

Scaling up Primary Health Services in Rural Tamil Nadu: Public Investment Requirements and Health Sector Reform

Nirupam Bajpai, Ravindra H. Dholakia and Jeffrey D. Sachs

Abstract

We attempt to address two key questions in this paper: 1) In terms of state-wide scaling up of rural services in the area of primary health, what will it cost financially and in terms of human resources to scale-up these services in all the rural areas of the state? And 2) what policy, institutional and governance reforms may be necessary so as to ensure proper service delivery? As is well known, merely setting up more health clinics, for instance, is not going to be enough; higher public investments in these areas needs to be accompanied by systemic reforms that will help overhaul the present service delivery system, including issues of control and oversight, for example.

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Key Recommendations

Tamil Nadu needs to spend an additional Rs. 8.8 billion in 2008/09 to scale up the rural primary healthcare services in the state. On a per capita basis, it comes to Rs. 133, of which Rs. 78 will be needed to meet the capital costs and Rs. 55 to meet the recurring costs. These are significantly less than the estimated requirements of the northern states like Rajasthan, Madhya Pradesh and Uttar Pradesh and are also relatively lower than the southern state of Andhra Pradesh and Karnataka. If we compare Tamil Nadu with these states, we find that it is the capital expenditure in Tamil Nadu that makes the difference. However, Tamil Nadu is yet to implement the ASHA (Accredited Social Health Activist) program of the NRHM, though it has implemented other components of the NRHM. It is not a NRHM high focus state, but it will have to address the manpower shortfall whenever it implements the NRHM norms.

In terms of budget allocation in 2007-08, Tamil Nadu has allocated Rs. 18 billion to medical & public health, Rs.3.5 billion to family welfare, and Rs.0.482 billion to water supply and sanitation on revenue account. Similarly, it has allocated respectively Rs.1.724 billion, Rs.0.171 billion and Rs.4.825 billion on capital account to these heads. On per capita basis, this works out to Rs.295, Rs.55 and Rs.79 of combined revenue and capital account expenditures on these sectors respectively. Thus, Tamil Nadu has allocated a total of Rs.429 per capita on the health, sanitation and water in 2007-08. The implication of scaling up health services in rural areas of the state as given by our estimate is that it needs to step up its allocation to these sectors by almost 31 percent over 2007-08(BE) in 2009-10 (BE). Since these increases are not over one year, but two years, they are not impossible to achieve though it is a challenging task.

There is a need to consider entitlement benefits to the BPL or poorer sections of the society. In the BPL survey conducted in every village, 18 points can be considered an effective cut off to identify the BPL families. These families should be given a Smart Card with clear entitlement to spend an amount, say Rs.2,000 p.a. on hospitalization, treatment, medicines, consultations, visit fees, etc. Once these cards are distributed to the BPL families, the public HFs can also charge regular (unsubsidized) fees from the patients and get their regular revenue for meeting most of their recurring and capital expenses. This in itself would act as a strong incentive to improve quality of services in public HFs because it would put them in direct competition with the private sector. Moreover, the managers or service providers in public HFs would also find themselves directly accountable to the local population and can face a reward/punishment system.

Introduction of a Smart Card to BPL families can also be conducive to the idea of introducing the social or community based health insurance. It will facilitate generation and investment of the required resources. The Smart Card to a BPL family can also be very helpful when they have to migrate for food, fodder and employment. Moreover, it can also promote some trade and exchange among the people with shortages and surpluses, thereby encouraging better utilization of the state resources.

There is a need to carry out frequent supervision of lower level HFs in rural areas. There should be enough powers vested in the supervisory / monitoring authority to immediately punish the

defaulters like absentee staff, indifference to replenish the stock of medical supplies, rude behavior with patients, lack of cleanliness and hygienic conditions in the HFs, etc.

There is a need to introduce accreditation system based on annual or more frequent visits to the HFs for their infrastructure, human resources and drug and medical supplies.

There should be annual awards for best performing HFs in various categories. This should be a handsome cash reward from the state government and the selection should be made on the basis of a weighted feedback from people (beneficiaries), village *Panchayats*, and departmental higher-ups. There can be different types of awards emphasizing different aspects of the quality of healthcare service like cleanliness, cure, disease control, customer satisfaction, etc. All such awards should be distributed among the relevant staff in the winning HFs.

The medical and paramedical staff at the sub-Center, PHC and CHC level should be stabilized for longer periods so that they can start living in the village. Under NHRM, District Health Missions should be made responsible to monitor, supervise and if required transfer such staff more as a punishment with adverse remarks in their Confidential Reports (CR).

There is an urgent need to focus comprehensively on the living conditions of the BPL families. Availability of basic facilities like toilet, bathing, electricity (or light), drinking water, etc., has to be ensured to them without which scaling up of primary healthcare services in the rural areas may not be effective for them on its own.

Considering the shortage of medical and paramedical staff in the HFs, there is an urgent requirement of appointing new doctors, ANMs, health assistants and other paramedical staff at all levels of HFs.

It is also important to reduce the administrative burden and unnecessary paper work for the medical staff (mainly doctors and ANMs) at all levels of the HFs so as to improve the general working of the HFs. This is more relevant in the case of PHCs and SCs as its functioning gets adversely affected by the effective absence of doctors and ANMs.

There is a need to check the proliferation of a large number of unregistered/unqualified private medical practitioners especially at the village level so as to ensure the quality of the services provided by them. Frequent inspections of the private practitioners at village levels to check their credentials may be desirable.

In order to improve the delivery of health services, we suggest supporting community oversight of village-level health services, including panchayat responsibilities for oversight of sub-centers, and PHCs. While the 73rd and 74th Amendments to the Indian Constitution allow for a democratic system of governance in health to the multilayered local bodies, their implementation leaves much to be desired. Such devolution of authority has taken place only in Kerala, which invested time and resources in systematically building capacity for governance by local bodies. Both AP and Karnataka need to strengthen their existing programs of capacity building in the Panchayati Raj Institutions (PRIs).

We believe that the following six key issues are going to be critical if the NRHM has to succeed on scale in the state: 1) proper recruitment, comprehensive training, effective control and oversight and timely and adequate payments of the village Health Workers (VHWs or the ASHAs); 2) a well defined and implement able role of the Panchayat Raj Institutions (PRIs) and a comprehensive and on-going training program for the panchayat members; 3) commensurate

infrastructure and human resources in the sub-Centers (SCs) and the Primary Health Centers (PHCs) with the needs of the regions; 4) necessary interventions to bring down the IMR and MMR; 5) in the area of community-based health care and home-based neonatal care program, NRHM to help incorporate and scale up lessons from the experiences of SEARCH (Dr Abhay & Rani Bang's NGO) in Gadchiroli, Maharashtra and CRHP (Dr Raj & Shobha Arole's NGO) in Jamkhed, Maharashtra and 6) NRHM to work hand-in-hand with the Aangan wadi workers and the ICDS program.

Training programs of the VHWs are critical, both in terms of the quality of training to be imparted and the time allocated for their training. In other states, presently, training of VHWs is only for 21 days as a one-time crash course and occasionally an additional 5 days of in-field training, the latter being implemented very irregularly. Not only is the training required to be far more comprehensive than what it is currently, it should be an on-going process, at regular intervals, throughout the year, say at least for the first two years of an VHWs recruitment. Thorough training is a must in order to facilitate *task-shifting* and *task-sharing*.

Ideally, VHWs should be trained using information and communications technology (ICT) at the district headquarters. The training can be imparted by a group of trainers centrally from the State capital to all the districts simultaneously on fixed dates which can be announced well in advance. Additionally, trainers available at the district headquarters should supplement class room training with in-field training of VHWs. ANMs can play a critical part in the in-field training of the VHWs.

Timely payment of incentives to VHWs is also very significant to keep up their morale or else can serve as a huge disincentive for taking on the role that is expected of them. In other states, the current system of paying the VHWs is a lengthy process which is not only cumbersome, but very poorly implemented as well. The result, almost all the VHWs we spoke to in Nalgonda in Andhra Pradesh for example received their payments once in three months only. A much simpler and straight forward system needs to be put in place for paying the VHWs so that they are paid EVERY month.

More importantly, we strongly recommend that as and when VHWs are recruited in Tamil Nadu they should be paid a regular salary which could be in the range of Rs. 1,500 to 2,000 per month plus that should be topped with the incentives. The incentive amounts being paid currently in states with VHWs are extremely meager.

Many parts of rural India are experiencing an epidemiological transition and this is reflected in a growing burden of non-communicable diseases. Non-communicable and chronic diseases are increasingly being seen as a leading cause of death in rural India. Hypertension, Type II Diabetes and Cardiovascular diseases are on the rise in rural Tamil Nadu in particular and rural India in general. It is critical to keep these emerging disease burdens in mind while scaling up health services. We suggest that under the NRHM umbrella, programs are put in place to deal with the growing burden of these diseases.

With the exception of pre-natal checkups for expectant mothers, the delivery of healthcare in rural India is almost entirely curative in nature. With hypertension on the rise in the country, it was suggested that blood pressure be examined on a regular basis for all patients visiting sub-centers and PHCs. ANMs at the sub-centre level and nurses at the PHC level should in the normal course examine blood pressure as part of antenatal care, as pregnancy-induced hypertension is a major contributor to maternal mortality in India.

Since one of the core strategies of the National Rural Health Mission is to train and enhance capacity of the PRIs to own, control and manage public health services, the following questions need to be looked into: Has the power and authority that has been devolved to the PRIs on paper actually reached the people? Do they understand their duties/responsibilities on the one hand and their authority on the other? Do the PRIs have the capacity to manage health centers? Are there regular and comprehensive capacity building programs in place? And are any measures being undertaken to ensure that the caste and patriarchy do not prejudice effective management at the local level?

In terms of mobilizing additional funds for health, our research suggests these to mainly come from cutting unproductive government expenditures (both central and state governments) relative to GDP rather than by raising revenues relative to GDP. However, we do suggest levying a 2 percent Health Sector cess for the remaining period of the NRHM that is up to 2012, proceeds of which should be allocated entirely towards NRHM.

We suggest a health sector strategy for India that is Millennium Development Goals (MDG) based not only at the national and state level, but also more importantly at the district and block levels. Districts and blocks should strive hard to attain the MDGs, such as reducing infant mortality rate, under-5 mortality, maternal mortality rate, immunizations and access to safe drinking water and the like especially for in the laggard districts. Based on the MDGs, state governments should announce targets for health to be met at the district and block levels by the year 2015.

We suggest that the Central Government should plan to convene a meeting of Chief Ministers and Health Ministers of all Indian States in 2009 to discuss how the states will meet the health targets. This meeting will allow states to present their most successful initiatives, so that all states can adopt “best practices” in public health.

Scaling up Primary Health Services in Rural Tamil Nadu: Public Investment Requirements and Health Sector Reform¹

Nirupam Bajpai, Ravindra H. Dholakia and Jeffrey D. Sachs²

This report is based on the work undertaken during Year IV of a four-year project on scaling up health services in rural India. This report focuses on the Indian state of Tamil Nadu. Villupuram and Tiruvannamalai districts were selected for an in depth study. Furthermore, detailed questionnaires were administered in five villages of the Villupuram district that were distinct from each other and representative of the different conditions so that these could be reasonably extrapolated to the district.

We attempt to address two key questions in this report:

- 1) In terms of state-wide scaling up of rural services in the area of primary health, what will it cost financially and in terms of human resources to scale-up these services in all the rural areas of the state of Tamil Nadu? And
- 2) What policy, institutional and governance reforms may be necessary so as to ensure proper service delivery? As is well known, merely setting up more health clinics, for instance, is not going to be enough; higher public investments in these areas needs to be accompanied by systemic reforms that will help overhaul the present service delivery system, including issues of control and oversight, for example.

I. Introduction

The Approach Paper to the Eleventh Five Year Plan (2006) recognizes at the outset that unless people have access to basic services like health, education, clean drinking water and sanitation, they may not get their due share in the benefits of growth. It further identifies better health and education as the “necessary pre-conditions for sustained long-

¹ This report is based on the work undertaken during Phase II for a project entitled ‘Scaling up Services in Rural India’ that is housed at the Center on Globalization and Sustainable Development (CGSD) of the Earth Institute at Columbia University. CGSD is grateful to The William and Flora Hewlett Foundation for providing financial support to this project and especially thanks Smita Singh, Program Director, Global Development, and Karen Lindblom, Program Officer for discussions and their keen interest in this project.

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term growth” and accordingly, “A key element of 11th Plan strategy should be to provide essential education and health services to those large parts of our population who are still excluded from these.” (p.6). The problem of access of people to such basic services is more severe in rural areas. Curative primary healthcare except for communicable diseases is not considered as a public good because its consumption does not fulfil the criteria of externality, non-excludability and non-rivalry. It is not even considered strictly as a merit good. However, in the rural areas and for economically weaker sections, the Approach Paper (2006) asserts, “Access for the mass of our people can only be assured through a substantial effort at public financing of these services. In most cases, this also means public provision though there is obviously room for partnership with private entities, including especially non-profit bodies and civil society involvement.” (p.6). There is a growing awareness and explicit recognition of the shortfall in the public health related targets of infant and maternal mortality rates and of the main factors responsible for the same. Thus, the Approach Paper (2006) clearly states that “rural healthcare in most states is marked by absenteeism of doctors/ health providers, low levels of skills, shortage of medicines, inadequate supervision/ monitoring, and callous attitudes. There are neither rewards for service providers nor punishments to defaulters.” (p.66). Scaling up of primary healthcare services in rural Tamil Nadu would, therefore, require not only expansion of the quantum of the service, but also substantial improvement in the quality of the healthcare.

