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Public-Private Mix in Secondary Education in India Size, In-school Facilities and Intake Profile

N. K. Mohanty



National Institute of Educational Planning and Administration

17-B, Sri Aurobindo Marg, New Delhi-110016, INDIA

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Public-Private Mix in Secondary Education in India Size, In-school Facilities and Intake Profile[#]

N. K. Mohanty*

Abstract

The Government of India started focusing on secondary education and launched the *Rashtriya Madhyamik Shiksha Abhiyaan* (RMSA) in 2009 with contemplated targets of providing universal access to secondary education by 2017. Besides improving access and equity, the RMSA aimed at improving the quality of secondary education by making schools conform to prescribed standards, including physical infrastructure, pupil-teacher ratio (PTR), qualification of teachers, curriculum, focus on science subjects, teacher training, and Information and Communication Technology (ICT). However, the approach to quality improvement in the RMSA, like the Right to Education (RTE), was input-focused and not outcome-oriented. The paper aims at looking into the structure and size of the secondary school network by management and region, their characteristics in terms of facilities, staffing pattern and student profile across key states in India. The paper also attempts to find patterns in the participation rates in secondary education by management and their implications for equity, particularly to examine the RMSA strategies to address regional imbalances in secondary schooling provisions.

The paper finds that although RMSA had aimed at improving physical access to and in-school facilities in secondary schools/sections (the only government managed) to make them conform to norms and standards, the success in this direction is inadequate as evident from the following; (i) the percentage share of government secondary schools has decreased whereas the percentage share of private-unaided secondary schools has increased between 2009-10 and 2016-17 at the national level and in majority of states.; (ii) there are considerable differences between government and private secondary schools in terms of in-school provisions (classrooms, infrastructure facilities, teaching-learning material, library, extra-curricular activity, etc.), including staffing patterns and teacher quality, enrolment of students at the secondary levels. As a result, there is persistent regional disparity in access and quality of education as reflected by the low level of performance of students in class X board examination between government and private secondary schools. It was also found that in-school facilities are potent to high academic achievement of students. In view of these findings, it is suggested that the Government needs to focus on providing adequate material resources to the secondary schools to enhance the quality of teaching and learning processes. This effort would certainly go a long way in improving and strengthening secondary education and improving the overall performance of the students and institutions at the secondary school level in India.

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1. Introduction

1.1 The Context

Secondary education occupies a significant position in any educational system, and India is no exception. Secondary education is crucial in any society as it serves as a gateway to higher education on the one hand and to the labour market on the other. In other words, secondary education plays a transitional role between primary education and further (higher) education. It also plays a terminal role by providing and delivering the manpower required for the country's development (AIOU, 1998, p.3). Secondary education in India comprises classes IX to XII and covers children aged 14 to 17 years which is further divided into two stages, i.e., the Secondary stage covering classes IX-X (14-15 years age-group) and the Senior/Higher Secondary stage covering classes XI-XII (16-17 years age-group).

Secondary education has become mass education across the globe, and educational expansion has changed the types and ability levels of students served by this stage of schooling. In other words, the quality and relevance of secondary education are not the same as they used to be in the past. For several decades, it has been argued in the literature that secondary education needs to be expanded both as a response to increased social demand and as a feeder cadre for higher education, giving little emphasis to its other critical functions. Secondary education promotes the development of a skilled and knowledgeable citizenry with access not only to the national but also to the global economy (Lewin and Cailods, 2001). For faster economic growth, it is not sufficient to exclusively concentrate on primary education. In fact, secondary education is crucial for economic growth. It is evidenced that early expansion of and public investment in secondary education paid rich dividends in East Asia (World Bank, 1993, Tilak, 2001). Also, investment in secondary education yields considerable social and private returns, offering young people the chance to acquire attitudes and skills which in turn enables youth to develop job-oriented skills, participate fully in society, take control of their own lives, and continue learning (Alain and Tan, 1996; Lewin and Cailods, 2001; Duraisamy, 2002). Secondary education has more significant effect on the redistribution of income, growth and reducing poverty than primary education (Tilak, 1989, 2005). Despite this, secondary

education continues to be the most neglected segment of school education in many developing countries, including India.

India follows a service-led growth model and strives hard to survive the global competition. In these conditions, it is increasingly recognised that secondary education is the most critical segment of the education chain. Hence, there is a need to pay greater attention to secondary education as it caters to the needs of the most important demographic group —adolescents and youth, the source of the future human and social capital of a nation. While examining trends in secondary education across the industrialised nations, Briseid and Caillods (2004:17) rightly argue that:

"Dealing with adolescents at a very critical moment of their lives, education has an important mission: to provide youths with the necessary knowledge and skills to live in an advanced technological society; not only to prepare them for the world of work but also for further learning, and to foster social cohesion and transmit the cultural and ethical values necessary for active participation in a democratic society."

Preparing young people for life, advancing science education, and learning to learn and communicate effectively in the global village are considered additional forces affecting secondary education across the globe. In fact, at this level, two main functions of education (i.e., individual and social) converge (Alvarez, 2000). At the individual level, secondary education empowers and prepares youth for life through personal development, preparation for the labour market, training for higher cognitive functioning, and by imparting the skills for social functioning. It helps advance 'human and social capital' for nation-building, redistributes income and wealth and alleviates income poverty. Its development, therefore, can greatly contribute towards acquiring global competitiveness and achieving the Millennium Development Goals (MDGs). In fact, it is argued that:

... investing in youth will provide the longest and most effective dividend towards meeting the MDGs by building the social capital needed to foster pragmatic development (Farmanesh et al., 2005: v).

In the Indian context, balanced education development is critical for nation-building. Education is one of the most critical components of the inclusive

development model of the emerging Indian democracy, which was well articulated even in the 1960s in the report of the Education Commission (1964-66). However, the current Indian setting no doubt reflects the socioeconomic consequences of the distortions in the development model envisaged in the early years of freedom. India has grown visibly yet remains far from being a developed society and economy.

Education holds the key to India's growth and socio-economic development. It has assumed greater importance over the last decade, with India positioning itself as a knowledge economy in a fast globalising world. An educated population drives economic growth and has a positive impact on health and nutrition. Moreover, a well-balanced education is also essential to build a just and democratic society. Thus, it is critical for India, a country with a large young population and ranking low on human development indicators, to fast track access to quality education.

The tremendous public benefits of education have historically prompted governments to assume the primary role in managing and funding schools. Recently, a growing interest in improving school quality and student outcomes, a quest for wider school choice for parents and students, and more creativity and innovation in the schools, themselves, have challenged the notion of government's primacy in education (OECD, 2006; Brewer and Hentschke, 2009). This trend, emerging in several countries, is based on the belief that the public interest in education can be better served by also involving private entities, including parents, non-governmental organisations, and enterprises, in addition to government agencies, in managing and funding schools.

With the increasing role of the private sector, the debate on private *versus* government school provisioning becomes louder. Advocates of private schools argue that private involvement in school management leads to more efficiency and responsiveness to parents' demands. Principals in these schools have more autonomy to manage than public school principals do, although the extent of school autonomy varies across countries. Privately managed schools may have the authority to hire and compensate teachers and staff and thus can select better-prepared teachers and introduce incentives for performance. These institutions may also have more discretion on curricula and instructional methods and so can adapt them to the interests and abilities of their students. In addition, privately managed schools have greater

incentives to reduce costs and may be subject to more flexible regulations. The need to attract students means that privately managed schools must be more sensitive to parents' demands concerning curricula, teaching methods, facilities, discipline and more responsive to students' needs. Advocates also argue that the existence of private schools creates a healthy and valuable competition that can improve the productive efficiency of public schools and benefit the entire system. The families, non-profit organisations, or enterprises that fund private schools are more likely to demand better student outcomes and hold the school accountable. Parents of children and staff in public schools may compare the quality of education available in other schools and start demanding higher standards. Advocates also point out that more funding from families and private institutions would ease governments' obligation to invest in education.

