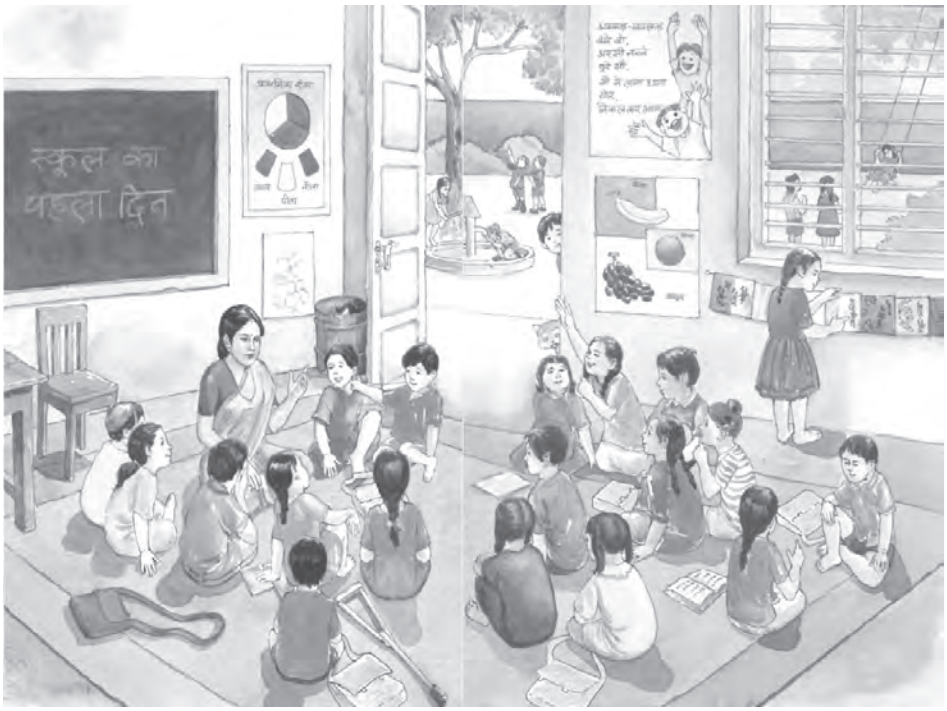
12 RURAL EDUCATION

Michael Ward[1]

An effective student-centred classroom environment. Source: NCERT



Introduction

Education is the doorway to the wider world and an exposition on rural infrastructure is incomplete without an assessment of the extent to which we have been able to open this door for the children of rural India. We provide, in this chapter, an overview of the education system in India, its organization and the progress that has been made since independence. Different components that constitute rural education infrastructure are evaluated for their relative importance in the delivery of effective learning. We also examine the current status of rural education infrastructure in the country and gaps in the provisioning. This chapter also includes a discussion of the roles of public and private actors in the rural education sector, particularly in respect of the Indian and international experiences of private–public partnership (PPP). We review the regulatory regime for education and consider the various outcomes achieved across states and within states

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in this context. Costs and financing issues related to rural education infrastructure are reviewed. And finally, we set out an agenda for future action including:

1. Integrated Child Development Service (ICDS) and early childhood education (ECE),
2. Serva Shiksha Abhiyan (SSA), the Government's flagship programme for the universalisation of elementary education,
3. National Curriculum Framework (NCF) 2005,
4. The planned expansion of secondary education and skills training under the 11th Five Year Plan, and
5. Further development of PPP and the need to achieve a literate environment in rural India.

Brief Overview of the Education System in India

Under the Constitution of India, education is a concurrent subject, with a sharing of responsibilities (including legislation) between the Centre (Ministry of Human Resource Development) and States (Departments of Education). Management of schooling has been traditionally controlled by the mainstream state and district administrations. The last two decades have seen the emergence of a number of education-specific support institutions, such as the District Primary Education Programme (DPEP) and Sarva Shiksha Abhiyan (SSA) State Implementation Societies, State Councils of Educational Research and Training (SCERT), State Institutes of Educational Management and Training (SIEMAT), District Institutes of Education and Training (DIET), Block Resource Centres (BRC), Cluster Resource Centres (CRC), and, in rural areas, Village Education Committees (VEC), as well as an increased involvement of NGOs, that have acted as a counterweight to what is often an overly bureaucratic and hierarchical administration. The last decade or so has also seen the establishment of the *Panchayati Raj*, or village council, and this body is playing an increasingly important role in education in rural areas across the country.

There are broadly four stages of school education in India: namely, primary, upper primary, secondary education (SE), and higher secondary education (HSE). The combination of primary and upper primary schooling is termed elementary education. It is important to note that there is also a programme of pre-school education (for three to six year olds), early childhood care and education (ECCE), mostly provided through the Department of Women and Child Development (DWCD), GOI through *Anganwadi* Centre infrastructure. There are also a few other, government and private providers of pre-school and nursery education in rural areas. At the other end of the system, there is technical and vocational education as well as training and higher education involving universities and undergraduate and postgraduate institutions.

Figure 12.1 below illustrates the structure of education in India from pre-school to higher education.

Within this structure there are four basic types of school:

1. government schools, including those run by local bodies;
2. private schools, aided by the government;
3. private unaided schools; and
4. unrecognized private schools (the first three being recognized by the government).

Eighty-seven per cent of the schools in India are in the country's villages. Government statistics and independent surveys have revealed that over 90 per cent of the rural schools

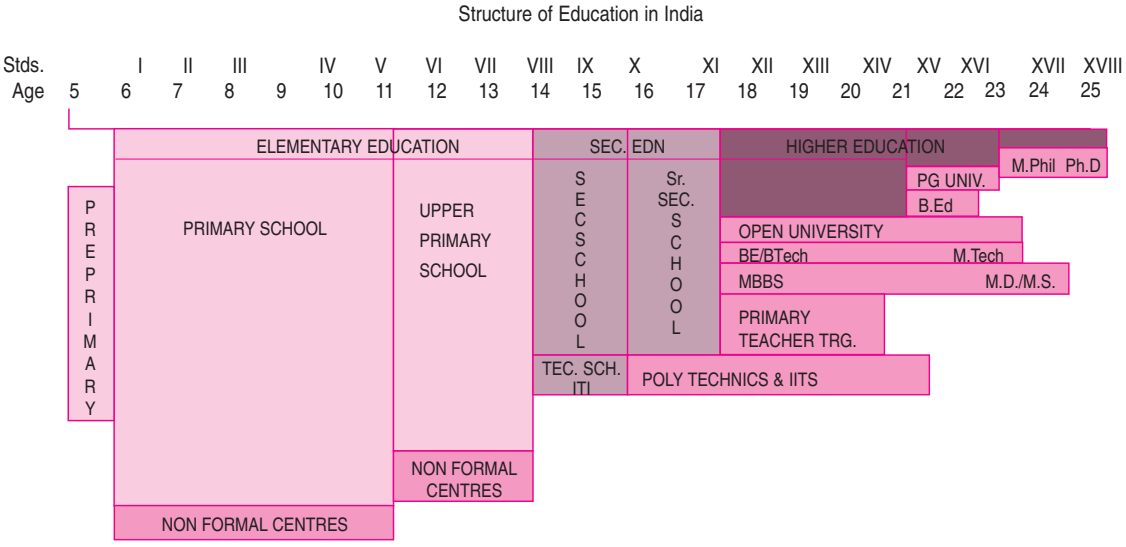

Fig. 12.1 Structure of Education in India

Source: *http://education.nic.in/cd50years/g/u/9F/ouifozoI.htm*

at elementary level are run by the government. Only in Uttar Pradesh and Tamil Nadu does that share drop to 73 and 74 per cent (Mehrotra, 2006). At the secondary and higher secondary levels we find that while the majority of students are in government schools (55 per cent), a large proportion are in private schools aided by the government (35 per cent) with un-aided private schools accounting for the remaining ten per cent of places (World Bank, 2003). It is noticeable that in rural areas there has been an increase in enrolments in government SE and HSE schools in recent years with a corresponding decline in enrolments in the government aided schools (World Bank, 2003b).

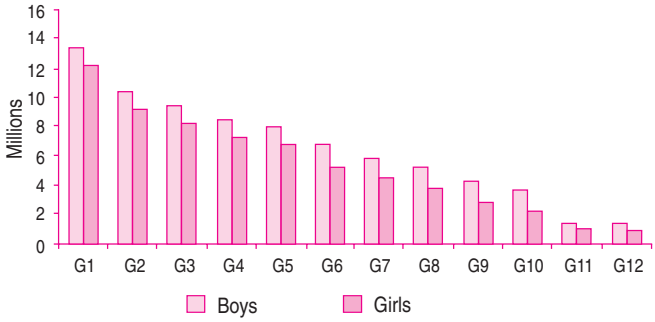

Fig. 12.2 Enrolment in Grade I–XII in Rural Areas (September 2002)

Source: *http://gov.ua.nic.in/aises*

Progress in Education

There is no doubt that in terms of providing the benefits of education to the whole population the country could have done better, particularly in respect of Scheduled Caste (SC), Scheduled Tribe (ST), minority groups, the disabled, and girls. There has been considerable variation in the progress made in education across Indian states, 'with some states lagging behind and others surging ahead' (Clarke and Jha, 2006).

Progress in Elementary Education and Literacy

Annexe Table A12.1 depicts the rise in literacy rates and the expanding system of primary education. According to the National Sample Survey (NSS) estimates, the literacy rate has increased by about 13.17 percentage points in a period of ten years, from 52.21 in 1991 to 65.4 per cent in 2001. Given the rapidly increased enrolments in elementary education since 2001 it is possible that India will achieve universal literacy within the space of one more generation. This steady increase in literacy has been largely caused by massive growth in primary and upper primary schools and enrolments, particularly in rural areas.

Progress in post-Elementary Education

While the growth of elementary educational institutions has been most impressive, there has also been considerable growth in other, higher, recognized education institutions. This growth in all recognized education institutions in India is illustrated in Annexe Table A12.2.

As Tables A12.1 and A12.2 show, during the period 1950–1 to 2000–1 the number of primary schools in the country increased by a factor of three, while the upper primary schools and secondary schools increased at an even faster rate: by sixteen and eighteen times respectively. The number of colleges for general education and vocational education and training also increased rapidly: by about twenty-four and twelve times respectively. The number of universities in India increased by ten times during the period. The growth in enrolments has been equally impressive (Annexe Table A12.3). In 1950–1 the total student enrolment at all levels of education was 23.8 million and by 2001–2 this had grown to 189.2 million—a massive increase. While this progress in enrolments is impressive, the graph indicates the significant gaps in participation at higher levels of education in rural areas and the significant gender disparities that exist at all levels (Figure 12.2).

Currently an estimated 95 per cent of the rural population living in 826,000 habitations has a primary school within 1 km and about 85 per cent of the population has an upper primary school within 3 km.

Infrastructure Needs for Providing Effective Rural Education

Education infrastructure broadly includes teachers, teachers' guides to the curriculum and syllabus, non-consumable learning materials (such as curriculum materials for students, textbooks, visual aids, and equipment), consumable learning materials (such as chalk, paper, pencils, exercise books), school buildings, including water facilities, latrines, and school furniture.[2]

A highly qualified, experienced, and competent teacher could probably be an effective educator with fewer resources than an untrained, poorly educated, and inexperienced teacher (DFID, 2001). To be effective, teachers must be competent and knowledgeable about the subjects that they teach. But they must also love learning and be able to pass on skills and knowledge to their students. In countless assessments of

[2]Furniture, in India, is not provided to primary schools as a matter of policy and it seems to have wide acceptance among teachers, students, and parents. However, in many developing countries furniture is used and is often badly designed, badly made and maintained, and of the wrong size. Good furniture will assist the learning process but poor furniture and especially, the wrong size furniture can actually be a barrier to learning.

education systems in developed and developing countries conclusive evidence has been established that shows the critical role of the teacher in ensuring positive learning outcomes for students.[3]

After the teacher, many educators would probably argue that an effective teaching guide, one that set out the programme of learning and provided guidance to the teacher for imparting this, may be the single most important ingredient of effectiveness. It is also hard to imagine an effective teaching and learning process without some consumable and non-consumable learning materials. With the presence of the first four ingredients of education infrastructure, effective learning can take place: whether this is located under a tree, on the veranda of a house, beneath a temporary shelter, or in a rented or borrowed building. However, there is much research evidence that links the availability of permanent classrooms, textbooks, desks, libraries, and running water with the take-up of primary education (Heneveld and Craig, 1996 and Verspoor, 2003). We also find that often in India the 'school building' is regarded by stakeholders and many commentators as the most important ingredient after the teacher.

How can a child's attention be focused on learning every day in the open air when there are a thousand distractions in the fields and village that surrounds the class? Is learning possible in deplorable conditions, such as a classroom in need of major repair, a facility so dark and airless that students can hardly see the blackboard, where one exists? So, adequate shade, ventilation, lighting, spaciousness, and quality finishes are all aspects of classroom design which can contribute to a better and more conducive learning environment.

There is also a need for comprehensive design strategies to address the diversity within and outside the classrooms and to move away from straight-jacketed classroom designs that may not adequately support the quality of teaching and learning envisaged by education policy makers and the context of diverse students and multi grade and multi level learning processes. The importance of a classroom notwithstanding, many outdoor spaces can be developed under the shade of trees, shaded backyards, and so on, thereby creating alternative learning spaces in addition to the formal classrooms. There is also a need to focus on the use of other elements of school infrastructure such as latrines. As will be discussed later, separate latrines for girls are important factors in retaining girls in the system and latrines at schools are also important for the teaching of hygiene practice which can then be taken back to the home environment.

In addition, schools can provide an excellent demonstration site for good infrastructure practice such as rainwater harvesting, water conservation, and water recycling. Some examples of this good practice, from Rajasthan, have recently been publicized during the 4th SSA Joint Review Mission in July 2006 (Box 12.1).

Box 12.1

Building as Learning Aid: Achieving Universal Primary Education in Rajasthan

T. Bhogal

The Lok Jumbish programme is set out to achieve universal primary education for children up to the age of 14 years. It has successfully impacted enrolment numbers and the retention of girl children through formal and informal education systems in the rural areas of Rajasthan. The first two phases of the programme have been carried out in 13 districts and 50 blocks: the retention of girls in the schools set up under this programme is four times that of schools set up elsewhere. The strength of the Lok Jumbish programme is its innovative approach, gender sensitivity and decentralized management systems that have ensured the sustainability of the initiative.

The programme goals are to design, make and maintain the school buildings in accordance with the aspirations and needs of the children, their parents and the community, to develop the entire teaching learning environment in accordance with the dignity of the child and to involve the community in all aspects, so that they develop a feeling of ownership and guardianship towards the programme.

Three key players in this programme are a team of architects, the Lok Jumbish Parishad, and the Village Construction Committees (VCC). The group which is primarily responsible for catalysing innovation is the consulting group of architects. The architects' role is to interact with the community, and to identify seasonal patterns in the availability of materials and skilled human resources.