A recent survey conducted by the Associated Chambers of Commerce and Industry (ASSOCHAM) found that one of the key reasons for lack of quality care being provided in rural India is that close to 50 percent of posts of specialist doctors at various community health centers (CHCs) are lying vacant in India. The report points out that 59.2 percent of the posts for surgeons, 46.4 percent for obstetricians and gynecologists, 56.6 percent for physicians and 51.9 percent for pediatricians are vacant in nearly 4,500 CHCs in India. The survey estimated that about 2,525 CHCs should have been added to the current operational CHCs that number around 5,000 by the end of 2007-08, which has not happened.

Even in case of sanctioned posts, a significant percentage is vacant. For instance, about 8.8 percent of the sanctioned posts of female health workers are vacant as compared to about 32 percent of the sanctioned posts of male health workers. In the Primary Health Centers (PHCs), about 13.8 percent of the sanctioned posts of female health assistant and 22.1 percent of male health assistant posts are vacant. About 5.6 percent of PHCs were without a doctor, about 40 percent were without a lab technician and about 17 percent were without a pharmacist.

About 50 percent of sub centers, 76 percent of PHCs and 91 percent of CHCs are located in Government buildings. The rest are located either in rented buildings or rent-free panchayat or voluntary society buildings. In the case of sub centers, overall 66,382 buildings are required to be constructed. Similarly, 3,618 are required for PHCs and 199 for CHCs. Existing manpower is an important prerequisite for the efficient functioning of rural healthcare infrastructure.

In the present paper we attempt to estimate the financial and human resources required to scale up the primary healthcare services in rural Tamil Nadu. In the next section we briefly review the existing situation in the sector. In the third section, we discuss our findings from a sample survey of poor households conducted during April 2008 in the Villupuram District of Tamil Nadu. Methodology of sample selection is discussed in Appendix A. In the fourth section, we discuss our findings and observations from a sample survey of health facilities in the district. Appendix B provides the questionnaire used and other details pertaining to the survey. The fifth section then attempts to estimate the requirements of financial and human resources to scale up the services. The sixth and final section provides our recommendations and suggestions to improve the quality and reach of the services.

I. Primary Health in Tamil Nadu – Status Report

Tamil Nadu is geographically the 11th largest state in India with an area of 130,058 square kilometers accounting for 4% of the national area. It has a long coastline extending up to 1000 kms. Climatically the state falls into a semi – humid and a semi – arid zone. Tamil Nadu is one of the better performing states in India in terms of various health indicators. *Table 1a* compares some of the socioeconomic and health indicators for Tamil Nadu to that of India. We can see that the state has one of the lowest IMR, MMR and the total fertility rates in the nation. The state also has a relatively high female literacy rate of about 65%. Moreover, we find the life expectancy at birth in Tamil Nadu was 67 years for males and around 70 years for females which is higher than the national average of 64 and 67 years respectively.

As per the Tamil Nadu human development report 2003, the state has the HDI value of 0.657 which is higher than the national average of 0.571 indicating the better performance on certain key indicators related to HDI as compared to other states. In this context, it is relevant to examine the relative performance of Tamil Nadu with the best performing states in the nation in each of these indicators.

S. No.	Item	Tamil Nadu	India
1	Total population (Census 2001) (in million)	62.41	1028.61
2	Decadal Growth (Census 2001) (%)	11.72	21.54
3	Crude Birth Rate (SRS 2006)	17.1	24.1
4	Crude Death Rate (SRS 2006)	7.5	7.5
5	Total Fertility Rate (SRS 2004)	1.7	2.9
6	Infant Mortality Rate (SRS 2006)	41	58
7	Maternal Mortality Ratio (SRS 2001 - 2003)	134	301

8	Sex Ratio (Census 2001)	987	933
9	Population below Poverty line (%)	21.12	26.1
10	Schedule Caste population (in million)	11.86	166.64
11	Schedule Tribe population (in million)	0.65	84.33
12	Female Literacy Rate (Census 2001) (%)	64.4	53.7
<i>Source: RHS Bulletin, March 2006, MOHFW, GOI</i>			

Table 1b shows some of the indicators and outcomes for Tamil Nadu along with the best and the least performing states in India. It also gives a performance gap index for Tamil Nadu which shows the proportionate/percentage gap by which it falls short from the best performing state in India for each indicator. From the table we find that among all the major indicators (other than death rate) Tamil Nadu is very close to the best performing state in the country. In most of the undernourishment and maternal care indicators also Tamil Nadu has a satisfactory performance. Moreover, in terms of the immunization coverage Tamil Nadu itself is the best performing state in the nation. With respect to most of the health infrastructure and manpower related indicators, Tamil Nadu is fairly well placed. However, the number of CHCs and the number of Health Assistants (Has) and Multipurpose Workers (MPWs) in the state are significantly lower than the respective best performing states.

Table 1b : Performance Gap Index for Tamil Nadu in Different Health Indicators						
Indicators	Performance Gap Index-Tamil Nadu # (%)	Value for Tamil Nadu	Best Performing State	Least Performing State		
Major Indicators						
Male Life expectancy	38	67	Kerala	71.7	MP	59.2
Female Life expectancy	31	69.8	Kerala	75	MP	58
Neo Natal Mortality (NN)	24	19.1	Goa	8.8	Chhatisgarh	51.1
Infant Mortality Rates (IMR)	26	30.4	Goa	15.3	UP	72.7
Under 5 Mortality	24	35.5	Kerala	16.3	UP	96.4
Maternal Mortality Rate(MMR)*	6	134	Kerala	110	UP	517
Birth Rate[@]	11	16.5	Goa	14.8	UP	30.4
Death Rate[@]	57	7.4	Delhi	4.6	Orissa	9.5
Undernourishment Related (Percentage Children Below 3 Years of Age)						
Stunted (too short for age)	16	25	Goa	21	UP	46
Wasted (too thin for height)	50	22	Punjab	9	Maharashtra	35
Underweight (too thin for age)	18	33	Punjab	27	MP	60
% Children with birth weight < 2.5 Kg.	7	17.2	Kerala	16.1	Haryana	32.7
Immunization Related (% Children 13-23 Months Received)						
BCG	0	99.5	TN	99.5	UP	61
DPT	0	95.7	TN	95.7	UP	30
Polio	0	87.8	TN	87.8	Orissa	65.1
Measles	0	92.5	TN	92.5	UP	37.7
No Vaccinations	0	0	TN	0	Orissa	11.6
% With vaccination card	70	36.9	Kerala	75.3	UP	20.3
Maternal Care						
% Pregnant women received ANC	1	98.9	Kerala	99.7	Bihar	34.3
% Of pregnancies with PNC	0	91.3	TN	91.3	UP	14.9
% Deliveries in Health facilities	14	87.8	Kerala	99.3	Chhatisgarh	14.3
% Deliveries assisted by Health Personnel	12	90.6	Kerala	99.4	UP	27.2
Infrastructure Related (In Rural Areas per 1 Lakh Rural Population)						
No. VHCs (Village HC)	26	122	Goa	149.46	Bihar	43.12
No. SCs (Sub – Centre)	4	25	Goa	25.4	Bihar	11.92

No. PHCs (Primary HC)	38	3.59	Karnataka	4.81	WB	1.6
No. CHCs	51	0.47	Gujarat	0.86	Bihar	0.09
Manpower Related (In Rural Areas per 1 lakh population)						
MPW (Multipurpose worker)	46	10.67	Goa	18.46	Bihar	1.39
ANM (Auxiliary Nurse Midwife)	0	28.84	TN	28.84	Bihar	11.98
HA (Health Assistant)	85	0.87	Kerala	3.38	Bihar	0.43
LHV (Lady Health Visitor)	0	4.97	TN	4.97	Bihar	0.66
Staff Nurse	11	7.26	Rajasthan	19.46	WB	1.49
General Doctors	-	-	Goa	7.98	WB	1.4
Specialist Doctors	-	-	Karnataka	1.43	Bihar	0.08
Household Amenities Related (Percentage of Households)						
With electricity	15	88.6	Delhi	99.3	Bihar	27.7
With improved Source of Drinking water	14	93.5	Punjab	99.5	Jharkhand	57
With Toilet facility	69	42.9	Kerala	96.1	Chattisgarh	18.7
Note: '#': Performance Gap Index for each indicator is calculated as: [(Best Value - Tamil Nadu's) / (Best Value - Least Value)] * 100. This index shows the distance of Tamil Nadu in percentage from the best performing state in respective indicators. "@": 2005 and "*" : 2001-03						
<i>Source: - National Family Health Survey – 3 (2005-06) and Ministry of Health and Family Welfare</i>						

In terms of the availability of household amenities, Tamil Nadu has done well particularly in electricity and drinking water, but the availability of toilets in the state is quite low.

Tamil Nadu is organized in 29 districts. A district is made up of 5 to 12 *talukas/tehseel*. The smallest administrative and democratic unit is *gram panchayat* (or village government) covering an area of about 8 sq. km. and a population ranging from 2000 to 5000. It may include only one village or a group of villages depending on the area and population. Rural Tamil Nadu has a huge network of public healthcare facilities. As of March, 2006, there are 165 Community Health Centers (CHCs), 1252 Primary Health Centers (PHCs), and 8683 Sub-Centers (SCs). About 96% of PHCs and 75% of SCs are in government buildings, whereas most of the remaining ones are functioning in the rent free *panchayat* or voluntary society's buildings. *Table 2* provides some important coverage ratios of rural health facilities in Tamil Nadu as of March 2006.

Table 2: Coverage Ratios of Health Facilities in Rural Tamil Nadu, March 2006				
Sr.No	Ratio	Sub-Center	PHC	CHC
1	Average rural area (sq.km.)	13.54	93.88	712.32
2	Average radial distance (kms.)	2.08	5.47	15.05
3	Average rural population covered	4022	27893	211647
4	Average number of villages covered	2	13	99
5	Existing number (2006)	7057	1173	293
6	Required as per existing norms*	8683	1252	165
7	Surplus (+) / Shortfall (-)	1626	79	-128
Note: "*" The current norms are: one SC per 5000 population, one PHC per 30000 population and one CHC per 120000 population				
Source: Ministry of Health & Family Welfare (MoHFW), Government of India (GoI).				

From the table, we can see that in rural Tamil Nadu, there are about 6.5 sub-centers per PHC, and 7.6 PHCs per CHC. As per the government's current norms, the existing number of sub-centers is in excess of the required SCs; and existing PHCs are in excess of required number of PHCs. There is, however, a shortfall of about 44% or 128 CHCs in the rural areas of Tamil Nadu. Physical existence of a facility is a necessary condition, but not a sufficient condition for the effective delivery of the services that is essential to determine the health outcome. Only when we consider the quality of the service these health facilities would provide to the rural population, the actual shortfall of the service and the magnitude of the effort required would become clear. In order to consider the quality aspects, we may first consider the availability of physical infrastructure in these health facilities since they represent necessary conditions. *Table 3* provides the relevant data for SCs, PHCs and CHCs.

It can be seen from *Table 3* that most of the PHCs and CHCs have their own buildings. The availability of essential amenities such as water supply, electricity and toilets at the health facilities in Tamil Nadu is quite satisfactory compared to several other Indian states like Madhya Pradesh (MP), Uttar Pradesh (UP) and Rajasthan (see, Bajpai et al. 2005 and 2006). All the PHCs and CHCs have labor rooms and 24 hrs delivery facility. About 40% of the CHCs and 10% of the PHCs do not have a functional generator, and 20% of CHCs and 50% of PHCs do not have functional vehicles. The OT (operation theatre) facility is also absent in more than 70% of PHCs and about 20% of CHCs.

Table 3: Infrastructure Availability in SCs, PHCs and CHCs in Tamil Nadu, 2005-06				
Sr. No.	Health Facility Having	% Having the Facility		
		SCs	PHCs	CHCs
1	Own building	75%	96%	100%
2	Water supply	100%	100%	100%
3	Electricity	100%	100%	100%
4	Functional generator	-	90%	60%
5	Toilet	100%	100%	100%
6	Labor room	-	100%	100%
7	All weather approach road	-	100%	100%
8	24-Hr Delivery Facility	-	100%	100%
9	Telephone	-	34%	100%
10	Functional vehicle	-	50%	80%
11	Operation theatre	-	27%	80%
12	OT for Gynaec	-	-	0%
13	OPD Gynaec	-	-	40%
14	Linkage with Blood Bank	-	-	100%
Note: Figures in bold are estimated values on basis of findings of the sample survey of health facilities in Tamil Nadu in April, 2008 due to unavailability of the data from secondary sources.				
<i>Source: MoHFW, GoI and our sample survey 2008</i>				

Table 4: Availability of Medical Personnel in Health Facilities in Tamil Nadu, March 2006				
Sr. No.	Personnel	% of Health Facility with at least one person		
		SC	PHC	CHC
1	Multipurpose Worker/ANM (Female)	91%	100%	100%
2	Multipurpose Worker(Male)	17%	40%	60%
3	HA(Female)/LHV	-	100%	20%
4	HA(Male)	-	24%	0%

5	General Doctor	-	100%	60%
6	Staff Nurse	-	90%	100%
7	Laboratory Technician	-	80%	100%
9	Obstetrician & Gynecologist	-	-	40%
10	Pediatricians	-	-	40%
11	Pharmacist	-	80%	100%
12	Anesthesiologist	-	-	40%
13	Radiographers	-	-	60%
Note: Figures on bold are estimated values on basis of findings of the sample survey of health facilities in Tamil Nadu in April, 2008 due to unavailability of the data from secondary sources.				
<i>Source: MoHFW, GoI</i>				

Although the basic infrastructure and the amenities are crucial for the functioning of a health facility, the availability of facilities such as generators, vehicles and OTs particularly define the perception of people (both users and providers) about the quality of service provided in the rural areas. We now combine the physical infrastructural status of the public health institutions with the situation prevailing on the human resource front in the state. *Table 4* provides the required data.