Those who oppose private schools argue that private schools threaten equity and social cohesion and are subject to market failures. For example, a public monopoly can be replaced by a private one, and consumers may have incomplete information about the schools or may be discriminated against during admissions procedures (OECD, 2012). Private schools, they argue, have no incentives to look at the broader picture of education, such as the negative impact of stratification. Indeed, one of the greatest concerns about private schools is that these schools tend to "skim off" the best students and leave average or struggling students to be educated in public schools. In addition, they argue, granting greater discretion over curricula can mean that schools could opt out of teaching specific core social values. In many countries, private schools have been created with the explicit intent of catering only to particular groups of students, identified by religion, ethnicity, academic ability, or socioeconomic status. While the prevalence of these schools offers parents a wider choice, it undermines social cohesion and erodes a sense of community among different social groups.

1.2 Public-Private Mix in School Education in India

Schooling in India can be primarily categorised as those run by the central/state governments/local bodies; aided schools run by private institutions which get aid from the government up to 95% of the teacher salaries, and private schools which charge fees from children. In India, the secondary (lower and higher) level is

the weakest and most neglected so far as the education sector is concerned, despite being the key link between education and economic development. The focus on elementary education policy and investment in the last decade has led to higher enrolment rates and automatic promotion under the Continuous Comprehensive Evaluation (CCE) scheme. These have stretched an already stressed secondary education system as reflected by an increased participation rates. The demand for secondary education is also growing given the high returns from this stage of education, which are even more than returns from higher education. The key focus of the government is expanding access, equity, and quality to improve enrolment and retention at the secondary level.

Like for elementary education, there is also a national assessment of performance in secondary education. Assessments conducted in individual states, using internationally benchmarked assessments, suggest that student-learning is extremely low in India. For example, the participation of Tamil Nadu and Himachal Pradesh in the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) for 15-year olds showed discouraging results. Out of 73 participating countries, both the states ranked 72nd, outranking only Kyrgistan. On average, 15-year old Indian students performed about four years behind the international average for OECD countries. Yet again, a test carried out using questions from the Trends in International Mathematics and Science Survey (Mullis et. all, 2020, TIMSS, 2019) assessment in mathematics on class IX students in Odisha and Rajasthan found that Rajasthan was 47th out of 49 countries and Odisha 43rd. Studies have observed no significant difference in the dismal performance between private and government schools, and hence there is no inherent advantage to private schools.

The government started focusing on secondary education and launched the RMSA programme in 2009 with ambitious targets of providing universal access to secondary education by 2017. Besides improving access and equity, the RMSA aimed to improve the quality of secondary education by making schools conform to prescribed norms, which included physical infrastructure, PTR, qualification of teachers, curriculum, focus on science subjects, teacher training, and Information and Communication Technology (ICT). However, the approach to quality improvement

in the RMSA, like the RTE, was input-focused and not outcome-oriented. Besides the RMSA programme, the government also implemented the Model School Scheme through the public-private partnership (PPP) mode to set up secondary schools. The aim was to provide quality education to talented rural children through 6,000 model schools, of which 2,500 were proposed to be set up through the PPP route as a benchmark of excellence at the block level at the rate of one school per block. As a result, more states are coming forward with PPP policies for secondary school construction and management, including Andhra Pradesh (Residential Schools), Punjab (Adarsh Schools), and Rajasthan. The private partner manages the school while the costs are shared: the land is provided by the state government free of cost or on a 99-year lease.

The capital cost is borne by the private partner, or joint, and operational costs are shared between the state and private partners. Currently, most states allow private schools to fix their fees subject to certain restrictions (which includes getting the fee structure approved). The private school has to operate as a trust and can only earn a reasonable surplus, which has to be ploughed back towards school development. However, as M. R. Madhavan and Kaushiki Sanyal (2011) point out that many operators have put in place a two-tier legal structure, comprising a trust that runs the school and a company that owns the assets and provides services, to bypass the requirement that trusts and societies have to plough back the surplus generated into the same school for its development. In this way, the operator can easily repatriate a large portion of the surplus generated as company profit. Some state governments spend a sizeable part of their budget on aided private schools. While more than eight states assign more than 50 per cent of their budget to aided schools, a couple of states assign more than 90 per cent. However, as Linden observes, there is no direct relationship between the proportion of the secondary budget spent on non-government schools and the proportion of enrolments in these schools.

1.3 Objectives of the Paper

Keeping in view the above debate on the role of the private sector in education in general and the public-private mix in the delivery of education service in particular, the present paper aims at looking into the structure and size of the secondary school network by management and region, their characteristics in terms of facilities, staffing

pattern and student profile in terms of social background across the major states in India. An attempt has also been made to find patterns in the participation rates in secondary education by management and their implications for equity, particularly the RMSA strategies to address regional imbalances in secondary schooling provisions and the role of the state. The paper would provide insights into how secondary education is organised and delivered in various states. Specifically, the following are the objectives of the paper:

- (i) To critically examine the pattern of the institutional mix (public-private) at secondary levels;
- (ii) To profile public and private institutions by in-school provisions, staffing patterns, and intake characteristics; and
- (iii) To identify implications for RMSA or Samagra Shiksha for expanded access in terms of the mix of schools and likely effects on equity.

1.4 Research Questions

The paper has attempted to answer the following questions:

Research Questions

- Q1. How has the mix of public, private, and aided schools changed as RMSA develops, and what impact will this have on equity?
- Q2. What is the impact of RMSA on secondary education in states with large variations in the share of government-aided and un-aided institutions, particularly addressing issues of equity and quality?
- Q3. Is there a significant difference between government and private institutions in terms of in-school provisions, including staffing patterns and teacher quality (qualification and pre-service training status)?
- Q4. Do schools under different management vary widely in terms of school size? What are the implications of differential school size? Is the small secondary school a public sector phenomenon?
- Q5. Does school mix play a role in the persistence of regional disparity in access and quality of education?

- Q6. Is there any correlation between the economic and educational status of states and secondary school mix in states?
- Q7. What are the implications of the presence of a large private sector in secondary education in certain states for programme planning under the RMSA or Samagra Shiksha?

1.5 *Format of the Paper*

The paper is divided into four sections. The first section provides the context and rationale for the expansion of secondary education. The second section briefly reviews the related literature on the subject. The third section focuses on the size, intake, and status of schooling provisions at the secondary level. The fourth and final section highlights the findings and major development challenges and directions, including the scope for further research in this area.