The VCC consist of active village women, elders, teachers and so on. Their role, among other things, includes:

1. To manage money at the village level by collecting village contributions and opening bank accounts.
2. Arrange for masons, labourers, and material.
3. Keep a record of daily progress.
4. Support the architects in generating innovative ideas, as well as in surveying the site.
5. Consolidate the school building fund, and subsequently maintain the building.

[3]When asked early in 2006 how she explained Finland's consistently high placings at the top of the Organisation for Economic Cooperation and Development's (OECD) league tables of education performance of countries in the industrialized world, the country's Minister of Education replied simply: 'the high quality of our teachers, nothing more nothing less.'

The role of the third stakeholder, the Lok Jumbish Parishad, is to make policy guidelines, select architects, formulate targets, sanction funds, and monitor the progress of work.

The innovative features of this programme are involvement of the community and the teachers in deciding educational content which led to the development of BALA (Building As Learning Aid Concept). It explores possibility of using all facets of a school building: the walls, the doors, the windows for providing a positive learning environment for children. Thus, the opening and shutting of a door may be used to mark angles on the ground. The programme focuses on minority groups: most of the communities where this project was implemented lived in conditions of extreme poverty: something which militated against their sending their children to school. In addition, where the communities were Muslims, a lack of mutual confidence between teachers and the parents prevented them from sending their children to schools. The education system at the village level is managed by the Village Level Committees. The community is also represented in the decision making bodies of Lok Jumbish, ensuring that the needs and thinking of community positively impact the implementation of the project.

Note: Views expressed here are of the author.
Source: Dolly Jain, Zeenat Niazi (Editors) (2005)—Participatory Rural Habitat Processes: Emerging Trends, Development Alternatives, New Delhi.

Status of Rural Education Infrastructure in India

The Government of India and the governments of the states and UTs have been striving for several decades to put in place adequate rural education infrastructure, particularly for elementary schooling.

Figure 12.3 shows the proportion of villages having various educational facilities as estimated by the NSS 58th round (July–Dec 2002) survey. The graph illustrates the widespread availability of pre-school and primary school facilities in rural areas and particularly, within most villages and the way in which easy access to rural schooling becomes rarer the further one moves up the education system.

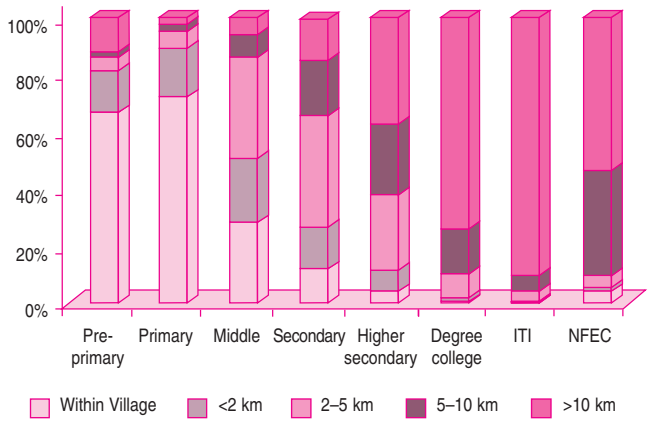

Fig. 12.3 Distribution of Villages by Education Facilities Available (2002)

Source: NSSO (2002).

Early Childhood Education—pre-school (age-range three to six years)

The salient fact which emerges from the 47th and 58th rounds of NSS on Consumer Expenditure, Employment-Unemployment, Disabled Persons and Village facilities is the spectacular rise in the number of pre-primary schools available in rural India. The proportion of villages having pre-primary school facilities is seen to have increased from around 39 per cent to about 68 per cent in these eleven years. By contrast, the proportion of villages with primary schools has increased by only about 6 percentage points, and the proportion of villages with middle schools by only 5 percentage points. The proportion of villages with secondary schools has increased by only about 1.5 percentage points.

The main provider of Early Childhood Education (ECE) in the countryside is the Integrated Child Development Services (ICDS), a Centrally Sponsored Scheme (CSS) managed by the DWCD that was launched in 1975. The ICDS programme adopts a multi-sectoral approach to child well-being, incorporating health, education, and nutrition interventions and is implemented through a countrywide network of 620,000 *anganwadi* centres (AWC) at the community level. The DWCD emphasis on a 'life-cycle approach' means that malnutrition is fought through interventions targetted at unmarried adolescent girls, pregnant women, mothers, and children aged zero to six years. Eight key services are provided, including supplementary feeding, immunization, health checkups and referrals, health and nutrition education to adult women, micronutrient supplementation, and pre-school education for three to six year olds. As the programme has developed, it has expanded its range of interventions to include components focused on adolescent girls' nutrition, health,

awareness, and skills development, as well as income-generation schemes for women.

Each AWC has an anganwadi worker who is responsible for delivering the services. It is estimated that Anganwadi Workers are spending 39 per cent of their time on pre-school education and in 2003 the Government of India reported that the total coverage of the programme for children in the 3–6 age group was nearly 170 million (MHRD, 2003). The ICDS programme runs *anganwadi* centres in villages with a population above 1000 in selected blocks with a relaxed norm of 700 for tribal areas. In 321 economically poor Himalayan villages of Uttaranchal, MHRD supports ECE through the Balwadis of Uttarakhand Seva Nidhi Paryavaran Shiksha Sansthan, Almora. MHRD is also supporting ECE through the auspices of the DPEP in Bihar, UP, Rajasthan, Orissa and West Bengal and in several other states through SSA and another CSS, Mahila Samakhya.[4] In addition to these services the Fifth All India Education Survey carried out by NCERT in 1998 reported that there were 10,376 independent pre-primary schools in rural areas, an increase of over 67 per cent in the previous ten years and it is likely that this number has doubled again in the last decade.

The National University of Educational Planning and Administration (NUEPA) reports that in January 2006, 17 per cent of all schools in rural areas had pre-primary facilities (NUEPA, 2006). The UNESCO Education for All Global Monitoring Report 2006 reports that the Gross Enrolment Ratio[5] (GER) in pre-primary education in India is 34 per cent (33.8 per cent boys and 34.1 per cent girls).

The take-up of pre-school education and retention in primary schooling could be significantly increased if new Anganwadi Centres could be in or near primary schools and their timings could be synchronised with the timings of the schools. This is particularly important for ensuring that girls stay in schooling, as one of the major obstacles to this aim is the need for sibling care in many rural households.

Elementary Education (age range six–fourteen years)

Most of what we know about the status of elementary education infrastructure in India comes from the District Information System for Education (DISE) data collected annually across all states (581 districts are currently covered) and collated, analysed, and reported on by NUEPA. Although there are some gaps and inconsistencies, DISE is the most comprehensive information system in the education sector, improving with each passing year. Based on the NUEPA 2006 report, we can assess the status of elementary education infrastructure in rural areas against a range of indicators, including school-based indicators such as the number of rural schools, the size of each school and the type of each school; facilities in school; enrolment-based indicators; and teacher-related indicators.

NUEPA's report tells us that in 2004–5 there were 126 million students being taught by 3.1 million teachers in 0.9 million rural elementary schools for an average of 209 instructional days. As indicated above, 90 per cent of these rural schools are government schools. DISE also tells us that the percentage distribution of rural elementary schools by type of building are pucca (71 per cent); partially pucca (9 per cent), kuccha (2 per cent), tent (0.11 per cent) and multiple type 9 per cent.[6] The average rural elementary school has three or less permanent classrooms (with 21 per cent of schools having one or no classrooms). Sixty-five per cent are in good condition; 24 per cent are in need of minor repair; and 11 per cent are in need of major repair.

In 2005, 48 per cent of India's rural elementary schools had no more than two teachers and only 25 per cent had five or more. Half of the rural schools having two or more teachers had no female teachers. These small rural schools with one or two mostly male teachers and three or less permanent classrooms have on average between 1 and 100 students (78 per cent of schools have enrolments within this range) and 35 per cent of the schools have less than 50 students. Several different age groups (often the whole school) are combined in one class and multi-grade teaching is the norm in such circumstances. The average student to classroom ratio in rural areas is 45. The average teacher to classroom ratio is 1.12 which indicates that a large proportion of teachers are teaching their students in classrooms shared with another class, or in alternative environments, such as the veranda of a school building, under a tree or beneath some other form of temporary shelter. The overall infrastructure scenario in elementary education in 2005 is presented in the figure below.

The disaggregated data collected by NUEPA highlights the extraordinary growth in rural schooling that has taken place since 1994 (NUEPA 2006) A total of 221,009 new elementary schools have been established in rural areas since 1994, this is one quarter of the total number of rural schools, largely as a result of DPEP and SSA. The growth in rural schools has

[4]Mahila Samakhya is the name of a women's empowerment programme operational in select areas of certain states in India.

[5]GER is the total enrolment in a specific level of education, in this case pre-primary, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education—in this case 3–6 years old. The GER can exceed 100% owing to early or late entry and/or grade repetition.

[6]8 per cent of schools did not respond to the DISE questionnaire on this aspect of schooling.

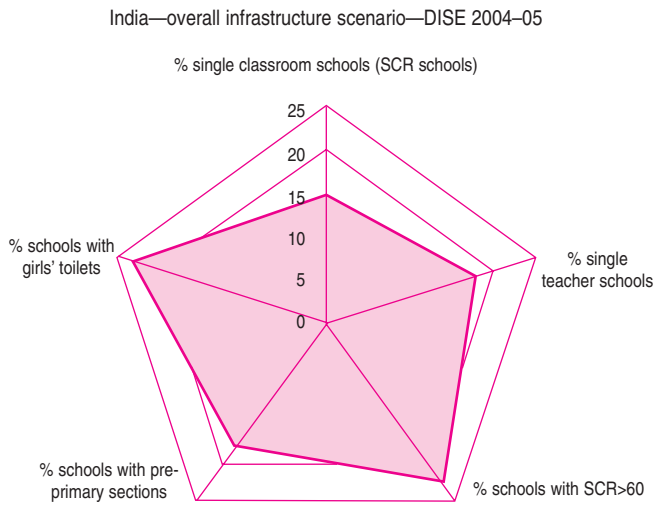

Fig. 12.4 Infrastructure in Schools in India

Source: DISE, 2005.

been most pronounced in Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan, and Uttar Pradesh with these five states accounting for over half of the new schools. The majority of these new schools have been primary (159,240) and primary with upper primary (21,015). Well over 80 per cent of the new schools have buildings.

A small number of rural elementary schools (less than 2 per cent) are residential. Almost half of the rural schools have boundary walls and only 4 per cent have no building at all—Chhattisgarh (13 per cent) and Madhya Pradesh (14 per cent) have the largest proportions of schools without buildings. There are very few schools in rural areas that are operating as shift schools and almost all are following routine and regular opening times.

The overwhelming majority of rural schools have some kind of drinking water facility: 50 per cent have access to a hand pump; 5 per cent have access to a well; 18 per cent have access to tap water; and 7 per cent have access to some other form of drinking water facility. But 17 per cent of schools do not yet have access to drinking water facilities. While more than 80 per cent of schools have some drinking water facility, not much is known about the adequacy of the water supply (is one hand pump enough for a school with over 200 students?) or the quality of the water supply (is the water being regularly tested to make sure it is clean?). Does the water facility provide the school with water? Some independent studies, such as Pratham's Annual Status of Education Report (ASER) of 2005 indicate that having a drinking water facility is no guarantee that the school will actually have water, or that the water will be clean (Pratham, 2006). The availability of toilets in rural schools is more limited with less than 45 per cent of schools having a common facility. Less than 30 per cent of schools have a girls' toilet. As with access to drinking water, having a toilet facility is no guarantee that it works or is utilized by the students. The ASER suggests that a small proportion of the toilets in schools are not working or are reserved for the use of teachers.

Two-thirds of teachers in rural schools are men (2.1 million) and about a million are women (these figures include para-teachers and this sub-group is discussed in detail below). In 2004–5 these men and women each provided their students with an average of 209 instructional days—the teachers of Himachal Pradesh provided the most instructional days (232), followed by Assam (230), Tripura (228), and Karnataka (226); while the lowest average number of instructional days was provided by Sikkim (180). The average of 209 instructional days refers to the days in which the schools were open and teachers and students were required to attend—it does not necessarily mean that all 3,145,500 teachers were engaged with their students for all of 209 days.

Teacher quality is firstly measured in terms of the teachers' academic qualifications, their education levels, and their professional teaching qualifications. Table 12.1 illustrates the first measure of quality, the percentage of teachers in rural elementary schools by academic qualifications.

It is clear that the overwhelming majority of elementary school teachers in rural areas have at least secondary education. Over half are graduates and a large proportion of this group holds post graduate degrees as well. There are even some Ph.D holders among rural teachers (Table 12.1). Clearly, we have a highly qualified rural teaching force relative to other countries with similar levels of per capita GDP.

With regard to the second measure of teaching quality, all regular teachers have one form of teacher qualification or another—it is not possible to be employed as a regular teacher without these qualifications. Most commonly rural

Table 12.1
Percentages of Teachers (including para-teachers) by Academic Qualifications, Male and Female[7]

Academic Qualifications	Male	Female
Below Secondary	3.10	3.90
Secondary	20.36	23.68
Higher Secondary	24.69	25.95
Graduate	32.68	29.08
Postgraduate	15.32	14.26
M.Phil. or Ph.D	0.21	0.23
Others	0.16	0.19

Source: NCERT (2003).

[7]The two columns of percentages do not sum up to 100 per cent owing to non-responses from some 6 per cent of schools.

elementary school teachers hold a teaching certificate (Basic Training Certificate) that is usually obtained after successful completion of a two year course held at a Teacher Training College (TTC) or DIET. There are also holders of Diplomas in Education, B.Eds (Bachelor of Education) and M.Eds (Masters of Education).

A recent phenomenon in Indian education has been the recruitment of para-teachers hired on contract at lower pay scales compared to permanent and pensionable regular teachers. The DISE reports that in 2004–5 there were a total of 346,824 para-teachers (of which 117,382 were female) contracted in rural elementary schools comprising 11 per cent of the total teaching force in rural areas. The majority of the rural para-teachers were contracted in just seven states: Andhra Pradesh, Bihar, Rajasthan, Uttar Pradesh, Chhattisgarh, Jharkhand, Madhya Pradesh (nearly 40 per cent of the rural teaching force in Chhattisgarh, Jharkhand, and MP are para-teachers). The para-teachers are mostly found in primary schools but a reasonable proportion is working in upper primary also, particularly in Chhattisgarh and Madhya Pradesh. The professional qualifications of the para-teachers are not well reported in DISE as over 50 per cent of them failed to respond on this aspect of their profile. It appears, however, that the nearly 50 per cent of para-teachers who did respond have professional teaching qualifications of one form or another, including a large number of B.Eds and M.Eds. The states that have large numbers of un-trained teachers (Andhra Pradesh, Bihar, Jharkhand, and Madhya Pradesh) are currently facing a major challenge to ensure that these personnel acquire professional qualification within three years of their appointment, mostly through distance training from the Indira Gandhi National Open University (IGNOU). In 2004–5 well over 40 per cent of regular teachers received some form of in-service training through SSA.