We find from *table 4* above that unlike the infrastructure of health facilities of Tamil Nadu, the manpower position is not very satisfactory. We find all the levels of the health institutions lack the availability of the required manpower. While the sub – centers and PHCs mainly have insufficient paramedical staff, the CHCs also have a crunch of the specialist doctors. Availability of better physical infrastructure in public health facilities can become more or less ineffective in providing quality health service due to inadequate human resources.

According to the National Sample Survey (NSS) 58th Round (July-December 2002), 90% of the rural household in Tamil Nadu have access to safe drinking water and 13% households do not have any permanent source for drinking water. Similarly, only 43% of the households have bathing facility within their premises. The rest have to travel an average distance of about 0.3 kilometer to bathe. For latrine also, only 13% of the households in rural Tamil Nadu have their own facility in the premises. Only 2% households use shared latrines, and the remaining 85% households without latrine have to travel on an average about 0.6 kilometer.

Findings of Household Survey, 2008

The basic purpose of conducting a sample survey³ of the poor households in rural areas of the state was to better understand: (i) the household expenditure on healthcare by the poor; (ii) the extent of morbidity in the poor households; (iii) sanitation and drinking water availability among the poor households; and (iv) their use and perception about the public health facilities and its quality. One district from the state was selected as a representative of the state condition for our study. The sample survey of households was purposive. We surveyed 281 households in Villupuram district of Tamil Nadu. The average size of the poor households surveyed by us was 4.6. Average annual family income in our sample households was Rs. 45,516. The land ownership was 46% among the sample households and the cattle ownership was 37%. Average cattle per poor household were nearly 3 with relatively greater cattle ownership among the land-owning households.

The weaker section households in Villupuram had significant access to electricity. About 98% of the poor households in Villupuram had electricity in their residence. This was found to be much better than not only some of the northern states like UP, MP and Rajasthan, but also the southern states of Karnataka and Andhra Pradesh (see, Bajpai et al. 2005, 2006 and 2008). Moreover, they get electricity for about 20 hours a day and for all 7 days of a week. Availability of electricity is an important determinant of the health outcome in the population.

The literacy rate among the poor households was about 64% in our sample. In terms of drinking water, about 93% of the poor households had access to tap or hand-pump in Villupuram. We did not find the practice of filtering or boiling the drinking water before use among most of the households. None of the households in our sample reported toilet facility on their premises. Drainage, sewerage or waste removal facilities did not exist in the surveyed households. Thus, the poor households in the rural Tamil Nadu suffered from complete lack of sanitation related infrastructural facilities.

The extent of illness and morbidity prevailing among the poor households in the rural areas of Tamil Nadu is about 18% with the incidence of hospitalization being 3%. This is significantly lower than what we found in the northern states of Madhya Pradesh Uttar Pradesh and Rajasthan and also is relatively lower than the southern states of Karnataka and AP (*Ibid.*). The proportion of gainfully employed persons was about 53% in the district. Relatively lower incidence of hospitalisation and morbidity in our sample appears consistent with the high work-participation in the population.

³ During the course of this study, we traveled extensively in and around the selected villages from the two districts of Villupuram and Tiruvannamalai, though the survey was conducted in Villupuram only. We had detailed interactions with the District Collectors of both the districts, and several Medical Officers and Block Development Officers of the two districts. We met doctors, paramedical staff, ANMs and Anganwadi workers who were present in the CHCs, PHCs, and the sub-centers during our unannounced visits. Discussions were also held with Sarpanchs and other members of the panchayats besides a large number of villagers. We also spoke at length with the Chief Secretary of the Government of Tamil Nadu.

In Villupuram the poor households spent, on an average, 1.34% of their income on healthcare. In absolute terms they spent about Rs. 610. In our sample in Tamil Nadu, we found people depending upon the public health facilities more than the private health facilities. Almost 74% people went to public health facilities and only 26% went to the private health facilities. This is quite different from the northern states like UP, MP and Rajasthan and also the southern state of AP where the dependency for healthcare among the poor was more on the private healthcare rather than the public healthcare (*Ibid.*). As a result, the proportion of household income spent on healthcare in Tamil Nadu is considerably lower than the other states.

During the survey, we obtained the patients' perception and evaluation of the healthcare services they received on a scale of 0 to 5 from very poor (0) to excellent (5). In Villupuram people have given an average rating of 3.7 to public healthcare services and 3.3 to private healthcare services. In Tamil Nadu, we found that people are relatively more satisfied with the public health services than the private services. The difference in the ratings indicates the public perception of the difference in the quality of healthcare services provided by the public and the private facilities. If the public healthcare facilities are better in terms of availability and effective presence of healthcare personnel with regularity and punctuality, it not only improves the public perception of the quality of services, but also improves the health status and thereby economic status of vulnerable sections of the rural society.

In Villupuram we found that a considerably high percentage of deliveries took place at home among the poor families in spite of elaborate primary healthcare infrastructure. About 72% of the total deliveries were conducted at home. Among the deliveries in hospitals in the district, 26% of the deliveries took place in the public hospitals. Private hospitals accounted for 2% of the deliveries. About 23% mothers from the poor families received antenatal care in Villupuram (Tamil Nadu) which is much better than the other southern states - Karnataka and Andhra Pradesh (Bajpai, Dholakia and Sachs 2008). As a result, the number of children who died during delivery was only 3% in the state. Vaccination of children of the poor households is, moreover, far more wide-spread with 99% receiving vaccination in the district.

III. Findings of Sample Survey of Health Facilities

In order to better understand the status of the primary healthcare in the rural areas of Tamil Nadu, its quality, infrastructure, manpower availability and charges to participants, we conducted a survey of some health facilities (HFs) both in the public and the private sectors in and around the selected villages in the district. Although we had a formal questionnaire (given in Appendix B), we elicited information by in-depth discussion with staff and observations during our field visits. In all we covered 38 HFs. The infrastructure, manpower and charges in the sample are summarised in *Table 5*.

Comparing *Table 5* with *Tables 3 and 4* above makes it clear that our selected sample HFs are fairly representative of the average HFs in the state. In terms of infrastructural facilities like buildings, rooms, vehicles, electricity, water supply,

residence for doctors and nurses, etc., the sample rural HFs in Tamil Nadu were not seriously lacking. Similarly, although the shortage of specialists and trained medical staff is felt in some HFs, the situation in the HFs in the state is not as bad as in some of the northern states in India. The bed utilization rates in our sample HFs were also reasonably higher at the CHC level than in the northern states.

As per our discussions with the staff of the HFs in Villupuram, the incidence of malnourished children in the age-group of 0-5 years is on an average only 2.5%. However, on an average, children in the district suffer from 3 episodes of LRI/ARI and 2 episodes of Diarrhoea per year. Moreover, the children in Villupuram suffer from about 3 to 4 episodes/year of fever and only one episode/year of the eye/ear infection. Thus, the health status of children in the district is far from satisfactory and hardly supports the “official” estimate of malnourishment prevailing among them.

Table 5:- Infrastructure, Manpower and Charges in Government and Private Health Facilities in Villupuram				
Details	Villupuram			
	CHC/Taluka Hospital	PHC	SC	Private
No. of Health Facilities (HF)	5	10	15	8
No. of HF with own building	5	10	13	
No. of HF without Off. building	-	-	-	-
Average No. of Rooms	20	11	4	15
No. of HF with Elec. Connection	5	10	15	8
No. of HF with water supply	5	10	15	8
No. of HF with Functional Generator	3	9	-	7
No. of HF with Toilet	5	10	15	8
No. of HF with Labor Room	5	10	13	5
No. of HF with 24 hr delivery Facility	5	10	13	4
No. of HF with All weather approach road	5	9	13	8
No. of HF with Telephone	5	10	15	8
No. of HF with Operation Theatre General	4	4	-	4
Gyneac	0	0	-	4
Linkage with blood bank	5	7	-	7
No. of HF with Vehicles	4	5	-	0
No. of HF with res for docs	0	3	-	6
No. of HF with res for Nurses	0	3	15	2
General Physician	3	9	-	4
Pediatrician	2	1	-	5
Gynecologist	2	-	-	4
Anesthetist	2	-	-	1
Other doctors	4	-	-	2
No. of HF with ANMs/Nurses	4	10	15	3
Staff Nurse	5	9	-	6
MPW (Male)	3	4	-	-
HA	0	4	-	-
LHV	1	5	-	-
Attendants	4	4	-	6
Lab Technician	5	8	-	8
Radiographer	3	0	-	2
Pharmacist	5	8	-	1
others	2	1	-	3
No. of HF where doctor is available in the night	3	0	-	5
No. of HF where nurse/ANM is available in the night	5	10	9	4
No. of HF where attendant is available in the night	2	5	-	2
No. of HF with Medical Stock	5	10	15	6
No. of HF with beds	5	10	12	7
Avg No. of Beds in HF	69	7	1	15
Avg Bed utilization rate(%)	76	59	-	39

No. of Health Facilities where consulting fee is taken	0	0	0	8
No. of Health Facilities where bed charge is taken	-	-	-	5
Amt of consulting fees if any (Rs.)	-	-	-	35
Amt of bed charges if any (Rs. Per day)	-	-	-	90
No. of HF where delivery cases are handled	5	10	-	4
Delivery Charges (Normal)(Rs.)	-	-	-	2500
Delivery Charges (Caesarean)(Rs.)	-	-	-	8000
<i>Source:- Health Facility Sample Survey, 2008</i>				

According to the staff of HFs in the public sector, the coverage of antenatal care (ANC) of pregnant mothers in the area is as high as 98 percent in Villupuram. This perception is, however, not corroborated in our survey of the poor families. Thus, the ANC coverage is likely to be very high – nearly perfect – among better off sections and significantly less among the poorer sections of the society. Similarly, in the perception of the HF staff, nearly 97% deliveries in Villupuram are performed by skilled attendants including a doctor, a nurse or a trained *dai*. On the other hand, our survey of poor households revealed that a large proportion of deliveries took place at home in the district. This implies that even if these deliveries are performed by skilled attendants (mostly trained *dai* or ANMs); the proportion of institutional deliveries in the rural areas is still very low. There is also the possibility of the deliveries at homes being handled by the private unregistered/unqualified practitioners.

We found that at every level of the public HF, there existed at least one and sometimes 3 to 4 private HFs in the surrounding area. Availability of private practitioners increased at higher levels of public HFs. Most of these private practitioners are unregistered. Some of them were ex-compounders in public or private HFs. However, their availability improves the healthcare service in the area.

Looking at the perception of the public HF staff, it appears that the awareness among villagers about the available medical facilities in the area and the quality of the existing facilities is not a problem in Tamil Nadu. Regarding the awareness of villagers, their rating is between good and excellent, and about the quality of the services their rating varies between good to very good. Moreover, from our personal visits, discussions and observations in different health facilities in the Villupuram districts, the following points are worth noting:

Taluka General Hospital (GH)/ Community Health Centres (CHC):

- In the Villupuram district five *Taluka* GHs were surveyed. In Tamil Nadu the GHs are not formally the part of the primary healthcare system. However, they have an integral role in providing speciality healthcare at the *taluka* level.
- The taluka GHs in Villupuram were found to be having good infrastructure and also were fairly well maintained. All the visited GHs had sufficient number of beds with high bed utilization rate as reported by the doctors at GH. In one of the GHs of Tirikkovillur *taluk* the doctor reported the bed utilization to be more than 100% as it is an interior *taluk* of the district not having many bedded hospitals nearby.
- Since these GHs were the first referral units of PHCs in case of hospitalization of patients, all of them work round the clock on all the days of the week with at least one doctor always present in the hospital premises. As mentioned earlier, they are the only government health facility in the *taluka* for providing speciality care.

However, we found most of the GHs lacking the number of specialist doctors as none of them had all the types of specialists under one roof.

- An important problem reported by the GHs was the shortage of doctors, specifically the general physicians, to look after the regular OPD load which is almost as high as 1000 patients per day. Most of the GHs have only 1 or 2 doctors handling the OPD out of which one is a specialist as the GHs have only one general physician. In two of the GHs, where there were no general physicians, the specialist doctors had to attend to the OPD. This would directly affect the service of the specialist as he/she would not be able to attend the patients in his/her department. This definitely raises doubts about the quality of speciality care being provided at the *taluka* GHs.
- Another problem reported by the GHs was that none of them had staff quarters for either doctors or nurses. At one of the GHs the available quarter was not in a usable condition. It is indeed surprising that the GHs having satisfactory level of infrastructural facilities do not provide the doctors and the other staff with residence facility. However, in our perception, this does not appear to be a serious constraint in attracting or retaining doctors or paramedical staff at the GH level in Tamil Nadu.

