Scaling up Primary Education Services in Rural India:
Public Investment Requirements and Policy Reform

Case Studies of Andhra Pradesh and Karnataka

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Abstract

We attempt to address two key questions in this paper: 1) In terms of state-wide scaling up of rural services (in Andhra Pradesh, and Karnataka) in the area of primary education, what will it cost financially and in terms of human resources to scale-up these services in all the rural areas of these two states? 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 schools, 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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During the week of December 10, 2007, Nirupam Bajpai presented this paper to the Honorable Dr. Manmohan Singh, Prime Minister of India, Montek Singh Ahluwalia, Deputy Chairman, Planning Commission of India, Dr. Y S Rajasekhara Reddy, Chief Minister of Andhra Pradesh and Principal Secretaries of Education of Andhra Pradesh and Karnataka.

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Key Recommendations

On an All-India level, there are roughly 200 million children in the 6-14 age group, of which only 120 million are in schools and net attendance in the primary level is estimated to be merely 66 percent of enrolment. While in Karnataka, for example, nearly 98 percent of children are enrolled in schools, as high as 86 percent graduate from Grade 8, but this is not so in Andhra Pradesh. Among other factors, lack of learning in the classrooms is one of the key reasons for this outcome. In general terms, while it seems that DPEP and SSA have been quite successful in enlarging the coverage of primary schools, however, it is the quality of teaching in the rural public schools that is in need of the most attention.

In Karnataka, several efforts are underway to address quality of teaching in the public schools - the assessment of learning levels done by the Karnataka School Quality Assessment Organisation (KSQAO) in 2006 on census basis and in 2007 on 25 percent coverage basis; preparation of School Academic Plans for improvement of learning levels and the Kalika Andolana campaign to identify the children with lowest learning levels and give them one hour of extra teaching by the teachers after/before class hours.

Our estimates suggest that additional requirement of financial resources is Rs.13 billion in Andhra Pradesh (AP) and Rs.3 billion in Karnataka to scale up the rural services in primary education. On a per capita basis, it works out at Rs.154 in AP and only Rs.55 in Karnataka. While rural Karnataka has the physical infrastructure largely in place requiring very little additional effort, rural AP needs to step up its physical infrastructure considerably.

AP needs to focus more on construction of more schools and making available more classrooms per school and hiring more teachers, areas where Karnataka seems to have achieved a fair bit. Both AP and Karnataka need to pay greater attention to two other aspects: one, to get all the children from the poor families and special focus groups, such as girls and children from the SC and ST communities that are out of school into school and two, to strive much harder to attain and sustain higher levels of quality in their primary schools. While the former may require measures, such as higher levels of financial incentives for poor parents to send their children to school, improved quality and quantity of the mid-day meals being provided, and wide-ranging awareness programs, the latter may require drastic changes in the learning methods and techniques, making classroom activities more experimental and enjoyable for the children, improved teacher training, and of course upgrading the school infrastructure.

We recommend the following areas for much greater attention: school infrastructure, including more classrooms, a kitchen room, separate toilets for girls' in all the schools and a boundary wall for every school, curriculum and instructional resources, stricter control over and improved oversight of teachers' improved and rigorous teachers' training, and improved quality and quantity of mid-day meals.

In Andhra Pradesh, schools with fewer rooms should run in two shifts making better use of resources. There is likely to be resistance from regular teachers, but it has to be overcome, if

needed, by the use of para-teachers from the village itself. If the timings of the classes are decided in consultation with Village Education Committees (VEC) and the Ward Education Committees (WEC), the problem of early dropout of children on economic considerations can also be resolved. This will improve the quality of education by removing the congestion and overcrowding due to simultaneous running of classes in the same room. In Karnataka, the shortage of classrooms is estimated to be met more than 97 percent by end 2007-08. Hence need for shift system may not arise in Karnataka.

Rural areas of AP and Karnataka do not have severe shortfall in terms of physical facilities and access of population. The problem is more in terms of improving the quality of services in public schools. The basic physical infrastructural facilities like water, electricity, classrooms, toilets, etc., are very important determinants of the learning environment. All such facilities need to be adequately and urgently provided. This requires a multi-departmental or "integrated" approach. If coordination among education, health, power, construction (PWD), roads, transport departments, is not possible at a higher level, education department will have to take on responsibility of all these activities to provide a comprehensive solution.

There is a technical hitch in budget making at the state level. It is widely known that most of the revenue expenditure on education consists of teachers' salaries. However, this is considered a non-plan expenditure item in the state budget. In the overall environment of severe resource crunch and constant pressure under Fiscal Responsibility and Budget Management (FRBM) concerns even at the state level, the non-plan expenditures are always the easy targets for the cuts. That is how, sanctioned posts of teachers in primary and secondary schools are allowed to remain unfilled for years leading to the serious scarcity of teachers in the public schools. Currently, these vacancies are filled on ad hoc temporary basis by para-teachers (not in Karnataka) who are paid almost one-fourth or less of the salary of a regular teacher. Karnataka, on the other hand, has filled 95 percent of primary school teacher posts. Recruitment for the remaining 5 percent posts is expected to be completed by end January 2008. Hence need for para teachers would not arise in Karnataka. While this is a reasonable solution to save public resources in the short run, it may not work in the long run unless a new scale/cadre of para-teachers is formally established in the government. Another "solution" is to convert the salaries of teachers into a plan expenditure item.

Another powerful solution to the problem of resources is to encourage private participation in building and running schools. As the draft Approach Paper of XI Plan (2006) suggests, the weaker sections of the society can be given coupons and thereby a choice of choosing the school for their kids. This can take off a lot of financial burden from the government. We have seen that in the private sector schools, the number of teachers per school, classrooms per school, students per teacher, and students per classrooms are far better than the public schools. The government needs to take a policy stance to positively encourage private schools to expand their scale and area of operation by providing appropriate incentives, establish inspection norms, admission criteria and procedures, etc. The idea is for the government not to withdraw, but provide competent and qualitative benchmarks for the private schools through their illustrative presence in different areas. The expansion of employment of teachers and helpers can largely take place in the private sector if proper policies are followed to allow some of the public primary schools to be taken over by the private management.

To improve the quality of regular teachers, annual grant for 20 days training is recommended. For para-teachers, annually 30 days of training is suggested.

There is an urgent need to streamline the administration for providing caste certificates to all SC/ST and OBC families. If the government thinks that these families need concessions and

subsidies/incentives, they must first be properly identified and certified so that they do not have to incur disproportionate resources to obtain such certification. Otherwise, the scheme becomes wasteful, discriminating and unjust for the real target group.

For public schools, the teachers must stay in the respective village itself and not in a radius of a 5 or 10 kms. This is because once a distance of 5 or 10 kms is allowed, it becomes almost impossible to monitor whether it is 5 kms, or 50 kms, in practice.

Every primary public school should maintain a small garden/compound and should have a helper to take care of cleaning, cooking, gardening, etc.

Notebooks and pencil/pen should also be provided free to children besides textbooks. These subsidies may be targeted to SC/ST/OBC/BPL family children only and not be made available indiscriminately.

Private schools need to be properly supervized and inspected regularly for the quality of their education services and physical infrastructure.

Grants for repairs/maintenance and facilities to schools should be determined by the size of the school and needs of the schools.

Government administration needs to be sensitive to teachers' conditions and be efficient in disbursing salaries to them when transferred.

State governments can think of collecting small fees from the non-target group population to provide better facilities like library, play ground with toys and sports equipments, small laboratory equipments for conducting experiments prescribed in their environment textbooks, etc.

In terms of furniture, the schools need to be better equipped. They should have one steel cupboard per classroom, a table and a chair per classroom, and a table and three chairs for the office room. Currently none of these are available. Moreover, students in rural areas may not sit on benches in the government schools, but can certainly sit on carpets. Similarly, separate toilets for boys and girls should be constructed on an urgent basis in very school.

Para-teachers should be given rigorous training for 30 days in a year and should be paid the same allowance (Rs.70 / day) as the regular teachers. Moreover, they should also be given the teaching contingency on par with regular teachers (Rs.500 p.a.) on completion of one academic year.

Labor laws need to be reformed. The total number of leaves in a year that a regular teacher is entitled to is far in excess of what can be tolerated in an essential service like primary education. Moreover, the practice of having half-a-day casual leave also doubles the number of casual leaves effectively. This contributes to teachers' absenteeism, insincerity and irregularity ultimately discouraging students and harming the cause of education. Such laws need immediate revision.

With regard to the Panchayati Raj Institutions, (PRIs) and their ability to deliver, 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 schools? Are there regular (on an on-going basis) 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?

We suggest an education sector strategy for India that is based on the objectives of the Sarva Siksha Abhiyan (SSA) not only at the national level, but also more importantly at the state and district levels. States and districts should strive hard to attain the goals laid out in the SSA, especially for the laggard states and districts, with particular focus on the 150 most backward districts of the country. Based on SSA's national goals, state governments should announce targets for education to be met at the state and district levels by the year 2010.

We suggest that the central government should plan to convene a meeting of Chief Ministers and Education Ministers of all Indian States in 2008 to discuss how the states will meet the education targets of SSA. This meeting will allow states to present their most successful initiatives, so that all states can adopt "best practices" in public education.

Scaling up Primary Education Services in Rural India:
Public Investment Requirements and Policy Reform[1]

Case Studies of Andhra Pradesh and Karnataka

Nirupam Bajpai, Ravindra H. Dholakia and Jeffrey D. Sachs[2]

This report is based on the work undertaken during Year III of a four-year project on scaling up primary education services in rural India. The report focuses on two states: Andhra Pradesh (henceforth AP) and Karnataka. Nalgonda district in AP and Chitradurga district in Karnataka were taken up for in-depth studies. Furthermore, detailed questionnaires were administered in five villages in each of the two districts 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 Andhra Pradesh and Karnataka) in the area of primary education, what will it cost financially and in terms of human resources to scale-up these services in all the rural areas of these two states? 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 primary schools, 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

[1] This report is based on the work undertaken 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.

[2] Nirupam Bajpai is Senior Development Advisor and Director of the South Asia Program at CGSD. Ravindra H. Dholakia is Professor of Economics at the Indian Institute of Management at Ahmedabad in India. Jeffrey D. Sachs is Director of the Earth Institute at Columbia University and Special Advisor to the United Nations Secretary General, Ban Ki Moon.

The authors are very grateful to Puja Thakker for field work and research assistance. We are also grateful to Shreekant Iyengar for providing valuable support in field survey of households and education facilities by supervising the operation and then collating and tabulating the data and preparing useful notes based on discussions and observations. Raju Patel and Atul Mehta also helped in primary and secondary data collection and in data entry. The authors are also grateful to Government officials of Andhra Pradesh and Karnataka in general and District Collectors – K Vijayanand of Nalgonda district and Amlan Biswas of Chitradurga district in particular and authorities of selected schools, and respondents from selected households for their cooperation and support. We are particularly grateful to Mr. T M Vijay Bhaskar, Secretary, Primary & Secondary Education, Government of Karnataka for providing us detailed comments on an earlier draft.