2. Review of Related Literature

The proponents of private education argue that the private sector should be made responsible for managing schools. For those who cannot afford to pay, the government should finance their education through scholarships, education vouchers, and loans. As Shah and Miranda put it, the government stands as a guarantor of education, not by producing it but financing it. This approach combines the efficiency of the private sector with the equity focus and independent supervision of the public sector. Private schools should be treated at par with government schools, and the licensing mechanism for a school's recognition should be simplified. They argue that for-profit private schools should be recognised and allowed to compete in the education space. Shah and Miranda propose that parents should be empowered to influence the functioning and performance of schools and choose the right school for their children. The voucher is a tool to change the way the government finances education, particularly for the poor, and give parents the choice of school. In the present system of financing, schools are accountable to the government. The voucher system makes them accountable directly to the students and parents since parents pay the school of their choice through vouchers. Under the voucher system, 'the money follows the student, unlike the present system where the money follows the school.' Similarly, Charter schools in the United States are primary or secondary

education institutions that do not charge fees to pupils who take state-mandated exams. These charter schools are subject to fewer rules, regulations, and statutes than traditional state schools but receive less public funding than public schools, typically a fixed amount per pupil. There are non-profit and for-profit charter schools, and only non-profit charters can receive donations from private sources.

Budget schools have mushroomed over the past decade, but there is no reliable estimate of the number of such schools. Suzana Andrade Brinkmann (2012) indicates that though the official District Information System for Education (DISE) data records 26,377 unrecognised schools reaching out to 2.7 million students, this could be a gross underestimate. There are estimates that as high as 40 million rural children are studying in unrecognised schools (Chavan 2011). Proponents of budget schools argue that these schools are more cost-effective than government schools (their per-pupil expenditure is only 40 per cent that of government schools). The low salaries they pay to contract teachers enable them to hire more teachers and, in turn, have lower PTRs. As these schools charge low fees, the poor can access good quality education, often in English medium. Further, based on market principles of choice and competition, it is advocated that these schools are more accountable to parents and students (Centre for Civil Society, 2019-20). Studies by various international researchers in support of budget private schools have highlighted their higher teacher attendance and activity. These schools are also conveniently located within poor settlements and are more easily accessible, especially to girls. Therefore, advocates of these schools argue that low-cost or budget schools should be allowed to function free of regulations, and government funds should be directed towards these schools through the voucher mechanism.

Gérard Lassibille & Jee-Peng Tan (2001), in their paper entitled “Are Private Schools More Efficient Than Public Schools? Evidence from Tanzania,” maintained that excess demand was the main reason behind the government’s recent policies favouring private-sector expansion. While the growth of the private sector has undeniably increased educational opportunities in secondary education, it has been accompanied by a noticeable decrease in equity of access and by a high instability in the staffing of schools (Lassibille et al., 2000). To what extent have these adverse effects been offset or reinforced by the performance of private schools relative to that

of public schools as reflected in differences in student-learning? Documenting the performance gaps across schools in this regard is the key focus of this paper. The results also point to the role of supply factors in school choice behaviour. Not surprisingly, the probability of attending a given type of school increases with its relative supply in the home region. More interestingly, the cross-effects reveal students' responses to an increase in the supply of alternatives to the type of school they currently attend. For students in community schools, an increase in the establishment of government schools in the locality has no impact (in part because entry to both types of schools is restricted by overlapping regional quota criteria). Still, an increase in the supply of Wazazi or Christian schools would reduce their probability of enrolling in a community school. For students in Christian schools, the probability of choosing a Christian school would still be higher even if more government schools are built locally. This initially surprising result is consistent with the fact that Christian schools have sprung up in areas where competition for the limited places in government schools has been particularly intense. In contrast, for students in Wazazi schools, a rise in the supply of government schools would decrease the probability of enrolling in a Wazazi school. Because students attending Wazazi schools come from a weaker pool of students, the competition for places is less intense. Any increase in the supply of government school places would naturally suppress demand for the less attractive option of Wazazi schools.

Asefa Abahumna Woldetsadik (2017), in the study titled "Comparative Study of Quality of Education in Government and Private Schools in case of Adama city, Ethiopia, East Africa," found that managerial aspects and physical infrastructures/learning facilities are significant in determining the academic performances of schools. According to Murphy (2008), the educational environment and school in terms of organisational structure, administrative communication, management supervision, and behaviour of groups within the academic matrix affect the performance of the educational and teaching process. This study provides a significant indication of whether government or private schools are preferred. Undoubtedly, both government and private schools face numerous and complex challenges. However, despite these challenges, both seem to achieve better performance.

Nevertheless, there are still several managerial aspects and facilities/infrastructure issues to be improved to attract more students. Private schools that entirely rely on tuition fees are expected to work hard than ever to improve their school environments to attract a higher number of students. Private schools seem to be supported by the government in terms of managerial and material aspects and with teaching workforce as the service provided by this sector is equally important to the nation. Further, it is also realised that private schools pay attention to their profits than the quality of education. Hence, government intervention is highly significant to ensure the quality of education offered in private schools.

Abari Ayodeji Olasunkanmi and Odunayo Olufunmilayo Mabel, in their study titled “An Input-Output Analysis of Public and Private Secondary Schools in Lagos, Nigeria” found that a significant difference existed in the means of infrastructural facilities between the public and private secondary schools in Nigeria. However, there was no significant mean difference in ICSE and CBSE results between the public and private secondary schools. Infrastructural facilities are one of the reasons why elites enrol their children into private secondary schools, without minding the active resource inputs in such schools. In this context, most public schools were infrastructurally deficient as there was a shortage of seats for students and dilapidated school buildings and classrooms. Still, the story was different in private secondary schools. This outcome was corroborated by Babalola (2004) in a study on learning and resource materials in schools that thoughtfully designed school facilities can complement a well-planned programme. On the contrary, a poorly designed facility can hamper the best of school programmes even with well-qualified teachers. As a resource input, it is, therefore, the responsibility of the school and teachers to keep clean, neat, attractive, and colourful classrooms to promote optimum learning. A cursory look at the education records of both public and private secondary schools, with reference to senior secondary school certificate examination results, reveals a downward trend in school academic performance. The poor academic performance can be linked to inadequate resources inputs in the schools, as highlighted by this study in line with the submission by scholars such as Akinwumiju and Orimoloye (1987). The study also showed teachers in the public secondary schools were found to be more professional and experienced than their counterparts the private secondary

schools. It is also corroborated by the field survey conducted by National Centre for Education and Statistics (2009).

3. Status of Secondary Education in India

This section deals with the profile of the secondary schools (government, aided, and private institutions) networks in major states of India in terms of size, in-school facilities, and participation rates at the secondary level.

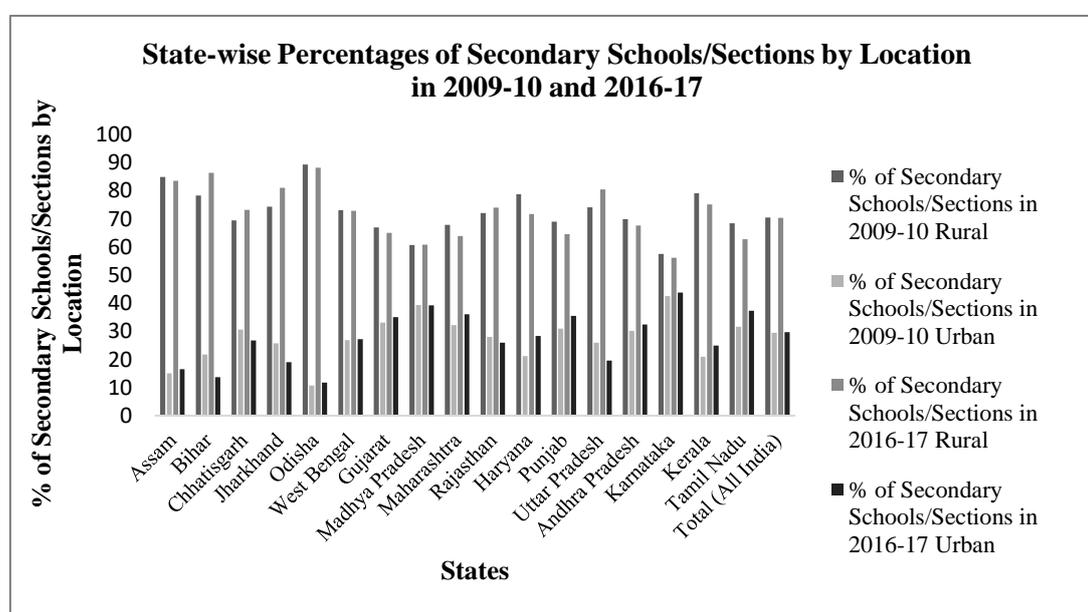
3.1 Educational Institutions at Secondary Level