II. Primary Healthcare Centre (PHC):

- There were two types of PHCs that were surveyed in Villupuram – Block PHC and additional PHC. In Tamil Nadu the block PHCs are the main center of the primary healthcare system with additional PHCs and sub-centers working under them. The team surveyed 5 block PHCs and 5 additional PHCs.
- The PHCs in Tamil Nadu were found to be having satisfactory levels of infrastructural facilities. Most of the PHCs had well maintained and clean buildings. These buildings were renovated at regular intervals and repaired as and when required. All the PHCs had 24 hours water and electricity supply, toilets, telephones and all weather approach roads. The overall infrastructural position of the PHCs in Tamil Nadu was found to be far better than some of the northern states such as UP, MP and Rajasthan and also relatively better than the southern states of Karnataka and AP (see, Bajpai et al., 2005, 2006 and 2008).
- The PHCs, both block and additional, in Tamil Nadu have recently started providing 24 hour delivery facility. The office of the deputy director of health, Villupuram reported that nearly 50% of PHCs in the district are now equipped to provide this service. It was found that all these PHCs providing this service are upgraded with fully equipped labor room, 4 - 6 beds and two staff nurses (known as the reproductive child health (RCH) staff) on duty round the clock. It is a significant step taken by government of Tamil Nadu towards the effort of increasing the proportion of institutional deliveries in the state. However, our household survey results do not show a significant number of institutional

deliveries being conducted among the poor households. This could be on account of all the improvements and developments taking place recently, whereas our survey elicited the information on deliveries taking place over last 5 years. Moreover, if the VHNs/ANMs are not connecting to the poor households as much as they connect to the non-poor households, the proportion of institutional deliveries could be significantly lower among the poor households which could be reflected in our survey.

- The five block PHCs surveyed in the Villupuram district were found to have vehicles. The vehicles had been provided as a part of the 24 hour delivery services for carrying pregnant women from their villages to the nearest PHCs at the time of delivery. These vehicles were available on call of an emergency number round the clock. All the pregnant women and their family members are given the emergency number. The government has also involved the local NGOs for providing this service in order to supplement the existing system.
- An important problem found in the PHCs was that most of the PHCs did not have the facility of residence for the doctors or the nurses. Only 3 out of 7 PHCs were with staff quarters for the doctors and the nurses. At all other PHCs either the quarters did not exist or were not in usable condition. The doctors were usually not available during the night hours as they stayed in nearby towns. The absence of doctors during an emergency at night, particularly at the time of a delivery, could not only hamper the quality of service at the health facility, but also increases the risk for women coming for delivery.
- The doctors at the PHCs are often busy with administrative formalities such as meetings at *taluka*/district levels which affect their presence at the health facility. Apart from this, the private clinics of the doctors working at PHCs also affect their regular presence at the health facility. The doctors were busy in taking care of their private practice than the PHC. In fact, one of the doctors frankly told us that if the government did not allow the private practice most of the doctors would resign from the government job! The regular presence of a doctor at PHCs is crucial for better quality of the health facility.
- Some of the PHCs in the Villupuram district were located outside the main habitation area. Thus, in case of an emergency, the access of people to the health facility becomes a genuine problem. They might prefer to go to the local private practitioners who are usually unregistered, but reside nearby and are easily accessible.

III. Health Sub – Center:

- The team surveyed in all 15 health sub-centers in the Villupuram district.
- All the ANMs/VHNs (village health nurse as they were called in Tamil Nadu) have been recently issued mobile phones. The villagers and especially all the

pregnant women in the village were given the number of the VHNs so as to contact them at the time of delivery or any other medical emergency in the village. The VHNs could also use the mobile phones to call the ambulances and the doctors as and when required. An effective communication is a significant step towards improving the quality of health services in the rural areas. However, we found that the government provided the VHNs with the connections only. The cost of the buying a handset had to be borne by the VHNs themselves. As a result, some of the VHNs could not use the mobiles as they could not afford to buy the handsets.

- The health sub-center buildings in the Villupuram district were not found to be maintained well and some of them were in unusable condition. The team found 5 health sub-center buildings during the survey that were totally damaged and were vacant. Others that were usable also needed substantial repairs and maintenance. The health sub-centers in Tamil Nadu are supposed to be providing delivery facility. In absence of the basic infrastructure, the possibility of providing such a service is questionable.
- Some of the VHNs in Tamil Nadu stay in the semi – urban town locations rather than village headquarters. One of the reasons for that is the poor condition of the sub – center buildings. However, in case the building is usable, they remain at their headquarters only during the day time. The presence of the VHN in the sub - center is crucial as they are the first contact point for the villagers during medical emergencies especially for women and children.

IV. Private Health Facilities:

- The private registered doctors were found only in the *taluka* headquarters of the district. A number of private doctors included doctors working at the public health facilities practising privately after the duty hours. At the village level the private practitioners were largely unregistered or formally untrained.
- The private healthcare in Tamil Nadu largely included the speciality care which was found to be lacking in GHs at the *taluka* level. At the village level the unregistered practitioners do provide services, however, their prevalence seems to be relatively lower in Tamil Nadu as compared to some of the northern states of Rajasthan, UP and MP (Bajpai et al. 2005 and 2006). The household survey in Villupuram also revealed a greater preference for public health facilities than the private healthcare.
- The overall infrastructure and manpower availability at the private health facilities was found to be relatively better than the public health facilities. Most of these facilities had the doctors' residence in the same building and were therefore available round the clock.

Patient Welfare Committee Fund:

Tamil Nadu is yet to implement the ASHA (Accredited Social Health Activist) program of the NRHM, though it has implemented other components of the NRHM. All the government health facilities in Tamil Nadu received the “patient welfare committee” fund once in a year which is part of the NRHM. One of the doctors and the pharmacist were in charge of the funds both at the PHC and the *taluka* GH. The sub – center VHN also received a part of the funds. On an average the PHCs received Rs. 1.75 lakhs and the GHs received Rs. 1 lakh. The fund was used for (i) buying appliances such as water purifiers, fire extinguishers, and television for the health facility; (ii) buying, maintaining and repair of electrical goods and furniture; (iii) buying required medical equipments for the labor room; and (iv) other incidental expenses at the health facility. In most of the cases the money has also been used for maintenance of the health facility building. The sub – centers receive a sum of Rs. 10,000 as untied funds. The VHNs use the money under the similar heads mentioned above. They also use it to pay for the private transport facility used at the time of a medical emergency like deliveries.

V. Estimating Required Scaling Up Efforts

Public healthcare system existing in rural areas of Tamil Nadu is indeed very elaborate with clear norms laid down for geographical hierarchies. Based on our discussion and findings above, we have modified these norms to suit the requirements in rural Tamil Nadu. We have modified the norms to the minimum extent required. These norms in terms of population, staff and infrastructure are summarized in *Table 6* which presents the norms in terms of population, staff and infrastructure for the ideal primary healthcare system required under the prevailing conditions in rural Tamil Nadu.

Once such a system is in place and people get used to it, it can further improve. The primary healthcare services in rural Tamil Nadu would certainly be in the position to deliver results if such a system is effectively and sincerely put in place. The exact performance of the health system would, however, depend upon the extent to which facilitating infrastructural facilities are put in place, e.g., 24 hour electricity supply, drinking water supply, toilets, bathing facilities, proper waste disposal system, etc. Although several of these facilities fall under the purview of the Ministry of Health and Family Welfare, not everything falls under its purview, e.g. electricity supply to households, public lighting and to the HFs. The existing HFs and even poor households are very well covered with all such facilities in Tamil Nadu. However, it is important that new/additional HFs, if required, should also have all such facilities.

We now attempt to estimate the gap in the primary healthcare services between the required HFs; medical and paramedical staff (PMS) based on the norms given in *Table 6* and the existing situation in the rural areas of Tamil Nadu. *Table 7* provides the estimates. To estimate the required HFs in the rural areas of Tamil Nadu, we have projected the population based on the 2001 census figures and the growth rates thereof.

Sr. No.	Geographical Unit	Health Facility	Population Norm	Staff & Infrastructure	Functions
1	Village	Health Center	1000 in Plain; 600 in Hills and Tribal Area	1 <i>Angan Wadi</i> Worker (AWW) + 1 Female (ASHA)	Maternal & Child Health, Nutrition and Immunization.
2	Village Panchayat	Sub-Center	5000 in Plain; 3000 in Hills and Tribal Area	1 Male (MPHW); 1 Female (ANM); 1 Male (ANM) Telephone + Toilet + Labor Room.	Material & Child Health, Family Welfare, Nutrition, Immunization, Diarrhoea and Communicable disease control.
3	Block	PHC	30,000 in Plain; 20,000 in Hills and Tribal Area.	1 BMO 1 Child Specialist + 1 AYUSH + 1 LHV + 12 Medical & PMS 4 to 6 beds + Labor Room + Vehicle and Residence for Medical Staff + Telephone + Toilet.	Referral Unit for 6 Sub-centers, Curative, Preventive, Promotive & Family Welfare Services.
4	Tehseel / Taluka	CHC	1,20,000 in Plain 80,000 in Hills and Tribal Area	1 BMS + 6 Specialists (Surgeon, Gynae, Pediatric, Anesthetic) + 2 AYUSH + 23 PMS and other staff + 30 beds + OT + X-ray + Blood storage + Laboratory + Vehicles (2) & residence for Medical Staff + Telephone.	Referral for 4 PHCs + Emergency Obstetric care + Specialist Consultation.

Source: Department of Health & Family Welfare: Annual Report, 2005-06 and findings of our field survey, 2008.

The total population of Tamil Nadu was 62.4 million, which showed an increase of 11.19% as compared to 1991 population. If we assume the decadal growth rate to have fallen to about 9% during the current decade, the estimated population of Tamil Nadu in mid-year 2009 would be about 66.9 million (increase of 7.2%). But, since the growth rate of population has slowed down across the country and also due to increased urbanization, we can safely assume that the rural population in Tamil Nadu grew by approximately 6.4% during the period, and the rural population of the state would be 37.4 million in mid – 2009 compared to 34.9 million in the 2001 census.

Based on the unit costs given in *Table 7* along with the estimates of the shortfall in HFs and medical staff, we can generate the required financial resources for scaling up the rural healthcare services in Tamil Nadu. Moreover, we may have to consider upgrading the HFs by providing the basic facilities like own building, labor rooms, toilets, telephones, electric connection, water tap connection, repairs, paints, etc. *Table 3* above provides percentages of existing HFs having various infrastructural facilities. There are 2,717 SCs and about 50 PHCs in Tamil Nadu which do not have their own building. We can also see that 7,474 SCs do not have a proper labor room. We can provide Rs.1,37,856 each for constructing either an additional room or converting one of their existing rooms with toilet, electric and water connections, oils painting it, constructing a platform and providing appropriate furniture. We should provide for the capital costs only for the shortfall from the required HFs rather than excess HFs existing in the states. Accordingly, we have provided capital cost in *Table 7* for Tamil Nadu. We should also provide for a vehicle to 626 PHCs in the state. All CHCs must have two functional vehicles. Thus, we must provide for an additional vehicle to 132 CHCs in Tamil Nadu who already own one vehicle; and we must provide two vehicles to the remaining 179 (=311-132) CHCs in the state. For one vehicle, we may provide Rs.6,60,000. Correspondingly, the recurring cost would be at 8% of the capital cost. With all this included our cost estimation for scaling up primary healthcare services in rural Tamil Nadu is presented in *Table 8*.

Facility	Required Number (R)	Existing Number (P)	Shortfall (R-P)	Unit Capital Cost (Rs.'000)	Unit Recurring Cost (Rs.'000)
Health Center	37,369	42,677	-	-	5.51
SC	7,474	8,683	-	496	39.69
PHC	1,246	1,252	-	3,308	264.6
CHC	311	165	146	16,538	1,323
Manpower					
Physicians	1,557	1,351	206		193.6
Surgeons	311	99	212		290.4
Pediatricians	311	66	245		290.4

Obstetricians & Gynecologists	311	66	245		290.4
Anesthetists	311	66	245		290.4
AYUSH Doctors	1,868	772	1096		145.2
Lab Technicians	1,557	1,043	514	44.77	116.16
Radiographer	311	28	283	44.77	116.16
MPW/ANM (F)	14,948	9,550	5,398	44.77	79.86
HA/LHV (F)	1,557	1,734	-	44.77	101.64
MPW (M)	7,474	1,503	5,971	44.77	79.86
HA (M)	1,868	303	1,565	44.77	79.86
Other PMS	80500	42677	37823		43.56
<p><i>Notes:</i></p> <ol style="list-style-type: none"> 1. Cols. 5 & 6 are in Thousand Rupees 2. For HCs, cost of kit and contingency. 3. For SCs, Capital cost includes cost of 1,000 sq. feet building with toilets, labor room, 4' oil paint, tap water, furniture, and platform. 4. Recurring costs for SC, PHC and CHC does not include salaries of medical & PMS and is taken @ 8% of the Capital cost. 5. Capital cost for PMS represents Training cost per person. 6. With appropriate policies, it should be possible to train doctors and specialists without additional direct capital cost to government. 					
<i>Source: Tables 1 to 6 and our Survey, 2008.</i>					

Table 8 shows that Tamil Nadu needs to spend an additional Rs. 8.9 billion to scale up the rural primary healthcare services in the state. On a per capita basis, this comes to Rs. 133. This is significantly less than the estimated requirements of the northern states like Rajasthan, MP and UP and also relatively lower than the southern state of AP and Karnataka. (see, Bajpai, et al., 2005, 2006 and 2008). If we compare Tamil Nadu with these states, we find that it is the capital expenditure in Tamil Nadu that makes the difference. However, Tamil Nadu is yet to implement (as of April 08) NRHM norms and programs, such as recruitment of AHSA (Accredited Social Health Activist). Tamil Nadu is not a high focus NRHM state, but it will have to address the manpower shortfall whenever it implements the NRHM norms.