The draft Approach Paper of the 11th Five Year Plan (2006) in India states, "A central part of the vision of the 11th Plan must be to extend access to essential public services such as health, education, clean drinking water, sanitation, etc., which are currently denied to large parts of our population especially in rural areas. The provision of good quality education is the most important equaliser in society and it is time we launched a major effort in this area" (p.75). It considers the essential public services of health and education as critical inputs determining the growth potential of the economy in the long term. The draft Approach Paper (2006) clearly asserts that "Governments at different levels must ensure provision of these services" (p.1). However, it also recognises on p.46 a need to enable people with appropriate entitlements to choose between public and private schools by promoting some competition to increase efficiency and effectiveness of the services. The Planning Commission, thus, considers the problem of scaling up of primary education services in the rural areas as not only of critical importance in the long term growth strategy, but also has an open mind about the modality of its provision. It has shown awareness about several problems associated with the service delivery in this sector (see p.4 and pp. 45-47), and has explicitly recognised that in this sector, the major problem is of quality rather than of quantity per se. Only then, the proposed shift of emphasis from outlays to outcome would be meaningful.

Primary education cannot be considered to be a public good because it does not meet the theoretical criteria of non-rivalry in consumption, non-excludability and externality. However, in most of the developing societies it is considered as a merit good because its universal consumption has a high intrinsic value determining the physical quality of life in the society. The Planning Commission in India (2006), moreover, considers it as an important equaliser and a determinant of future growth. There is a strong case for its public provisioning or budgetary support for its provisioning. In this context, the present paper attempts to estimate the efforts needed to scale up primary education services in the rural areas of Andhra Pradesh (AP) and Karnataka both in financial and physical resources required and changes in policies, institutions and practices needed. According to the data published by the Directorate of Adult Education, nearly 70 percent of the illiterate population in the country are in eight states of UP, Bihar, Andhra Pradesh, West Bengal, Maharashtra, Rajasthan, Madhya Pradesh and Karnataka. Thirteen states including Chattisgarh, Madhya Pradesh, Assam, Orissa, Meghalaya, Andhra Pradesh, Rajasthan, Madhya Pradesh, UP, Jammu and Kashmir, Arunachal Pradesh, Jharkhand and Bihar have literacy rates below the national average of 64.8 percent.

In the next section we briefly discuss the status of primary education services in AP and Karnataka with emphasis on rural areas. The third section discusses the results of our sample survey of households, and the fourth section describes the findings of our primary school survey. The fifth section attempts estimates of the financial and human resources required for scaling up the primary education services in rural AP and Karnataka. The sixth and final section concludes the paper with our recommendations for improving the delivery of the service in rural AP and Karnataka.

II. Primary Education in AP and Karnataka – Status Report

AP, the fifth largest State in India with an area of 276,754 square kilometres, was formed on 1st November, 1956 under the States' reorganization scheme. It accounts for 8.4 percent of India's territory and has a long coastline (972 km). The state has a variety of physiographic features ranging from high hills, undulating plains to a coastal deltaic environment.[3]

The National Institute of Educational Planning and Administration (NIEPA) developed the District Information System for Education (DISE), which had been adopted by Twenty-eight States & UTs by the year 2005. Its report for the year 2004-05 titled "Elementary Education in India: Where Do We Stand: State Report Cards", which was based upon the DISE 2004-05 data presented the State Report Cards on more than four hundred variables across these states. The report covered all the 23 districts of AP and 27 districts of Karnataka. It has divided the schools into two broad categories: Primary (P) (Class/Grade I – V) and Upper Primary (UP) (Class/Grade VI – VIII).

Table 1: Type of Schools and Enrolment in AP, 2005-06

Type of Schools	Govt. or Pvt.	All Areas			Rural Areas		
		Schools	Enrolment	Average Enrolment Per School	Schools	Enrolment	Average Enrolment Per School
Primary only	Govt.	54683	3520778	64	50895	3084212	61
	Pvt.	7476	1594759	213	3570	603160	169
Primary with UP	Govt.	12106	1978550	163	11195	1755415	157
	Pvt.	5184	1020329	197	2772	547415	197
Primary, UP & HS	Govt.	61	36293	595	25	8060	322
	Pvt.	37	35991	973	11	4414	401
UP only	Govt.	0	0	-	0	0	-
	Pvt.	0	0	-	0	0	-
UP & HS	Govt.	9511	1862009	196	8373	1573240	188
	Pvt.	5926	1074231	181	2196	340146	155
No response	Govt.	0	0	-	0	0	-
	Pvt.	0	0	-	0	0	-

Note : P=Primary; UP=Upper Primary; HS=Higher Secondary; Govt.=Government; Pvt.=Private

Source:http://www.dpepmis.org

[3] http://www.aponline.gov.in/quick%20links/apfactfile/apfactmain.html.

Table 2: Type of Schools and Enrolment in Karnataka							
Type of Schools	Govt. or Pvt.	All Areas			Rural Areas		
		Schools	Enrolment	Average Enrolment Per School	Schools	Enrolment	Average Enrolment Per School
Primary only	Govt.	24288	1222139	50.3	22634	1072461	47.4
	Pvt.	2700	217687	80.6	1527	104972	68.7
Primary with UP	Govt.	19362	3790882	195.8	16821	3117832	185.4
	Pvt.	5598	1226804	219.2	2406	429781	178.6
Primary, UP & HS	Govt.	226	55956	247.6	150	30769	205.1
	Pvt.	1042	283821	272.4	253	52939	209.2
UP only	Govt.	221	40887	185.0	154	26617	172.8
	Pvt.	212	32077	151.3	110	9675	88.0
UP & HS	Govt.	107	10187	95.2	72	6905	95.9
	Pvt.	158	30112	190.6	48	6481	135.0
No response	Govt.	169	3670	21.7	4	416	104.0
	Pvt.	2	244	122.0	0	0	-
Note : P=Primary; UP=Upper Primary; HS=Higher Secondary; Govt.=Government; Pvt.=Private							
Source:http://www.dpepmis.org							

Tables 1 and 2 show the total schools and enrolment in Karnataka and AP. We can see that in AP the enrolment is quite high among the rural government schools [average enrolment of approximately 97 students per school]. Enrolment of girls as compared to boys in AP is also very high relative to the national average. As per DISE, the average of 581 districts indicates a GPI[4] of 0.92 in primary classes/grades and 0.84 in case of enrolment in upper primary classes/grades in 2005 whereas AP had a GPI of 0.98 for primary classes. The percentage of Upper Primary schools attached to Secondary and Higher Secondary schools in the country is only 5.68 and it was 4.91 in the previous year. But, this percentage is as high as 15.2 in AP. This makes administration easier.

Out of the total schools in the country, 20 percent schools (2, 23,121 schools) in 2006 are under Local Body management. This percentage is as high as 73 in Andhra Pradesh which shows that the local bodies in the state are quite active in the field of education. But, in spite of this, AP is still very far from achieving the goal of providing physical access (availability) of a primary school in almost every square kilometre set by the Sarva Shiksha Abhiyan (SSA or Universal Education Campaign). It was seen that a good number of Primary schools in Andhra Pradesh (25%) are located beyond 5 km from the CRC.[5] Karnataka has a high proportion (50%) of primary schools in 2006 and almost half of them are integrated with Upper Primary schools (46% in 2005-06) as against only 18 percent for the national average. The Programme of Action (1992) envisaged an upper

[4] Gender Parity Index (GPI) is a ratio of Girls GER to Boys GER in a given level of education.
[5] The Cluster Resource Centre (CRC) is the lowest field level structure comprising a group of 10-15 schools that are supervised by a CRC coordinator.

primary school/section for every two primary schools/sections. In 2006 there was an upper primary school/section for every set of 2.57 primary schools/sections at the national level as compared to 2.68 in 2005 and 2.87 in 2004. This ratio is far better for Karnataka (1.98) than the national figure. The state has already achieved the target of an Upper Primary school/section for every two Primary schools/sections.

Single-classroom Primary schools with different standards sitting in the same room simultaneously is the major problem of quality of primary education.

Table 3: Selected Characteristics of Schools in AP

Performance indicators	Primary only		Pry. with U.Pry		P+UP+Sec/HS		Upper P. only		U.P. + Sec/HS		All Schools	
	04-05	05-06	04-05	05-06	04-05	05-06	04-05	05-06	04-05	05-06	04-05	05-06
% Single-classroom schools	34.5	37.0	3.4	2.7	0.0	0.0	0.0	0.0	0.9	0.7	23.7	24.8
% Single-teacher schools	8.5	10.1	0.2	0.3	0.0	1.0	0.0	0.0	0.2	0.5	5.7	6.8
% Schools with SCR > 60	10.9	9.0	19.3	14.0	2.5	0.0	0.0	0.0	4.7	3.3	11.4	9.0
% Schools with pre-primary	6.8	6.8	15.9	17.4	47.0	28.6	0.0	0.0	0.0	0.0	8.5	8.9
% Schools with common toilets	47.3	51.9	67.2	71.9	62.5	63.3	0.0	0.0	60.3	61.1	52.9	57.0
% Schools with girls toilets	25.9	28.1	53.4	56.6	92.2	98.0	0.0	0.0	68.6	72.0	37.5	40.5
% Sch. with drinking water facility	65.1	71.5	83.5	87.9	92.9	99.0	0.0	0.0	86.6	90.6	71.8	77.6
% Schools with ramp	5.0	6.4	8.0	9.3	15.0	17.3	0.0	0.0	10.0	10.7	6.0	7.7
% Enr. in single-teacher schools	3.2	3.9	0.1	0.2	0.0	0.2	0.0	0.0	0.1	0.3	1.5	1.9
% No female tch. schools (tch>=2)	33.8	32.3	14.1	13.2	14.1	0.0	0.0	0.0	12.8	10.9	27.0	25.3
% Enr. in schools without building	5.3	2.7	1.8	0.3	6.0	0.0	0.0	0.0	4.1	1.6	4.1	1.8
%Enr. in sch. without blackboard	0.0	5.6	0.0	3.9	0.0	14.8	0.0	0.0	0.0	7.0	8.3	5.6
Avg. no. of teachers per school	3.1	3.0	7.3	6.9	30.7	37.0	0.0	0.0	10.3	9.9	7.6	4.9
% Enrolment in Govt. schools	71.6	68.8	67.5	66.0	23.8	50.2	0.0	0.0	67.2	63.4	68.7	66.5
% Girls enrolment	49.8	49.9	48.2	48.2	45.8	46.9	0.0	0.0	47.3	47.7	48.7	48.8
Pupil-teacher ratio (PTR)	28	27	25	25	20	20	0	0	19	19	49	24
Student-classroom ratio (SCR)	34	31	34	30	25	23	0		25	24	31	29
% Schools with <=50 students	48.9	52.2	3.6	2.6	7.8	0.0	0.0	0.0	0.0	3.9	38.0	35.3
% Schools with PTR > 100	0.5	0.5	0.5	0.3	1.1	2.0	0.0	0.0	0.2	0.3	0.4	0.4
% Female teachers	44.4	45.3	40.4	41.3	64.4	59.9	0.0		38.0	39.6	41.7	42.3
% Schools established since 1994	28.4	32.1	28.2	36.9	10.6	12.2	0.0	0.0	30.6	40.5	41.7	34.3

Source: Same as Table 1; AP has 4.62% Primary + (P + UP) schools without building.

