director to discuss the study
07.02.15	Surashree	NHM, Bangalore	To meet CFO, NHM to submit the permission letter
13.02.15	Surashree	NHM, Bangalore	To collect information on the income and expenditure of RNTCP
16.02.15	Surashree	State TB Office	To collect information on achievements of RNTCP at state level
18.02.15	Surashree	State TB Office	To collect information on achievements of RNTCP at state level
25.02.15	Surashree	NHM, Bangalore	To collect information on audit reports
11.03.15	Surashree	NHM, Bangalore	To collect information for the study
19.03.15	Surashree	NHM, Bangalore	To collect data for the study
21.04.15	Surashree, Thayagarajan	State TB Office	to access permission from Jt. Director for the visit to district and sub-district offices
22.04.15	Surashree , thyagarajan	Jayanagar General Hospital	To collect Bangalore Rural data on TB
27.04.15	Surashree , thyagarajan	Dodaballapur	Field visit to TB hospital, discussion with officials , ANM & ASHA workers
28.04.15	Thyagarajan	Jayanagar General Hospital	Visited Dist TB office Bangalore rural collected the dated for 9 quarters and xeroxed and handed over the originals to the office
04.05.15	Thyagarajan	State TB office	Visited State TB office collected 30 files of all districts data files. Removed the required documents from each file and xeroed the data with the help of surashree
08.05.15	Thyagarajan	State TB office	Visited State TB office collected data for the year 13 -14 for 5 dist. Along with financial data. Remaining on Monday.
13.05.15	Thyagarajan	State TB office	Visited state TB office and got data for 15 dist)
15.05.15	Thyagarajan, Surashree	State TB office	Balance data collected, income and expenditure data
15.06.15	Thyagarajan, Surashree	State TB office	Visit to state TB office for clarification of data
19.06.15	Thyagarajan	State TB office	Visit to state TB office to handover the file and documents and worked on clarifications of the data

Annexure 3: Details of Income and Expenditure under RNTCP (2013-14) as submitted by the Accounts Department of NHM



National Rural Health Society (R) Bangalore
Bangalore

DETAILS OF EXPENDITURE, UNSPENT BALANCE UNDER REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME (RNTCP) AS ON 31-Mar-2014
(Sch I-F) **(Figures in Rupees)**

					Amount (In Rs.)
A) Opening Balance as on 1-Apr-2013					3,39,14,216.00
B) Funds Received During The Year:					38,07,56,185.00
			Other Receipts :	**52,250.00**	
			Interest Receipts :	**5,51,64,935.00**	
28-Aug-2013	Funds Transfer	[illegible]	4,59,86,000.00	**15,59,86,000.00**	
12-Mar-2014	Funds Transfer	[illegible]	9,00,00,000.00		
29-Mar-2014	Funds Transfer	[illegible]	2,00,00,000.00		
2-Jul-2013	Funds Receipts	Amount received from GOI	13,79,58,000.00	**16,95,53,000.00**	
27-Mar-2014	Funds Receipts	Amount received from GOI	41,40,000.00		
30-Mar-2014	Funds Receipts	Amount received from GOI	2,43,59,000.00		
30-Mar-2014	Funds Receipts	Amount received from GOI	30,96,000.00		
C) Total Fund Available For Spending (A+B):					**41,46,70,401.00**

D) Expenditure During The Year:

S.No	Major Head	State	Peripheral Units	Total	
1	Revised National Tuberculosis Control Programme (RNTCP)	99,02,360.00	18,54,54,162.00	19,53,56,522.00	
	Sub Total	**99,02,360.00**	**18,54,54,162.00**	**19,53,56,522.00**	**19,53,56,522.00**
E) Fixed Asset			84,55,051.92	84,55,051.92	**84,55,051.92**
F) Refunded to GOI :					
G) Funds Transfered to Other Grants :					**4,50,00,000.00**
28-Aug-2013	Funds Transfer	[illegible]	4,50,00,000.00		
H) Unspent Balance as on :31-Mar-2014 (C-D-E-F-G)					**16,58,58,827.08**