A basic indicator of teacher performance is attendance and a study carried out by the World Bank and Harvard University in 2003 found during unannounced visits to a nationally representative sample of government primary schools that 25 per cent of teachers were absent from school, and only about half were teaching (Kremer et al. 2004). DISE reports that in 2004 rural elementary school teachers spent on average fifteen working days on non-teaching assignments. The World Bank reported that absence rates varied from 15 per cent in Maharashtra to 42 per cent in Jharkhand, with higher rates concentrated in the poorer states. The ASER of 2005 referred to earlier in this chapter also found about 25 per cent of teachers were absent in the sampled schools covered by its survey.

The World Bank and Harvard researchers did not find higher pay to be associated with lower teacher absence. Older teachers, more educated teachers, and head teachers are all paid more but are also more frequently absent; contract teachers are paid much less than regular teachers but have similar absence rates; and although relative teacher salaries are higher in poorer states, absence rates are also higher (Kremer et al. 2004). It is interesting to note that teacher absence is more correlated with daily incentives to attend work: teachers are less likely to be absent at schools that have been inspected recently, that have better infrastructure, and that are closer to a paved road (Kremer et al. 2004).

Clearly, having adequate physical infrastructure in the school, including water, latrines, electricity, and infrastructure around the school makes a positive difference to teachers' attitudes to work. At the very least a paved road seems to make regular inspection a reality which in turn has a positive impact on teacher attendance and performance. In connection with this finding, it is important to remember that in education, quantity is closely related to quality: the more time a teacher spends with her students, the better the educational outcomes. Research indicates that there is a moderate and positive relationship between the rate of engaged time and student achievement (Fisher and Berliner, 1985 and Epstein and Karwait 1983) and also confirms that providing additional 'time on task' ensures that at-risk students, such as those in rural areas that are vulnerable to dropout, have the opportunity for a sound basic education (CFE, 2002 and Stalling and Knight, 2003). Similarly, an earlier study found a positive correlation between the availability of adequate school infrastructure and infrastructure surrounding the school and enrolment in school, especially in respect of the girl child (Drèze and Kingdon, 2001). We can interpret this connection between education and infrastructure as arising from the higher economic payoff to education in a more modern environment, particularly a higher income context, which encourages more parents to send their children to school.

With regard to other quality enhancing ingredients, in particular textbooks and other teaching and learning materials, the level of provision is good. In 2004–5, 74 per cent of rural elementary schools received a school development grant designed to enhance the school facilities. In addition, 65 per cent of rural elementary schools received a Teaching and Learning Materials Grant of Rs 500 per teacher and almost all girls, SC and ST children received free textbooks. A large number of SC and ST girls also received free school uniforms.

In addition to the infrastructure described above, since January 2005 the provision of a cooked meal to every child in a government or government-aided primary school has become mandatory. In a relatively short space of time the Mid-Day Meal Scheme (MDMS) has become an important feature of India's social change agenda. The Scheme has two objectives: improving nutrition and improving school enrolment. There is no doubt that this valuable innovation is contributing significantly to the achievement of both these aims and, in addition, it is likely that the quality of schooling will also improve as a result of the scheme, especially for girls,

as improved nutrition among the students helps them to learn more effectively and ensures that attendance is more regular.

Gaps in Provision

Despite the significant resources that are being deployed annually by the government for rural elementary education, most critics point to the lack of infrastructure as being largely responsible for the poor state of schooling in India, particularly in the countryside. The most useful way of understanding this gap is to compare the Government's targetted level of provision with the actual reality as measured by DISE and other sources of data. Table 12.2 sets out some of the GOI's target ratios or norms for the provision of elementary education and compares these to the actual situation in rural areas. There exist sizeable gaps between target norms and actual provision in several areas of rural elementary education infrastructure and there is also significant regional disparity in provision, but it is important to note that these gaps are narrowing rapidly in almost all states except in Bihar.

Despite the growing concern in India about the quality of education, there is no consensus regarding a definition of this. Most people will view the quality of education as the extent to which the student has acquired the curricular learning as measured by scores in tests. A quality education output can be achieved only if quality is ensured at each level of the educational process from setting standards, establishing the learning environment, preparation of teachers, through the teaching-learning process, assessment of learning, evaluation, and monitoring. Other indicators of quality are decreasing rates of dropout and increasing rates of stay-ins, the number of students who complete the elementary education cycle on time (within eight years) and, gender and social equality.

Education policy makers in India have drawn guidelines for the enhancement of the quality of education from international experience, the Declaration on Education for All (EFA), and national situation analysis and experience. The National Policy on Education 1986, as revised in 1992 was reinforced by the Programme of Action of 1992 that stressed the need to lay down Minimum Levels of Learning (MLL) at the Primary and Upper Primary stages to ensure that irrespective of caste, creed, location or sex, all children are given access to education of comparable standards. The MLL strategy for improving the quality of elementary education was seen as an attempt to combine quality with equity (SSA Framework for Implementation, 2001). *Source*: *http://www.educationforallinindia.com/page119.html*

The SSA programme prioritises good quality school buildings and facilities; improved quality of teacher training and teacher performance; longer time spent in school each day by students; higher levels of teacher motivation; re-energising academic support for and supervision of schooling; re-organization of the curriculum to reduce the learning load, imbibing local needs, and incorporating the concerns of the National Curriculum Framework 2000 (NCF, 2000) and, more recently, the NCF 2005 competency based and contextual teaching and learning materials; improved teaching and learning processes that are more child-centred and activity based; support for remedial teaching and enrichment programmes; formative evaluation and continuous assessment of student learning progress; participatory management of elementary education with community support.

The latest NCERT surveys of student learning achievement show low mean scores in all classes and subjects. It is also noticeable that SC children perform less well than other social categories. The ASER 2005 report reveals low levels of student learning achievement and previous NCERT assessments have shown similar results. Nearly 50 per cent of students cannot read, write, or do basic arithmetic in spite of spending four or five years in school (Chavan, 2006). At least a part of the problem lies in weak foundation in the early years of primary schooling. Greater priority must be accorded to ensuring that all learners have acquired the basics of reading, writing, and numeracy by Class II so that a sound foundation is laid for the acquisition of higher levels of learning in later years. The SSA programme's milestones in adequate infrastructure for effective teaching and learning will undoubtedly help to improve the situation. These factors combined with the implementation of the NCF 2005 give us reasons to be optimistic about the future of elementary education in India, but the current emphasis of SSA on improved quality for all children must be maintained and translated into effective improvement strategies in all states. This then is the gap in provision based on current enrolments, but there are also large numbers of children that are not yet enrolled.

Gaps in Provision When Out of School Children are Taken Account Of

There has been substantial progress in reducing the number of out of school children (OOSC) in recent years and the Government reports that the number of OOSC has fallen from 25 million in 2003 to 13.5 million as on March 2005 and less than 10 million in November 2005. The Government of India's figures for OOSC were largely validated in 2005 by the report of an independent Survey in Assessing the Number of OOSC in the 6 to 13 Years Age Group that had been commissioned by MHRD.[8] The findings of this nationally representative sample survey conducted in all States

[8]Survey on Assessing The Number of Out of School Children in the 6–13 Years Age Group by the Social and Rural Research Institute, a specialist unit of IMRB International, New Delhi (November 2005) IMRB (2005).

Table 12.2
Gaps in Provision

Targets/Norms	Current Status (2004/05)
Teachers	
One teacher for every 40 children in primary and upper primary	The average teacher: pupil ratio is 1:39.
GAP: Significant disparities exist between and within states: the majority of schools in Bihar, Jharkhand and UP, for example, have ratios well in excess of 40. 8 per cent of rural schools have a PTR above 100 compared to 4 per cent of urban schools.	
At least two teachers in a Primary school	122,483 rural primary schools have only one teacher (19 per cent of the total) and 9312 rural primary schools have no teacher (1.5 per cent of the total)
GAP: The gap is over 20 per cent of rural primary schools translating to a requirement of 1.32 lakh teachers. In addition, in 6 per cent of schools, the single teacher is not even a regular one. In Madhya Pradesh 33,220 schools have only a single para-teacher.	
One teacher for every class in upper primary	DISE does not report on this norm specifically, but the PTR and Pupil: Classroom Ratio (PCR) suggests that this norm is close to achievement.
GAP: As with all of the norms, while national mean average suggests progress is good, there are regional variations that need to be addressed.	
Primary School and Alternative School facilities	
Within one kilometre of every habitation	Ninety-five per cent of the rural population living in the country's 826,000 habitations have a primary school or alternative school facility within one kilometre.
GAP: The gap is 5 per cent of the rural population at the national average level, but there are wide regional disparities.	
Upper Primary Schools	
There should be one upper primary school/section for every two primary schools	In rural areas there are on average 2.93 primary schools for every upper primary school. About 85 per cent of the rural population has an upper primary school within 3 km of habitation.
GAP: While the national average is now below 3, in eight states the ratio is below 2, in three states (Bihar, Jharkhand, and Meghalaya) the ratio is above 3.5. In West Bengal there are 5.3 primary schools for every upper primary school. The gap in access is therefore, wide in the larger northern states, particularly West Bengal.	
Classrooms	
A room for every teacher in Primary & upper Primary, with the provision that there would be two class rooms with veranda to every Primary school with at least two teachers.	The average teacher: classroom ratio is 1.12 Almost 80 per cent of rural primary schools have at least two class rooms and 81 per cent of rural primary schools have at least two teachers.
GAP: A gap of almost 350,000 classrooms exists in rural areas.	
Free textbooks	
To all girls/SC/ST children at primary & upper primary level within an upper ceiling of Rs 150/- per child.	Ninety per cent of girls, SC children and ST children at primary & upper primary level received free textbooks in 2005–6. In several states the government is funding free textbooks for all students.
State to continue to fund free textbooks being currently provided from the State Plans.	
GAP: A gap exists in some states for girls/SC/ST but this is closing fast. There are also gaps in respect of OBC, minority groups and children from the general population in many states.	
Teacher grant	
Rs 500 per teacher per year in primary and upper primary for Teaching and Learning Materials (TLM) with transparency in utilisation	Over 65 per cent of schools received the Rs 500 per teacher per year in primary and upper primary for Teaching and Learning Materials (TLM) in 2004–5.
GAP: There is still a gap in this provision, but it is closing fast—performance in 2005–6 is expected to be much better.	

Source: MHRD SSA Framework for Implementation, 2003.

and Union Territories and including 87,874 households generally confirm the Government's own estimation of the number of OOSC. The survey estimates that the number of children in the age group 6–13 years is over 194 million of which 145.5 million are living in rural areas. The study estimated that less than 7 per cent of children in this age group are out of school amounting to 13.5 million children of which 84 per cent reside in rural areas. The study suggests that in the urban areas of India the Net Enrolment Rate (NER)[9] has reached 96 per cent while in the rural areas the NER is close to 92 per cent. The study estimates that there are more children out of school among the age group 11–13 compared to those in the age group 6–10 years. In the 6–10 years age group there are almost as many boys as girls out of school, but in the higher age group, 11–13 years, girls outnumber boys. The survey finds that there are a high proportion of minority social groups in the out of school population. In the age group of 6–13 years percentage of children out of school by social category is as follows:

1. 38.11 per cent of children with disabilities;
2. 9.97 per cent of Muslim children;
3. 9.54 per cent of ST children;
4. 8.17 per cent of SC children; and
5. 6.9 per cent of OBC children.

With regard to the remaining population of children aged 6–13 years (i.e., after the above groups have been netted out), only 3.73 per cent of these are out of school. On the basis of this survey, a child living in the rural areas with disabilities would therefore, appear to be twelve times as likely to be out of school as a child in the general population. A Muslim girl child would be far more likely to be out of school than a child in the general population. At the national level, among the children who are out of school, 68.26 per cent of these have never been to school and the remainder are dropouts.

The majority of the country's OOSC are concentrated in just three states: Bihar, UP, and West Bengal. These states contain 39 out of a national total of 48 districts where over 50,000 children out of school in 2005: Bihar (20); UP (15); and West Bengal (4) (Table 12.3).

The geographical variation in OOSC across India is demonstrated in the map of out-of-school-children (Figure 12.5). The administrative data of the state governments during the Fourth Joint Review Mission (JRM) of SSA (July 2006), shows clearly that universal primary education has been largely achieved in the southern states. It is important to note also the progress that has been made in reducing the number of OOSC between 2005 and 2006, particularly in Uttar Pradesh, with now 32 districts of the country reporting more than 50,000 OOSC down from 48 in 2005.

[9]NER is the enrolment of the official age group for a given level of education, expressed as a percentage of the population in that age group.

Table 12.3
No. of Districts having >50,000 Out of School Children in 2005 by State

State	No. of districts having >50,000 OOSC
Assam	2
Andhra Pradesh	1
Bihar	20
Chhattisgarh	1
Haryana	1
Maharashtra	2
MP	1
Tripura	1
UP	15
WB	4
Total:	48

Source: Aide Memoire of the 3rd SSA Joint Review Mission, January 2006.

Secondary and Higher Secondary Education (age range 15–19 years)

Relative to elementary education there is a paucity of up-to-date and complete data on SE and HSE. Most of what we know about these levels of education comes from the All India Educational Surveys (AIES) conducted periodically by the NCERT under the MHRD, GoI. The Survey was last compiled by NCERT in 2003. In addition to this school based data, there is data on SE and HSE available from the National Sample Survey (NSS) but the last NSS education round was in 1993—a data source that is now over thirteen years old. These gaps in the data notwithstanding, it is possible to develop a reasonable outline picture of the status of SE and HSE infrastructure in rural areas and this is briefly presented below.

Secondary Schools

There has been considerable growth in the number of rural secondary schools and progress in secondary school enrolments over the last twenty years, but access to this level of provision is only a little over half that of elementary education. The current GER for secondary education in rural areas is 48 per cent with girls 14 percentage points behind boys in their share of these enrolments.