It is interesting to observe that not only does Tamil Nadu have much better physical healthcare infrastructure than the northern states, it also has better availability of human resources qualified for the primary healthcare sector. Hence, it has better health outcomes than the northern states and even when compared to other southern states, such as Karnataka and Andhra Pradesh. Thus, the availability of the quantity of health infrastructure does matter for better health outcomes. The quality aspects of the healthcare would contribute further to the improvement in the health outcome, but for achieving a critical minimum level of the health outcome, availability of the physical infrastructure and manpower in terms of quantity is almost a pre-condition. Public

expenditure on health and sanitation may, therefore, be considered an important factor in determining the health outcome up to a minimum desired level. Further improvements may need a concerted and a focused effort to address the quality issues of the healthcare services and the delivery system.

In terms of budget allocation in 2007-08, Tamil Nadu has allocated Rs. 18 billion to medical & public health, Rs.3.5 billion to family welfare, and Rs.0.482 billion to water supply and sanitation on revenue account. Similarly, it has allocated respectively Rs.1.724 billion, Rs.0.171 billion and Rs.4.825 billion on capital account to these heads. On a per capita basis, this works out to Rs.295, Rs.55 and Rs.79 of combined revenue and capital account expenditures on these sectors respectively. Thus, Tamil Nadu has allocated a total of Rs.429 per capita on the health, sanitation and water in 2007-08. The implication of scaling up health services in rural areas of the state as given by our estimate is that it needs to step up its allocation to these sectors by almost 31% over 2007-08(BE) in 2009-10 (BE). Since these increases are not over one year but two years, they are not impossible to achieve, though it is a challenging task.

Table 8: Additional Expenditure Required in Tamil Nadu for Scaling Up Primary Health Services in Rural Areas, 2008-09

Sr. No.	Item	Details		Unit Cost (Rs. Million)	Cost (Rs. Million)
1	Building	SCs	962	0.4961	477
		PHCs	0	3.308	-
		CHCs	146	16.58	2414
2	Labor Room	SCs	7,474	0.1379	1030
		PHCs	0	0.1379	-
		CHCs	0	0.1379	-
3	Vehicles	for HFs	1,113	0.6615	565
4	Training of PMS		13,731	0.0408	561
	Total Capital Cost				5048
5	Recurring Cost per annum @ 8% of Capital Cost for SC,PHC & CHC	-			404
6	Recurring Cost of Village Health Centre	VHCs	0	0.0058	-
7	Salaries of Doctors	GPs	206	0.1936	40
		Specialists	949	0.2904	275
		AYUSH Doctors	1096	0.1452	159
8	Salaries of PMS	Technicians	797	0.1162	93
		Nurses	12,934	0.0799	1033
		LHV	0	0.1016	0

		Lower level staff	37823	0.0436	1648
	Total Recurring Cost				3665
	Total Cost				8884
	Per Capita Basis	Estimated Population of TN 2009-10 (mid – year) is 66.9 million.			In Rs.
	- Capital Cost	Per Capita (in Rs.)			78
	- Recurring Cost				55
	Total Cost				133
<i>Source: Table 7 and Text.</i>					

It is important to recognize here that additional resources required to scale up the services need not be entirely contributed and spent only by the state government. There is always a scope for public-private partnership in matters like infrastructure, buildings and training. Even in matters like vehicles, private sector enterprises can be brought in. There are also possibilities of the “salary” of ad hoc staff like PMS getting substituted by the incentives or payments received for the services they provide. This not only helps to reduce the burden on the state government, but also improves accountability, regularity and commitment of the staff thereby improving the effective delivery and quality of service.

Observations from Tiruvannamalai district

Health Status

Infectious diseases like Malaria/ Filaria were reported to be on the decline, while chronic diseases, such as CVD and Diabetes have been on the rise.

Indicator	Villupuram	Tiruvannamalai	Tamil Nadu
IMR (per 1000 live births)	28	26.9	23
MMR (per 100,000 live births)	100	110	90

HIV/AIDS: The prevalence of HIV in the district is roughly 0.09%. PHCs conduct HIV testing for every antenatal mother and her spouse. If positive, they are provided with ART and may even be referred to Vellore Medical College for further treatment.

In Venuabhettu, nearly 5000 persons had been screened at the PHC since March 2006, out of which 42 were found to be positive. These patients are seen by a counselor from TNSACS that is present at the PHC.

The BEMONC centre (upgraded PHC) at Venuabhattu reported, however, that HIV rates were dropping amongst antenatal mothers due to increased awareness.

Human Resources

- i. The ASHA program had not been implemented in Tamil Nadu yet.
- ii. A Village Health Nurse (VHN) was posted in every village (looking after a population of ~5000. After several years of service, she would get promoted to a Block health Nurse, and ultimately a Community Health Nurse for a district hospital. VHN's will be assisted by the ASHA after the implementation of the NRHM.
- iii. The VHN and AWW jointly review prenatal cases each week. Their activities are especially coordinated during Pulse polio programs.
- iv. NRHM provides Rs. 1250 per month for the position of an accounts auditor (meant to audit an entire block). Physicians at PHCs felt unequipped to do this, and this position had remained vacant for a long time due to the low pay scale. Physicians recommended that Rs. 2500 was a reasonable salary for which auditors were willing to come forth.
- v. The District Medical Officer also pointed out that it was difficult to recruit physicians for TVM. Despite the presence of a medical school in the district, retention of graduates within the district was low.
- vi. AYUSH services were widely available in the district.

The Kilpennathur block PHC had a separate Siddha wing. The most common ailments were exema, psoriasis and other dermatological disorders. The Siddha doctor there saw roughly 50-60 patients each day.

Health Services Delivery

- i. Vehicle: Tribal areas (living in hilly areas) of Tiruvannamalai have relatively higher maternal deaths (150 deaths per 100,000 population) due to the lack of road facilities. Deliveries are almost entirely conducted at home. The district has also requested for a four-wheel drive vehicle for the hilly areas, but currently there is no provision for the purchase of vehicles under NRHM. IEC activities are regularly carried out for the tribals. Every Block PHC had an ambulance, but there was often no driver.
- ii. Funds: Under the aegis of the NRHM, the Village Health Nurse receives Rs. 10,000 per year as untied funds. This amount is in addition to another Rs. 10,000 that she receives for maintenance of the sub-centre from RCH funds. The untied funds are operated under the oversight of the Village Health and Sanitation Committee within

the Gram Panchayat. Before NRHM, the state government only provided VHNs with Rs. 250-500 per year for electricity etc.

Under NRHM, all PHCs receive a total of Rs. 125,000 per year:

- Rogi Kalyan Samiti (Patient Welfare Society) Rs. 50,000
- Annual Maintenance grant Rs. 25,000
- Untied PHC fund 25,000

All PHC's unanimously shared that this amount was insufficient and that this amount should be increased to 250,000 to 300,000 at the least. RKS is an example of how decentralization has taken place. Before decentralization, each necessity of a health facility needed authorization to the state government, and would take nearly 1-2 years to get sanctioned.

The Kilpennatur block PHC mostly spent the RKS funds for the purchase of medical equipment, such as ECG machines, Fetal Dopplers, water purifiers, and for the repairs associated with drainage and fencing. They also recently purchased an autoclave for sterilization of medical equipment, and also had begun construction of an additional inpatient facility.

- iii. **Drugs:** The district has had no major drug supply problems. Drugs and vaccines are ordered by the health facility, sanctioned by the District Department of Health Services (DDHS) and delivered by the Tamil Nadu state drug warehouse.
- iv. **Infrastructure:** The buildings of health facilities that were constructed by the Public Works Department (PWD) had asbestos roofs. Staff had now requested that the asbestos roofing be replaced several times. It was unanimously felt by physicians running the health facilities that the contracting agency should be chosen by the PHC (since expenses are paid for from RKS funds), and private contractors may also be an option. Sub centers, too, were often found to be insufficient.

The VHN in charge of the sub centre at Mekkalur complained that an additional room was urgently required, as the current facility was unable to handle more than one antenatal mother at a time. The cost of building this room, she said, was about Rs. 100,000. She also pressed for an additional need of Rs. 40,000 for the construction of a bore well for access to water.

The Venuabhattu BEMONC center also required additional funds to meet higher expenses (arising from up gradation), and physicians also wanted to open a dental clinic and physiotherapy unit soon.

In the district of Tiruvannamalai, most sub centers were owned by the government, rather than rented premises (200 out of 223 owned by state), and constructed by the Public Works Department, the quality of which was found to be unsatisfactory.

- v. **Computers:** Every PHC was provided with a computer.

- vi. Utilization: Locals of TVM utilize the public healthcare system frequently. High rates of utilization, according to the District Medical Officer, were due to the following factors:
- Higher number of doctors
 - Longer hours of operation of health facilities (8-5 pm)
 - The presence of a 24 hour staff nurse at each PHC
 - The 24 hour assistance of the VHN (VHN is accessible by a cell phone that is provided to her).
 - Involvement of the doctor with patient care
 - Healthy competition between PHCs set high standards of care

The number of deliveries in PHCs is now as high as 15 deliveries per month. Just two years ago, this number was 1 delivery each month.

The Block PHC at Kilpennathur received nearly 150-200 outpatients per day. Institutional deliveries have also gone up dramatically since the implementation of NRHM. The PHC also receives 30 patients per day for Ultrasound examinations. Health workers reported that in the last 4.5 years, not a single maternal death had taken place in this block. The single largest reason for this, they said, is the presence of the 24 hour staff nurse.

The PHC in Venuabhattu also received close to 200 outpatients a day. Manned by 3 physicians, this PHC conducted close to 25 deliveries a month. They have proposed an up gradation to a 30 bed hospital.

Health Information

Health camps are conducted in every block each month. Over 300 camps are conducted in all every year. Data collected from these camps is made available online. These camps not only conduct all routine lab tests, but also screen for cancers using visual inspection with acetic acid. Antenatal mothers were educated about risks of pregnancy related disorders. Patients testing positive for HIV were counseled by personnel from TNSACS. Health awareness was generally high.

Maternal Health

The state of Tamil Nadu has some schemes which provide financial incentives to economically backward populations, providing them with financial protection associated with having a child.

With the advent of NRHM, prenatal mothers are educated about conditions such as anemia, gestational diabetes, thus empowering women to take charge of their own health.

In the block of Kilpennathur, several health camps are also held where information pertaining to maternal and child health issues is disseminated by Village Health Nurses

among women. In addition, food camps are regularly held where the population is educated about nutrition. These camps have been immensely successful.

Schemes

Beneficiaries under the Muttalalakshmi Reddy Scheme receive Rs. 6000 from the state government in two installments one three months before delivery and the other post delivery to ensure proper nutritional status of the infant and the mother.

Financial Protection: Farmer social security scheme (since 2006) allows the disbursement of Rs. 6000 to antenatal mothers. This scheme is targeted towards small farmers, and beneficiaries may be above the poverty line, but own less than one acre of land.

Highlights under NRHM

- The presence of a 24 hour staff nurse in PHCs
- Untied funds for the VHN
- Increase in institutional deliveries
- Services have become more comprehensive
- Increased faith of people in government health facilities

Constraints under NRHM

- Too many restrictions to the way RKS funds may be spent. A pre-fixed distribution of how the funds are split up prevent staff from undertaking any major works
- Lack of 24-hour transportation. If ambulance present, a 24 hour driver is often hard to access
- Shortage of doctors within the system
- No staff quarters for VHNs to stay
- Rs. 125,000 perceived as insufficient for PHCs.

VI. Recommendations

The Approach Paper of 11th Plan (2006) has spelt out several measures to improve the quality and quantity of rural primary healthcare system and its services. Their strategy is to generate demand for public HFs, provide options to population and increase participation by NGOs and private sector in the healthcare provision. Simultaneously, it rightly does not treat the problem as exclusive to the public health department. An integrated approach involving different departments like sanitation, construction, water supply, education, power, roads, etc. is well recognized. NRHM is a comprehensive effort in this direction. Appointment of ASHA and AYUSH practitioners and full involvement of *Panchayati Raj* Institutions (PRIs) in monitoring and delivering healthcare services to local population are important ingredients of the strategy.