Table 4: Selected Characteristics of Schools in Karnataka

Performance indicators	Primary only		Pry. with U.Pry		P+UP+Sec/HS		Upper P. only		U.P. + Sec/HS		All Schools	
	04-05	05-06	04-05	05-06	04-05	05-06	04-05	05-06	04-05	05-06	04-05	05-06
% Single-classroom schools	23.6	18.8	0.5	0.7	0.5	0.5	1.2	2.1	0.4	0.0	12.0	9.7
% Single-teacher schools	17.1	16.9	0.4	0.4	0.7	0.7	1.9	1.8	1.9	1.9	8.8	8.7
% Schools with SCR > 60	4.4	4.1	9.4	7.4	4.5	4.4	10.4	6.0	8.5	4.2	6.9	5.6
% Schools with pre-primary	22.2	39.7	31.5	51.4	74.1	77.8	0.0	0.0	0.0	0.0	27.7	45.9
% Schools with common toilets	37.4	47.7	80.2	77.8	92.9	89.8	74.2	69.5	89.5	82.6	58.9	62.8
% Schools with girls toilets	23.3	28.1	57.9	55.5	88.2	87.5	57.6	58.7	83.7	81.5	41.3	42.6
% Sch. with drinking water facility	72.9	70.1	90.2	89.4	96.5	94.7	90.3	87.8	95.3	93.2	81.5	79.7
% Schools with ramp	2.0	7.8	4.0	21.1	7.0	15.8	5.0	14.3	6.0	14.3	3.0	14.2
% Enr. in single-teacher schools	8.9	9.7	0.2	0.1	0.2	0.4	0.6	0.8	1.1	1.4	1.8	2.2
% No female tch. schools (tch>=2)	29.9	29.5	13.9	13.8	3.9	4.0	22.3	21.7	10.1	9.8	21.6	21.4
% Enr. in schools without building	1.9	1.0	0.2	0.6	0.1	0.6	1.3	0.7	0.1	0.5	0.5	0.0
%Enr. in sch. without blackboard	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	3.6	0.2
Avg. no. of teachers per school	2.2	2.2	6.3	6.2	7.1	7.1	5.7	5.6	6.8	6.6	8.5	4.2
% Enrolment in Govt. schools	85.5	84.9	74.7	75.6	16.0	16.5	59.0	56.0	26.6	25.3	73.0	74.3
% Girls enrolment	49.4	49.0	48.2	48.6	44.9	45.6	47.5	47.4	44.0	46.5	48.2	48.5
Pupil-teacher ratio (PTR)	25	24	38	32	48	38	38	30	34	23	48	30
Student-classroom ratio (SCR)	25	24	37	34	28	26	40	33	26	22	33	31
% Schools with <=50 students	65.3	65.5	7.5	17.9	7.9	26.7	0.0	32.1	0.0	45.7	37.0	42.4
% Schools with PTR > 100	0.5	1.3	0.5	0.8	0.8	1.3	0.9	2.3	2.7	4.9	0.5	1.1
% Female teachers	44.0	44.1	51.7	51.7	72.6	72.7	51.9	51.9	54.0	53.5	50.5	50.6
% Schools established since 1994	31.9	34.4	6.5	7.8	16.2	19.6	11.4	12.5	28.7	31.7	50.5	21.4

Source: Same as Table 2; Karnataka has 1.15% Primary + Upper Primary Schools without building.

Moreover, most of the single-classroom schools have only one teacher and that makes the task of teaching even more difficult. Tables 3 and 4 above give selected characteristics of schools in AP and Karnataka. 37 percent of primary schools in AP still have one classroom only. It is more disturbing to note that this number has increased during the period from 2004-05 to 2005-06 for primary schools. The figure for single-teacher primary schools has deteriorated from 8.5 percent to 10.1 percent between 2004-05 and 2005-06 although it is much better than the national average of 16.6 percent. A lot needs to be done in this regard to bring AP at par with other states like Delhi, which has only 0.3 percent of single-teacher schools overall.

In Karnataka we see that 18.8 percent of primary schools still have one classroom only. It should be noted that this number has significantly changed during the period from 2004-05 (23.6%) for primary schools. The figure for single-teacher primary schools has not improved much for the same period (17.1% to 16.9%) and it is close to national average (16.6%). Despite this, the primary schools in Karnataka had almost an ideal pupil-teacher ratio (24:1) whereas the schools across the country had an overall pupil-teacher ratio of 36 for 2005-06 compared to 38 in 2004-05.

A major problem for the girl students is the unavailability of the girls' toilets. Only 28.1 percent of the primary schools and 40.5 percent of all the schools in AP have girls' toilets and although this number has improved marginally from 2004-05 [25.9% for primary schools], the figure has come down in terms of overall schools in AP (37.5% for

2004-05). The pupil teacher ratio [24:1] as well as the student classroom ratio [29:1] are quite healthy and reflect better quantitative aspects about learning environment in the schools. It may help improving quality of teaching in the schools in AP.

A recent exhaustive countrywide survey, the Annual Status of Education Report-ASER 2006, conducted in more than 15,000 villages covering all major states in the country by Pratham, a civil society organisation, points out that 4.2 percent of the children in AP are still out of school. Although, this is better than the national figure (6.6%), AP government should try to reduce this number further. The survey also says that at an all-India level the proportion of children who can read alphabets or more increased to 74.5 percent in 2006 from 70.3 percent in 2005. However, the increase in Andhra Pradesh was 9.6 percent, which makes it the 4th highest among the states in the country. There has also been an increase in the proportion of children of Class I and II who can recognize numbers or do more Maths by 9.4 percent. This number is much better than the national figure of 5.3 percent and this is the 6th highest among the states in India.[6]

The enrolment figures for the primary schools are quite poor. If we look at the percentage of schools having enrolment (including schools with zero enrolment) below 50, we find that the percentage of such Primary schools in Karnataka is 60.2, which is amongst the highest in the country. This is certainly a cause for concern and the state government should take steps to ensure that these figures improve. ASER 2006, by Pratham, revealed that there was a more than six percentage points of shift of enrolment to private schools in Karnataka which was only at the expense of enrolment in government schools because the overall enrolment remained unchanged since the past year. The average number of teachers in the Primary schools in Karnataka (2.05) is much lower than the national average of 2.74 teachers. Moreover, the difference in the levels of learning of the students in the Government and Private schools in Karnataka as per ASER 2006 is substantial. Percentage difference in Class I + Class II children who can recognize numbers or do better in Maths is more than 10 percent in Karnataka which is quite large as compared to the national number of 8.4 percent.

Karnataka is, however, among the few states in India close to achieving the goal of universal primary enrolment. This is borne out by the fact that the NER (i.e., net enrolment rate) in Karnataka (98%) is much higher than the all India average (81.9%). The survey by Pratham shows that 4.9 percent of the children in Karnataka are still out of school. This is better than the national figure (6.6%).

Special emphasis is being laid on the physical infrastructure of the schools which have been opened in the last 15 years or so in AP. 27,826 schools have opened since 1994 and most of these schools (80%) have a pucca (permanent/regular) building. Moreover, more than 90 percent integrated Higher Secondary schools in Andhra Pradesh have pucca buildings. That is perhaps the reason why more than 76.4 percent classrooms

6 http://www.pratham.org/aser2006/Annual%20Status%20of%20EducationReport%20(Rural)%202006%20Full%20Report.pdf.

in primary schools in Andhra Pradesh are in good condition. But, 40.6 percent of the primary schools in the state are still without a boundary wall. These are perhaps the schools which have been built before 1994. Hence, the government should consider improving the infrastructure of the already existing schools also. (Tables 5 & 6 show the condition of classrooms for Karnataka and AP).

Table 5: Classrooms and their Conditions by Types of School, AP 2005-06

Sr. No.	Specification	Type of Schools				
		Only P	P+UP	P+UP+HS	Only UP	UP+HS
1	No. of schools	62159	17290	98	0	15437
2	No. of classrooms (CR)	163302	99308	3103	0	123756
3	No. of other rooms	32913	19949	1255	0	49588
4	No. of CR needing Minor Repair	28088	15492	50	0	17326
5	No. of CR needing Major Repair	10451	5561	12	0	6807
6	Av. No. of CR per school	2.6	5.7	31.7	-	8.0

Source: Same as Table 1.

Table 6: Classrooms and their Conditions by Types of School, Karnataka 2005-06

Sr. No.	Specification	Type of Schools				
		Only P	P+UP	P+UP+HS	Only UP	UP+HS
1	No. of schools	26988	24960	1268	433	265
2	No. of classrooms (CR)	60277	147609	12903	2189	1831
3	No. of other rooms	17158	42641	4634	853	880
4	No. of CR needing Minor Repair	12176	28046	387	315	75
5	No. of CR needing Major Repair	3676.9	10332.6	180.6	94.1	23.8
6	Av. No. of CR per school	2.2	5.9	10.2	5.1	6.9

Source: Same as Table 1.

Like AP, the schools in Karnataka also have reasonably good infrastructure. We find that 83.6 percent primary schools in Karnataka have a pucca building and this number is also very impressive for the primary & upper primary schools (82%) and more than 75 percent integrated Higher Secondary schools in Karnataka also have pucca buildings. More than 70 percent of the classrooms in all categories of schools are in good condition. The percentage of classrooms needing major repair is also very low with the maximum percentage being in the Primary + Upper Primary schools, where 7 percent of the classrooms need major repair. But, these classrooms do not have the basic teaching facilities. It is essential that every classroom should have a blackboard at ground level to ensure participatory teaching-learning activities in the classroom. The DISE data collected in 2005-06 reveals that at the national level about 53.3 percent schools (all categories) have blackboard at ground level in the classroom and Karnataka (61.9%) is among the few states in the country where this number is higher than 60 percent. The national figure has improved in this case whereas the figure for Karnataka has deteriorated.

Table 7: Teachers in Schools, Rural AP 2005-06						
Sr. No.	Specification	Type of Schools				
		Only P	P+UP	P+UP+ HS	Only UP	UP+HS
1	No. of Teachers in Govt. schools	139211	77797	1288	0	92687
2	No. of Teachers in Pvt. schools.	47203	41795	1801	0	60553
3	No. of Regular Teachers	162047	98531	3620	0	135307
4	No. of Para Teachers	24367	21061	3	0	17933
5	No. of Total Teachers	186414	119592	3623	0	153240
6	% of Trained Teachers	88%	88%	88%	88%	88%
7	Regular Teachers Per School (Govt.)	2.2	5.3	21.1	-	8.6
8	Regular Teachers Per School (Pvt.)	5.5	6.6	48.6	-	9.0
9	Enrol. Per Regular Teacher (Govt.)	29.1	30.9	28.2	-	22.8
10	Enrol. Per Regular Teacher (Pvt.)	38.9	29.6	20.0	-	20.1
Note : P=Primary; UP=Upper Primary; HS=Higher Secondary; Govt.=Government; Pvt.=Private						
Source: Same as Table 1.						

Table 8: Teachers in Schools, Rural Karnataka, 2005-06						
Sr. No.	Specification	Type of Schools				
		Only P	P+UP	P+UP+ HS	Only UP	UP+ HS
1	No. of Teachers in Govt. schools	49332	119389	1675	1453	690
2	No. of Teachers in Pvt. schools.	9623	36161	7284	954	1051
3	No. of Regular Teachers	58841	155372	8932	2400	1735
4	No. of Para Teachers	114	178	27	7	6
5	No. of Total Teachers	58955	155550	8959	2407	1741
6	% of Trained Teachers	93%	93%	93%	93%	93%
8	Regular Teachers Per School (Govt.)	2.0	6.2	7.4	6.6	6.4
9	Regular Teachers Per School (Pvt.)	3.6	6.5	7.0	4.5	6.6
10	Enrol. Per Regular Teacher (Govt.)	24.8	31.8	33.5	28.2	14.8
11	Enrol. Per Regular Teacher (Pvt.)	22.7	34.0	39.1	33.7	28.7
Note : P=Primary; UP=Upper Primary; HS=Higher Secondary; Govt.=Government; Pvt.=Private						
Source: Same as Table 1.						