Table A12.4 shows the number of secondary schools in rural areas according to the type of school building. It also illustrates the recent acceleration in the growth of rural secondary schools: in the ten years from 1993 to 2002 the total number of schools grew by 33 per cent from 47,870 to 63,633. The number of secondary schools without buildings

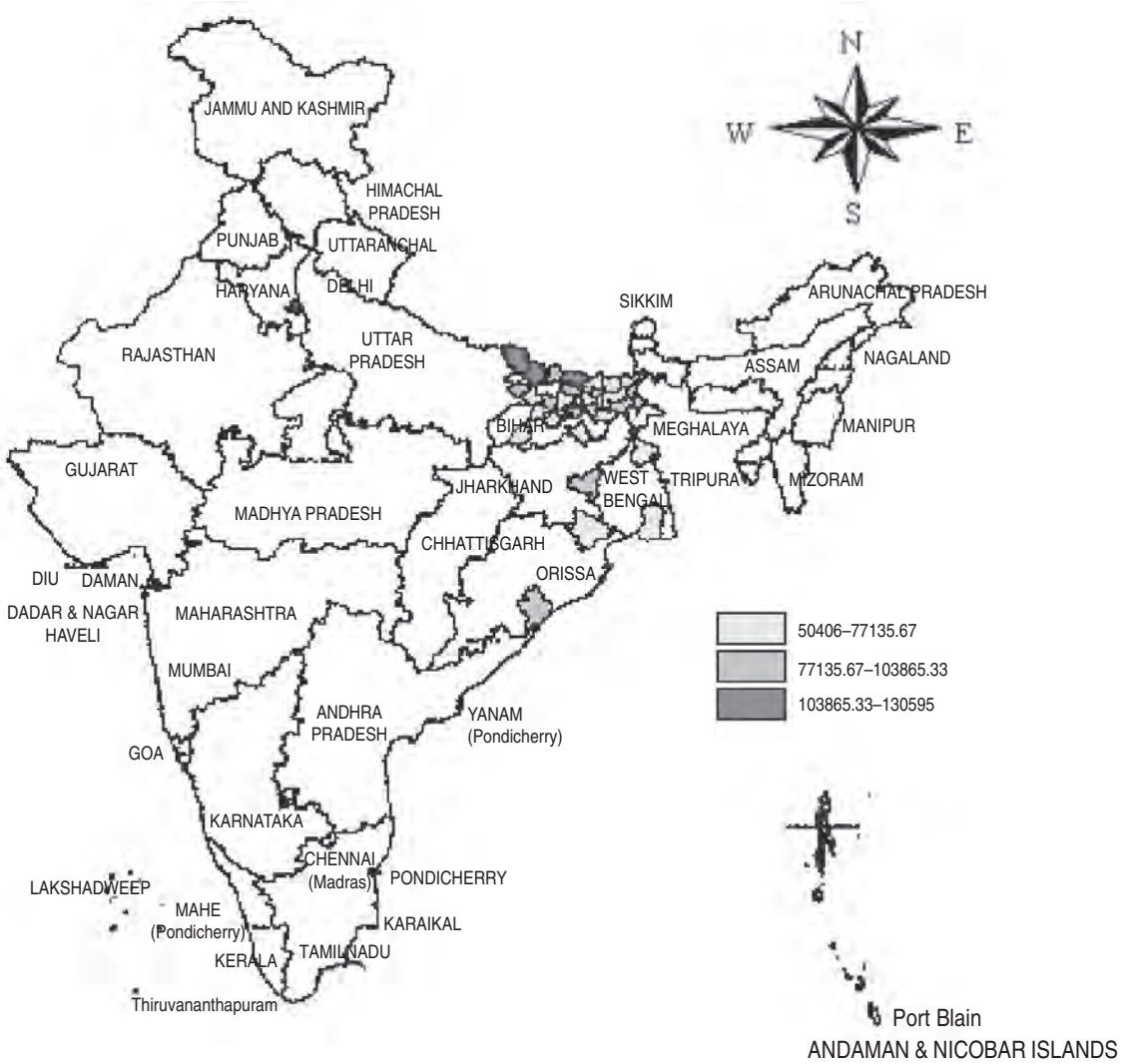

Fig. 12.5 Districts with more than 50,000 Out of School Children

Source: MMRD (2006) (Unpublished).

also grew by a factor of one-third, from 287 to 387 and over one-sixth of schools are without pucca buildings. The states with the fastest rates of growth are Andhra Pradesh (almost 50 per cent), Chhattisgarh (more than 50 per cent), Karnataka, Rajasthan, and Uttar Pradesh. In several states there has been relatively little growth in secondary schools; Bihar, for example, registers hardly any increase. In a few states, Goa and Kerala for example, the number of rural secondary schools appears to have declined over this period. The ratio of rural upper primary schools to rural secondary schools, at the national level, appears to be close to 3 but the size of the challenge the Government will face in increasing equitable access to secondary schooling in rural areas in the future becomes more apparent when regional variations around this mean are taken into account. Only 65 per cent of villages have a secondary school within five kilometres. A school located beyond this distance from the village presents an enormous barrier to participation: a student walking over five kilometres to school and back each day would take over two hours, particularly if no road exists or there are rivers to cross, or it is very hot in summer and cold and rainy in the winter and so on. Figure 12.6 illustrates the numbers of institutions at school level and make clear the chronic shortage of institutions at higher levels of the education system.

The quality of the facilities in these secondary schools is difficult to assess on the basis of the little information we have. The World Bank has recently undertaken surveys of secondary education facilities in three states, however, (Karnataka, Orissa, and Rajasthan) and on the basis of this analysis and Table A12.4 we can conclude that while rural secondary schools are mostly equipped with adequate classroom facilities and the majority have electricity connections, latrines, and water, only half have access to science laboratory facilities and few rural schools have access to the internet or even computers. It appears that

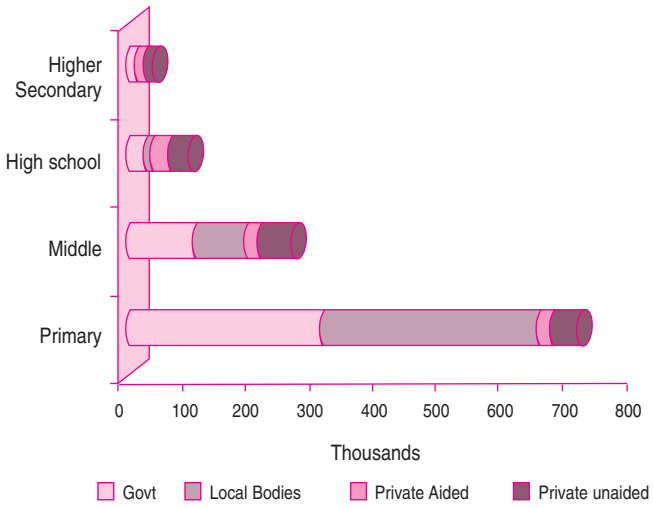

Fig. 12.6 Number of Institutions at School Level

Source: Selected Education Statistics:2003–4, MHRD, 2005.

rural private schools are slightly better off than rural government or government aided schools in terms of telephones, more classrooms, and internet connections, but they have few co-curricular activities. In these schools about 6.8 million students were enrolled in 2002 (Table A12.5).

Table A12.5 highlights the gender disparity in enrolments at this level of the rural education system. We have seen in the section of this chapter covering elementary education that gender disparities in rural primary schooling have almost been eliminated and those at upper primary level are fast disappearing. But at the secondary education level the gender disparities are significant: girls' share of enrolment at Class IX is 39 per cent and at Class X it is 38 per cent. These enrolment figures tell us nothing about the participation of the poorest households and SC, ST, and minority groups in this level of education. For this information we turn to household survey data and this shows that while rural secondary education enrolment has increased faster than urban enrolments and enrolments in the poorest quintile of the population are also increasing at a fast rate, there are large gaps in enrolment, relative to the general population, among the poor, SC, ST, and Muslim communities.

There is also considerable variation across states with relatively high levels of enrolments in the southern states and extremely low enrolments in Bihar (20 per cent), Uttar Pradesh (24 per cent), Rajasthan (20 per cent), Madhya Pradesh (24 per cent), Chhattisgarh (22 per cent), and West Bengal (21 per cent). India's secondary education enrolment is slightly lower than its income level would predict and among its neighbours, Nepal has much higher levels of participation at this level of education, Pakistan much lower and Bangladesh is roughly comparable, but a little higher. As we shall see later, in our discussion of the costs and financing of rural education, investment in secondary education is critical to future development—a lesson that has been learned well in East Asia in the past two decades. For India's economy to move to the next level it is important to increase the average years of schooling of the population over 25 years of age. Currently, India's average is 4.8 years compared to a developing country average of 4.9 years and a developed country average of 9.8 years.

There are 0.6 million secondary school teachers employed in the rural secondary schools giving us an average pupil: teacher ratio of 21. But, of course, at the secondary education level this ratio doesn't tell us very much about how teachers are deployed. At this level with a much wider range of curriculum and the requirement for subject specialists, the teachers' workloads are more important. Unfortunately, there is insufficient data on this aspect of rural secondary schooling to make a report, but there does appear to be some scope for raising the PTR. Table A12.6 presents data on teachers in rural secondary schools.

Higher Secondary Schools

The GER in HSE (20 per cent) is less than half that of SE (48 per cent), equal to just a third of upper primary education (60 per cent) and almost one fifth of primary education (97 per cent). At this level also there has been an incredibly fast rate of growth in rural areas: the number of schools has doubled in the ten years between 1993 and 2003 (Table A12.7). There has also been a commensurate increase in enrolments (Table A12.8). However, despite this growth, only a minority of villages have access to a higher secondary school within five kilometres. The number of rural HSE schools has doubled in the last decade and enrolments have grown dramatically (Table A12.7). Gender disparity at HSE is only marginally larger than that at SE. Despite this growth GER remains only 20 per cent and there are extremely low levels of participation among SC, ST, and minority groups.

The number of teachers has also grown over these ten years, 1993–2003, by an amazing 77 per cent. The student: teacher ratio in HSE is now 18. But, as with SE, this ratio doesn't tell us very much about how teachers are deployed. At this level the teachers' workloads are more important as all teachers are subject specialists. Unfortunately, there is insufficient data on this aspect of HSE to make a report.

At SE and HSE levels the majority of rural students are in government schools (55 per cent), a large proportion are in private schools aided by the government (35 per cent) with un-aided private schools accounting for the remaining ten per cent. It is noticeable that in rural areas there has been an increase in enrolments in government SE and HSE schools in recent years with a corresponding decline in enrolments in the government aided schools (World Bank, 2003a).

Gaps in the Provision of Secondary and Higher Education

The report of the Central Advisory Board of Education (CABE) Committee on the Universalization of Secondary Education has been forthright in pointing out,

> There is a lot of disparity in schooling facilities in various regions of the country. There are disparities among the private schools, among private and government schools in the same state, between schools in central sector like KVS, NVS, Tibetan Schools, Sainik Schools, etc. Also, there are no specific norms for secondary schools. No wonder, India hosts some secondary schools with magnificent buildings, library, laboratories, massive computer labs, cricket academy when majority of the secondary schools languish in dire poverty and deprivation. It must be appreciated that just the four-wall classrooms and teachers as per norms will not make a quality school. For providing universal and free access to quality secondary education, it is imperative that specially designed norms are developed at the national level and then disaggregated for each State/UT keeping in mind the geographical, socio-cultural, linguistic and demographic conditions of not just the State/UT but also, wherever necessary, of the Blocks (Report of the CABE Committee, 2005).

We would like to re-emphasize that significant disparities exist between urban and rural areas. The CABE Committee also recommended that the disparities among various categories of schools must be reduced. The Report acknowledges that this will require detailed planning of educational facilities and improved management of educational services. After long consideration, the Committee proposed a sample set of norms for secondary schooling that go way beyond the basic indicators adopted for elementary education under SSA. The recommended norms are in line with the large number of Kendriya Vidyalayas.[10] For a large majority of the secondary schools, particularly the government-aided institutions in various states, however, the norms would appear to be Utopian because a large number of these schools do not have these facilities (Report of the CABE Committee, 2005).

On imparting education in sciences at the SE and HSE levels, the first *India Science Report*, released in 2005 by the National Council of Applied Economic Research stated: 'although people in all sections of society want to study science, the poor and those living in the countryside miss out because it is too expensive and they lack the infrastructure, among other factors.' In India currently, while there has been a marked increase in access to secondary schooling in rural areas, the quality of this provision, certainly relative to the norms proposed by the CABE committee, leaves a great deal to be desired.

The pass rates of the various School Board examinations in Rajasthan, Bihar and Karnataka are below 50 per cent while those for other states are a little better. It is widely acknowledged that facilities and learning resources affect the quality of education. It is apparent that the provision of facilities and learning resources between different types of school and between rural and urban schools varies greatly—with government secondary schools in rural areas receiving the lowest levels of provision.

While the recommended norms for secondary education and a comparison with what is currently available in rural areas are important, this tells us nothing about the proportion of rural children in the age-group 15–19 years not enrolled in classes IX through XII. What is the gap in provision when these young people are taken into account? The short answer to this question is that we don't know exactly, but on the basis of the enrolment data we have for secondary education it appears, that approximately 60 per cent of the young people in the appropriate age range (15 to 19 years) residing in rural areas are not participating in secondary education—and, as indicated at the beginning of this chapter, the vast majority of the young people out of school at this age are girls.

Technical and Vocational Education (age range 15–25 years)

As with SE and HSE, data about Technical and Vocational education and training in rural areas is limited and largely out-of-date. It is clear, however, that technical and vocational education and training in India is almost exclusively delivered in urban settings: from the apex Indian Institutes of Technology (IITs), the six Indian Institutes of Management (IIMs), to the Seventeen Regional Engineering Colleges (RECs), ten of which have recently been re-named as National Institutes of Technology (NIT). Also included in this list are the 357 Industrial Training Institutes (ITIs), some of which are also used as Basic Training Centres (BTCs) for Apprenticeship Training Programmes to the 291 polytechnics and 24 women's polytechnics. The vocational education stream is quite small, enrolling less than three per cent of students at the upper secondary level, and those students that do enter this stream appear to be more intent on progressing to higher education rather than the labour market.

The small provision made for technical and vocational education and training beyond the institutions listed above is almost exclusively in the non-government sector and comprises of NGO activities and programmes with a small for-profit informal training sector. It is important to note, however, that the Directorate General of Employment and Training of

[10] Kendriya Vidyalayas are government funded schools for the children of central government employees—they offer the highest quality public sector schooling in the country.

the Ministry of Labour and Employment, GoI, has recently launched a Community Based Vocational Training Programme. This programme aims to provide three months training in skills identified by local communities through the auspices of NGOs or even individuals identified by the community through the Village Resource Centre (VRC). While rural elementary and secondary schools superficially include programmes related to productive work, vocational education and training is largely excluded from the school curriculum that is actually delivered to students.

Higher Education (age range 19 plus)

There is no higher education infrastructure in rural areas—learners in the countryside will generally travel to urban areas to access this provision. However, at least 10 universities are offering students in rural areas the opportunity to study for degrees (under graduate and post graduate) through open learning. In addition to the open universities, there are a further 54 distance course institutes that provide programmes in a wide range of subjects. The distance learning facilitated by these institutions is done through a mixture of correspondence, instructional radio, and television and more recently, as technology has changed, videotaped lectures, DVDs, audiotapes and lessons sent through the mail and, of course, the internet. Live video instruction is the most popular and fastest growing delivery mode in the developed world and this technology is starting to be used in India also—there is insufficient data to confirm whether this technology is yet available in rural areas. Through open learning, therefore, India is able to relieve some of the ever-increasing pressure that is building up on higher education. Technology enhanced learning has potential to achieve good results and partly solve the problem of teachers' training as well (Box 12.2)

Box 12.2

Technology Enhanced Learning for Rural India

Elizabeth Alexander and Pradeep Varma

Traditionally, distance learning was seen as a means of providing access to instructional content for students separated by physical location (and sometimes time) from an instructor. Distance learning was thought of as *static content* like pre-packaged text, audio, and/or video courses delivered at *set times* to an isolated learner with little or no interaction with a faculty member or other students. But this is a dated perspective. Today's information technologies allow a richly interactive distance learning experience which can, in some cases, surpass the interactivity of a traditional classroom.