In this context, we find that the conditions prevailing in the southern state of Tamil Nadu are distinctly better than the northern states in terms of quantity of infrastructure, availability of electricity and water, and availability of qualified manpower in the health sector. Although we found shortages of doctors, specialists, nurses and PMS in the state, the extent of absenteeism at village level was considerably less. Moreover, recent initiatives to upgrade the HFs to be equipped to provide 24 hour delivery facility at the PHC level are commendable. Similarly, the state has also introduced the ambulance facility round the clock to improve the access of public health facilities and to increase institutional deliveries. The focus of our specific recommendations here is on improving the quality of the services rather than the quantity of infrastructure and qualified manpower. Our specific recommendations are as follows:

- There is a need to consider entitlement benefits to the BPL or poorer sections of the society. In the BPL survey conducted in every village, score of 18 points may be considered an effective cut off to identify the genuine BPL families. These families should be given a Smart Card with clear entitlement to spend an amount, say Rs.2,000 p.a. on hospitalization, treatment, medicines, consultations, visit fees, etc. Once these cards are distributed to the BPL families, the public HFs can also charge regular (unsubsidized) fees from the patients and get their regular revenue for meeting most of their recurring and capital expenses. This in itself would act as a strong incentive to improve quality of services in public HFs because it would put them in direct competition with the private sector. Moreover, the managers or service providers in public HFs would also find themselves directly accountable to the local population and can face a reward/punishment system.
- Introduction of a Smart Card to BPL families can also be conducive to the idea of introducing the social or community based health insurance. It will facilitate generation and investment of the required resources. The Smart Card to a BPL family can also be very helpful when they have to migrate for food, fodder and employment. Moreover, it can also promote some trade and exchange among the people with shortages and surpluses, thereby encouraging better utilization of the state resources.
- There is a need to carry out frequent supervision of lower level HFs in rural areas. There should be enough powers vested in the supervisory/monitoring authority to immediately punish the defaulters like absentee staff, indifference to replenish the stock of medical supplies, rude behavior with patients, lack of cleanliness and unhygienic conditions in the HFs, etc.
- There is a need to introduce accreditation system based on annual or more frequent visits to the HFs for their infrastructure, human resources and drug and medical supplies.
- There should be annual awards for best performing HFs in various categories. This should be a handsome cash reward from the state government and the selection should be made on the basis of a weighted feedback from people (beneficiaries), village *Panchayats*, and departmental higher-ups. There can be different types of awards emphasizing different aspects of the quality of healthcare service like cleanliness, cure, disease control, customer satisfaction,

- etc. All such awards should be distributed among the relevant staff in the winning HFs.
- The medical and paramedical staff at the Sub-Center, PHC and CHC level should be stabilized for longer periods so that they can start living in the village. Under NHRM, District Health Missions should be made responsible to monitor, supervise and if required transfer such staff more as a punishment with adverse remarks in their Confidential Reports (CR).
 - There is an urgent need to focus comprehensively on the living conditions of the BPL families. Availability of basic facilities like toilet, bathing, drainage, drinking water, etc., has to be ensured to them without which scaling up of primary healthcare services in the rural areas may not be effective for them on its own.
 - Considering the shortage of medical and paramedical staff in the HFs, there is an urgent requirement of appointing new doctors, ANMs, health assistants and other paramedical staff at all levels of HFs.
 - It is also important to reduce the administrative burden and unnecessary paper work for the medical staff (mainly doctors and ANMs) at all levels of the HFs so as to improve the general working of the HFs. This is more relevant in the case of PHCs and SCs as its functioning gets adversely affected by the effective absence of doctors and ANMs.
 - There is a need to check the proliferation of a large number of unregistered/unqualified private medical practitioners especially at the village level so as to ensure the quality of the services provided by them. Frequent inspections of the private practitioners at village levels to check their credentials may be desirable.

NRHM Specific Recommendations:

- We believe that the following seven broad issues are critical if the NRHM has to succeed on scale in Tamil Nadu: 1) as and when the village Health Workers (VHWs)/ASHAs are introduced in Tamil Nadu, whether proper recruitment, comprehensive training, effective control and oversight and timely and adequate payments of the VHWs or ASHAs as they are called by NRHM is in place; 2) whether a well defined and implement able role of the Panchayat Raj Institutions (PRIs) and a comprehensive and on-going training program for the panchayat members is in place; 3) whether there is commensurate infrastructure and human resources in the sub-Centers (SCs) and the Primary Health Centers (PHCs) with the needs of the regions as the NRHM is rolled out in the state; 4) whether necessary interventions to bring down the IMR and MMR are in place; 5) in the area of community-based health care and home-based neonatal care program, whether the NRHM is helping incorporate and scale up lessons from the experiences of SEARCH (Dr Abhay & Rani Bang's NGO) in Gadchiroli, Maharashtra and CRHP (Dr Raj & Shobha Arole's NGO) in Jamkhed, Maharashtra 6) whether the VHWs of the NRHM are working hand-in-hand with the Aanganwadi workers and the ICDS program; and 7) whether the necessary

communication and coordination exists between the VHWs/ASHAs, ANMs, Anganwadi workers and the PRIs.

- In other states where VHWs are already in place, the current training programs of the VHWs are extremely inadequate, both in terms of the quality of training being imparted and the time being allocated for their training. Tamil Nadu should therefore take note of this. Presently, training of VHWs is only for 21 days as a one-time crash course and occasionally an additional 5 days of in-field training, the latter being implemented very irregularly. Not only is the training required to be far more comprehensive than what it is currently, it should be an on-going process, at regular intervals, throughout the year, say at least for the first two years of an VHWs recruitment. Thorough training is a must in order to facilitate *task-shifting* and *task-sharing*.
- Ideally, VHWs should be trained using information and communications technology (ICT) at the district headquarters. The training can be imparted by a group of trainers centrally from the State capital to all the districts simultaneously on fixed dates which can be announced well in advance. Additionally, trainers available at the district headquarters should supplement class room training with in-field training of VHWs. ANMs can play a critical part in the in-field training of the VHWs.
- Untimely payment of incentives to VHWs in some states is serving as a huge disincentive for taking on the role that is expected of them. The presently followed system of paying the VHWs is a lengthy process which is not only cumbersome, but very poorly implemented as well. The result, almost all the VHWs we spoke to in Nalgonda received their payments once in three months only. In Tamil Nadu, a much simpler and straight forward system needs to be put in place for paying the VHWs so that they are paid EVERY month.
- More importantly, we strongly recommend that VHWs be paid a regular salary which could be in the range of Rs. 1,000 to 1,500 per month plus that should be topped with the incentives. The incentive amounts being paid currently are extremely meager.
- In order to improve the delivery of health services, we suggest supporting community oversight of village-level health services, including panchayat responsibilities for oversight of sub-centers, and PHCs. While the 73rd and 74th Amendments to the Indian Constitution allow for a democratic system of governance in health to the multilayered local bodies, their implementation leaves much to be desired. Such devolution of authority has taken place only in Kerala, which invested time and resources in systematically building capacity for governance by local bodies. Tamil Nadu needs to strengthen their existing programs of capacity building in the Panchayati Raj Institutions (PRIs).

- Since one of the core strategies of the National Rural Health Mission is to train and enhance capacity of the PRIs to own, control and manage public health services, the following questions need to be looked into: Has the power and authority that has been devolved to the PRIs on paper actually reached the people? Do they understand their duties/responsibilities on the one hand and their authority on the other? Do the PRIs have the capacity to manage health centers? Are there regular and comprehensive capacity building programs in place? And are any measures being undertaken to ensure that the caste and patriarchy do not prejudice effective management at the local level?
- Many parts of rural India are experiencing an epidemiological transition and this is reflected in a growing burden of non-communicable diseases. Non-communicable and chronic diseases are increasingly being seen as a leading cause of death in rural India. Hypertension, Type II Diabetes and Cardiovascular diseases are on the rise in rural Tamil Nadu in particular and rural India in general. It is critical to keep these emerging disease burdens in mind while scaling up health services in rural Tamil Nadu. We suggest that under the NRHM umbrella, programs are put in place to deal with the growing burden of these diseases in the state.
- With the exception of pre-natal checkups for expectant mothers, the delivery of healthcare in rural India is almost entirely curative in nature. With hypertension on the rise in the country, it was suggested that blood pressure be examined on a regular basis for all patients visiting sub-centers and PHCs. ANMs at the sub-centre level and nurses at the PHC level should in the normal course examine blood pressure as part of antenatal care, as pregnancy-induced hypertension is a major contributor to maternal mortality in India.

Recommendations for Health Services in Villupuram District:

Millennium Development Goals (MDGs) should be set-up at the block-level so that they are relatively easily monitor able:

Indicator	Tamil Nadu	Villupuram
IMR (per 1000 live births)	23	28
MMR (per 100,000 live births)	90	100

Tamil Nadu has already achieved much success towards the attainment of its Millennium Development Goals for maternal and child health. The current goals of the district of Villupuram are to be at par with the rates of the state. We recommended that Villupuram, subdivided into 22 blocks, set new goals for each and every block to decrease rates of infant and maternal mortality even further.

It must be noted that the introduction of NRHM in 2006 has already shown significant reductions in MMR and IMR in several block PHCs of Villupuram. A PHC in Omandur reported an IMR of 11 and an MMR of 2 in 2006 which were brought down to 3 and 0

respectively. They attributed this dramatic reduction primarily to the introduction of NRHM through its various schemes (RKS funds, JSY incentives, the Mutthalakshmi Scheme and use of the EDD chart, details of which are provided below).

The grant of Rs. 100,000 from the Rogi Kalyan Samiti (Patient Welfare Society) under NRHM is being extremely well utilized by most PHCs that were surveyed. It is mandatory, however, that 50% of the Rs.100,000 be spent on maintenance activities only. We recommended that this amount be increased and left untied if possible, so that decisions on how best to spend these funds can be made by health workers at the health facilities who are most informed about the local reality and requirements.

Typically, the RKS funds were used for the following purposes:

- Infrastructure: Painting (~Rs. 20,000), Fencing, Furniture, Civil works
- Equipment: RO Water filtration system (Rs. 12,000), Delivery instruments, Lap equipment, Fetal Doppler heart monitor, Invertor (Rs. 17,000), Hot water geyser (Rs. 17,000), Nebulization equipment
- Maintenance: Bleach (Rs. 500 per kg@ 10 kgs/month), towels for mother and baby, other sanitation and repair expenses

Certain needs are still not being met with RKS funds:

- Phototherapy unit for newborns
- Transport facilities/Ambulance for transferring patients to secondary and tertiary care centers as well as for outreach/field visits
- Provision of food to antenatal mothers (for 3 days post-delivery)
- Ultrasound machines (to each PHC, including additional PHCs)-costing ~Rs. 300,000
- Telemedicine
- Lab facilities (for basic testing of diabetes and anemia)

Ultrasound Machines: Currently, there is only one ultrasound machine per block housed at each block level PHC. A few larger blocks that had additional PHCs did not necessarily have ultrasound machines. We recommended that each PHC (Block level or Additional) be provided with an ultrasound machine so that complications can be pre-empted and the patient can be referred to a secondary or tertiary care center.

Computers: The staff of each PHC that we visited asserted that having a computer would tremendously help them with their administrative activities. A computer would also enable them to conduct site visits much more effectively. Further, a computer would facilitate the use of tele-medicine, as was being practiced in a few PHCs as part of a pilot project.

Tele-medicine: In collaboration with the private sector, the state government of Tamil Nadu has initiated a pilot project introducing online telemedicine services that are

provided by three not-for-profit partners- Narayana Hrudayalaya for consultation of cardiac cases, Shankar Netralaya for eye-related consultations and Jipmar for other consultations. An expert's opinion is instantly provided within the hour, with 24-hour online support. This project has been successfully implemented in the Mailam PHC, and it was recommended that this initiative be expanded to a wider network of PHCs.

Expansion of wards: All PHCs surveyed had only two to three beds for post-delivery mothers. It was recommended that wards be expanded to include a greater number of beds in order to accommodate a greater number of patients as institutional deliveries were rising rapidly. A PHC in Brammadesam with only three beds in its ward had four deliveries over the previous two days, and one woman was made to lie on the floor as there was no extra or vacant cot.

Testing for Hypertension: Several PHCs reported an increasing case load of hypertension and related chronic diseases. However, patients are not screened for hypertension unless they express symptoms of it. We recommended that all patients, irrespective of their presenting illness be screened for hypertension, and this procedure be made mandatory for all PHCs. Interestingly, the attending doctor at Dintivanam (a PHC that universally screens for hypertension) reported that 20% of all those tested were hypertensive. The PHC at Brammadesam has also introduced yoga and meditation camps in collaboration with the district health department for the prevention and treatment of hypertension. The PHC at Tiruvellpattu organized several clinics for blood pressure and diabetes during the year, but these were only on ad-hoc basis and presumably involved a large loss to follow-up for treatment.

Anemia Screening: Anemic pregnancies were very common, resulting in poor health status of the mother and child. Under NRHM, PHCs are meant to freely distribute iron and folic acid tablets to all pregnant mothers, but compliance and adequate supply are an issue. As suggested by Dr. Haseena Parween in Tiruvellpattu, injections for anemic mothers would be much more effective, as the absorption of tablets must be combined with proper nutrition, which is difficult to ensure.

Training for radiology services: Several health facilities have an ultrasound, but do not have medical personnel trained in ultrasound. Proper training of at least one physician in ultrasounds would greatly improve the quality and effective delivery of care.

EDD (Estimated Date of Delivery) Chart: This is a new and simple method for tracking all upcoming deliveries in the area. The chart (displayed at the PHC) includes the mothers name, her estimated date of delivery and a note about her last prenatal check-up. This has enabled improved co-ordination between the Village Health Nurse (VNH, a.k.a. ANM) and physicians at the PHC. The VHN refers to the chart and follows up with each individual case on the chart. The use of this chart ensures that women are regularly being checked upon and helps the PHC be better prepared for anticipated complications, if any.

Janani Suraksha Yojana: Implemented in almost all states under RCH-II, the JSY offers financial incentives to eligible rural BPL women for having institutional deliveries.

Under this centrally sponsored scheme, a woman was entitled to Rs. 700 per institutional delivery, and Rs. 500 if she delivered at home to help with post-delivery costs related to the newborn.

Mutthalakshmi Scheme: A regional scheme supported by the Health Ministry of Tamil Nadu provides an additional Rs. 6000 to each mother, Rs. 3000 for the last three months of pregnancy and Rs. 3000 for the first three months after child birth. These funds are mostly used by women for nutrition and care of the newborn.