The general problems faced by the government schools across the country are high drop-out rate and low attendance, retention, and transition rates. The governments provide some incentives to children besides free education and the mid-day meal schemes to counter these problems. The governments of Karnataka and AP provide various incentives in terms of providing free textbooks, stationery, uniform and attendance related incentives for the children in the primary and upper primary government schools. Table 9 below provide the number of beneficiary children in the primary and upper primary schools in Karnataka and AP in 2005-06. The table reveals that the coverage of the primary and upper primary students – both boys and girls – for textbooks is almost complete. For the stationery, the benefit is extended to only 7 to 8 percent students belongings to the SC/ST category. Stationery includes notebooks, pencils, eraser, etc. The other benefits are also given to SC/ST/OBC students on selective basis.

Table 9: Number of Beneficiaries of Various Incentives in 2005-06, Andhra Pradesh and Karnataka								
Type of Incentive	**Andhra Pradesh**				**Karnataka**			
	Primary		**Upper Primary**		**Primary**		**Upper Primary**	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Text Books	2739928	2873248	1407131	1416206	1919571	1966175	701451	713444
Uniform	42928	61010	71641	113198	1842709	1837987	692513	698674
Attendance	8043	13936	28264	25424	392791	408541	186584	175417
Stationery	213879	228668	82615	93360	1956094	1967735	735652	717814
Source: Same as Table 1.								

In order to better understand the ground reality, the perception of people about the primary education services and the extent to which these services reach the real target group, viz., economically weaker sections of the society, we conducted a sample survey of households and the schools in the government and private sectors in rural AP and Karnataka. Appendices A and B provide the methodological details and the next two sections summarise our major findings.

Poor quality of Teaching & Student Learning:

Surveys undertaken by NCERT in 2002, ASER in 2005, IMRB in 2005 and the Karnataka State Quality Assurance Organization in 2006 to assess learning levels have shown that, for example, in Karnataka, one out of two children in primary schools cannot read and an even higher number cannot do basic division or subtraction. The situation in rural Andhra Pradesh is no better[7].

In Maharashtra, community based surveys of twenty eight cities and eight rural districts found that only 30 percent of boys and girls in the age group 6-14 could read basic text fluently or do simple arithmetic (Banerji 2003). Grover and Singh (2002) too found in their study of two districts of Tamil Nadu that most students lacked functional literacy and numeracy skills. We note here that Tamil Nadu and Maharashtra are two of the educationally most advanced states in India. Similar results were reported by the PROBE team (1999) in their surveys of four North Indian states. Leclercq (2002) in his study of two districts of Madhya Pradesh found that in most schools visited, few children

[7] In a few schools in Valligonda and Bhuvangiri, (Nalgonda, AP) most workbooks of students in those schools were filled with answers (reading comprehension as well as math), but if the students were asked to read what they had written, they was unable to do so. It seemed that teachers were doing much of the spoon-feeding and thus the child was progressing from one grade to the next without actually having learned the material.

In a lower primary school in the village of Dasaramuthenahally, Karnataka, the 5th graders (sharing a classroom with the 4th graders) were learning to read English for the first time. They had just learned their ABCs 9 months ago. Considering the alphabets had so recently been introduced to them, reading even one sentence was difficult for the class when orally tested. Further, the children in this class (as in several other primary schools we visited) were unable to converse in basic English. When asked a question in English, the children were unable to respond, and upon finally translating the question to Kannada, the children responded promptly in the mother tongue.

could read their basic texts fluently. The emphasis was on rote learning and there was little attempt in teaching activities to impart understanding or comprehension of the text.

The low quality of the school system contributes to parental apathy towards actually sending their children to school even when most parents recognize the importance of education as a means to social and economic mobility for their children and have strong educational aspirations for both sons and daughters. Teacher apathy comes out very strongly in small surveys conducted by research teams with the aim to adjudge the teaching-learning processes as they are taking place in schools. For instance, the PROBE (1999) team reports that there was no teaching going on in half the sample schools visited by them, a problem further compounded by dismal infrastructure, overcrowded classrooms and lack of teaching materials and resources. During our field visits, nearly 50 percent of the schools we visited (unannounced) in the districts of Nalgonda, Mehboobnagar and Rangareddy in Andhra Pradesh and Chitradurga in Karnataka, almost no instruction was taking place[8]. Such severe teacher apathy and lack of commitment undermines the efficiency of the education system drastically.

III. Findings of Household Survey, 2007

The basic purpose of conducting a sample survey of the poor households in rural areas of the two states was to collect information on: (i) the household expenditure on primary education by the poor; (ii) the reasons why enrolment of children is not cent per cent; and the extent of the benefits of incentives provided by the government actually reaching the weaker sections. One district from each state was selected as a representative of the state's condition in the rural areas for our study. We surveyed 258 households in Chitradurga district of Karnataka and 263 households in Nalgonda district of Andhra Pradesh. The average size of the household among the poor households surveyed by us in Nalgonda is only 4.6 compared to 5.3 in Chitradurga. Average annual family income in our sample households in Nalgonda was Rs. 27,973 and Rs. 20,377 in Chitradurga. While the land ownership was the same (60%) among the sample households in both the districts, cattle ownership was only 25 percent in Nalgonda compared to 45 percent in Chitradurga. Average cattle per poor household were only 2 in Nalgonda, but 4 in Chitradurga. Cattle ownership was relatively more among the land-owning households in Nalgonda but among non-land-owning households in Chitradurga. Considering the lower income levels, looking after the cattle is an important activity for those households in Chitradurga. Generally the children, both girls and boys, are driven to this activity even if they have to sacrifice attending schools.

The weaker section households in Nalgonda (AP) have very poor access to electricity compared to Chitradurga (Karnataka). Only 35 percent of the poor households in Nalgonda have electricity in their homes as against 55 percent in Chitradurga. Moreover, they get electricity for about 7 hours for only 5 days during a week on an average in Nalgonda against 7 hours on all seven days per week in Chitradurga.

[8] Although we did find teachers present during our unannounced visits, however, they were not found to be teaching.

Availability of electricity could be a major factor in determining literacy. If electricity is not available to poor households, their literacy rate could be substantially lower as the learning and reading environment at home is seriously affected.

The poor households had a considerably lower literacy rate of 41 percent in Chitradurga and 44 percent in Nalgonda. In terms of drinking water, only about 50 percent of the households had access to tap or hand-pump in Chitradurga, whereas almost 95 percent of the poor households had such access in Nalgonda. In both the districts, there is no practice of filtering or boiling the drinking water before use. 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 AP and rural Karnataka suffered from a complete lack of health and sanitation related infrastructural facilities.

The extent of illness and morbidity prevailing among the poor households in the rural areas of these two states is about 25 percent with the incidence of hospitalization being 6 percent in Nalgonda and 7 percent in Chitradurga. This is significantly lower than what we found in the northern states of Madhya Pradesh (MP), Uttar Pradesh (UP) and Rajasthan. Higher morbidity and sickness among the poor households would obviously discourage children from attending schools either because they need to take rest to get cured or they need to substitute for the sick member of the family in his/her routine work.

In our sample, we had only 1.42 children (0-15 years) per household in Nalgonda and 1.91 in Chitradurga. In Nalgonda, the proportion of children in population in our sample was 32 percent and in Chitradurga 36 percent. However, children in the school-going age were 29 percent in our sample population in both the districts. In Nalgonda almost 83 percent of the children in the school-going age attended the school, whereas in Chitradurga, only 56 percent attended schools. It is important to recall that average household income (and per capita income) in our sample in Chitradurga was substantially lower than in Nalgonda, and that average number of cattles per household in Chitradurga was almost double the one in Nalgonda. Table 10 provides the distribution of children either not attending the schools or very irregular in attending the schools by the most important reason.

Findings of the sample survey reported in Table 10 show the importance of poverty and related reasons discussed above for the non-attendance of school. It can be seen from the table that ‘other reasons’ account for a large percentage in Chitradurga district but a small percentage in Nalgonda district. ‘Other reasons’ include the distance of the school, grazing cattles, helping on family farms, sickness of family members, etc. Distance of the school is more relevant for upper primary and secondary schools, because primary schools are generally available within one kilometre radius of the habitations.

Table 10: Number of Children by Reason for Non-Attendance and Irregularity in Attending School in Chitradurga and Nalagonda (in %)							
Sr. No.	**Reasons**	**Chitradurga District**			**Nalagonda District**		
		Boys	**Girls**	**Total**	**Boys**	**Girls**	**Total**
1	Household Activity	1.39	15.84	9.83	3.70	18.75	11.86
2	Employment	55.56	46.53	50.29	81.48	75.00	77.97
3	Sickness	1.39	0.99	1.16	-	-	-
4	Marriage	-	1.98	1.16	-	6.25	3.39
5	No interest	11.11	8.91	9.82	7.41	0.00	3.39
6	Others	30.55	25.75	27.74	7.41	0.00	3.39
	All	100.00	100.00	100.00	100.00	100.00	100.00
Source: Household Sample Survey, 2007.							

The per capita income in our sample households worked out at Rs.3845 in Chitradurga and Rs.6081 in Nalgonda. Average household income in our survey was Rs. 20,377 in Chitradurga and Rs.27,973 in Nalgonda. This confirms that the families in our survey belonged to the poorest of the poor strata. They were found to spend on an average Rs.787 in Chitradurga and Rs.798 in Nalgonda or 3.9 percent and 2.9 percent of the household incomes respectively in the two districts on education. The average cost of a school going child was found to be Rs.921 in Chitradurga and Rs.758 in Nalagonda sample households. In Chitradurga, we found that almost 88 percent of the children in the poor households went to the government schools with only 12 percent going to private schools. In Nalgonda almost 93 percent children went to government school and only 7 percent went to private schools. Thus, the lower proportion going to the private school perhaps explains lower average cost of education per child in Nalgonda than in Chitradurga. In our sample survey, we did not find a very sharp preference for boy or girl child and their treatment for education at primary stage.

Our discussions with families during the survey revealed that people do recognize better facilities, quality and learning environment in the private schools compared to public schools. However, the cost of education in the private schools and the incentives offered in the public schools make it economically unaffordable for the poor to send their children in the private schools. As the draft Approach Paper of 11th Plan (2006) suggests, if an effective choice is given to the poor at the same cost, they would invariably prefer private schools over the public schools. This raises questions about the incentives given to children and families by the public schools, because they contribute to perpetuating the basic efficiency and putting them to effective disadvantage for higher learning and future prospects.

Regarding incentives offered to children in the government schools, 70 percent children in the poor households in Nalgonda and 82 percent in Chitradurga received the benefit of the midday meals. Textbooks are another major incentive offered in the public schools and about 88 percent poor children in Nalgonda and 85 percent in Chitradurga received the benefit. Over and above these benefits, children of the poor households in Chitradurga also received substantial benefits of cash subsidy (62%) and school uniform

(84%). In spite of such benefits, the proportion of poor children going to the private schools in Chitradurga was higher (12%) than in Nalgonda (7%).