Technology-enabled training includes computer-based instruction, web-based tutoring, electronic mentoring and workshops, virtual classrooms, video streaming and a wide variety of personalized training models. These delivery methodologies, when blended in some way with the face-to-face method, create new and powerful models to help people learn—anytime, anywhere; always on, always there.

Students in villages might not have access to good teachers but technology can help to overcome such issues by bringing good quality standardized content to thousands of learners in rural areas. Various delivery models are available. If lessons cannot be simultaneously beamed to students in remote locations, the material can be stored at a data centre from where learners can access video lessons through Learning Management Systems.

It is important to keep in mind that these solutions are not as expensive as they appear to be. Prices of computers are falling and with the increased focus of state governments on wide area networks, reaching the rural populations is becoming more feasible. Dr Ashok Jhunjhunwala of the Telecom and Computer Networks Group (TeNet) of IIT-Madras at Chennai, has made a compelling case for making computer education available at Rs 50 per student per month. (*http://www.tenet.res.in/Publications/Presentations/main.php#edu4allMar05*)

Again, the proposed network of Internet Kiosks and CSCs (Citizen Service Centres) will play a significant role in enabling such applications at the desired price point. A Chennai-based company, Novatium (www.novatium.com) has developed a thin-client that can provide a LAN (*www.mission2007.org/resources/hw/Novatium%20–%20Smart%20Governance.pdf*) in village schools at very low costs. The premise is that the server and content are maintained in the kiosk and accessed from there. Thus a 5 or 10 node LAN can be easily and inexpensively provided to the school and the maintenance and management of the same carried out by the Kiosk or CSC Operator.

Children can learn everything from basic computer skills to more advanced IT applications, as well as access computer-based lessons. The Novatium solution also offers a TV (Nova netTV), which can be used to beam static audio-visual content (*www.emergic.org/docs/pcforum-final.ppt*). With India being the only nation in the world to have launched a satellite purely for educational purposes, this could be useful. Another useful device is the K-Yan developed by IL&FS, described as a 'low-cost new-media product for community learning' which can replace a computer, projector, TV, etc (*http://www.schoolnetindia.com/kyan_intro.htm*). Since the need for quality content in local languages is being widely recognized various initiatives have been started. There is the NPTEL (National Programme on Technology Enhanced Learning) scheme of the Govt. of India, Gyan Darshan, and others. There are also initiatives taken by the private sector, especially in developing multi-media content for senior school.

The two main challenges where content is concerned are (a) to keep it updated especially where science and technology are concerned, and (b) to make it interesting for the student, particularly the rural school-going child.

Content also needs to challenge the creativity of the learner and spark her interest in the subject. Where content development fails is when the teacher uses technology merely as a *medium* of delivery rather than using technology to provide new and different ways of teaching the subject (such as multi-media presentations, interactive experiments and so on).

A number of state governments have programmes to equip government schools with computers. The mistake is in not allowing students adequate time to use it. To expect a young learner in a rural setting to become 'friends' with a computer from day one would be a major mistake. Students need to be allowed to touch and feel the computer and make mistakes while using it and learning from the mistakes.

Further, different age groups need lessons customized for their needs. Young children need to become familiar with the technology by viewing computers as 'fun'. An example would be to introduce them to the audio and video aspects of computers, teaching them how they can draw and paint electronically, telling them how to listen to, or create music on the computer. Older children need to learn more technical terms and adults a more practical introduction to the computer as a tool for earning a living. N-Logue has developed as a part of its portfolio of educational content, a set of courses that are tailored to different age groups from six years to working adults (*http://www.n-logue.com/services.htm*).

Quite clearly, the challenge is to provide content in the local language as well as to make it relevant to local conditions. Rural India has about 200 million school going children living in over 600,000 villages. India has a diverse list of spoken languages among different groups of people. At least 800 different languages and around 2000 dialects have been identified. At the very least, content would need to be developed and provided in the officially recognized 21 languages. This is no small task.

The one skill that appears on the top of the list of 'wants', for most rural children is the ability to speak good English. A number of spoken-English programmes have been developed in the West. The need in India is to develop such programmes for Indians using a 'neutral English accent'. This would have wide application not just in rural India, but also in the BPO sector. It could even be used to recruit young people from the rural areas for call centre jobs. The combination of internet, multimedia PCs like the netPC and the ability to record and play back, will make such programmes substantially more effective.

The most urgent need is to enhance school coaching in a practical and useful way. Most elaborate e-learning programmes for schools have had limited success because children are still uncomfortable learning from a computer and the heavy curriculum leaves little time for the child to do anything more than learn enough to pass the next exam. Rural children are also in the grip of 'tuitions' where attendance is a must to pass their final exams.

In an analysis of the 10th standard marks of the TN state examinations, the Tenet Group found that the maximum number of students failed in English, with the median marks for failure being 33 (pass mark being 35). The next subject with a high rate of failure was Mathematics. The reason, it was found, was that in Maths, rote learning is not possible and in English, the teachers themselves did not know the subject.

To help increase the pass rate in such schools, they developed an online coaching application (*http://www.tenet.res.in/Activities/Products/doc/onlieTutorial/index.php*) that has a very simple objective—to help children pass exams. It uses a combination of online tutorials, tests, and audio-visual lectures to help children prepare for their 10th standard curriculum—particularly, English, Maths and Science. Unlike most other e-learning programmes, it does not claim to replace the teacher. It merely augments school learning and fills in details that will aid the process. It has a number of model exams that help the child prepare for the main exam and thus remove the fear of facing an exam for the first time. A database stores the child's marks in each test and allows them to monitor their own progress with each subsequent test. The programme works best when administered to groups of children such that they learn from each other as well as from the application. In other words, the student-to-student interaction it facilitates improves the learning of each student. .

Technology enhanced learning (TEL) does not in anyway mean that teachers can be eliminated. If anything, it becomes more important that a teacher who is not comfortable with technology can ensure its failure. It is therefore, necessary to have teachers who are not only familiar with computers but are also comfortable with presenting and teaching how to use these tools.

States like Uttaranchal have taken the lead in ensuring that their school faculty is also trained to keep in step with the other TEL initiatives taken by the State. Regular teacher training programmes are organized in collaboration with Intel and Microsoft. Teacher training programmes are being supplemented with internal and external resources like Train-the-trainer programmes and the target is to ensure that all school teachers in Uttaranchal are trained in computers by 2007–8. Such initiatives are needed in all states so that full benefit can be gained from the TEL interventions.

A proactive approach in bringing the internet and other technologies to people (particularly the young and the poor) in the rural communities will only help these communities prepare themselves to face the unprecedented challenges brought on by the changing global economy and environment as well as improve their material well-being.

Note: Views expressed here are of the authors of the box.

Distance Education

As we have seen in the sections above, while free elementary education is universally available in rural areas, the same cannot be said of higher levels of education. Policy makers have long been aware of the huge gaps in provision that exist between elementary and secondary education. There is also widespread recognition among policy makers and key stakeholders that India has poor secondary education infrastructure, particularly in rural areas. In the light of this, education planners, especially after the National Policy on Education (1986) and the Programme of Action 1992 that followed this, have emphasized the open learning system and, in particular, the distance education provided by the National Open School.

At the secondary level, distance education was originally introduced in the 1970s in order to improve the performance of private students who sat for examinations. The Open School Project was launched during 1979 by the Central Board of Secondary Education (CBSE) in order to provide educational opportunities for those who could not join the formal system: in particular, the project targeted working adults, women and disadvantaged groups. The success of the Open School Project and the incorporation of the National Policy on Education (1986) culminated in the establishment of the National Open School (NOS), with increased scope and diversified objectives (Sujatha, 2002). Over the years, since NOS was established, enrolments have increased tremendously—from 40,884 in 1990–1 to more than 267,000 in 2005–6.

NOS draws its students from all over the country, but the majority are from Delhi, Andhra Pradesh, and West Bengal, with one-third from Delhi alone. It is reckoned that this regional concentration of NOS students is owing to a combination of factors, including differences between NOS and state-level syllabus and medium of instruction; lack of awareness about NOS in the more remote areas of the country; uneven distribution of Accredited Institutions (AI); and many states having their own versions of open schools (Sujatha, 2002). The proportion of NOS students from rural areas is on average around 50 per cent, but in some years it has been higher. The NOS experience clearly shows that distance education is one of the more cost-effective models for providing access to secondary education in rural and sparsely populated areas. NOS is increasingly targeting its efforts on learners in rural areas and in recent years the proportion of rural students has increased to 60 per cent of the total enrolment. One of the barriers to students from rural areas enrolling in NOS was the lack of access to AIs as most of these institutions were previously located in urban areas. However, with the growth in rural secondary schools over the past ten years this problem has been largely overcome. The problem of inadequate information about NOS opportunities in rural areas remains, however. The proportion of girls in NOS enrolment is, on average, 35 per cent (Table 12.4). This is generally in line with girls' share of enrolments in regular secondary schooling. The reason for the drop in enrolment in 2004–5 is unclear.

Table 12.4
Gender-wise Enrolment in Nos for last 5 Years (2001–2005)

Year	Male	Female	Total
2005–6	182440	84586	267026
2004–5	162351	75718	238069
2003–4	220103	100907	321010
2002–3	164550	113684	278234
2001–2	152286	62296	214582

Source: (NIOS, 2005).

The NOS has achieved a great deal in terms of increasing access to post-elementary education, including vocational education and training, in the context of limited provision of infrastructure in rural areas. In addition, the performance of the system in terms of the proportion of students successful in clearing final examinations and gaining certification is not worse than the students of the formal government schools in Delhi: 40 per cent. The per-student capital cost in NOS is low and has only increased marginally over the past twenty years. While Government funding towards non-recurring expenditure of NOS has increased considerably, Sujatha's (2002) analysis suggests that distance education at secondary level has more potential to be self-sufficient, particularly with increases in student strength enabling larger economies of scale.

Infrastructure Surrounding Education Institutions in Rural Areas

We should note the importance of infrastructure for enabling children to come to school—not just a paved road and transport but also access to facilities such as water in the household so that the child, particularly the girl child, is spared the burden of water collection. Here, we explore in more detail how physical infrastructure supports the teaching and learning process and how, potentially, it can also help to improve education management.

Beginning with power, in general, the role of electricity in lighting and enabling the use of ICTs in schooling is fairly well established; it consists mainly of the following services:

1. Lighting: For day or evening classes, extra-curricular activities, and residence on premises;
2. Electrical tools and appliances: From laboratory and workshop equipment, water pumping (and purification, heating, or cooling), to teaching electricity and electrical work as subjects;
3. Media and ICTs: From radio/TV/VCRs to telephones, facsimile machines, copiers, computers, and access to the web.

Put another way, reliable electricity services, and use of ICTs can help rural elementary education and post-elementary educational institutions by improving services, especially the delivery of distance learning, and by reduction in operating expenses.

Anecdotal evidence from rural areas suggests that often the energy expenses are not an insignificant component of a school's budget, particularly boarding schools. Often a lump sum is paid no matter what the delivery of energy, which is frequently affected by load shedding and is therefore, unreliable. Thus, it is not only a question of access but also reliable supply for the schools.

These examples suggest that if electricity supply quality is improved, teachers could teach better and for a longer period, and students learn better. What's more, the schools as well as students might save money (compared to using dry cells, for instance).

Are the Rural Areas of India Literate Environments?

By a literate environment we mean availability of daily newspapers and periodicals, access to books (either through a library or a bookseller), access to ICT in all its various forms. It is clear that currently, the rural areas of India are not literate environments and it is likely that literacy is not further developed or reinforced, and sometimes not even retained, among many rural pass-outs of primary school and literacy programmes as a result of this.

How many of India's daily newspapers (5,221 titles) are reaching the villages? According to UNESCO's EFA Global Monitoring Report for 2005, newspapers in India have a total circulation of 59 million, enabling a circulation rate of 60 per 1000 inhabitants (as opposed to 326 per 1,000 inhabitants in the UK; United States (196); Thailand (197); Singapore (273); China (59); and Brazil (46)). It is not possible to break UNESCO's circulation data for India down into rural and urban divisions, but it is likely that circulation per 1,000 inhabitants in rural areas will be much less than 60. Similarly, UNESCO's total circulation of non-daily newspapers of 68 million (69 per 1,000 inhabitants) for India as a whole is likely to be much less in rural areas.

According to the UNESCO Global Monitoring Report, book production is also very low in India relative to the size of the population: the number of titles of non-periodic printed publications (books and pamphlets) was 14,805 in 2002–3 (1 book per 1,000 inhabitants). By comparison, the number of titles of non-periodic printed publications (books and pamphlets) per 1,000 inhabitants in the UK was 255; United States (190); Malaysia (23); Brazil (13) (UNESCO, 2005). India's National Libraries contain many thousands of volumes (books) and have thousands of registered users and make thousands of loans to users each year. But these are all in urban areas. In rural areas of India there are very few library resources and those that exist are poorly resourced. While stationary shops and book sellers may exist in district headquarters and some small towns and even at the sub-district level, they are not present in rural areas. There is an urgent need for a greater public space, most importantly libraries, in rural areas that can accommodate the expanding culture of reading and the increasing demand for information. Access to ICT in rural areas is also limited, although, as we have seen in the sections above, it is growing, particularly access to mobile telephone technology (see Chapter 4 on Telecom).

To what use, then, is the growing literacy in rural areas put? How is it practised among rural learners who complete primary or upper primary education but go no further in their school careers? The answers to these questions can only be found through more research and analysis. However, from the experience of states that are close to achieving universal literacy and from other countries we can assert that as each generation of rural Indians becomes more educated and literate a virtuous circle will be established with these enhanced educational capital for adults affecting their children's learning achievement. This virtuous link arises not just because educated parents provide more effective support for a child's education but also because in more literate societies, children are exposed to many learning opportunities in daily living—through newspapers and other printed materials—that reinforce what is taught in the classroom (Mingat and Tan, 1998: 39).

Comparing the Roles of the Public and Private Sectors in Rural Education

The size of the private sector is greatly underestimated in official data owing to the fact that DISE and other sources of school-based data and reporting include only the recognised schools. Household survey data give us a somewhat more accurate picture of the private sector's contribution, and we have seen how the survey of Out-of-School Children last year (2005) estimates that the private sector's (recognized and unrecognized) share of elementary education enrolments was over 15 per cent. While this study does not break the private schooling data down into rural and urban shares, from other sources we can assert that in rural areas at least 90 per cent of the elementary schooling takes place in government or government-aided institutions. Although this is the general picture there are some regional variations (for instance, it appears that there are no private elementary schools in Gujarat but in Uttar Pradesh and Tamil Nadu approximately 30 per cent of the elementary schools are private).

A large proportion of secondary schools in the countryside are financed from the public treasury, both federal and state. It is also evident that a significant proportion of rural students,

particularly, post-elementary learners, are seeking the services of the private sector. At the post elementary levels of education there is a lot of untapped potential within the private sector. The recognition of the potential of the private sector combined with a growing demand for post-elementary education is leading policy makers to ask questions about the feasibility of increasing the volume and diversity of public-private-partnerships as a cost effective way of meeting this demand.