3.1.1 Educational Institutions at Secondary Level by Location

There has been a considerable increase in the number of secondary and higher secondary institutions in the country. The number of secondary and higher secondary institutions increased by more than 25 times, from 7416 in 1950-51 to 189 thousand in 2009-10 and further to 249 thousand in 2016-17.

Chart 3.1

State-wise Percentages of Secondary Schools/Sections by Location in 2009-10 and 2016-17



Source: Data collected from SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

At the national level, as high as 70.3 per cent of secondary schools are located in rural areas, and only 29.7 per cent are located in urban areas. Besides, there has been equitable growth in secondary schools in rural and urban areas between 2009-10

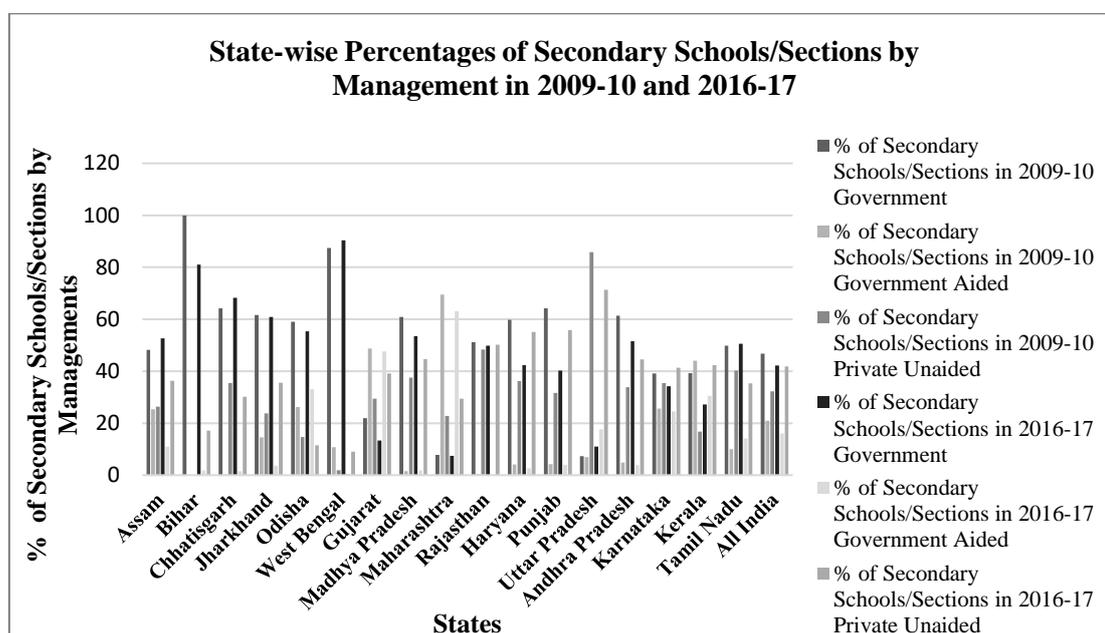
and 2016-17. It may also be noted that except in five states, namely Bihar, Chhattisgarh, Jharkhand, Rajasthan, and UP, there has been an increase in the percentage of secondary schools/sections in urban areas between 2009-10 and 2016-17.

3.1.2 Educational Institutions at Secondary Level by Management

In 2009-10, government secondary schools constituted 46.8 per cent, government-aided secondary schools constituted 20.9 per cent, and private-unaided schools constituted 32.1 per cent of the total secondary schools/sections in the country. This share decreased to 42.2 per cent and 16.0 per cent in case of government and government-aided secondary schools respectively in 2016-17 whereas the percentage of secondary schools managed by private-unaided sector increased from 32.1 per cent in 2009-10 to 41.8 per cent in 2016-17. However, this trend was not only observed at the national level but also in almost all the states except three states, namely Chhattisgarh, Odisha, and Uttar Pradesh, where the share marginally decreased between 2009-10 and 2016-17. Besides, school education in all the northern states is dominated by private-unaided sectors. However, it may be noted that the share of government-aided secondary schools have marginally changed in all the states between 2009-10 and 2016-17. In 2016-17, the percentages of secondary schools run by state/UT government constituted the major share (from 52.7% in Assam to 90.4% in West Bengal), followed by the government-aided and private-unaided schools in all the eastern states. But in the case of the aided secondary schools, except those in Odisha (33.1%), all in the remaining five eastern states are below the national average (16.0%). Besides, the share of private-unaided schools is meagre in Bihar, Odisha, and West Bengal. In western states, the percentages of secondary schools run by state/UT governments in Gujarat and Maharashtra are abysmally low and lie below the national average. On the other hand, the percentages of government-aided secondary schools in these two states are very high and also lie above the national average.

Chart 3.2

State-wise Percentages of Secondary Schools/Sections by Management in 2009-10 and 2016-17



Source: Data collected from SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

It may be noted that, in Madhya Pradesh, the percentages of secondary schools managed by government-aided sector is not only very high (53.5%) but also highest among these major states in India. However, in the northern states, the situation is somewhat different. All the states of the north are dominated by private-unaided sectors where the percentages of secondary schools run by the state/UT government and government-aided are below the national average. However, in the southern states, the percentage of secondary schools run by the state/UT government in Karnataka and Kerala is less than the national average. In contrast, in Andhra Pradesh (51.5%) and Tamil Nadu (50.6%), the percentages of secondary schools run by government schools are more than 50%. Thus, they constitute a larger share followed by private-unaided schools and government-aided schools.

3.1.3 Educational Institutions at Secondary Level by Enrolment Size and Management

Till date, no relationship has been established between school size and student achievement that can be generalised or correlated. The research indicates that large school sizes may benefit more affluent students but can affect impoverished students adversely, and vice versa. Some studies show that the negative impact of larger-sized

schools on the learning outcomes of impoverished students is much stronger than the positive effects of equivalent schools on affluent students. However, a considerable amount of research also shows that other things being equal, smaller schools produce higher academic achievement than larger schools. It is because large institutions tend to be impersonal, departmentalised, and bureaucratic and tend to treat their staff and those they serve as numbers rather than distinctive individuals with unique needs. High schools, which tend to be larger, face these problems most acutely.

Research shows that what is most important is what happens in the classroom, and thus it is critical to keep classes as small as possible to ensure that students receive the attention they need to succeed. Very little research on school size has controlled for the factor of class size. The few studies that control for both factors have found that class size is more important for boosting student achievement and engagement. As the school population increases, class sizes also increase, thus affecting the performances of students.