IV. Findings of Sample Survey of Schools

During June-July 2007, sample survey of households in Chitradurga (Karnataka) and Nalagonda (Andhra Pradesh) districts, we simultaneously conducted a sample survey of 40 schools in each district. We surveyed the schools in and around the selected villages and talukas/mandals. The types of schools selected and the questionnaire used for the survey are given in Appendix B. The purpose of the survey was to get a sense of the quantity and quality of infrastructure, specific problems faced by schools, the cost of furniture, equipments and facilities, the problems of teachers, etc. Although the survey was formally conducted with a questionnaire, we collected considerable information through focussed group discussion and observation.

Table 11 summarises physical infrastructure and manpower position of the surveyed schools. While all public schools by and large have their own building in both the districts, about 50 percent private schools in Nalgonda (AP) and 16 percent in Chitradurga (Karnataka) operated in rented premises. The private schools in both the districts have almost doubled the number of classrooms on an average compared to the public schools. Average area in square feet was also higher in the private schools than in public school though not in proportion to the number of classrooms. The average number of toilets per school was 2 in both the public and private schools in both the districts, but we found 22 percent public schools in Chitradurga and 31 percent public schools in Nalagonda without toilet/urinals. This proportion in the private schools in both the districts was almost negligible. It is indeed surprising how the public schools could be allowed and are functioning without such basic facilities.

There was at least one blackboard per classroom in both the public and private schools in both the districts. However, the availability of desks/benches and chairs were considerably higher in the private schools in both the districts than in the public schools. However, the two types of schools in both the districts had at least one teacher per classroom. In Karnataka, there were about 1.3 and 1.4 teachers per classroom in the private and public schools. In both the states, the public schools had 100 percent of their teachers trained and qualified; but the private schools had some (10 to 20%) teachers not qualified or trained. The distinguishing feature of the public and private schools in both the states was that almost 7 teachers per private school in Karnataka and 5 in AP stayed/lived in the village itself compared to only 1 teacher per public school in both the states. This does have a definite impact on the quality of instruction and care in the primary education of children in rural areas.

The size of the private schools in both the states was found to be more than double the size of public schools in terms of enrolment. However, the pupil-teacher ratio was not very different in the two types of schools. What is worth-noting is that the number of administrative staff was considerably higher in the public schools than in the private schools considering the number of classrooms, enrolment or teachers. Thus,

public schools appeared to be more bureaucratic than the private schools in the two states. It is surprising to find more girls per boys in the public schools than in the private schools although there was no explicit preference for either sex among the poor households. Thus, cost considerations seemed to weigh in favor of boys in the general population.

Table 11: Infrastructure and Manpower in Government and Private Schools in Chitradurga and Nalgonda

Infrastructure	Government Schools		Private Schools	
	Chitradurga	Nalgonda	Chitradurga	Nalgonda
Total number of schools	27	29	13	11
Number of schools with own building	26	29	11	6
Number of schools without building	0	0	0	0
Number of schools with rented building	1	0	2	5
Average number of rooms	6	5	12	12
Average number of classrooms	5	4	9	9
Average area in square feet	3162	1024	3862	1872
Average number of toilets	2	2	2	2
Number of schools without Toilet/Urinals	6	9	1	0
Average number of Desks/Benches	19	13	69	50
Average number of Chairs	12	7	32	13
Average number of Blackboards	6	5	10	9
Manpower				
Number of Teachers (per school)	7	4	12	9
Number of Qualified Teachers (per school)	7	4	11	7
Number of Teachers staying in village (per school)	1	1	7	5
Number of Teachers staying outside village (per school)	6	3	5	4
Number of Administrative Staff (per school)	3	2	2	2
Average number of Students Enrolled/School (M)	55	61	127	151
Average number of Students Enrolled/School (F)	50	65	106	118
Number of pupils per teacher	15	32	19	30
Number of Girls per 100 Boys (girls : boy ratio)	90	107	83	78

Source: Sample survey of schools, 2007

We now consider the cost aspects of the infrastructure and administration of the surveyed schools in the two districts. Table 12 presents the findings. It can be seen from the table that the capital cost items on the whole were marginally less costly in the private schools than in the public schools in both the districts. The recurring cost, however, differed. The private schools provided more of the maintenance cost and administrative costs than the public schools. Moreover, in Chitradurga district, the schools provided almost 4.3 times the maintenance cost compared to schools in Nalgonda district. Like in the northern states (MP, UP and Rajasthan), we found that in Karnataka and Andhra Pradesh too, the average salary of a teacher in the public school was substantially higher than in the private school – 3.5 times in Karnataka and 5 times in AP! A part of the difference is explained by the training or qualifications of the teachers and availability of

local employment, but a large part of the difference could be simply the rent earned by the unionized government teachers. The private schools reflect more closely the market rate of wages determined by the relative scarcity of resources.

Table 12:- Capital and Recurrent costs of public and private schools in Chitradurga & Nalgonda

Capital Cost(Rs.)	Government Schools		Private Schools	
	Chitradurga	Nalgonda	Chitradurga	Nalgonda
School Building	143846	99828	149615	70714
Toilet & Urinals	11881	7525	11889	7136
Black board (1 unit)	668	329	514	373
Desk (1 unit)	700	469	550	500
Chair (1 unit)	384	236	310	236
Mid-day Meals (Utensils)	7350	7365	-	-
Recurrent Cost(Rs.)				
Maintenance/classroom (Per Year)	2432	567	2792	640
Black Board	125	100	140	100
School Administration cost	3775	NA	6000	NA
Mid-day Meals (per student per day)	Rs.4	Rs.3	-	-
Monthly Salary per teacher	8933	8237	2586	1638
Text Books	50 to 100	-	-	-

Source: Sample survey of schools, 2007

In the two states, the textbooks used by students in the private and public schools are the same. Therefore, the difference between the two types of schools reflects on the delivery and effectiveness of the service rather than any fundamental difference of syllabus. However, the textbook prescribed for the primary classes in various subjects need a critical look. We have attempted a cursory content analysis of the textbooks keeping in view the rural audience. Appendix C provides its description and our comments for the readily available textbooks in English. In general terms, we have found that it was good to introduce English as a subject from the first grade/standard, but that the level of difficulty increasing sharply and suddenly from third grade/standard could be extremely discouraging for both students and teachers in the rural areas. However, Karnataka texts books have a better approach based on activities. Level of abstraction in Mathematics is carefully increased in Karnataka, but not so in AP. Principles of Science are more emphasized in the current textbooks. The thrust of primary education in Karnataka and AP seems to be on English language skills, logic, creativity and Science rather than on History and Geography. This is contrary to what we found in Rajasthan.

Some qualitative findings and specific relevant observations from our survey in Chitradurga and Nalgonda both from public and private schools are as follows:

- The public schools mainly consisted of government primary and upper primary schools located in different villages selected from five talukas and mandals in Chitradurga and Nalgonda respectively. The private schools in Chitradurga were mainly located at the various taluka headquarters of the Chitradurga district. In Nalgonda the private schools were found only at the mandal headquarters.
- Most of the government schools reported shortage of teachers compared to the number of students.
- It was found that 19 (68%) schools in Chitradurga and 22 (76%) schools in Nalgonda had lesser number of classrooms than the number of classes. This shortage is mainly due to the fact that in most of the schools there is no separate provision for office space and hence one of the classrooms is used as an office. Also one of the classrooms is used as a store room for storage of food material and utensils for the midday meal. Thus, due to shortage of teachers as well as classrooms, these schools hold multiple classes in the same classrooms.
- In Nalgonda the survey team found that in many schools the school buildings were not maintained well, though in Chitradurga most of the school buildings were fairly well maintained.
- Both in Chitradurga and Nalgonda there were no fees charged to any student in the primary section. Also, the government provided with books and uniforms free of cost to the students in Chitradurga. Uniforms did not reach the poorest families in Nalgonda (AP) as we observed in the preceding section.
- Most of the primary schools in Chitradurga and Nalgonda did not have a system of failing students in the primary classes. However, all the schools conducted examinations for the students of primary classes.
- Regarding the performance appraisal process for the teachers at the primary level, the response of the teachers was found positive. The teachers believed that the appraisal would be important as it would allow them to improve their teaching methods.
- In none of the districts the private schools were located in the villages. Most of the private schools were owned and managed by trusts.
- The infrastructure of the private schools was found to be marginally better than the government schools in both the states. The private schools also had sufficient number of teachers as compared to the government schools. Thus, the system of multiple classes hardly existed in the private schools. None of the private schools in Nalgonda were found to have multiple classes and only 2 (15%) private schools in Chitradurga had it.
- All the private schools in both the states had the same syllabus as the government schools, and like the government schools, the private schools also did not have a failing system for the primary classes.

V. Estimating Required Scaling-up Efforts

The millennium development goal relating to literacy is to make primary education universal. The net enrolment rate in the population 6-11 years should be made 100 percent. For our purpose, this is an effective target for the scaling up effort. Besides, the quality of teaching should vastly improve. The Census of India, 2001 provides population of states by rural-urban residence and five year age-groups. By making appropriate adjustments and assuming the annual growth rates of 1.16 percent for rural Karnataka, we get 5.0803 million children in the age-group 6-11 years in October 2005 and 5.2585 million in October 2008. Similarly, assuming the annual growth rate of 0.92 percent for rural AP, we get 8.2994 million children in the age-group 6-11 years in October 2005 and 8.5298 million in October 2008.

As a second step, we consider the crucial 4 parameters (ratios), viz., enrolment per classroom (E/CR); classrooms per school (CR/S); teachers per classroom (T/CR); and enrolment pre teacher (E/T). For physical quantity of infrastructure and quality of primary education, these four parameters are very important. Their existing and desirable average values in rural AP and rural Karnataka are presented in Table 13.

Table 13: Selected Parameter Values for Rural Areas					
States	Values	Enrol/CR	CR/School	Teacher/CR	Enrol./Teacher
Andhra Pradesh	Existing	26.48	3.31	1.35	19.58
	Desirable	30.0	4.0	1.36	22.0
Karnataka	Existing	27.21	4.0	1.24	22.0
	Desirable	30.0	4.0	1.36	22.0
Source: Tables 1 to 8 above and our discussions and Survey, 2007.					

Table 13 addresses the basic problems of primary education services in rural areas of these two states as discussed above. Government schools are smaller in both the

Table 14: Estimates of Gap in Levels of Primary Education Services in Rural Areas					
Sr. No	**Year**	**Schools**	**Enrolment**	**Teachers**	**Classrooms**
Rural Andhra Pradesh					
1	2005-06 (Existing)	68,432	5,990,202	306,006	226,195
2	2005-06 (Required with existing Parameters)	94,850	8,299,443	423,873	311,980
3	2005-06 (Gap = (2) – (1))	26,426	2,309,241	117,867	87,785
4	2008-09 (Required with Desired Parameters)	71,272	8,529,823	387,719	285,088
5	2008-09 (Gap = (4) – (1)	2,840	2,539,621	81,713	58,893
Rural Karnataka					
1	2005-06 (Existing)	43,388	4,725,046	214,505	173,631
2	2005-06 (Required with existing Parameters)	46,557	5,080,271	230,921	186,227
3	2005-06 (Gap = (2) – (1))	3,169	355,225	16,416	12,596
4	2008-09 (Required with Desired Parameters)	43,938	5,258,546	239,025	175,754
5	2008-09 (Gap = (4) – (1)	550	533,500	24,520	2,123

states in terms of enrolment. AP also had a serious problem of availability of classrooms per school. Although availability of teachers per classroom in AP is not all that problematic, however, enrolment per teacher is lower than desirable. Rural Karnataka on the other hand has adequate number of classrooms per school but teachers per classroom are marginally lower than desirable. In order to improve the quality of primary education in the two states, we have considered these aspects while fixing the targets for the parameter values. Table 14 provides our estimates of the gap between the required and existing levels of services in primary education in the rural areas of these two states. This is done in two steps: (1) estimating the gap in 2005-06 with existing values of parameters; and (2) estimating the gap in 2008-09 with desired (target) values of parameters.