General Recommendations:

- In terms of mobilizing additional funds for health, our research suggests (Bajpai and Goyal 2005) these to mainly come from cutting unproductive government expenditures (both central and state governments) relative to GDP rather than by raising revenues relative to GDP. However, we do suggest levying a 2 percent Health Sector cess for the remaining period of the NRHM that is up to 2012, proceeds of which should be allocated entirely towards NRHM.
- We suggest a health sector strategy for India that is Millennium Development Goals (MDG) based not only at the state level, but also more importantly at the district and block levels (Bajpai et al. 2005). Districts and blocks should strive hard to attain the MDGs, such as reducing infant mortality rate, under-5 mortality, maternal mortality rate, immunizations and access to safe drinking water and the like especially for in the laggard districts. Based on the MDGs, state governments should announce targets for health to be met at the district and block levels by the year 2015.
- We suggest that the Central Government should plan to convene a meeting of Chief Ministers and Health Ministers of all Indian States in 2009 to discuss how the states will meet the health targets. This meeting will allow states to present their most successful initiatives, so that all states can adopt “best practices” in public health.
- The increased public health spending should finance infrastructure improvements in the rural sub-centers, primary and community health centers and the district hospitals. Additionally, much higher levels of spending is needed for essential drugs and supplies, vaccines, medical equipments, laboratories, and the like. In terms of human resources in the health centers, state governments need to appoint more auxiliary nurse midwives, trained birth attendants, technicians, pharmacists, doctors, and specialists. These measures will help increase the utilization of the public health centers in Tamil Nadu further and consequently bring down the rather high out-of-pocket expenses of their rural residents.

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APPENDIX A

Methodology of Sample Survey of Households in Tamil Nadu

The basic objective of the present study was to assess the prevailing conditions of health facilities in terms of quantity and quality in the rural areas of Tamil Nadu. The adequacy of these services had to be considered from the perspectives of the access of vulnerable sections of the society. A sample survey of households was conducted to get this perspective.

It was decided to survey some households in one district to represent broadly the conditions in the state. The Villupuram district in Tamil Nadu was selected for the purpose in consultation with the state government officials. In order to select a sample of households for a detailed survey to reflect conditions of the vulnerable sections in the rural areas of the district, it was necessary to select economically poorer households from different parts of the district. We, therefore, selected five *Tehseels* / *Talukas* (or blocks) of Villupuram district, and then, selected one medium sized village from each of those *Tehseels* for detailed survey. Since *Tehseel* is the second level of the administrative unit, selecting 5 *Tehseels* in the district would capture geographical diversity in the district.

Selection of villages depend on several criteria, viz., overall literacy rate, female literacy rate, percentage of scheduled cast / tribe population, worker population ratio, sex-ratio, average size of households, and absolute number of households. The main consideration was that the selected village should reflect the conditions of rural areas of the *Tehseel* as closely as possible on all these counts. All the same, the selected village should not be too large or too small. We could consider all these aspects while selecting the villages because *Census of India, 2001* readily provided data on all these aspects by villages. *Table A-1* provides data on all these variables for the list of selected *Tehseels* and villages in the Villupuram district for the year 2001. It can be seen from the table that the aggregate of the

Table A – 1: Sample villages selected for Villupuram (TN)

Level	Name	No. of HH	Total Population	Total Population - Males	Total Population - Females	ST Population	SC Population	Literate Population	No. of Literate Females	Working Population	Average Members/ HH	% Literate Population	% Literate Female	% ST Population	% SC Population	WPR	Sex Ratio	SC +ST %
DISTRICT	Villupuram	544609	2533456	1277415	1256041	740441	61687	1347727	537783	1297445	4.6519	0.5320	0.4282	0.0243	0.2923	0.5121	0.9833	0.3166
TALUK	Gingee	77901	346849	173616	173233	70823	6945	193423	78453	183935	4.4524	0.5577	0.4529	0.0200	0.2042	0.5303	0.9978	0.2242
VILLAGE	Siyappundi	211	988	490	498	0	0	399	141	567	4.6825	0.4038	0.2831	0.0000	0.0000	0.5739	1.0163	0.0000
TALUK	Tindivanam	70543	326265	163780	162485	111213	4558	180646	73588	158009	4.6251	0.5537	0.4529	0.0140	0.3409	0.4843	0.9921	0.3548
VILLAGE	Vadampundi	231	1020	517	503	326	63	507	197	535	4.4156	0.4971	0.3917	0.0618	0.3196	0.5245	0.9729	0.3814
TALUK	Vanur	30076	142492	72740	69752	50340	1612	84688	34660	64606	4.7377	0.5943	0.4969	0.0113	0.3533	0.4534	0.9589	0.3646
VILLAGE	Ottai	306	1396	716	680	624	22	703	268	779	4.5621	0.5036	0.3941	0.0158	0.4470	0.5580	0.9497	0.4628
TALUK	Tirukkoyilur	66371	325936	164888	161048	97024	2297	165944	64820	165765	4.9108	0.5091	0.4025	0.0070	0.2977	0.5086	0.9767	0.3047
VILLAGE	Aviyur	354	1644	827	817	249	0	1035	405	1014	4.6441	0.6296	0.4957	0.0000	0.1515	0.6168	0.9879	0.1515
TALUK	Sankarapuram	68913	328412	166368	162044	82921	41654	152354	59740	173254	4.7656	0.4639	0.3687	0.1268	0.2525	0.5276	0.9740	0.3793
VILLAGE	Sembarampattu (P)	524	2366	1185	1181	1216	15	1342	542	1202	4.5153	0.5672	0.4589	0.0063	0.5139	0.5080	0.9966	0.5203
Total of Selected Villages		1626	7414	3735	3679	2415	100	3986	1553	4097	4.5597	0.5376	0.4221	0.0135	0.3257	0.5526	0.9850	0.3392

5 selected villages from each district compares very well with the rural district in terms of all these characteristics.

At the second stage, we had to select households from the weaker section in each village for the survey. It is important, therefore, to identify households belonging to the vulnerable section. As per the instructions of the government of India, the government of Tamil Nadu conducted a detailed census of all households in the rural areas to identify economically weaker section. It was called the BPL census and was conducted in 2002-03 by respective school teachers at village level. The survey collected information on land and other asset holding, physical living conditions, broad consumption items, literacy, source of livelihood, condition of children, etc. Based on the survey data, points were awarded to each household. The scheme of awarding points to households on the basis of possible responses to the 13 different questions in their survey is presented in *Table A-2*.

Before going to the field we obtained the BPL house lists of all the selected villages in the state. The government had decided about the aggregate cut-off to identify the BPL families. The first cut-off was decided to be 15 or lower points for the poor of poor (POP) families being the weakest on all fronts. Further, another cut-off was decided at 25 points which included families between the two scores, not weak on all fronts but still are considered poor. We have selected the sample mainly from the POP families. However, in order to fulfil the required sample size we have also included families from the poor category by setting our cut-off to 18 points. We have added three points in order to cover the families that were relatively weaker among the poor section.

Given the objective of our sample survey, we chose a purposive sample only from the weaker section of the rural society in the Villupuram district in Tamil Nadu. It was decided to survey about 250 households from the district⁴.

⁴ The ideal sample size is given by $S = (z^2 \cdot p \cdot q / \alpha^2)$ where z and α are respectively the standard normal variate at the required confidence level and the significance level; and p and q are probabilities of required variate. Considering $z = 1.96$, $\alpha = 0.05$, $p = 0.8$ and $q = 0.2$, sample size (S) works out to be 246.

Table A-2: Scheme of Awarding Points on Possible Responses in the BPL Survey, Tamil Nadu

Sr. No	Questions	Points				
		0	1	2	3	4
1	Land (in Ha.)	No land	<1 non-irrigated <0.5 irrigated	1-2 non-irrigated <0.5 irrigated	2-5 non-irrigated 1-2.5 irrigated	>5 non-irrigated >2.5 irrigated
2	House type	No house	<i>Kachcha</i>	Partial <i>kachcha</i>	<i>Pukka</i>	City like
3	Cloths (per person)	<2	2-3	4-5	5-9	>10
4	Meals a day	<1	One but sometimes less	Once sufficient	Two but sometimes less	Sufficient food available
5	Toilet facility	Open space	Common toilet w/o water supply	Common toilet with water supply.	Common toilet with water supply & sweeper.	Personal toilet.
6	Consumer durables: TV, Elec. Fan, Pressure cooker, Radio.	None	Any one	Any two	Any 3 or all	All and more
7	Literacy level of most educated member of family.	Illiterate	5 th standard	10 th standard	Diploma	Professional
8	Labour situation in the family.	Bonded labour	Women & child labour	Only adult women labour.	Only adult man labour.	Other
9	Source of livelihood	Agricultural labour	Farmer	Rural artisan	Salary	Other
10	Situation of children	Do not go to school & employed	Going to school and employed	Not going to school and not employed	Going to school but working.	Going to school and not working.
11	Type of debts	For daily use from non-insti. sources.	For agriculture from non-insti. sources.	For other use from non-insti. sources.	Only insti. Sources	No debts.
12	Reason for staying away from family.	Accidental work	For seasonal employment	Any other type of employ.	Not staying away.	Any other reason.
13	Requirement of	For	For self-	For	For	Aid not

	aid.	employmen t	employment	training and skill addition.	housing.	required.
<i>Source: BPL Survey, 2002-03.</i>						

In Villupuram district there were a total of 1584 households in the selected villages out of which 802 households belonged to the weaker section as per 18 points cut-off. We selected a total of 281 households, i.e. 17.7% of the total households from each of the selected villages. Our sample of 281 households represents 35% of the 802 households belonging to the weaker section in these selected villages. *Table A-3* provides the distribution of the total and sample households in the selected villages in the district.

We conducted the sample survey during April, 2008. While selecting the families for our sample survey it was important to avoid very small households without children below 14 years and women considering the purpose of the survey. We collected information from selected households through a structured questionnaire (given below for ready reference).

<i>Table A-3: Distribution of Total and Sample Households by Selected Villages in Villupuram</i>					
District	<i>Tehseel/ Mandal</i>	Village	Total HH.	Weaker Section HH with Points \leq 18	
				Total	Sample
Villupuram	Gingee	Siyapoondi	161	53	30
	Tindivanam	Vadapoondi	359	151	63
	Sankarapuram	Sembarampattu	557	256	98
	Tirrukkovilur	Aviyur	213	114	38
	Vanur	Ottai	294	228	52

Source: BPL Survey and the methodology described in the Text.

Household Questionnaire (Tamil Nadu)

(For "Scaling up Services in Rural India" project by the Earth Institute,
Columbia University)

Village: _____ Tehsil: _____ District: _____

Head of HH: _____ (M/F); Investigator:

Date: _____

A. 1 BPL Score _____; 2. Size of HH: _____

2. Land owned _____ (Ha./Acre/_____)

3. Caste: SC/ ST/ OBC/ Muslims/Others;

B. 1. No. of Animals/ Cattle: _____

Buffalo: _____; Cows: _____; Bullocks: _____; Goats & Sheep: _____;

Donkey: _____;

Camel: _____; Poultry: _____

2. How far do you take them for grazing? _____ km. 3. Who takes them?

C. **Information on HH Amenities:**

1. Is the HH electrified? Yes/ No.

2. Electricity available for _____ days/week and _____ hrs./ per day

3. Source of drinking water:

Winter: Tap/ Well/ Public Well/ Public Hand pump/ Pond/ Canal/ Other (
)

Summer: Tap/ Well/ Public Well/ Public Hand pump/ Pond/ Canal/ Other (
)

Monsoon: Tap/ Well/ Public Well/ Public Hand pump/ Pond/ Canal/ Other (
)

4. Distance to the source of drinking water: _____ k.m. 5. Who fetches drinking water? _____ 6. Do you filter water? Yes/ No
7. Do you boil the water? Yes/ No.
8. Facility for Latrine and Toilet: Exclusive/ Common/ Open space
9. Sewerage: Underground/ Covered path/ Open path/ No system
10. Drainage: Underground/ Covered path/ Open path/ No system
11. Road cleaning and waste removing facility: Yes/ No; _____ times per week.

D. Information on HH Members:

Sl. No	Questions	Member							
		1	2	3	4	5	6	7	8
1	Name								
2	Relation with Head of HH.								
3	Sex (M/F)								
4	Age (yrs.)								
5	Level of education.								
6	Enrolled in school? (Y/N)								
7	Gainfully employed (Y/N)								
8	Earnings per month. (Rs.)								
9	Hospitalization last year (Y/N)								
10	Any major sickness last year								
11	How many days in the year for the sickness?								
12	For how many days was treatment								

	taken?								
13	From where? (Public/ Private)								
14	At what cost? (Rs. /p.a.)								

E. Health Related Information:

a) Maternal Health:

1. # of deliveries performed in the HH: _____ so far.
2. # of children survived: _____ (out of the above)
3. # of children died during the delivery: _____
4. # of deliveries attended by *Dai*: _____
5. # of deliveries in hospital: _____; Govt. _____; Private: _____
6. Did the mother get antenatal checkups? Yes/No; _____ times.
7. Did the mother receive any injection / vaccination? Yes/No;
Any medicine? Yes/No
8. Did the mother die at the time of delivery? Yes/No; which delivery?

9. Was THE delivery attended by a *Dai* / Nurse/ doctor? Yes/No

b) Infants' Health (below 1 year):

1. Is the infant looked after regularly by any health worker? Yes/No;
How often?
_____/week; Examination? Yes/No; Weight? Yes/No; Medicines?
Yes/No

2. Are you aware about supplementary feeding program/ *Anganwadi* workers /

Any govt. program for your infant? Yes/No; Which ? -

3. Any emergency so far? Yes/No; What? _____

c) Child Health:

1. # of children surviving below 5 years: _____

2. # of children died within one year of birth: _____

3. # of children died before reaching 5 years of age: _____

4. Did the children receive immunization/ vaccination/ *Tika*?:
Yes/No

5. Do children (below 5 yrs.) suffer from:

○ Fever: Yes/No; _____ times/year.