The analysis of data given in Table 3.1 shows that the percentage of secondary schools with enrolment range of ≤ 30 to 120 (sum of ≤ 30 , 31-60, 61-90, and 91-120) in classes IX-X constitute about 45 per cent in case of government secondary schools, below 40 per cent in case of government-aided schools, and more than 55 per cent in case private-unaided schools. This situation is common in most states except Gujarat (West) and Uttar Pradesh (North), where the percentage of government and government-aided secondary schools with enrolment sizes ≤ 120 in classes IX-X are as high as 72.3 per cent and 61.3 per cent respectively. However, the percentage of private- unaided secondary schools with enrolment size ≤ 120 is not only less than 50 per cent but also as low as 26.4 per cent in UP. On the contrary, the percentage of secondary schools with an enrolment of more than 120 in classes IX-X constitute about 55 per cent and 60 per cent respectively in case of government and government-aided schools but less than 45 per cent in case of private-unaided secondary schools. Exception, in this case, is found in two states where the percentage of private unaided secondary schools having enrolment size more than 120 are very high (Bihar (63.5 per cent) and UP (73.6 per cent).

A close look at the variations in the enrolment sizes between the schools reveals that as we move from low to higher range of enrolment size, the percentage of

secondary schools with higher enrolment size increases in case of government and government-aided secondary schools, but decreases in case of private-unaided secondary schools. It may also be seen that there is not much variation between the states as far as the enrolment size of government and government-aided secondary schools are concerned. However, there are significant differences between government and private-unaided secondary schools regarding school/enrolment size at the secondary level (classes IX-X). Therefore, it may be concluded from the above analysis that small secondary school is not a public/government sector phenomenon and bigger school/enrolment size is not a private sector one either (See Table 3.1).

Table 3.1

State-wise Percentage of Secondary Schools/Sections by Enrolment Size and Management in 2016-17

State	Percentage of Secondary Schools/Sections by Enrolment Size											
	<30			31-60			61-90			91-120		
	Govt	Govt. Aided	Pvt. Unaided	Govt	Govt. Aided	Pvt. Unaided	Govt	Govt. Aided	Pvt. Unaided	Govt	Govt. Aided	Pvt. Unaided
East												
Assam	3.6	3.6	23.7	13.7	24.5	38.5	14.2	25.8	15.1	11.7	15.5	8.7
Bihar	7.0	5.1	23.2	5.4	2.2	5.0	6.9	2.9	4.2	5.4	2.2	4.1
Chhattisgarh	4.9	1.0	14.4	8.2	5.9	17.5	11.0	3.9	12.7	9.8	3.9	9.9
Jharkhand	18.1	10.9	21.6	10.3	4.8	10.3	9.2	3.6	9.7	8.3	2.4	7.3
Odisha	10.3	2.7	15.1	10.9	5.8	16.5	13.3	28.0	28.5	13.9	25.3	10.8
West Bengal	4.3	19.4	40.4	3.8	14.5	7.2	4.4	4.8	5.5	4.9	3.2	5.7
West												
Gujarat	10.2	0.8	10.9	22.8	6.5	14.4	24.1	14.3	12.6	15.2	10.5	11.8
Madhya Pradesh	2.4	3.1	11.7	10.1	4.4	14.9	10.7	9.5	12.3	10.6	8.1	9.7
Maharashtra	4.0	1.0	16.4	17.5	7.0	18.7	19.1	18.3	21.2	11.1	13.3	12.1
Rajasthan	7.2	0.0	20.0	17.7	0.0	21.4	17.7	0.0	14.0	14.4	0.0	9.1
North												
Haryana	3.3	5.4	9.8	12.4	13.8	15.7	15.7	8.4	13.7	13.1	6.9	10.5
Punjab	6.8	0.8	24.6	13.7	5.1	23.2	13.7	10.6	12.4	11.8	7.3	7.9
Uttar Pradesh	21.7	1.8	4.6	19.3	3.4	7.4	13.1	3.4	7.4	7.2	3.4	7.0
South												
Andhra Pradesh	6.2	19.5	24.6	16.9	24.1	25.2	22.8	16.1	17.2	13.8	11.0	11.6
Karnataka	3.2	1.6	19.7	15.2	10.6	25.7	24.7	30.3	22.1	18.9	18.2	12.0
Kerala	3.7	2.7	19.0	5.8	4.0	19.8	4.1	2.4	11.7	4.7	5.0	8.0
Tamil Nadu	4.2	0.8	17.2	11.3	2.7	13.9	14.7	5.6	10.8	11.2	5.3	7.4
All India	7.7	2.5	16.8	13.7	7.8	17.9	14.3	16.4	13.4	11.0	12.1	9.0

State	121-150			151-200			Above200			Total		
	Govt	Govt. Aided	Pvt. Unaided	Govt	Govt. Aided	Pvt. Unaided	Govt	Govt. Aided	Pvt. Unaided	Govt	Govt. Aided	Pvt. Unaided
East												
Assam	10.5	11.1	4.5	13.3	9.0	3.9	33.0	10.5	7.1	100.0	100.0	100.0
Bihar	5.3	2.9	4.6	7.6	5.1	7.2	62.4	79.7	51.7	100.0	100.0	100.0
Chhattisgarh	8.4	5.9	7.2	10.0	7.8	9.8	47.8	71.6	28.5	100.0	100.0	100.0
Jharkhand	6.9	3.6	5.9	12.8	10.9	8.9	34.4	63.6	36.2	100.0	100.0	100.0
Odisha	13.0	15.7	7.0	16.4	13.4	7.8	22.2	9.1	14.2	100.0	100.0	100.0
West Bengal	4.7	1.6	4.5	6.9	3.2	5.9	71.0	53.2	30.7	100.0	100.0	100.0
West												
Gujarat	7.3	6.0	8.9	6.4	10.5	9.9	14.1	51.4	31.4	100.0	100.0	100.0
Madhya Pradesh	9.3	6.8	7.8	11.6	11.2	9.9	45.2	56.9	33.6	100.0	100.0	100.0
Maharashtra	8.2	8.8	6.6	11.9	9.7	7.2	28.2	41.8	17.8	100.0	100.0	100.0
Rajasthan	10.9	0.0	7.0	12.6	0.0	8.0	19.6	0.0	20.7	100.0	100.0	100.0
North												
Haryana	9.7	8.4	7.9	12.3	8.4	9.9	33.6	48.8	32.5	100.0	100.0	100.0
Punjab	8.6	7.9	5.3	10.5	10.3	6.8	34.8	58.0	19.8	100.0	100.0	100.0
Uttar Pradesh	5.3	2.9	6.1	5.6	6.0	9.6	27.8	79.1	57.9	100.0	100.0	100.0
South												
Andhra Pradesh	12.6	8.2	6.5	13.2	9.9	5.9	14.4	11.2	9.1	100.0	100.0	100.0
Karnataka	11.7	10.9	7.4	11.0	10.7	6.0	15.3	17.7	7.2	100.0	100.0	100.0
Kerala	4.8	3.7	5.6	5.2	5.9	8.3	71.7	76.3	27.6	100.0	100.0	100.0
Tamil Nadu	6.9	5.4	6.2	7.3	7.2	8.2	44.4	72.9	36.4	100.0	100.0	100.0
All India	8.7	8.0	6.4	10.3	9.4	7.9	34.4	43.8	28.6	100.0	100.0	100.0