Major trust of envisaged action on improving the physical learning environment in primary school as seen from Table 14 is to increase enrolment per classroom, classrooms per school and enrolment per teacher in rural AP and to increase enrolment per classroom and teachers per classroom in rural Karnataka. A school must have at least 3 effective classrooms and 5 effectively available teachers to run grades/standards 1 to 5. Given the fact that rural schools in these two states use/convert one or two of their

Table 15: Additional Expenditure Requirement for Scaling-up Rural Primary Education in AP.					
Sr. No.	**Item**	**Remarks/Details**	**Unit Cost (Rs.000)**	**No. of Unites Required**	**Cost in Rs. Million**
1	Classrooms	Average unit cost including extension	100.8	58,893	5,936
2	New schools + toilets + furniture – classrooms	Furniture – Rs.14,000* Toilets – Rs.30,000* Existing school w/o building	111.3	2,840 +3,162	316 352
3	Major repairs	Per classroom	21.0	13,798	290
4	Minor repairs	Per classroom	10.5	37,548	394
5	Toilets	1 unit = 1 boys' + 1 girls'	31.5	30,124	949
	Total Capital Cost		-	-	**8,237**
6	Maintenance	Utilities + color + garden	15.75	71,272	1123
7	Regular Teacher	New Regular teachers @Rs.7,300 pm	94.5	2,840	268
8	Para-Teachers	@ Rs.2,000 pm	25.2	78,873	1,988
9	Teaching contingency	To each teacher	0.525	81,713	43
10	Training stipend – Regular Teachers	For Regular Teachers @Rs.70 for 20 days / year.	1.47	2,840	4
	– Para Teachers	@ Rs.70 for 30 days / year	2.205	78,873	174
11	Helper	Cleaning, gardening, cooking and general	6.3	71,272	449
12	Textbook + stationary	To all students	0.105	2,539,621	267
13	Scholarship	To all BPL and SC+ST+OBC students	0.315	1,015,848	320
	Total Recurring Cost	-	-	-	**4,636**
	Total cost	-	-	-	**12,873**
	Per Capita basis –Capital Cost –Recurring Cost –Total Cost	83.43mm is estimated population of AP for (October) 2008-09 (Per capita cost in Rs.)	- - -	- - -	99 56 155
	Total Cost	-	-	-	**155**
*Note: *Formula unit for school includes 3 tables + 6 chairs + 3 cupboards + 3 wooden blackboard + 4 hanging blackboard; and toilet unit include 1 toilet each for boys and girls.*					
Source: Tables 1, 2, 3, 4, 7, 8 and 11 and our Survey, 2006.					

Table 16: Additional Expenditure Requirement for Scaling-up Rural Primary Education in Karnataka					
Sr. No.	**Item**	**Remarks/Details**	**Unit Cost (Rs.000)**	**No. of Unites Required**	**Cost in Rs. Million**
1	Classrooms	Average unit cost including extension	100.8	2,123	214
2	New schools + toilets + furniture – classrooms	Furniture – Rs.14,000* Toilets – Rs.30,000* Existing school w/o building	111.3	550 +501	61 56
3	Major repairs	Per classroom	21.0	11,633	244
4	Minor repairs	Per classroom	10.5	33,511	352
5	Toilets	1 unit = 1 boys' + 1 girls'	31.5	16,904	532
	Total Capital Cost		-	-	**1,459**
6	Maintenance	Utilities + color + garden	15.75	43,938	692
7	Regular Teacher	New Regular teachers @Rs.7,300 pm	94.5	550	52
8	Para-Teachers	@ Rs.2,000 pm	25.2	23,970	604
9	Teaching contingency	To each teacher	0.525	24,520	13
10	Training stipend – Regular Teachers	For Regular Teachers @Rs.70 for 20 days / year.	1.47	550	1
	– Para Teachers	@ Rs.70 for 30 days / year	2.205	23,970	53
11	Helper	Cleaning, gardening, cooking and general	6.3	43,938	277
12	Textbook + stationary	To all students	0.105	533,500	56
13	Scholarship	To all BPL and SC+ST+OBC students	0.315	213,400	67
	Total Recurring Cost	-	-	-	**1,815**
	Total cost	-	-	-	**3,274**
	Per Capita basis –Capital Cost –Recurring Cost –Total Cost	59.33 mm is estimated population of Karnataka for (October) 2008-09 (Per capita cost in Rs.)	- - -	- - -	25 31 56
	Total Cost	-	-	-	**56**
*Note: *Formula unit for school includes 3 tables + 6 chairs + 3 cupboards + 3 wooden blackboard + 4 hanging blackboard; and toilet unit include 1 toilet each for boys and girls.*					
Source: Tables 1, 2, 3, 4, 7, 8 and 11 and our Survey, 2006.					

classrooms for administrative purposes and storage of midday meal materials, it is necessary that they have 4 classrooms per school on an average. They can run the school in two shifts – standard 1 to 3 in the afternoon and standard 4 and 5 in the morning. This would in itself substantially improve the learning environment and also the quality of education imparted.

We now estimate the financial resources required to scale up primary education services in rural AP and Karnataka. We have considered only one regular teacher per new school proposed, the rest being para-teachers. We also take note of the major repairs, minor repairs and toilets needed in the existing schools in the two states and provide for the same. A helper per school is also provided for cooking, cleaning, gardening, etc. Tables 15 and 16 provide details for our estimates respectively for rural AP and rural Karnataka.

Tables 15 and 16 show that additional requirement of financial resources is Rs.13 billion in AP and Rs.3 billion in Karnataka to scale up the rural services in primary education. On per capita basis, it works out at Rs.154 in AP and only Rs.55 in Karnataka. While rural Karnataka has the physical infrastructure largely in place requiring very little additional effort, rural Andhra Pradesh needs to step up its physical infrastructure considerably. However, the financial requirements for Karnataka should include the following in addition to those estimated in Table 16 as well:

a) Desks and furniture in classrooms @ Rs. 750 per child for 50 lakh[9] children – Rs. 3,750 million
b) Learning corners for Language, Maths, Science, Social Sciences, Crafts in each classroom @ Rs. 5000 per classroom for 1.90 lakh classrooms – Rs. 950 million
c) Class Library for each classroom @ Rs. 10,000 per classroom for 1.90 classrooms – Rs. 1,900 million
d) Edusat based video lesson reception facilities of TV, antenna, solar power panel @ Rs. 1.2 lakh per school for 45,000 schools – Rs.5,400 million
e) Science and Computer lab for each upper primary school @ Rs. 3 lakh per school for 45,000 schools – Rs. 13500 million.

In spite of this, these two southern states are placed far better than the northern states like UP, MP and Rajasthan in terms of their physical infrastructure (Bajpai, Dholakia and Sachs, 2005) and (Bajpai and Dholakia, 2006). This is not surprising because both these southern states have been spending considerably higher amount per capita than the northern states for past several years. In 2006-07 budget, Karnataka allocated Rs.55.5 billion or Rs.967 per capita and AP allocated Rs.71 billion or Rs.876 per capita. The additional effort required as per our estimate is, therefore, only 5.5 percent in Karnataka and about 18 percent in AP. These are definitely not very tough target for these states to achieve. Moreover, AP can also consider a more flexible and alternative strategy to induce the private sector to share several of the basic infrastructural

[9] One lakh = 100,000

facilities for the sector. It can reduce the pressure on the scarce public resources competing for several other pressing needs of the state.

VI. Recommendations

As we have discussed in the paper, rural areas of AP and Karnataka do not have severe shortfall in terms of physical facilities and access of population. The problem is more in terms of improving the quality of services in public schools. The basic physical infrastructural facilities like water, electricity, classrooms, toilets, etc., are very important determinants of the learning environment. All such facilities need to be adequately and urgently provided. This requires a multi-departmental or "integrated" approach. If coordination among education, health, power, construction (PWD), roads, transport departments, is not possible at a higher level, education department will have to take responsibility of all these activities and provide a comprehensive solution.

There is a technical hitch in budget making at the state level. It is widely known that most of the revenue expenditure on education consists of teachers' salaries. However, this is considered a non-plan expenditure item in the state budget. In the overall environment of severe resource crunch and constant pressure under Fiscal Responsibility and Budget Management (FRBM) concerns even at the state level, the non-plan expenditures are always the easy targets for the cuts. That is how, sanctioned posts of teachers in primary and secondary schools are allowed to remain unfilled for years leading to the serious scarcity of teachers in the public schools. Currently, these vacancies are filled on ad hoc temporary basis by para-teachers who are paid almost one-fourth or less of the salary of a regular teacher. While this is a reasonable solution to save public resources in the short run, it may not work in the long run unless a new scale/cadre of para-teachers is formally established in the government. Another "solution" is to convert the salaries of teachers into a plan expenditure item.

Another powerful solution to the problem of resources is to encourage private participation in building and running schools. As the draft Approach Paper of XI Plan (2006) suggests, the weaker sections of the society can be given coupons and thereby a choice of choosing the school for their kids. This can take off a lot of financial burden from the government. We have seen that in the private sector schools, the number of teachers per school, classrooms per school, students per teacher, and students per classrooms are far better than the public schools. The government needs to take a policy stance to positively encourage private schools to expand their scale and area of operation by providing appropriate incentives, establish inspection norms, admission criteria and procedures, etc. The idea is for the government not to withdraw, but provide competent and qualitative benchmarks for the private schools through their illustrative presence in different areas. The expansion of employment of teachers and helpers as visualized in Table 14 and 16 can largely take place in the private sector if proper policies are followed to allow some of the public primary schools to be taken over by the private management.

To improve the quality of regular teachers, annual grant for 20 days training is provided. For para-teachers, annually 30 days of training is recommended.

There is an urgent need to streamline the administration for providing caste certificates to all SC/ST and OBC families. If the government thinks that these families need concessions and subsidies/incentives, they must first be properly identified and certified so that they do not have to incur disproportionate resources to obtain such certification. Otherwise, the scheme becomes wasteful, discriminating and unjust for the real target group.

For public schools, the teachers must stay in the respective village itself and not in a radius of a 5 or 10 kms. This is because once a distance of 5 or 10 kms is allowed, it becomes almost impossible to monitor whether it is 5 kms, or 50 kms, in practice.

Every primary public school should maintain a small garden/compound and should have a helper to take care of cleaning, cooking, gardening, etc.

Primary schools with effective 3 classrooms and 5 teachers should run in two shifts to ensure availability of separate classroom for every grade/standard.
Textbooks need to be modified and contents of syllabus made more oriented to the rural children.

Notebooks and pencil/pen should also be provided free to children besides textbooks. These subsidies may be targeted to SC/ST/OBC/BPL family children only and not be made available indiscriminately.