○ Stomach related: Yes/No; _____ times/year.

○ Malaria: Yes/No; _____ times/year.

○ Respiratory Disease: Yes/No; _____ times/year.

D) Medical Facilities:

1. Are you satisfied with existing medical facilities in your village?
Yes/No

2. Do you go to the Govt. PHC/ CHC/ Town Referral/ Private Doctor/
Tantrik?

3. When you visit, is the doctor available? Yes/No

If No, what do you do? / Go to private doctor/ Tantrik/ Nothing.

4. Reasons for not visiting Govt. Health Facility:
 Absence of Doctors and medical personnel? Yes/NO;
 Medicines not available? Yes/NO;
 Poor quality of service? Yes/NO;
 Poor infrastructural Facilities? Yes/NO;
 Attitude/Behavior of the doctors and medical personnel?
Yes/NO
 Distance to the Health Facility? Yes/NO;
 Congestion/Overcrowding in the Health Facilities? Yes/NO.
5. What is the distance you travel for medical facility? _____ k.m.
6. On the whole, how do you rate the medical facilities available to you? By Govt. _____; by Private Sector: _____
 (Excellent - 5; Very good - 4; Good - 3; Fair - 2; Poor - 1; Very poor - 0)
7. Is there a VHW working in the village SC? Yes/No.
 Is she from the same village? Yes/No.
8. According to you, with presence of VHW (Village Health Worker),
- i) Has the working of the SC improved due to the VHW?
Yes/No.
 - ii) Is there any improvement in your use of services of government health facilities? Yes/No.
 - iii) What kind of services do you receive from the VHW?
 Delivery? Yes/No ; Ante-Natal Care? Yes/No ;
 Post-Natal Care? Yes/No ;
 Immunization of Children? Yes/No.

- iv) When does the VHW come to your place?
Voluntarily/ When approached/ Does not come at all
- v) What kind of information does the VHW Provide you provide you with? Very useful/ Somewhat useful/ Not so useful.

9. Was there any delivery in the household during the last one year?
Yes/NO

- i) If Yes where was it conducted? Govt Hospital/ Private Hospital/ Home.
- ii) Did the VHW accompany the mother to the hospital?
Yes/NO
- iii) Do you have any idea of any incentives provided by government for conducting delivery at the Govt. Health Facilities? Yes/No.
- iv) Did the mother receive any money from the government before the delivery? Yes/NO ? or After Delivery?
Yes/NO

If Yes how much? Rs. 500? Yes/NO; Rs. 700? Yes/NO;
Rs.3000? Yes/NO (before delivery) _____(no. of

times)

Rs.3000? Yes/NO (after delivery) _____(no. of

times)

- v) How much time did it take to reach you? _____.

10. Are there any pregnant women in the HH? Yes/NO

If *Yes* do they receive any financial assistance (money) from the Govt. ? Yes/NO.

Do they receive Ante-Natal Care from VHW? Yes/NO

F. Education Related Information

Number of children eligible for schools

(>5)

	1	2	3	4
Age				
Sex				
Going to school? (Govt./ Pvt./ No)				
Distance to school in k.m.				
Is cash subsidy given (Rs. / No)				
School uniform given? (Y/N)				
Text books given? (Y/N)				
School supplies given? (Bag, notebook, pencil, etc.) (Y/N)				
Mid-Day meal given? (Y/N)				
Food grains given? (Y/N)				
Transport provided? (Y/N)				
Library available? (Y/N)				
Sports facilities available? (Y/N)				
Attending the school regularly? (Y/N)				
Does teacher come regularly? (Y/N)				
If not attending school, why? @				
Are you satisfied with the school facilities? (Low/Medium/High)				
What is the cost of studying in Rs./p.a.				
Fees				
Private Tuition				
School supplies & text books				
@ HH activities - HH; Employment - Em; Sickness - Sk; Marriage - Ma; No interest - Ni; Irregularity of teachers - It; Behavior of teacher - Bt; Others - Ot (specify).				

APPENDIX B

Methodology and Questionnaire For Sample Survey of HFs

With a view to gaining good understanding of the ground realities in the operation and conduct of different levels of health facilities in rural areas of Tamil Nadu, we decided to personally visit, discuss matters with staff and obtain some information on the working from a sample of HFs. We had selected Villupuram district from the state. We had selected 5 villages from the district for our household survey. We decided to survey the HFs in and around these villages in such a way that we get reasonably diverse facilities in our sample. The following types HFs were surveyed by us in the months of April, 2008:

Facility / Type	Villupuram District
Public Facilities : CHC	5
PHC	10
SC	15
Private Facility	8
Total	38

Although, we used a formal questionnaire (given below), we carried out extensive discussions and observed things during our personal visits to gain better insights.

Health Facility Questionnaire (Tamil Nadu)

(For "Scaling up Services in Rural India" project by the Earth Institute,
Columbia University)

Village: _____; Tehsil: _____; District: _____; State:
_____; Head of institution: _____; Investigator:

General

Name of the Facility/Institution: _____

Type of Facility: VHW/Sub-Centre/PHC/CHC/Others

Managed by: Panchayat/District Panchayat/ District Administration/ Private

Timings of the Facility: from _____ to _____; Building: Own/Rented
Number of Rooms: _____;

Number of beds: _____ ; Bed utilization rate: _____

Electricity Supply: _____hrs./day; Water Supply: Tap/Well/bore/others

Functional Generator Y/N; Toilet Y/N; Labor Room Y/N;

24 Hrs Delivery Facility Y/N; All Weather approach road Y/N

Telephone Y/N; Operation Theatre: General Y/N & Gynaec Y/N

Linkage with Blood Bank Y/N;

No. of Employees in the Facility:

General Physician: _____ Pediatrician: _____ Gynecologists: _____
Anesthetist: _____ Other Doctors: _____ ANMs: _____ Staff
Nurses: _____ MPW (Male): _____ HA: _____ LHV: _____
Attendants: _____ Lab technician: _____ Radiographer _____
Pathologist: _____ VHW/ASHA: _____ Others: _____

The Health Facility has _____ vehicles: No. of Drivers _____

Are Doctors provided with residence: Yes/No

Are Nurses provided with residence: Yes/No

Who is available at night in the Health Facility?

Doctor: - Yes/No; ANMs/Nurse: - Yes/No; Attendants: - Yes/No;
Others:- _____

Does the Health Facility have its own medicine store/stock? Yes/No

Is it functional? Yes/No

Does the medical team visit the villages at regular intervals? Yes/No

Do Medical Representatives of companies visit the doctors? Yes/No

Does the health facility receive the 'Rogi Kalyan Samiti' (Patient Welfare Society) yearly fund? Y/N. Amount: _____ (Rs.)

Person in charge of funds. _____ (Designation)

Major Heads under which the funds are spent:

1. _____ 2. _____

3. _____ 4. _____

Is the money spent on maintenance of the Health Facility? Y/N

Are there any other needs not fulfilled with the use of the fund? Y/N.

Details: _____

Major diseases prevailing in the village/area:

1. _____; 2. _____; 3. _____;
 4. _____ (Area Specific Disease).

How many outdoor patients come to the Health Facility per day? _____

Is there any increase in the outdoor patients after NRHM being introduced?
 Yes/NO

Do you find the following diseases on the rise in your area?
 Type II diabetes? Yes/NO Blood Pressure? Yes/NO

Is there a practice of measuring blood pressure of patients visiting the health facility of age more than 35/40? Yes/NO

Various charges levied by the health facility:

Details of Charges	Yes/No	Amount (Rs.) with details
Consulting		
Medicines		
Injections		
Glucose Saline		
Bed Charges		
Delivery (Normal) (Caesarean)		
Laboratory -Malaria T.B Jaundice X-Ray		

How do you rate awareness of village people towards the medical facilities here? : - Excellent/Very Good/Good/Fair/Poor /Very poor

How would you rate the health facilities in terms of quality? :-
Excellent/Very Good/Good/Fair/Poor/very Poor

In your opinion, Will the situation improve, if management and oversight functions are shifted to: Village Panchayat/ District Panchayat/ District Administration? Y/N

How many private Health Facility beds nearby (5 km radius)?
(Registered) _____; (Unregistered) _____

How many private Doctors nearby (5 km radius)? (Registered) _____
(Unregistered) _____

Number of patients hospitalized last year: _____,

What in your perception are the important causes for health problems in the village?

Drinking water Problems: _____%; Sanitation problem: _____%; Drainage problem: _____%; Lack of cleanliness (hygiene): _____%; Climate/seasonal factors: _____%; others (specify): _____%; (*Total should be 100%*)

Infant/Child Health:

How many children in the village suffer from malnutrition? (Get the data from ANM): _____%

Do the parents report such cases in the Health Facility? Yes/No

Is the village covered under Supplementary Nutrition Program? (Ask ANM): Yes/No. Number of children covered last year: _____.

In case of severity of the disease, which is the nearest referral Health Facility? : Distance in K (in hrs. and minutes): _____;

How long does it take to travel? _____

Estimates of episodes for the following diseases per child per year:-

LRI / ARI: - _____ Diarrhea: - _____ Fever: - _____

Eye/Ear Infection: - _____ Bacterial Infections: - _____

Prevalence of feeding problem for infants: _____%

Problem of low birth weight among the infants? : _____%

Total number of children (less than 5 years) in the village: - _____
Total number of live births in the village during the last year: - _____
Total number of death of children last year --
of age < 1 week _____; of age < 1 month _____;
of age < 1 year _____; of age < 5 years _____.
What in your opinion is the major cause of child deaths here?

On Maternal Health

Nature of complications during pregnancy (number of cases):-

Severe anemia: - _____ Syphilis: - _____
STDs: - _____ Miscarriages: - _____
Caesarean: - _____

How many are reported to the Health Facility? _____%

How many are receiving antenatal care and advice? : _____%

How many are having access to EmOC(Emergency obstetric care)? : _____%

How many deliveries performed by skilled attendant in this village? :
_____%

Is there any practice of providing postnatal advice/care to the new mothers
by the Health Facility staff? : Yes/No

What is your opinion about the awareness of the villagers on family planning?
Very much/Much/Average/Fair/Less/No

How many people come forward for family planning voluntarily? : _____%

Are the families provided with incentives for undergoing family planning
operation? Yes/No: -

How much? : - Rs _____, Cash and/or Rs _____, kind

Is there any incentive for the Health Facility staff for achieving family
planning targets? Yes/ No; What? _____

Is there any target given to the Health Facility for family planning?: Yes/ No

How many Abortions were conducted during last year? _____

- Do parents care equally for the healthcare of a boy and a girl child?
Yes/No
- Is there a preference for a boy child over a girl child? Yes/No

Village Health Worker (VHWs/ASHA):

- What are the major norms/criteria followed for appointing a VHW/ASHA worker for a village? (Ask the doctor at PHC/CHC)

1. _____ 2. _____

3. _____ 4. _____

- Are the roles and responsibilities of the VHWs/ASHA clearly defined to them? Yes/NO
- In your opinion are there any conflicts in the working of the VHWs and other functionaries such as ANMs, Anganwadi workers existing in the villages? Yes/NO

Ask VHW

- Is the VHW from the same village/Mandal? Yes/No
- Do you have any relatives in the village? Yes/NO
- Age____; Education of VHW _____; Cast? SC/ST/OBC/Gen;
Population Covered_____; Working from? _____

- Is the VHW clear about her job and role as in
 - a. Creating health awareness among people regarding nutrition, sanitation, cleanliness etc. Yes/No
 - b. Mobilizing community for their better access to public health facilities. Yes/No
 - c. Counseling women on birth preparedness and safe delivery, family planning, care for infants. Yes/No
 - d. Accompanying pregnant women and arranging escort for pregnant women/children to the nearest health facility. Yes/No

- Are there other government functionaries working in the village? ANM? Yes/NO; Anganwadi Worker? Yes/NO; PHC? Yes/ NO Panchayati raj officials? Yes/NO.

- If *Yes* are your responsibilities clear to you? Yes/NO

- Are there any conflicts between you and above functionaries regarding the work in the village? Yes/NO

- Is the VHW provided with :

ORS? <u>Yes/No</u>	Iron Folic Acid (IFA)? <u>Yes/No</u> ;
Chloroquin? <u>Yes/No</u>	Disposable Delivery Kits? <u>Yes/No</u> ;
Oral Pills? <u>Yes/No</u>	Refills for Kits? <u>Yes/No</u> ;
Drug Kit? <u>Yes/No</u>	Condoms? <u>Yes/No</u> ;

- Does the VHW receive adequate support and coaching from Supervisors Yes/No, Village Panchayat Yes/No, PHCs Yes/No,

- Is the VHW sent for training before joining? Yes/No
Duration _____

- How useful is the training? Very Useful/ Useful/ Not so useful

- Average Monthly remuneration of VHW (Rs) _____.

- Incentives: Amount (Rs.) received per month (ask details of payment)

Incentive	ANC	Checkup by Doctor	Instant Delivery	PNC	Immunization of Children	Family Planning	Total
Amt (Rs.)							
Details							

- Is the VHW happy with her job? Yes/No; Any grievances? Yes/No

H. Investigator's Notes / Observations:

Please ask about regularity and punctuality of doctors / nurses; their behavior with patients, patients behavior with the doctors, nurses and others etc.

What are the problems of the quality of drinking water in the village?