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.2 Enrolment at Secondary Level

3.2.1 Enrolment by Gender in Classes IX-X in 2009-10 and 2016-17

At the secondary level (classes IX-X), the enrolment of boys in classes IX-X constituted 53.4 per cent in 2009-10, which decreased to 52.49 per cent in 2016-17, whereas the enrolment of girls increased from 46.6 per cent of the total enrolment in 2009-10 to 47.51 per cent in 2016-17. It may also be seen that the enrolment of girls has not only increased nationally but also in the majority of states (10 out of 17 major states) except Chhattisgarh, Maharashtra, Haryana, Punjab, Andhra Pradesh, Karnataka, and Kerala where there has been marginal decrease. In a majority of states, the percentage of enrolment in classes IX-X constituted maximum share in government schools followed by private- unaided and government-aided schools both

in 2009-10 and 2016-17. However, the percentage share of enrolment in classes IX-X in the government schools has decreased from 49.6 per cent in 2009-10 to 44.3 per cent in 2016-17. This is because the percentage share of enrolment in classes IX-X in the government schools has decreased in most of the states except Assam, Chhattisgarh, West Bengal, and Rajasthan between 2009-10 and 2016-17.

It may be noted that the percentage share of enrolment in classes IX-X in the government-aided schools has remained more or less the same between 2009-10 and 2016-17. However, there has been a considerable increase in the percentage share of enrolment in classes IX-X in government-aided schools in Chhattisgarh, Bihar, Odisha, Gujarat, Uttar Pradesh, and Kerala between 2009-10 and 2016-17. Furthermore, data analysis also shows that the decrease in percentage share of boys is more than that of girls between 2009-10 and 2016-17. As a result, there has been an increase in the percentage share of boys more than girls in classes IX-X in private-unaided schools between 2009-10 and 2016-17. Further, the percentage share of enrolment in classes IX-X in private-unaided schools has increased from 25.8 per cent in 2009-10 to 34.3 per cent in 2016-17(See Table 3.2).

Table 3.2

**State-wise Percentage of Enrolment in Classes IX-X by Management in
2009-10 and 2016-17**

State/UT	Enrolment in classes IX-X in 2009-10									Enrolment in classes IX-X in 2016-17								
	Government			Govt. Aided			Pvt. Unaided			Government			Govt. Aided			Pvt. Unaided		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
East																		
Assam	62.2	59.9	61.1	18.7	20.2	19.5	19.0	19.9	19.5	68.2	71.1	69.7	9.8	10.5	10.1	22.1	18.4	20.2
Bihar	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	86.6	86.0	86.3	1.8	2.1	2.0	11.6	11.8	11.7
Chhattisgarh	71.3	76.7	74.1	2.7	2.6	2.7	25.9	20.6	23.2	74.2	80.5	77.4	2.2	2.1	2.1	23.7	17.4	20.5
Jharkhand	66.9	65.9	66.4	13.3	14.8	14.0	19.8	19.4	19.6	59.5	63.6	61.6	4.3	5.5	4.9	36.1	30.9	33.6
Odisha	65.1	62.0	63.6	22.9	24.8	23.8	12.0	13.2	12.6	59.6	60.6	60.1	30.4	31.2	30.8	10.0	8.2	9.1
West Bengal	86.8	88.4	87.6	11.1	9.9	10.5	2.2	1.7	1.9	93.3	91.4	92.2	0.4	0.3	0.3	6.3	8.3	7.4
Total (East)	81.3	80.7	81.0	10.0	10.7	10.3	8.7	8.6	8.7	79.2	80.5	79.9	6.3	6.2	6.2	14.5	13.2	13.9
West																		
Gujarat	23.1	24.7	23.8	56.0	57.4	56.6	20.9	17.8	19.6	6.7	8.7	7.6	61.0	65.2	62.7	32.3	26.1	29.7
Madhya Pradesh	79.3	85.2	81.9	1.8	1.3	1.6	18.9	13.5	16.5	57.8	68.5	62.7	2.1	1.8	2.0	40.1	29.7	35.3
Maharashtra	48.8	46.5	47.7	25.6	26.8	26.1	25.6	26.8	26.1	6.0	6.7	6.4	72.8	75.3	73.9	21.2	17.9	19.7
Rajasthan	76.2	80.6	78.0	0.8	0.8	0.8	23.0	18.5	21.1	47.0	60.3	52.8	52.9	39.5	47.1	0.1	0.1	0.1
Total (West)	58.3	58.7	58.5	18.3	19.2	18.7	23.5	22.2	22.9	27.9	34.6	30.9	49.3	47.0	48.3	22.8	18.3	20.8
North																		
Haryana	78.4	82.5	80.2	3.6	3.4	3.5	18.1	14.1	16.4	37.1	51.3	43.4	3.0	3.1	3.0	59.8	45.6	53.6
Punjab	88.4	90.0	89.1	2.4	2.3	2.3	9.2	7.8	8.5	51.6	58.1	54.4	6.5	5.6	6.1	41.9	36.3	39.5
Uttar Pradesh	72.8	75.8	74.2	7.4	6.3	6.9	19.8	18.0	18.9	4.0	6.1	5.0	24.7	24.5	24.6	71.4	69.4	70.5
Total (North)	75.7	78.6	77.0	6.3	5.4	5.9	18.0	16.0	17.1	12.6	15.8	14.1	20.4	20.5	20.4	67.0	63.7	65.5
South																		
Andhra Pradesh	82.1	84.1	83.0	2.3	2.9	2.6	15.6	13.0	14.4	54.8	63.0	58.8	3.2	3.9	3.5	42.0	33.1	37.7
Karnataka	89.4	90.0	89.7	6.2	6.1	6.1	4.4	3.9	4.2	36.8	40.6	38.6	29.8	30.5	30.1	33.3	29.0	31.2
Kerala	98.7	98.6	98.6	1.1	1.2	1.2	0.2	0.2	0.2	30.0	29.3	29.7	50.2	50.9	50.5	19.8	19.8	19.8
Tamil Nadu	68.3	70.2	69.2	17.5	18.1	17.8	14.2	11.7	13.0	46.5	50.2	48.3	25.6	28.0	26.8	27.9	21.8	24.9
Total (South)	94.3	94.4	94.4	2.9	3.1	3.0	2.8	2.4	2.6	42.7	46.6	44.6	26.4	27.7	27.0	31.0	25.7	28.4
All India	72.0	74.5	73.2	13.1	13.1	13.1	14.9	12.4	13.7	41.2	47.8	44.3	21.6	21.1	21.4	37.2	31.1	34.3

The percentage of enrolment in classes IX-X constituted the maximum share in government schools followed by private-unaided and government-aided schools among the eastern states. However, the percentage share of enrolment in classes IX-X in 2016-17 in government-aided schools was more than that of private-unaided schools in Odisha but the reverse in West Bengal. Out of four western states, in Gujarat and Maharashtra, the enrolment in classes IX-X was the highest in

government-aided schools followed by private-unaided schools and were lowest in government schools. In Madhya Pradesh and Rajasthan, government schools have the maximum share of enrolment in classes IX-X, followed by the government-aided and private-unaided schools. In the northern states, the share of enrolment in classes IX-X was maximum in government schools in Haryana and UP, followed by private-unaided schools and government-aided schools, whereas only in Punjab, the share of enrolment in classes IX-X was highest in government schools followed by private-unaided schools and government-aided schools. It is noteworthy that in all the four southern states, the enrolment in classes IX-X in 2016-17 was maximum in government schools followed by private-unaided schools and government-aided schools (See Table 3.2).