Public Private Partnerships (PPP) are collaborative efforts between private and public sectors, with clearly identified partnership structures, shared objectives, and specified performance indicators for delivery of a set of education services in a stipulated time period. The private education sector consists of for-profit and not-for-profit education institutions. The private partners involved in a PPP initiative may include these for-profit and not-for-profit institutions as well as corporate institutions, PRIs, NGOs, community-based organisations and even individuals who are interested in contributing to the creation and operationalization of education services in an area. The public element of the partnership comprises government spending of tax revenues and the individual users spending out of their pockets for education services.

Public-private-partnerships have distinct advantages and can help to achieve desired education outcomes. It should not, however, be considered an end in itself but as a means to achieve certain specified results. It is important to note that in the country widely regarded currently as having the best education system in the world, Finland, practically all schooling is in the government sector. In the UK and US the results of PPP have included the following:

1. Competition between the PPP initiative schools and other education providers has made even the private institutions accessible to poorer households through reduction in their costs.
2. Greater choice of education services has been made available even to the poorer members of the community.
3. More and better quality of education services have been achieved by the setting up of standard guidelines for the initiative participants.

There are many successful examples of PPPs in the education sectors of a number of countries, developed and developing. These examples include:

1. relocating or building new schools, colleges, universities, and providing management facilities for the new building/ campus; projects might involve land swaps or enable the private sector provider to generate a third party revenue stream;
2. building facilities for education institutions (on the education institution's land or elsewhere) that will have potential for third party income generation, such as sports or academic/conference facilities;
3. refurbishing existing assets and/or providing facilities management;
4. providing Information Systems—such projects may be to ensure the continued availability of hardware and software over a period of time, or may go further, with the private sector provider taking on some administrative functions. There may be opportunities for third party income generation by selling spare capacity at off peak times; in addition, the private sector partner might provide catering facilities in a Cybercafe format.

In these examples, the private sector might:

- in return for a service payment manage all or part of a school, university or college's facilities, providing such services as security, catering, and maintenance;
- refurbish and manage facilities, such as catering, for a number of schools; or
- generate income, for example by improving a university or college's heat and power plant so that excess capacity can be sold to external customers.

There are already examples of PPP existing in Indian education. In elementary education the Government's SSA, for example, conceives a vibrant partnership with NGOs in the area of capacity building, both in communities and in resource institutions. These partnerships are being nurtured through several different activities. The Research, Evaluation, Monitoring activities under SSA are being undertaken in partnership with private institutions and NGOs. This, it is hoped, will improve transparency of programme interventions and would also encourage a more open assessment of achievements. In the elementary education sector, NGOs have been making meaningful contributions for several years. Work related to pedagogy, mainstreaming of school children, developing effective teacher training programmes, organizing community for capacity development for planning and implementation, expressing gender concerns, work in the sphere of disability among children, and managing Mid-Day Meals are some examples of this. SSA conceives partnership with NGOs in three ways, through:

- direct funding by Central and State governments;
- funding activities by identified National and State Resource Institutions;
- participation in community activities funded by Village Education Committees.

NGOs are also discharging a useful role in advocacy as well as accountability of the SSA programme. Under the Education Guarantee Scheme (EGS) and Alternative and Innovative Education (AIE) NGOs are being funded through State Implementation Societies. Substantial partnership of NGOs is conceived through community organizations including Village Education Councils, Parent Teachers' Association, Mother Teachers' Association, School Management Councils and so on, NGOs are helping to build capacities in the community for improved education management. The managers of SSA are also exploring options for a longer-term partnership with NGOs.

An excellent example of the PPP working in SSA is provided by Byrraju Foundation, a not-for-profit organization, which aims to contribute to sustainable rural transformation. Under its School Education Programme, the Foundation facilitates the creation of 'Model Schools' in adopted villages including 234 government schools, benefiting 80,000 students and 1,600 teachers. The Foundation supports a holistic school development programme and through this the schools undergo a rapid transformation. The objective is to bring the infrastructure and academic standards in these rural schools at par with the well-run private schools in the large cities in India. This is achieved through a collaborative framework, in which the Foundation actively partners the Government, Alliance Partners and the Village Community.

It is important to note also that PPP in the form of the massive grant in aid system has been a feature of Indian education since 1859 when the British colonial administration introduced it to the country. The subsidies paid to private education institutions in the country constitute a significant claim on public education expenditure in a majority of states, especially, at the secondary and higher education levels. The sheer size of these subsidies implies that the management of them is an important aspect of the management of the education budget as a whole. These subsidies are less in rural areas than in urban ones, but nonetheless, in four states at least (Kerala, Maharashtra, Gujarat, and Orissa), the contribution of rural-aided secondary and higher secondary institutions is greater than urban-aided schools (World Bank, 2003b).

While the literature on PPPs asserts that the approach is supposed to lead to better quality schooling than publicly produced education, the bulk of the analysis of the grant-in-aid system in India concludes that it has led to schools that are private in name but which function no better than public ones. The evidence suggests that at secondary and higher secondary levels private schools are more cost-effective than government schools in the large northern state of Uttar Pradesh and generally more effective at imparting learning in other states where this has been studied, namely: Tamil Nadu, Madhya Pradesh, and Andhra Pradesh (Kingdon, 2005 and the World Bank, 2003b).

Regulating the Education Sector in India: Interstate Comparisons of Education Outcomes

The Regulatory Regime

Article 45 of the Directive principles of the Constitution urges the State to provide free and compulsory education for all the children until they reach fourteen years of age.

In this direction the National Policy on Education, 1968 stressed the need for strenuous efforts for early fulfilment of the goal laid down in the Constitution. The Constitutional Amendment of 1976 included education in the concurrent list. The National Policy on Education, 1986 and the Programme of Action 1992 envisage free and compulsory education for all children up to the age of 14 years (Paul et al. 2006: 53).

In addition to these policy imperatives, the Programme of Action of the Central Government directs the state governments to have their own State Programme of Action for implementing the thrust areas of the national policy based on local conditions. As Paul et al. (2006) report, 'The 93rd Constitutional Amendment declared free and compulsory elementary education as a fundamental right for all children in the age group 6–14 years. To fulfil the Constitutional obligation, the Government of India launched Sarva Shiksha Abhiyan programme in partnership with the states. The programme aims to improve the performance of the school system and improve the quality of elementary education in a mission mode to all children in the age group of 6–14 years by 2010 through a community owned approach'.

While the policy, legislative framework, and strategy for elementary education is now well established, the same cannot be said for post-elementary education. This is a fact well recognized by the Government of India's Central Advisory Board of Education (CABE) in its deliberations regarding the 'Universalization of Secondary Education' from August 2004. CABE has recommended a policy framework for secondary education that will translate the vision of universal access, equality and social justice, relevance and development in to a ground reality of high quality secondary education for all Indian adolescent girls and boys up to the age of 16 by 2015, and up to the age of 20 by 2020. These recommendations may be made concrete in terms of policy over the next few years, but currently there is a policy void in respect of Government responsibility for ensuring access for all to post elementary education. These issues will be discussed further in the final sections of this chapter which deal with the costs and financing of rural education and the agenda for future action.

In the meantime, it is important to note that within each of the twenty-five states and seven union territories of the country there is generally a four-tier administrative structure for education—region, district, block, and village—and since 1992 many states have introduced a degree of local government in rural areas in the form of the PRIs or village council. Alexander (2000) has summarised the regulatory regime for education as follows:

The Constitution deals with the balance of power between national and state government through its three lists: the Union and State Lists cover those areas on which, respectively, national government, and state governments legislate exclusively; the Concurrent List includes those areas—education being one of them—where power is shared. There is substantial devolution of powers and resources from federal to state level, and for this and historical and cultural reasons the quality of educational provision, and the outcomes of this provision in

terms of measures such as adult literacy, are as varied as every other aspect of the country.

Variations in Outcomes: Kerala vs Uttar Pradesh

In their background paper for the World Bank's *World Development Report 2004*, *Making Services Work for Poor People*, Shah and Rani (2003) consider how it is that 'states in one federal nation, following the same Constitution, laws, and intergovernmental finance system, and subject to the same election cycles, Kerala and Uttar Pradesh remain worlds apart in human development.' In education, the differences between these two states are quite stark (Table 12.5).

Table 12.5
Comparison of Education Outcomes between Kerala and Uttar Pradesh

Education Indicators	Kerala	Uttar Pradesh
Female school enrolment rate (6–17 years)	90.8%	61.4%
Male school enrolment rate (6–17 years)	91.0%	77.3%
Rural girls (10–12 years) never in school	0.0%	31.7%
Rural women (15–19 years) never in school	1.6%	49.3%
Per cent of population living in villages with primary school	90.1%	75.1%
Per cent of population living in villages with secondary school	87.1%	31.9%

Source: Shah and Rani (2003).

Shah and Rani (2003) point out that Kerala had a historical head start over Uttar Pradesh in terms of human development when it was formed in 1955. But most of Kerala's achievements in education came after 1955: adult literacy has increased from 50 per cent in 1950 to over 90 per cent now; and as the Table 12.5 illustrates well over 90 per cent of the children are in school—even areas of Kerala that were furthest behind, such as the Malabar region, have achieved the same levels of education achievement as the rest of the state.

Drèze and Sen (1997) suggest that Kerala's achievements are the result of positive public action and that by contrast Uttar Pradesh's experience is dominated by public neglect of and even public inertia towards the same opportunities that Kerala has seized with both hands. These opportunities include:

- The early promotion of primary education and female literacy in Kerala compared with the continuation of educational backwardness in Uttar Pradesh;
- The role of gender equity and the agency of women appear to be an important difference in the two states' post-independence experience—Uttar Pradesh has a long, well documented tradition of oppressive gender relations;
- General neglect of public services in Uttar Pradesh is in marked contrast to their promotion in Kerala;
- The benefits of early increased primary education in Kerala led to a more literate and better informed public which in turn played an active role in politics and public affairs in a way that has not proved possible in Uttar Pradesh with its persistently low levels of enrolment and literacy.

As Shah and Rani (2003) argue, Kerala's voters were and continue to be better educated and informed; they have been less polarised socially; and delivering broad, universal basic services has remained a credible political platform in Kerala compared to the clientelist, caste and class-driven politics of Uttar Pradesh.

In addition to these factors, Kingdon and Muzammil (2003) have shown how there has been significant political penetration by teachers in Uttar Pradesh, so much so that teacher representation has gradually become sizeable in both the Upper House, where they have a constitutionally reserved representation, and the Lower House as well. As Kingdon and Muzammil make clear, it would be naïve to think that the politicization of the main actors in the education sector, namely teachers, has been without effect on the functioning of school education in UP. There is a widespread concern about the deleterious effects of teacher politics on the progress of the education sector in UP (Shah and Rani, 2003). It would, of course, be equally naïve to imagine that a publicly funded education system can be free of political intervention, but it appears that politics has impinged on Uttar Pradesh's education sector in a profound and adverse way—influencing the evolution of educational institutions, and shaping the legislation that now governs school education in the state.

This example of Kerala and Uttar Pradesh does not, of course, in any way explain all the differences in outcomes between the various states, but it is illustrative of some of the factors that contribute to differences between them. It is beyond the scope of this chapter to offer further explanations for these differences, but there is one aspect of the status of the human development indicators in the south compared to the north that should be highlighted and that is population. These two broad regions, north and south, make telling contrasts: while the north (for the purpose of this discussion: Uttar Pradesh, Bihar, Orissa, Madhya Pradesh, Rajasthan, Uttaranchal, Jharkhand, and Chhattisgarh) have average population growth rates of over 2 per cent, the south (here we include Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka) have population growth rates of just over 1 per cent. The fertility differential between north and south will have, and already has, major implications for the planning of education in these two regions and, more broadly, the future development scenarios that each region will face.

Issues Affecting the Costs and Financing of Rural Education Infrastructure

Let us start this discussion of the costs and financing of rural education infrastructure by reminding ourselves of the enrolments at each level of education in the rural areas. As discussed already, these statistics provide only a partial picture. Even setting aside questions about the accuracy of these figures, they do not, for instance, tell us how many students actually attend classes each day and give no indication of educational outcomes; we have discussed these issues in an earlier part of this chapter.

Table 12.6
Gross Enrolment Rates at each level of Education in Rural Areas

Levels of Education	Gross Enrolment Rates* (%)
Pre-Primary	34
Elementary	91
Secondary	49
Tertiary	6.4

Notes: *These are the national GER (urban and rural); it is likely that the rural GER is much lower.
Source: NCERT (2003).

We would like to have enrolment rates that approach 100 per cent, certainly at the levels of pre-primary, elementary, and secondary education, and at least 50 per cent at the tertiary level. Indeed, the Government of India itself is compelled by legislation and the courts to have enrolment rates that approach 100 per cent at the elementary level. As Katarina Tomasevski (2003) has observed, however, the question is not really about the value of having all the children in school, or the rights of children to a good quality basic education, but rather the cost of making this provision available. Krishna Kumar (2006) has recently observed:

> 'there is no obvious reason why every child cannot be put into a school for eight years as the Constitution desires. We have the resources; we have the expertise to plan. The draft bill that would have led to legislation to facilitate the implementation of the Constitutional amendment was discussed by the CABE last year. The MHRD has calculated the cost and for a while it seemed as if the draft would move towards presentation in Parliament. That, it now appears, will not happen, and the reason one gathers is that the required financial expenditure is deemed to be unaffordable'.

The costs of denying education are all too real in rural India: leaving seven-year-olds to fend for themselves routinely drives them into child labour, child marriage or worse. As Tomasevski (2003) makes clear, 'the right to education operates as a multiplier. It enhances all other human rights when guaranteed and forecloses the enjoyment of most, if not all, when denied.... Exposing abuse of power, manifested in denials or abuses of education, is the first necessary step towards opposing it. It is the essence of human rights'.

While it is feasible for the government to meet the costs of elementary education for all, especially within the expanded resource envelope for education of 6 per cent of GDP, does the country have the economic and human capacities to even contemplate approaching enrolling 100 per cent of all children in secondary schooling as well? To say nothing of the costs of enrolling up to 50 per cent of young people in higher education?

Public expenditure on education in India is currently 3.99 per cent of GDP (against the often stated goal of 6 per cent of GDP) and public expenditure as a percentage of the total of the government budget is 14 per cent (Paul et al. 2006). Comparisons with public expenditures on education in selected developing countries show that India's expenditure on education is actually relatively higher than several countries in the region that have better enrolments at all levels (Table 12.7).

As discussed earlier, making adequate provision for education is no guarantee of high enrolments and successful outcomes. A particularly, important aspect of education costs are the levels of teacher salaries. In India these are high as a proportion of per capita GDP (3.3 times). In the Pacific Rim Countries (PRC) the proportion is considerably lower. In connection with this aspect of the costs of education, we should bear in mind the findings of Mingat and Tan (1998) that as countries grow rich, teacher salaries decline substantially relative to the per capita GNP (see Table 12.8 below for an illustration of this). In Finland, a country performing at the

Table 12.7
Public Expenditures on Education in India and Selected Developing Countries

Country	Public expenditure on education as % of GDP	Public expenditure on education as % of total govt. budget	Distribution of recurrent expenditure (%)		
			Pre-primary and primary	Secondary	Tertiary
Bangladesh	2.3	8.7	44.2	43.3	7.9
China	2.3	12.2	36.9	31.5	16.5
India	3.9	14	38.4	26.1	13.6
Malaysia	5.3	15.5	35.4	41.2	16.8
Pakistan	2.7	7.9	48.0	24.0	14.0
Vietnam	2.7	7.4	40.0	20.0	16.0

Source: Paul et al. (2006) for India and Bray (2004) for all other countries.