Private schools need to be properly supervised and inspected regularly for the quality of their education services and physical infrastructure.

Grants for repairs/maintenance and facilities to schools should be determined by the size of the school and needs of the schools.

Government administration needs to be sensitive to teachers' conditions and be efficient in disbursing salaries to them when transferred.

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APPENDIX A
Methodology of Sample Survey of Households in Karnataka and Andhra Pradesh

The basic objective of the present study was to assess the prevailing conditions of primary education and health facilities in terms of quantity and quality in the rural areas of Karnataka and A.P. 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 the two districts – Chitradurga in Karnataka; and Nalgonda in A.P. 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 poorer households from different parts of both the districts. We, therefore, selected five *Tehseels / Talukas* (or blocks) of Chitradurga and five *Mandals* of Nalgonda district, and then, selected one medium sized village from each of those *Tehseels* and *Mandals* for survey. Since *Tehseel* in Karnataka and *Mandal* in A.P is the second level of the administrative unit, *Mandal* being smaller to *Tehseel* in size, selecting 5 *Tehseels and 5 Mandals* in respective districts would capture geographical diversity in the districts.

Selection of villages depend on several criteria, viz., 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 two districts for the year 2001. It can be seen from the table that the aggregate of the

Sample villages selected for Nalagonda (AP)																			
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	Nalgonda	632336	2815304	1429458	1385846	525998	326906	1292171	482773	1457963	4.4522	0.459	0.348	0.116	0.187	0.518	0.9695	0.303
VILLAGE	Komme Palle	202	887	437	450	231	48	334	120	497	4.3911	0.377	0.267	0.054	0.26	0.56	1.0297	0.315
MANDAL	Alair	11327	50242	25185	25057	9802	1058	28102	11394	24005	4.4356	0.559	0.455	0.021	0.195	0.478	0.9949	0.216
VILLAGE	Suraram	212	924	476	448	265	0	414	152	509	4.3585	0.448	0.339	0	0.287	0.551	0.9412	0.287
MANDAL	Ramannapeta	11300	52322	26292	26030	9796	470	27732	10884	25080	4.6303	0.53	0.418	0.009	0.187	0.479	0.99	0.196
VILLAGE	Chan Palle	249	1101	569	532	366	5	624	261	653	4.4217	0.567	0.491	0.005	0.332	0.593	0.935	0.337
MANDAL	Nadigudem	9392	39543	19832	19711	9819	1877	18642	7532	21517	4.2103	0.471	0.382	0.047	0.248	0.544	0.9939	0.296
VILLAGE	Keshamneni Palle	258	1177	608	569	0	1070	403	159	696	4.562	0.342	0.279	0.909	0	0.591	0.9359	0.909
MANDAL	Pedda Adiserla Palle	8933	41061	21116	19945	6549	13010	14118	4416	22371	4.5966	0.344	0.221	0.317	0.159	0.545	0.9445	0.476
VILLAGE	Humanthulapalle	289	1313	674	639	397	242	401	137	763	4.5433	0.305	0.214	0.184	0.302	0.581	0.9481	0.487
MANDAL	Chintha Palle	9443	44053	22376	21677	8445	4747	17727	6020	23591	4.6651	0.402	0.278	0.108	0.192	0.536	0.9688	0.299
	Total	1210	5402	2764	2638	1259	1365	2176	829	3118	4.4645	0.403	0.314	0.253	0.233	0.577	0.9544	0.486
Sample villages selected for Chitradurga (Karnataka)																		
DISTRICT	Chitradurga	241640	1243658	635442	608216	294335	236111	654284	259054	632277	5.1467	0.526	0.426	0.19	0.237	0.508	0.9572	0.427
VILLAGE	Konapura	330	1967	975	992	0	1919	249	56	848	5.9606	0.127	0.056	0.976	0	0.431	1.0174	0.976
TALUK	Molakalmuru	19862	112609	57842	54767	23266	42821	46752	16628	52478	5.6696	0.415	0.304	0.38	0.207	0.466	0.9468	0.587
VILLAGE	Dasaramuthenahalli	103	688	361	327	50	629	302	103	388	6.6796	0.439	0.315	0.914	0.073	0.564	0.9058	0.987
TALUK	Challakere	53191	283651	145160	138491	65039	82615	134914	51281	148906	5.3327	0.476	0.37	0.291	0.229	0.525	0.9541	0.521
VILLAGE	Ramagatta	195	953	474	479	285	125	516	224	612	4.8872	0.541	0.468	0.131	0.299	0.642	1.0105	0.43
TALUK	Holalkere	36473	183192	93218	89974	46900	21594	107614	44294	101475	5.0227	0.587	0.492	0.118	0.256	0.554	0.9652	0.374
VILLAGE	Guthikatte	239	1241	625	616	482	250	691	291	565	5.1925	0.557	0.472	0.201	0.388	0.455	0.9856	0.59
TALUK	Hosadurga	40110	196957	99732	97225	38975	15945	109638	44703	101681	4.9104	0.557	0.46	0.081	0.198	0.516	0.9749	0.279
VILLAGE	Vaddikere	248	1173	605	568	197	202	606	228	428	4.7298	0.517	0.401	0.172	0.168	0.365	0.9388	0.34
TALUK	Hiriyur	43957	215913	110231	105682	55176	21091	112911	44857	108629	4.9119	0.523	0.424	0.098	0.256	0.503	0.9587	0.353
	Total of Sample	1115	6022	3040	2982	1014	3125	2364	902	2841	5.4009	0.393	0.302	0.519	0.168	0.472	0.9809	0.687

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, governments of both the states 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 of both the states. Both the governments 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 of 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 are 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 two districts in Karnataka and A.P. It was decided to survey about 250 households from each district[10]. In Chitradurga district, 471 households and in Nalgonda district 461 households

[10] 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, α = 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, Rajasthan, 2005						
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	*Kachcha*	Partial *kachcha*	*Pukka*	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	5th standard	10th 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 got 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 aid.	For employment	For self-employment	For training and skill addition.	For housing.	Aid not required.
Source: BPL Survey, 2002-03.						

from the selected villages belonged to the weaker section as per 18 points cut-off. Accordingly, we selected 55% and 57% of the households belonging to the weaker section from each of the selected villages respectively in Chitradurga and Nalgonda. However, in one of the villages of Chitradurga district (Vaddikere of Hiriyur *Taluka)* the BPL list obtained from the district authorities, out of 289 households only 2 households had score less than 18. Hence we considered this as special case and included it in our sample. *Table A-3* provides the distribution of the total and sample households in the selected villages in the two districts.

We conducted the sample survey during June and July, 2007. 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 5 page questionnaire (given below for ready reference). In all we surveyed 258 households in Chitradurga and 263 households in Nalgonda.

Table A-3: Distribution of Total and Sample Households by Selected Villages in Chitradurga and Nalgonda

District	***Tehseel/ Mandal***	**Village**	**Total HH.**	**Weaker Section HH with Points ≤ 18**	
				Total	**Sample**
Chitradurga	Molakalmuru	Konapura	398	297	110
	Challakere	Dasaramuthenahalli	73	70	47
	Holalkere	Ramagatta	204	50	36
	Hosadurga	Guthikatte	74	52	35
	Hiruyur	Vaddikere*	289	2	30
Nalgonda	Gundala	Komme Palle	347	111	65
	Ramannapeta	Suraram	226	73	42
	Nadigudem	Chan Palle	269	111	65
	Pedda Adiserla Palli	Keshamneni Palle	215	78	37
	Chintha Palle	Humanthulapalle	242	88	54

' ':- The households from this village were considered as a special case.*

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

Household Questionnaire (Karnataka and AP)

(For "Scaling up Services in Rural India" project)

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	Hospitalisation 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 programme/*Anganwadi* workers / Any govt. programme 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 immunisation/ 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. What is the distance you travel for medical facility? _____ k.m.
5. 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)
6. Is there a WHV deployed in the village SC? Yes/No. Is she from the same village/*mandal*? Yes/No.
7. According to you, with presence of VHW (Village Health Worker),
   a. Has the working of the SC improved? Yes/No.
   b. Is there any improvement in your access of services from government health facilities? Yes/No.
   c. What kind of services do you receive from the VHW? Delivery/ANC/PNC/Immunization of Children.
   d. When does the VHW come to your place? Voluntarily/ When approached/ Does not come at all

e. What kind of information does the VHW Provide you provide you with? Very useful/ Somewhat useful/ Not so useful.

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; Behaviour of teacher – Bt; Others – Ot (specify).

APPENDIX B
Sample Survey of Primary Schools in Karnataka and Andhra Pradesh

It was decided to conduct a detailed survey of selected sample primary schools in rural areas of the two districts, Chitradurga district of Karnataka and Nalgonda district of A.P. During our field visit in June and July, 2007 for conducting the sample survey of households we decided to cover primary schools in and around the selected villages. There were 2 different types of primary schools – regular Government Primary Schools (GPS) and Private Primary Schools (PPS). *Table B-1* gives the number of all these schools we covered for detailed investigation in the two districts.

Table B-1: Number of Selected Primary Schools by Categories for Sample Survey in Karnataka and Andhra Pradesh, 2007

Sr. No.	Type of Primary Schools	Chitradurga	Nalgonda
1	GPS (Government Primary School)	27	29
2	Private Primary Schools (PPS)	13	11
	Total	40	40

Although we had a formal school questionnaire of 4 pages (give below for ready reference), we followed discussion mode with the headmaster or the principal teacher of the school and others associated with the school.

School Questionnaire (Karnataka and AP)

(For "Scaling up Services in Rural India" project)

Village: _____ Tehsil: _____ District: _____ State: _____

Head of the school/principal:_____ Investigator: _____

Type of school: (A) Panchayat / District Panchayat / District Admn. / Private

: (B) Pre-primary / Primary/ Secondary/ Higher Secondary

Building : Own/Rented /Donated; Number of Rooms ____;
Total sq. feet: _____

A. Information Regarding Staff and Students in primary section (Stds. I to V) last year

Sl. No.	Particulars		Primary	Remarks
1	Number of students enrolled (Stds. I to V)	M		
		F		
2	Number of students with cash subsidy.	M		
		F		
3	Fees charged per student (Rs.)	M		
		F		
4	Number of Teachers	M		
		F		
5	Number of qualified Teachers	M		
		F		
6	Reduction in number of Teachers due to:	Death		
		Retirement		
		Resignation		
7	Number of Administrative staff			

8	Salary bill of teachers per month (Rs.)			
9	Salary bill of Administrative staff per month (Rs.)			

B. Information Regarding Infrastructure in the primary school:

Sl. No	Particulars		No. of Units	Capital Cost / Unit (Rs.)	Recurrent and O&M Cost / Unit (Rs.)
1	Classrooms				
2	Blackboard				
3	Desk/Bench				
4	Chairs				
5	Toilet	Male			
		Female			
6	School Administration				
7	School mid-day Meals (Y/N)				
8	Transportation Facilities (Y/N)				

C. Information about costs incurred for students

Sr No.	Particulars	No. of Units	Recurrent and O&M Cost / Unit (Rs.)	Remarks
1	Textbooks			
2	Uniform			
3	School Supplies (Slate-pen, exercise books, pens, pencils etc.)			
4	Examination Related Cost			

D. Dropout and Completion Rates:

How many standards are there in the school? :_____
How many rooms are there in the school? : _____

E. Information Regarding Teacher's presence and working:

How many teachers stay in the village? : _____

How many teachers stay outside the village? : _____

What proportion of the year does the school normally function? :
20%/40%/60%/80%/100%; For how many days/ years? _____days.