3.2.2 *Girls Enrolment at Secondary Level*

At the secondary level, the enrolment of girls per 100 boys in the country has increased from 87 to 90 between 2009-10 and 2016-17. The increase in the enrolment of girls per 100 boys in classes IX-X was highest in government schools (from 96 to 105). Still, it has increased only marginally in government-aided and private-unaided secondary schools/sections between 2009-10 to 2016-17 (See Table 3.3). This movement towards equity in participation can be attributed to the interventions made by RMSA to improve the participation of children, particularly girls, at the secondary level.

The enrolment of girls per 100 boys enrolled in classes IX-X in government schools is below 100 in Odisha (Eastern region)) and in all the western, northern, and southern states in 2016-17. In addition, the enrolment of girls per 100 boys enrolled in classes IX-X in government-aided schools is below 100 in West Bengal (East), all the four states of the western region and northern region, and Karnataka and Kerala in the southern region. However, the enrolment of girls per 100 boys enrolled in classes IX-X in private-unaided schools is below 100 in Jharkhand, Odisha (East), all the states in western, northern, and southern regions (See Table 3.3).

The data analysis shows that the number of girls per 100 boys has increased in the government secondary schools between 2009-10 and 2016-17 in all the states and government-aided secondary schools in most of the states but in private-unaided

schools in a few states. Besides, the girls' participation is very low in private- unaided secondary schools compared to government-aided and is maximum in government secondary schools in the country (See Table 3.3).

Table 3.3

State-wise No. of Girls per 100 Boys Enrolled in Classes IX-X by Management in 2009-10 and 2016-17

States	No. of Girls per 100 Boys Enrolled in Classes IX-X in 2009-10			No. of Girls per 100 Boys Enrolled in Classes IX-X in 2016-17		
	Government	Govt. Aided	Pvt. Unaided	Government	Govt. Aided	Pvt. Unaided
East						
Assam	96	107	104	112	115	90
Bihar	76	0	0	101	120	103
Chhattisgarh	114	102	84	112	100	76
Jharkhand	85	96	84	106	125	85
Odisha	93	106	107	99	100	80
West Bengal	109	95	83	119	89	160
West						
Gujarat	73	70	59	93	76	58
Madhya Pradesh	86	61	57	102	73	64
Maharashtra	82	90	90	93	86	70
Rajasthan	76	77	58	98	57	112
North						
Haryana	79	72	58	109	80	60
Punjab	86	80	72	86	65	66
Uttar Pradesh	86	70	75	131	84	83
South						
Andhra Pradesh	96	117	78	107	114	74
Karnataka	93	92	81	100	93	79
Kerala	91	101	93	92	96	94
Tamil Nadu	97	97	78	105	106	76
Telangana				114	190	78
All India	90	87	72	105	88	76

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.2.3 Gross Enrolment Ratio and GPI of GER at Secondary Level

The Gross Enrolment Ratio (GER), which shows total enrolment in secondary stage (Grades IX-XII) as a percentage of the total population in the relevant age-group (14-17), has increased steadily from 19.3 per cent in 1990-91 to 40.0 per cent in

2009-10. It may be noted that the GER figures for the secondary stage (Grades IX-X) and higher secondary stage (Grades XI-XII) were not available separately until 2004-05, making it difficult to study their growth trends separately. In 2004-05 in India, the GER at the secondary level (classes IX-X) was 51.65 per cent, which gradually increased to 52.2 per cent in 2008-09 (Boys 53.8 per cent and Girls 50.4 per cent) and further increased to 55.1 per cent (Boys 55.4 per cent and Girls 54.7 per cent) in 2009-10 and further increased to 79.35 per cent (Boys 78.51 per cent and Girls 80.29 per cent) in 2016-17 (SSE 2009-10 and UDISE, 2016-17, NUEPA now NIEPA, New Delhi).

Table 3.4

**State-wise Gross Enrolment Ratios and GPI of GERs in Classes IX-X in
2009-10 and 2016-17**

State/UT	GER (IX-X), 2009-10			GER (IX-X), 2016-17			GPI 2009-10	GPI 2016-17
	Male	Female	Total	Male	Female	Total		
East								
Assam	46.7	50.2	48.4	73.33	84.14	78.56	1.08	1.15
Bihar	38.2	37.2	37.8	70.08	84.57	76.71	0.97	1.21
Chhattisgarh	58.9	67.1	62.9	84.96	90.42	87.65	1.14	1.03
Jharkhand	44.1	44.2	44.2	60.55	66.79	63.50	1.00	1.10
Odisha	55.1	53.6	54.3	80.14	79.67	79.91	0.97	0.99
West Bengal	49.4	56.4	52.8	69.36	88.24	78.56	1.14	1.27
West								
Gujarat	62.7	49.1	56.3	80.00	68.04	74.54	0.78	0.85
Madhya Pradesh	51	52.5	51.7	80.92	79.27	80.15	1.03	0.98
Maharashtra	69.3	71.2	70.1	93.77	89.41	91.74	1.03	0.95
Rajasthan	64.1	50.9	58	80.76	71.82	76.63	0.79	0.89
North								
Haryana	48.2	46.1	47.2	86.04	86.73	86.34	0.96	1.01
Punjab	52.1	51	51.6	86.92	87.30	87.08	0.98	1.00
Uttar Pradesh	43.2	38.8	41.2	68.78	66.72	67.82	0.90	0.97
South								
Andhra Pradesh	58.2	62	60	43.18	43.51	43.34	1.07	1.02
Karnataka	66.3	69	67.6	84.01	84.92	84.44	1.04	1.01
Kerala	72.3	72.8	72.5	99.17	99.56	99.36	1.01	1.00
Tamil Nadu	81.8	81.3	81.5	91.26	96.71	93.87	0.99	1.06
Telangana	NA	NA	NA	80.47	83.22	81.80	NA	1.03
Total (All India)	55.4	54.7	55.1	78.51	80.29	79.35	0.99	1.02

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

However, it may be noted that the increase in GER of females is more than that of males not only at the national level but also in several major states, except Odisha (eastern state), all the western states, Uttar Pradesh (northern state) and

Andhra Pradesh and Karnataka (southern states). In 2007-08, the GER at the secondary level (classes IX-X) was less than the national average in 15 states and union territories which has decreased to 13 states in 2009-10 and further decreased to ten states in 2016-17. In the eastern region, the total GER at the secondary level (classes IX-X) is below the national average in all the states except Chhattisgarh and Odisha. However, in western states, the total GER at the secondary stage (Grades IX-X) is above the national average in all the states except Madhya Pradesh and Maharashtra in 2016-17. However, in all the northern states, the total GER at the secondary level (classes IX-X) is above the national level and, in all the southern states, the total GER at the secondary level (classes IX-X) is above the national average except Andhra Pradesh (See Table 3.4).

Gender Parity Index of GER at Secondary Level

Gender Parity Index (GPI) is calculated by dividing girls' GER by boys' GER of a given level of education. It measures progress towards gender equity in education. When the GPI shows a value equal to 1 at any level of education, it means there is no gender disparity at that level and the participation of girls is equal to that of boys. It has been observed that the Gender Parity Index at the secondary level of school education in the country has increased from 0.99 to 1.02 between 2009-10 and 2016-17, which shows that gender parity has been achieved in enrolment at the secondary level. It is also interesting that 05 eastern states show major progress towards GPI, namely Assam, Bihar, Chhattisgarh, Jharkhand, and West Bengal. However, there remains gender disparity in participation at the secondary level in all the western states (Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan). However, all the northern and southern states achieved gender parity at the secondary level in 2016-17 (See Table 3.4).