Table 12.8
Primary School Pupil: Teacher ratios and Teachers' Salaries as a multiple of per capita GDP in Selected Developing Countries, around 1992

Country	Pupil:Teacher ratio	Teachers' salary as multiple of per capita GDP
Bangladesh	63:1	3.2
Bhutan	31:1	4.9
China	22:1	1.3
India	48:1	3.3
Indonesia	23:1	2.7
Laos	30:1	1.7
Nepal	39:1	3.2
Pakistan	41:1	4.0
Philippines	34:1	1.8
Sri Lanka	29:1	1.3

Source: Chuard and Mingat (1996) quoted in Bray (2004).

highest levels in education, teachers are comparatively poorly paid (barely equal to per capita GDP). This relative reduction in teacher salaries enables richer countries to reduce pupil:teacher ratios faster, expand coverage and to also devote a greater proportion of their education budgets to quality improving investments such as professional development of teachers, materials, better conditions for teaching and learning and the other ingredients we discussed at the beginning of this chapter that make effective teaching and learning possible.

The data presented so far covers government expenditures only, but as mentioned earlier in this chapter it is important to remember that non-government expenditures on education form a large percentage of the total education spend. While the government provides 90 per cent of elementary education in rural areas, at the secondary education level the private sector makes a significant contribution. At the tertiary level there is an even higher proportion of enrolments in private institutions.

The education cess has helped to accelerate the pace of infrastructure creation and the hiring of thousands of additional teachers at the elementary level. The success of SSA, which is funded largely by the cess, in ensuring that the majority of children participate in elementary schooling gives rise to the next challenge—to meet the education needs of children graduating from elementary schools, and to provide functional literacy and/or employment skills to the elementary school dropouts as well as large numbers of illiterate adults, especially in rural areas, where, as we have seen, much of the population resides. Historically, graduation rates in rural areas were lower, as was performance of rural students on standardized tests, compared to urban areas; not many rural students go on to post-primary education, or go to cities for that purpose. As rural India develops, there will be a greater need for skilled labour in the countryside, and for that need to be met, the *quality* of post-elementary rural education institutions would also have to be improved along with the numbers of such institutions.

The costs of post-elementary education are typically much higher than those for elementary education, and the GoI and states/UTs would clearly not be able to meet them completely as it is in the case of elementary education. At the same time, for the rural people to bear their share of investments in post-elementary education of their children, they have to be convinced that what they, and their children, get in return is quality education that improves their employment prospects. Poor people in the countryside realize that education offers an escape from poverty—but only if the economic environment in the society at large and the quality of education improves. Not enough is known in India about the outcomes of education for the poor and how the education and skills acquired at school impact the earning opportunities of the poor in rural areas. But if the only choice rural people have at the end of completing elementary education is to go to urban areas for secondary or vocational education, an unaffordable proposition for most of them, some of them may well decide to drop out ahead of completing the elementary school cycle. Expanding access to secondary education in rural areas thus helps to maintain universal enrolments at the elementary education level while also relieving the pressure building up on urban infrastructure.

When policy makers consider investments in the post elementary education sector, they are faced with an extremely important question: what should be the balance between general and technical and vocational education? In response to this, there are strong arguments for and against greater Governmental attention to technical and vocational education. The developing country experience of government funded technical and vocational education and training is not good. As Bray (2004) has noted, 'the facts remain that much technical and vocational education is not closely linked to the labour market, that it has high unit costs, and that secondary technical/vocational schools are not necessarily the best place to provide the types of technical and vocational skills needed by economies'.

Although school-level technical and vocational education may be an excellent investment in some rural contexts of India, it requires careful planning and the following factors discussed by Bray (2004) must be taken into account:

- Costs: We find that the unit costs of technical and vocational education are often three to five times greater than the costs of general secondary education;
- Supply: Making this kind of provision in all rural areas is probably not feasible;
- Demand: In many countries, governments have invested in technical and vocational education provision only to find that social demand for this kind of education is lower than expected;

- Labour market outcomes: These are extremely difficult to anticipate and governments do not have a good track record in this area;
- Institutional flexibility: Usually, technical and vocational education institutions are locked into inflexible programmes of learning that are slow to respond to changes in social and labour market demand for skills.

Statistics on unit costs are an important guide to policy makers. For the purpose of this chapter we take unit cost to mean the cost of a school place occupied by a single student for one year (Coombs and Halifax, 1987: 51, as quoted in Bray, 2004: 18). It is important to note, however, that unit costs tell us nothing about whether students attend classes each day or the quality of education they receive when they do turn up. The GoI, MHRD, are currently making use of unit costs for each level of education to prepare strategies and allocations for the Eleventh Five Year Plan. The focus of planning for the elementary education sector is on closing the gaps of the SSA norms. On the basis of these calculations, the government estimates that at the same level of continuing expenditures of state governments on elementary education (remember that the state governments meet 90 per cent of the recurrent costs of elementary education) the investments required under SSA to close the gaps in provision amount to Rs 98,000 crore for the ten years from 2000 to 2010. It is anticipated that the majority of these resources will be made available through the auspices of the education cess referred to earlier that has been successfully introduced with Rs 63,000 crore coming from the GoI and Rs 35,000 crore devolving on the state governments. The last 10 per cent or so of the financing may be found from external sources—the government's development partners, the UK's Department for International Development (DFID), the European Commission (EC) and the World Bank (WB) are currently preparing further tranches of support to SSA.

While the elementary education sector appears to have adequate funds for the next five years, it is important to note that the unit cost of reaching the last few per cent as enrolment rates rise will be higher than the unit costs at lower enrolment rates due to the additional cost of reaching marginalized populations. This is demonstrated by experiences of other developing countries (Tsang, 1994, quoted in ibid. 25). Marginalized population in rural India mainly include Scheduled Caste, Scheduled Tribe, Muslims, and disabled children.

At the post elementary level, the challenge is now greater than ever in India's history and new policy is urgently required to provide the framework for expansion of education delivery in line with the targets of coverage set by the government. On the basis of the draft Eleventh Five Year Plan Approach Paper that has been prepared by MHRD, it appears that a Serva Shiksha Abhiyan II for the universalization of secondary education (USE) till Class X is envisaged. However, unlike SSA I (elementary education), the new mission for secondary education will not be a mainly government endeavour. Given the limited public resources, the draft Approach Paper states that the 'needed expansion of secondary education will require not only public but also private effort.' According to the draft, 'the Eleventh Plan must evolve strategies for secondary schooling that will emphasize the primacy of public responsibility for providing secondary schooling but also allow scope for private schools to expand if they complement the public effort.' As we have already noted, this approach is necessary in view of the fact that at present private aided and unaided schools account for 58 per cent of the total number of secondary schools in the country. As the draft Approach Paper notes: 'The striking feature is that their (private schools) proportion is actually increasing at a faster pace than public funded schools, mainly because state governments have nearly stopped increasing funding of public secondary schools and aided schools.'

The mission mode is being suggested for universalizing secondary education keeping in view the anticipated surge for further education as a result of the universalization of elementary education (UEE), courtesy SSA I, and the success that this type of operation has enjoyed in elementary education. In considering this approach, it will be important to remember that SSA has been successful in part because it followed ten years of DPEP through which capacity for education reform was built and strategies were tried and tested before going to scale. In addition, as we noted in the section of this chapter dealing with distance education, NOS offers the Government a further option for expanding coverage at much lower cost than regular secondary schooling.

While increased financing of education up to the targeted 6 per cent of GNP will obviously benefit all levels of the education system, it is also the case that greater education coverage of the population and improved quality may be achieved through increasing the internal efficiency of the education system. These efficiencies can be achieved in two ways: firstly by reducing the costs of educational inputs; and, secondly, by increasing the efficiency with which the inputs are consumed. With regard to the first, it is possible, as we have seen, to consider ways in which the ingredients that are necessary for effective teaching and learning can be reduced. For example,

- Teachers—as we have seen, regular teachers, relative to other countries in the region are highly paid in India (as measured in multiples of per capita GDP) and the experience with para-teachers and decentralized management of teachers, particularly in Madhya Pradesh, suggests that this critical input can be procured at much lower cost without sacrificing quality (World Bank, 2006).

- Teachers' Guides—ICT applications may potentially reduce the costs of this item and the time it takes to develop these materials may also be reduced.
- Non-consumable learning materials (such as curriculum materials, textbooks, visual aids and equipment)—in several developing countries, most recently Uganda, textbook reform has led to massive savings in the unit cost of materials and enabled governments to provide free books to all children within sustainable budgets (Ward et al. 2006).
- Consumable learning materials (such as chalk, paper, pencils, exercise books)—are the benefits of economies of scale being realised?
- School buildings, including latrines—are the building designs cost-effective?

There is evidence to suggest that in some contexts the private sector can be more cost-effective than government schools, particularly at the secondary level. This suggests that increased privatization of education at the secondary level may enable the government to expand coverage at lower costs through mechanisms such as grant-in-aid, scholarships and school vouchers. But this would only be effective in areas where there is either (a) sufficient supply of facilities or (b) sufficient demand, and income, to attract entrepreneurs to create facilities. It is unlikely that this approach would suit some of the more remote areas of the countryside. In any case, the evidence that the private sector is universally more cost-effective than the government sector is mixed.

With regard to the second efficiency, this can be achieved mainly through maximizing enrolments, effectively deploying teachers, reducing dropout, increasing retention, and ensuring that the majority of children complete cycles of learning on time; i.e., with a minimum of repetition of school years. In elementary education there has been some progress in reducing dropout in the last five years and the proportion of children completing the primary cycle in the allotted time is also improving. At post-elementary levels these indicators have been positive for some time, particularly in rural areas—largely owing to the low levels of enrolments; young people that have made the massive efforts required to get into secondary schooling are generally highly motivated and tend to last the course and complete on time.

The issue of cost recovery and student support in higher education is beyond the scope of this chapter, but it clearly has implications for the costs and financing of rural education infrastructure. Government subsidy of higher education is a significant contribution to the costs of this level of education and yet the economic rates of return for those lucky few that are benefiting from this provision are enormous relative to elementary and secondary schooling. Clearly, if there was more cost recovery and less student support in higher education, there would be increased financing available for elementary and, perhaps most importantly at this stage in India's history, the expansion of secondary education.

One final point to conclude this discussion of financing is that the nature and consequences of private financing are not simple and more research is needed into the implications of household and community contributions to public institutions; private institutions that operate in parallel to public ones; and private tutoring that supplements public schooling (Bray, 2004).

Closing the gaps: An agenda for the future

The Union and state governments' education reform plans in many areas of the sector are already well advanced and the purpose of this final section is not to reinvent the wheel by suggesting new policies and strategies. Instead, on the basis of the analysis presented in this chapter, some particular issues at each level of the rural education system are highlighted for attention within this overall reform context.

Early Childhood Education

Proposals for the reform of ICDS are currently being considered. With regard to ECE, among these proposals is one that the demand for pre-school education, and for feeding the older children, could be met by devolving these responsibilities to the Department of Education or to local authorities. The DPEP and SSA already deliver pre-school education services in some districts, and the feeding of four to six-year olds could become part of the National Mid-Day Meals Programme. In this manner, more of the AWW's time could be freed up for nutrition and health education and growth promotion, increasing the prospect of achieving better nutrition outcomes. If this kind of reform is not possible, there should, at any rate, be more emphasis given by the managers of primary education and ICDS to convergence between the two services. The potential benefits of greater convergence are enormous.

Elementary Education

Until the mid- to- late 1990s India's performance on basic education was less impressive than its policy statements. Lack of real political will, insufficient resources, bureaucratic complacency, and pervasive social exclusion kept over half of all children from completing a meaningful basic education. But recent years have seen better progress, mostly through increased public demand, improved sector management, and political and judicial pressure. With more money for programmes that target the most needy and with greater accountability to local communities, change *is* taking place. The record of SSA to date in increasing enrolment and retention suggests that empowerment and accountability are the key drivers of change that are enabling SSA to achieve

the hitherto elusive goal of every child successfully completing basic schooling.

SSA places special emphasis on particularly vulnerable groups, earmarking funds for their specific needs. They include both Scheduled Castes and Tribes (including dalits) and other minorities, including Muslims and girls. In SSA terminology these groups are referred to as 'special focus groups' or 'SC/ST and minorities'. The SSA framework accommodates the needs of specific social and religious groups, through local planning as well as through special schemes such as residential courses for remote, working or migratory children, free text books and special innovation funds to meet extraordinary needs. The national policy commitments to girls' education are being implemented through SSA.

SSA is working, in both the well-off states and in the poor, populous states: it is a good practice model of effective basic education programme delivery. It provides a sound policy framework for universalizing elementary education. It has enormous financial, political, and bureaucratic support behind it at national and state levels. It has popular support, it has within it partnership arrangements that function well, and it has the potential to ensure that every child in India gets a chance to go to school. This achievement will have global significance.

In the course of the next five years SSA financing and implementation needs to contribute to:

1. Increasing the focus on those states, regions, and districts that are furthest behind (in particular Bihar, Orissa, Uttar Pradesh, and West Bengal);
2. closing the gaps for those social category groups that are most disadvantaged;
3. giving greater emphasis to quality improving efforts; and
4. developing and implementing activities related to increasing the accountability of teachers to the communities that they serve and strengthening broader school governance through the VEC.

During the course of the 11th Five Year Plan the gains and achievements of SSA must be locked in and their sustainability assured through coherent national policy and state policies and budgets that facilitate the continuation of educational development by the mainstream education administration after the mission mode has ended. As Clarke and Jha (2006) have stated, in respect of the gains of the 1980s and 1990s in Rajasthan education, alongside the mission mode of operations and such creative initiatives, it is important to address systemic issues in the education sector as a whole in the states, especially institutional and governance reform.

To this end, it is desirable to put in place a mechanism for annual national reporting on education combined with regular independent assessments of learner achievement that report trends in achievement levels nationally and across districts and states. To ensure compatibility, the framework for these assessments, the core parameters and tools of these surveys should be uniform for the entire country and modular additions could be made by individual states and UTs. The states/UTs should have the freedom to adopt different parameters and tools for experimentation and innovation, in addition to surveys according to the national framework. National level capacity will need to be identified and built for this task among the MHRD and its associated institutions, such as NCERT and NUEPA.

Secondary and Higher Education

The plans that are currently being developed for secondary education must encompass the contribution of the private sector. With regard to PPP, as indicated in this chapter, the menu of possible choices and issues is wide ranging and policy makers considering further improvements to rural elementary education and the expansion of coverage of secondary and higher education can follow the advice given in the World Bank's recent handbook on PPPs (World Bank, 2005). This Handbook suggests that after a comprehensive evaluation of PPP in the education sector, officials may more effectively consider and consult on the issue of private involvement in schooling. As well as making more effective use of the private sector there will also be a need to reform the grant-in-aid system.