Are there multiple classes being handled by one teacher? Y/N
If yes, details: _____

Is the school managed by the Village Panchayat?: Y/N
If yes, are there any problems? Enumerate.

Will the situation improve if the management and oversight functions are shifted to District Panchayat / District Administration? Y/N
Explain.

- If it is a private school, syllabus and text-books are the same/different from the government schools.
- Is there a system of failing students in the Primary Section? Yes/No.
- Are there examinations in each Primary standard? Yes/No.
- What is your opinion on Teachers' Performance Appraisal?
  Principal:

  Teachers:

- What is your opinion about parents' attitude on the primary education of their sons and daughters here?

- Is there a specific bias against girls' education? Yes/No; Why?
  _____

- How the learning / educational requirements of migrants / nomadic tribes' children met? _____

  Any special schemes for them? (Details):

F. Information to be sought from Teacher's Training College/ Educational Authority:

Particulars	Capital Cost per unit (Rupees)	Recurrent cost per unit (Rupees)	Norms
Teacher's pre-service training			
Teacher's in-service training			
Curriculum development			
Making a new Classroom			
Transport Facility			
Toilets			
Student-Teacher Ratio			
Mid-day Meal			
Others			

G. Investigator's Comments/ Observations/ Notes:

APPENDIX C

Content Analysis of Primary School Textbooks

(a) Andhra Pradesh Board Schools

English		
Standard/Grade	**Content in Brief**	**Observations**
Standard I	Not available	Not available
Standard- II	Simple Rhymes, List of new language items, pictures along with key sentences & words for conversation for the same. Short passage reading, exercise on comprehension, language structure, vocabulary, spellings & punctuations.	Systematic in approach. Exercises are easy, useful and relevant for rural students.
Standard-III	Passage reading, notes having new words introduced in the passage along with their meanings. Exercises on comprehension, language structure, vocabulary including word formation and spellings. Small poems	Lengthy exercises, effort is made on providing more practice of grammar.
Standard IV	Use of language elements such as content/structural words & phrase/sentence patterns accurately and appropriately. Passage reading which has mostly stories and poems with notes having word meanings and exercises on comprehension. Vocabulary building and composition exercises. ***Supplementary Reader*** contains stories along with word meanings and questions.	A separate supplementary reader is introduced to develop the skills of rapid silent readings with compression. Perhaps too optimistic and difficult for rural audience.
Standard V	Longer lessons longer rhymes with stories relating to real life and imaginary situations. Exercises similar to the earlier standards having word meanings and vocabulary building. Dictionary usage. The ***Supplementary contains*** stories as well as informative short essays.	Increase in general level of difficulty of vocabulary with increase in the length of exercises. Change in type of stories in the books. Too ambitious for rural students.

Science and Environment Studies		
Standard/Grade	**Content in brief**	**Observations**
Standard I	Not available	Not available
Standard II	Not available	Not available
Standard-III	Body parts, awareness about health and hygiene, need of air, source and purification of water, different types of houses, food, clothes, tools, plants and	Useful for developing the desired qualities among rural students related to environment

	animals. Classification of soils, judicious use of water, seasonal crops, tools and implements in agriculture and their care. Awareness about different types of diseases.	
Standard-IV	Functioning and care of sense organs, internal organs of the body & their functions. Application of air pressure, impurities of water, its purification and water pollution. Cooking and its protection. Cleaning methods of cloths. House facilities, surroundings of the house and sanitation. Care and maintenance of tools, plants, animals. Soil erosion and prevention. Role of livestock. About rotation & revolution of earth, solar system, stars and constellations.	Logically follows from standard three textbooks. Level of abstraction and difficulty increases. More effort from teachers and students is required.
Standard-V	Shape and structure supported by skeleton, functions and parts of heart. Constituents of air, use of oxygen, carbon dioxide and nitrogen. Water cycle and pressure. Need and methods of preserving fruit & vegetables. Shelter in relation to climate. Agriculture and workshop tools. Adaptations to environment in plants & animals. Food habits of birds, animals and insects. Soil nutrients. About eclipses and shadows. Communicable diseases-air, water and food borne.	Logical. Level of abstraction and difficulty increases. More efforts from teachers and students required.

Mathematics		
Standard/Grade	**Content in Brief**	**Observation**
Standard-I	Not available	Not available
Standard-II	Not available	Not available
Standard-III	Counting of 2, 3 and 4 digit numbers. Ascending and descending order, understanding place value. Correcting the errors in writing numbers. Addition, subtraction and multiplication of 2, 3, 4 digit numbers. Understanding and finding factors. Measurement of weight, volume, time and length. Identifying close and open figures, shapes- triangles, circles and rectangles. Fractions, numerator and denominator.	Lengthy content, exercises given in form of puzzles. Expected learning outcomes provided at the end of the chapters. Too difficult and level of abstraction increases sharply particularly for rural students.
Standard-IV	Addition, subtraction, multiplication and division of five and six digit numbers. Sums on mix fraction, equivalent fraction and their ascending and descending	Level of abstraction increases. Considerable efforts needed from teachers and students.

	orders. Introduction of simple geometrical concepts. Measurement of time, weight length, capacity. Rectangle and square with their area and perimeter.	
Standard-V	Numbers up to 100 million. Addition, subtraction, multiplication and division up to 9 digit numbers. Writing style of these numbers both in words and letters. Introduction of co-primes, HCF, LCM, and more on fractions. Introduction of average, unitary methods, percentages and their application. (Sums on profit & loss, commission, rebate, income tax, interest, ratios). More on geometry- area and units of area.	Exercises are heavy and time consuming. More effort from students and teachers is required. Good understanding of basics and fundamentals needed for the teachers to do justice.

General Observations:

- Quality of paper and printing of the books is good.
- Content are well-sequenced in all the subjects.
- The content of English textbooks becomes more vast and to some extent difficult from standard III for the rural students. The supplementary reader along with the English reader proves burden-full to the students as well as teachers.
- The Environment studies textbooks are logical and systematic. They followed from concrete to semi-concrete and then to abstract.
- Level of abstraction increases sharply from standard III in mathematics.
- In Mathematics textbooks for standards IV and V at the end of each lesson key concepts of the lessons are given, which is helpful to the rural students.

(b) Karnataka Board Schools

English		
Standard/Grade	**Content in Brief**	**Observations**
Standard I	Shape recognition, small and capital letters. Simple words, rhymes, stories, sentences. Reading and rearranging sentences in sequence. Recognising fruits, weather conditions, human body, animals, and road signs. Common greetings.	Learning process designed through various activities described in the text making it more interesting.
Standard- II	Listening and answering in a word/phrase. Speaking, reading and writing of small words and sentences. Simple rhymes. Names of objects, relations, places. Understanding simple differences such as dead & alive, slow &	Same as above.

	fast, easy & difficult etc.	
Standard-III	Not available	Not available
Standard IV	Increasing word power, reading poems, passages which are mostly stories. Questions & answers. Identifying and speaking rhyming words. Identifying neighbour's qualities, young one's of animals, hobbies. Matching time and activities.	Similar pattern followed with increase in types and number of activities for learning e.g. short role plays.
Standard V	Long lessons, poems with their questions and answer. Grammar, short paragraphs and conversation writings. Vocabulary building exercises, word meanings.	Sudden change in patters of learning with introduction of readings and their exercises. Too difficulty for rural students and teachers.

Science and Environment Studies		
Standard/Grade	**Content in brief**	**Observations**
Standard I	Recognising and care of animals, Plants awareness about family relations, basic food, basic needs, immediate environment, safety rules. Identifying main parts of body and their cleanliness habits. Liking and un-liking of people, family recreational activities, need of basic facilities. Importance of queue. Identifying different types of vehicles awareness about moon sun stars. Understanding weather conditions. Concept of yesterday, today and tomorrow	General understanding and awareness regarding the environment and basic science. Easy to follow style.
Standard II	Not available	Not available
Standard-III	Introduction to living & nonliving organisms. Identifying size, shape and food habits of animals. Knowing our sense organs. Identification, classification and importance of locally available food material. Properties of substances, water and air. Different type of houses. Need and source of energy. Idea about map, globe, growth and change. Difference in views and opinions. National symbols. Identifying important physical features, places, crops of districts using map of Karnataka.	Points worth remembering and interesting facts are given at the end of each lesson which is helpful. Degree of abstraction slowly increases. Rural background missing.
Standard-IV	Identifying different plants and animals, study of different parts of plants, internal parts of body, importance need and classification of different nutrients. Causes of disease and preventive measures. Geographical features of local	Logically follows from standard three textbooks. Level of abstraction and difficulty increases so more effort from teachers and students is required practically in rural areas.

	environment. Awareness about water and air pollution. Importance, formation and types of soils. Modes of transport. Means and usage of communication, energy conservation, safety rules. Identifying latitude & longitude, continents, oceans on the globe. Knowing Karnataka state and its physical features, major crops. Means of entertainments. National festivals and places of attraction.	
Standard-V	Not available	Not available

Mathematics		
Standard/Grade	**Content in Brief**	**Observation**
Standard-I	Number counting through objects. Comparison between more and less, far and near, large and small, heavy and light through pictures. Identifying, reading and writing numbers up to 99. Simple addition and subtraction. Recognising coins, notes, shapes and sizes.	Exercise is simple enough and teaching made interesting by making use of pictures.
Standard-II	Not available	Not available
Standard-III	Writing, counting up to 3 digit numbers with the help of pictures. Place value concept. Use of symbols (<,>, =), ascending descending order, addition subtraction, division and multiplication up to 3 digit. Recognising different units of length measurement. Problems on weight, capacity, rectangular area, objects, time measurement. Introduction of fractions, plain figures and classification. Simple sums on measurements and rupee and paisa.	Level of abstraction increases with difficult topics. Revision of earlier standards. Problem solving through games. More efforts needed from rural students and teachers.
Standard-IV	Numbers up to 5 digits. Addition, subtraction, division up to 4 digits (multiplication only up to 2 digits). Recognising equivalent decimals up to 3 decimal places. Reading, writing, place value of decimal digit. Problems related to length weight geometry (use of scales, divider, and protractor), different angles and their magnitudes. Sums on buying and selling, profit & loss, conversions of volumes and weights. Perimeter, surface area of plain figures and solid figures area and properties of triangle, square and rectangle. Introduction of fractions and more to it. Clock Reading.	Course contents lengthy. Exercises are heavy and good understanding of basics and fundamentals needed for the teachers. However, very useful contents.
Standard-V	Not available	Not available

General Observations:

- Quality of paper and printing of the books is good.
- Content of the books in most of the subjects are well-sequenced.
- In English textbooks learning through various activities approach has been followed upto IVth standard. Moreover, more emphasis is given on speaking from standard IV.
- There is an attractive, meaningful page design for all textbooks which is helpful and attractive for rural students.
- Mathematics textbooks for all standards have coloured and comic pictures. Here, special importance is given to recreation mathematics and adopted psychological approach (from concrete to semi-concrete and then to abstract)
- The environment studies textbooks are systematic. Expected learning outcome is given for every lesson in all standards, which is useful to the rural teachers. Remembering points and interesting facts about each lesson is given for IIIrd and IVth standard textbooks.