With regard to improving the quality of secondary education, it will be important to ensure alignment of the NCF 2005 with syllabus, textbook development, teacher training, and examination. There will also be a need to set national competency standards and to participate in international studies of student learning achievement for capacity building and benchmarking. The expansion of access will need to be managed carefully and school mapping will be necessary to facilitate effective planning and resource allocation. The lessons that have been learned in elementary education will be of use to the managers of secondary education in the years ahead, in particular, the way in which primary education was expanded, through DPEP before moving into a national expansion phase under SSA. This kind of gradual approach that involves piloting innovative ways in which to increase access and improve quality is likely to be more effective in the long run than a big bang expansion. The most important aim in expanding access to secondary education should be to eliminate gender disparity at this level of schooling within the shortest space of time and not later than 2015.

Vocational Education and Training

All sectors of industry are reporting that the lack of trained human resources is a major constraint to growth and development in the future. While most industry is urban based, there will be a requirement for more and better trained

human resources in the rural areas also. For this to be achieved, it will be necessary to ensure the following conditions:

Match Available Skill sets to the needs of the Labour Market

The youth in rural areas will need to be trained to cater to the demands of the latest jobs available in the private sector. ITIs and Polytechnics, which are the pioneers in providing technical human resources to the public sector have outdated curricula that do not link effectively with the existing job market. Therefore new and flexible training solutions will need to be found, particularly in rural areas. This will require a major restructuring of the TVET system and how it is managed.

School and College Education needs to be more Oriented to preparing Students for Life, including the World of Work

This does not mean that basic education should focus on jobs. Schools should continue to provide students with a good general education, but one that has value in the job market. This will require the curriculum to lay emphasis on developing key skills such as communication, critical thinking and other life skills. India has lagged behind in the area of technical and vocational education and training and even today enrolment rates in ITIs and other vocational institutes is only about a third of that of higher education (see the approach paper for the Eleventh Five Year Plan).

Lack of Awareness

People in rural areas have only a limited awareness of the job market or career options, and this is becoming a major obstacle to development, particularly as work opportunities are changing rapidly. Traditionally, the employment outlook in rural areas has been limited to government jobs and there has been little guidance in respect of the latest developments in employment opportunities in the private sector (formal and informal). Therefore, more emphasis should be given to the provision of information about training that is being provided, including the results of any appropriately validated evaluations of this training.

There needs to be more emphasis given to market-led skill development to ease the miseries of underemployment in the rural areas on the one hand, and, on the other, to equip those migrating to cities with more marketable skills so that they can negotiate better wage rates and living conditions. This will require greater levels of partnership between the Government and the private providers of vocational education and training.

Concluding Remarks

In summary, there has been remarkable progress in increasing access to pre-school and elementary education in rural areas, particularly over the past ten years or so. Of course, several problems such as irregular attendance of children and teachers, low levels of time on task and gaps in provision still persist and the issue of how to ensure a quality education for all is paramount. But these challenges are being addressed and there are positive signs that the emphasis in major Government programmes such as SSA is shifting from universal enrolment to universal retention and quality. In tandem with this, there is also increasing attention being given to the governance of schools with the formation and functioning of VECs and more transparent processes for managing school resources. The next most pressing challenge is to increase access in rural areas to secondary education, particularly for girls, SC, ST, and minorities as well as improve access to technical and vocational education and skills. At this level of the education system the private sector is growing rapidly and playing the major role of service provider. But in both elementary and secondary education better services will only come about with greater expansion of infrastructure, both within and around schools. This will require, in part, larger allocations to education, but probably not more than the already stated goal of 6 per cent of GDP, but these increases will need to be accompanied by appropriate reforms and strategies. It will also require the continuation of strong central support for policy, strategy, technical assistance, and monitoring and evaluation combined with increased decentralization within government, stronger public-private partnerships, and improved accountability relationships between the service providers, policy makers, and consumers.

ANNEXE

Table A12.1
Literacy Rate and Number of Primary Schools (1951–2001)

	Literacy Rate (%)			Number of Schools	
Year	Total	Males	Females	Primary	Upper Primary
1951	18.33	27.16	8.86	215,036	14,576
1961	28.31	40.40	15.34	351,530	55,915
1971	34.45	45.95	21.97	417,473	93,665
1981	43.56	56.37	29.75	503,763	122,377
1991	52.21	64.13	39.29	566,744	155,926
2001	65.37	75.85	54.16	641,695	198,004

Note: Literacy rates of 1951, 1961, and 1971 relate to population aged five years and above. The rates for the years 1981, 1991, and 2001 relate to the population aged seven years and above.
Source: MHRD (2003a).

Table A12.2
Growth of Recognized Educational Institutions in India from 1950–1 to 2001–2

Years	Primary	Upper Primary	High/Hr. Sec/Inter /Pre. Jr. Colleges	Colleges for General Education	Colleges for Professional Education (Engg., Tech., Arch., Medical & Education Colleges)	Universities/ Deemed Univ../Instt. of National Importance
1950–1	209671	13596	7416	370	208	27
1955–6	278135	21730	10838	466	218	31
1960–1	330399	49663	17329	967	852	45
1965–6	391064	75798	27614	1536	770	64
1970–1	408378	90621	37051	2285	992	82
1975–6	454270	106571	43054	3667	** 3276	101
1980–1	494503	118555	51573	3421	** 3542	110
1985–6	528872	134846	65837	4067	** 1533	126
1990–1	560935	151456	79796	4862	886	184
1991–2	566744	155926	82576	5058	950	196
1992–3	571248	158498	84608	5334	989	207
1993–4	570455	162804	89226	5639	1125	213
1994–5	586810	168772	94946	6089	1230	219
1995–6	593410	174145	99274	6569	1354	226
1996–7	603646	180293	103241	6759	1770	228
1997–8	619222	185961	107140	7199	2075	229
1998–9*	626737	190166	112438	7494	2113	237
1999–2000*	641695	198004	116820	7782	2124	244
2000–1*	638738	206269	126047	7929	2223	254
2001–2*	664041	219626	133492	8737	2409	272

Source: Department of Education, MHRD *http://www.education.nic.in/htmlweb/edusta.htm.*

Table A12.3
Growth in Enrolment by Stages (in million) in Recognised Educational Institutions in India from 1950–1 to 2001–2

	Primary (I—V)			Middle/Upper Primary (VI-VIII)			High/Hr. Sec./Inter/ Pre-Degree (IX-XII)		
Year	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1950–1	13.8	5.4	19.2	2.6	0.5	3.1	1.3	0.2	1.5
1955–6	17.1	7.5	24.6	3.8	1.0	4.8	2.2	0.4	2.6
1960–1	23.6	11.4	35.0	5.1	1.6	6.7	2.7	0.7	3.4
1965–6	32.2	18.3	50.5	7.7	2.8	10.5	4.4	1.3	5.7
1970–1	35.7	21.3	57.0	9.4	3.9	13.3	5.7	1.9	7.6
1975–6	40.6	25.0	65.6	11.0	5.0	16.0	6.5	2.4	8.9
1980–1	45.3	28.5	73.8	13.9	6.8	20.7	7.6	3.4	11.0
1985–6	52.2	35.2	87.4	17.7	9.6	27.1	11.5	5.0	16.5
1990–1	57.0	40.4	97.4	21.5	12.5	34.0	12.8	6.3	19.1
1991–2	58.6	42.3	100.9	22.0	13.6	35.6	13.5	6.9	20.4
1992–3	57.9	41.7	99.6	21.2	12.9	34.1	13.6	6.9	20.5
1993–4	55.1	41.9	97.0	20.6	13.5	34.1	13.2	7.5	20.7
1994–5	60.0	45.1	105.1	22.1	14.3	36.4	14.2	7.9	22.1
1995–6	60.9	46.2	107.1	22.7	14.8	37.5	14.6	8.3	22.9
1996–7	61.4	46.8	108.2	22.9	15.2	38.1	15.3	8.7	24.0
1997–8	62.3	48.0	110.3	23.6	15.9	39.5	16.1	9.3	25.4
1998–9*	62.7	48.2	110.9	24..0	16.3	40.3	17.3	10.5	27.8
1999–2000*	64.1	49.5	113.6	25.1	17.0	42.1	17.2	11.0	28.2
2000–1*	64.0	49.8	113.8	25.3	17.5	42.8	16.9	10.7	27.6
2001–2*	63.6	50.3	113.9	26.1	18.7	44.8	18.4	12.1	30.5

Note: *Provisional.
Source: Department of Education, MHRD *http://www.education.nic.in/htmlweb/edusta.htm.*

Table A12.4
Secondary schools in Rural Areas according to the type of School building

Sl. No.	State/U.T.	Type of School Building in 2002						Total Number of Schools in 1993	Schools Without Building*	
		Pucca	Partly Pucca	Kachcha	Tent	Open Space	Total		1993	2002
1	2	3	4	5	6	7	8	9	10	11
1	Andhra Pradesh	7406	641	182	0	56	8285	4762	0	56
2	Arunachal Pradesh	88	18	3	0	0	109	72	0	0
3	Assam	1124	1616	509	4	4	3257	2503	4	8
4	Bihar	1596	831	90	0	11	2528	2495	20	11
5	Chhattisgarh	695	190	75	0	0	960	441	15	0
6	Goa	187	3	1	0	0	191	203	0	0
7	Gujarat	2703	449	95	9	9	3265	2937	30	18
8	Haryana	2532	21	0	0	1	2554	1667	0	1
9	Himachal Pradesh	790	287	83	1	6	1167	916	9	7
10	Jammu & Kashmir	847	161	38	1	15	1062	820	18	16
11	Jharkhand	698	83	8	1	8	798	705	17	9
12	Karnataka	4246	265	85	13	26	4635	3219	15	39
13	Kerala	961	80	12	0	0	1053	1621	1	0
14	Madhya Pradesh	1905	381	92	3	138	2519	1232	55	141
15	Maharashtra	7342	817	630	35	1	8825	6498	21	36
16	Manipur	97	178	101	0	0	376	316	0	0
17	Meghalaya	231	85	39	0	0	355	289	0	0
18	Mizoram	55	98	55	0	0	208	138	0	0
19	Nagaland	89	54	12	0	0	155	124	1	0
20	Orissa	4428	1013	239	0	9	5689	4677	9	9
21	Punjab	1696	57	1	0	4	1758	1717	4	4
22	Rajasthan	3773	84	0	0	0	3857	2643	2	0
23	Sikkim	63	18	6	0	0	87	65	0	0
24	Tamil Nadu	1954	395	53	17	0	2419	2344	56	17
25	Tripura	189	105	68	0	0	362	305	1	0
26	Uttar Pradesh	2505	283	14	0	0	2802	1329	0	0
27	Uttaranchal	596	31	6	0	12	645	520	0	12
28	West Bengal	2759	730	50	1	2	3542	3182	1	3
29	Andaman & Nicobar Islands	37	0	0	0	0	37	25	0	0
30	Chandigarh	14	0	0	0	0	14	10	0	0
31	Dadra & Nagar Haveli	11	0	0	0	0	11	7	0	0
32	Daman & Diu	11	0	0	0	0	11	15	0	0
33	Delhi	36	4	0	0	0	40	38	8	0
34	Lakshadweep	6	0	0	0	0	6	5	0	0
35	Pondicherry	43	6	2	0	0	51	30	0	0
	INDIA	51713	8984	2549	85	302	63633	47870	287	387

Note: *Schools without building include those schools which are functioning in tents and open spaces.
Source: 7th All India Educational Survey, 2003, NCERT.

Table A12.5
Class-wise enrolment in classes IX-X in rural areas

Sl. No.	State/U.T.	Enrolment in Classes							
		IX		X		IX–X		I–X	
		Total	Girls	Total	Girls	Total	Girls	Total	Girls
1	2	3	4	5	6	7	8	9	10
1	Andhra Pradesh	493446	204456	417388	167629	910834	372085	9642658	4581686
2	Arunachal Pradesh	7886	3262	6036	2388	13922	5650	187466	83859
3	Assam	230810	109551	165992	78514	396802	188065	4083865	1958655
4	Bihar	298408	87235	247844	71043	546252	158278	10736749	4322836
5	Chhattisgarh	121221	41160	117341	39084	238562	80244	3379848	1539528
6	Goa	8746	4092	6590	3092	15336	7184	90677	42995
7	Gujarat	290460	107999	243262	90589	533722	198588	6286815	2771750
8	Haryana	164784	68346	169062	66353	333846	134699	2719337	1220016
9	Himachal Pradesh	88348	41529	98214	46631	186562	88160	1224636	585777
10	Jammu & Kashmir	82619	33095	55959	22579	138578	55674	1402527	614838
11	Jharkhand	81076	25651	62794	19093	143870	44744	3085830	1298071
12	Karnataka	367368	161194	308747	135626	676115	296820	6682759	3159759
13	Kerala	407149	195605	333375	169988	740524	365593	3806663	1839686
14	Madhya Pradesh	254614	76693	259043	75542	513657	152235	8124669	3498513
15	Maharashtra	840805	366783	660399	276396	1501204	643179	11198928	5221975
16	Manipur	20772	10020	18007	8879	38779	18899	400095	193111
17	Meghalaya	13490	6878	10587	5306	24077	12184	411344	208028
18	Mizoram	4601	2290	3094	1495	7695	3785	108398	51646
19	Nagaland	6401	3158	4445	2052	10846	5210	175268	84453
20	Orissa	300483	130713	249341	108851	549824	239564	5770906	2667831
21	Punjab	151051	71071	158085	72303	309136	143374	2404987	1134598
22	Rajasthan	307965	74462	248795	58784	556760	133246	8541871	3492205
23	Sikkim	6111	3002	3804	1845	9915	4847	110448	55634
24	Tamil Nadu	369673	170445	278093	129724	647766	300169	5964560	2846545
25	Tripura	37771	17213	22522	10009	60293	27222	597265	281886
26	Uttar Pradesh	1136921	367215	1173049	358748	2309970	725963	25499739	11174366
27	Uttaranchal	93898	36724	103052	40547	196950	77271	1464798	690285
28	West Bengal	544745	236324	331122	135199	875867	371523	11220728	5383941
29	Andaman & Nicobar Islands	3705	1816	2862	1343	6567	3159	46701	22344
30	Chandigarh	1253	663	1044	600	2297	1263	17711	8791
31	Dadra & Nagar Haveli	1472	544	956	387	2428	931	35030	15097
32	Daman & Diu	953	425	634	262	1587	687	14978	7068
33	Delhi	10784	4960	7008	3407	17792	8367	157805	74816
34	Lakshadweep	666	310	633	305	1299	615	8069	3716
35	Pondicherry	6702	3172	5291	2470	11993	5642	70047	33264
	INDIA	6757157	2668056	5774470	2207063	12531627	4875119	135674175	61169569

Source: 7th All India Educational Survey, 2003, NCERT.

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