3.2.4 School Choice: Influence of Socioeconomic and Educational Factors

Education plays a critical role in the socioeconomic development of a country. The importance of education is universally recognised. Education is a process of learning that makes an individual confident, aware, and active. It improves human capabilities and accelerates economic growth through knowledge and skills. It develops the human resources required for socioeconomic development.

The utilitarian aspect of education provides the incentive to both government and individuals to invest in education. The government provides for education through expenditure on education and facilitation of the process of education while the parents share an individual's expenditure on education in terms of fee and other miscellaneous expenses. Almost all parents want to educate their children in the best possible educational environment. The studies have shown that many parents prefer private school for their children. In recent years, private schools have improved their quality, attracting students through fee concession ranging from a specified percentage to full fee concession. On one hand, these schools are educating youth, and the other, are emerging as an important sector for the investors interested in this sector.

There are several reasons behind parents' decision to choose private schools over government schools. First, socioeconomic indicators contribute significantly to the parents' decisions on children's schooling. Indicators of socioeconomic background include the status composition of parents' education, parents' occupational status, and income and family's material possessions. All of these factors influence parents' satisfaction with their choice of school for their children, as they consider the career status options likely to eventuate for their child (particularly as a direct result of their schooling experiences) and their long-term well-being. As a result, there seems to exist a correlation between the socioeconomic and educational status of a state (as determined by the socioeconomic and educational status of the people/parents) and secondary school mix.

The Pearson correlation between the percentage share of enrolment in government secondary schools and literacy rates of the states is -0.458. It is - .530* between the percentage share of enrolment in government secondary schools and Net State Domestic Product of states. These two measures suggest that the relationships between these variables are not only negative but also significant. These negative relationships indicate that the higher the economic and educational status of parents, the lower is the demand for government schools. In other words, educated and economically better-off families prefer to send their children to private schools (See Table 3.5).

Table 3.5**Correlation Matrix between Enrolment in Government Secondary Schools and Economic and Educational Status of States**

		% Share of Enrolment in Govt Secondary School	Literacy Rate	NSDP Per Capita
% Share of Enrolment in Govt Secondary School	Pearson Correlation	1	-.458	-.530*
	Sig. (2-tailed)		.056	.024
Literacy Rate	Pearson Correlation	-.458	1	.715
	Sig. (2-tailed)	.056		.001
NSDP Per Capita	Pearson Correlation	-.530*	.715	1
	Sig. (2-tailed)	.024	.001	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

3.3 Teachers at Secondary Level

3.3.1 Teachers in Position by Gender at Secondary Level

Teacher deployment continues to be one of the major issues in secondary education in the country. It may also be noted that identifying teachers by the level of education (i.e., upper primary, secondary, and higher secondary) is a problem, particularly in institutions with classes I-X or I-XII, and the states where there is no separate teacher cadre specifically for secondary education. Hence, there is a major issue in collecting data on teachers. However, teachers who devote more than 50 per cent of their time to teaching secondary and higher secondary classes are considered secondary and higher secondary level teachers in SEMIS 2009-10.

According to UDISE 2016-17, out of around 1.5 million teachers for classes IX-X, 67 per cent were serving in rural areas, and 33 per cent were working in urban areas. The share of male teachers in the total teachers in position has increased from 72.4 per cent in 2009-10 to 75.0 per cent in 2016-17 in rural areas and has decreased from 27.6 per cent in 2009-10 to 25.0 per cent in 2016-17 in urban areas. The share of female teachers in the total teachers in position has decreased from 58.5 per cent in 2009-10 to 55.2 per cent in 2016-17 in rural areas and has increased from 41.5 per cent in 2009-10 to 44.8 per cent in 2016-17 in urban areas. This is because more

male teachers have been appointed in rural areas (except in Maharashtra, Haryana, Kerala, and Tamil Nadu), and more female teachers have been appointed in urban areas in almost all states (except Andhra Pradesh and Karnataka) as female teachers prefer to stay in urban areas than rural areas.

Out of the total teachers at the secondary level in 2016-17, government and aided institutions with nearly 75 per cent enrolment in classes IX-X had only 67 per cent of the teachers available at the secondary level (i.e., for classes IX-X). It indicates that teacher shortage is a major issue at the secondary level in government and aided institutions in India. Analysis of data shows that the share of male teachers was the highest in private-unaided schools (40.1 per cent), followed by government (38.8 per cent and government-aided schools (21.1 per cent) in 2009-10; whereas, the share of male teachers was the highest in government schools (47.1 per cent) followed by private- unaided schools (27.3 per cent) and government-aided schools (24.2 per cent) in 2016-17. These figures show that more teachers have been appointed in government and government-aided schools between 2009-10 and 2016-17. It is the case in almost all states except Haryana, Punjab, Andhra Pradesh, and Karnataka. It may also be noted that the same situation also exists in the case of the share of female teachers to total teachers in all states except only in Assam, Gujarat, Maharashtra, and Kerala (See Table 3.6).

Analysis of region-wise teachers in position shows that in eastern states, the percentage of both male and female teachers constitute highest percentage in both rural and government schools than in government-aided and private schools. But in 2 out of 4 western states, i.e., Gujarat and Maharashtra, male teachers constitute the highest percentage in government-aided schools followed by private-unaided schools, and the minimum share is that of government schools. However, in these two states, the percentage of female teachers is more in private-unaided schools than in government-aided and government schools. In northern states, except in UP, where the secondary level is dominated by the private sector, in the remaining two states of Haryana and Punjab, the percentages of both males and females are very much higher in government schools than private-unaided schools and government-aided schools. Similarly, in southern states, except in Kerala, in all the remaining four states, the percentage of both male and female teachers constitute higher percentages in both

rural and government schools, followed by the government-aided and private-unaided schools. It may be concluded that in almost all states, the percentages of both male and female teachers constitute the highest percentages in both rural and government schools, followed by the government-aided and private-unaided secondary schools (See Table 3.6).

Table 3.6

State-wise Percentage of Teachers in Position by Gender, Location and Management for Classes IX-X in 2009-10 and 2016-17

State Name	Percentage of Teachers by Location and School management in 2009-10										Percentage of Teachers by Location and School management in 2016-17									
	Location				School Management						Location				School Management					
	Rural		Urban		Government		Government Aided		Private Unaided		Rural		Urban		Government		Government Aided		Private Unaided	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
East																				
Assam	86.8	70.7	13.2	29.3	57.8	57.5	19.7	20.0	22.4	22.5	87.6	73.1	12.4	26.9	65.5	58.7	12.4	9.5	14.5	25.2
Bihar	75.1	48.7	24.9	51.3	100.0	100.0	0.0	0.0	0.0	0.0	81.6	70.1	18.4	29.9	79.3	81.6	2.2	2.6	15.8	14.8
Chhattisgarh	64.1	43.1	35.9	56.9	45.6	35.7	2.9	3.5	51.4	60.9	77.6	64.5	22.4	35.5	75.7	64.3	1.6	1.3	22.7	34.4
Jharkhand	66.0	45.8	34.0	54.2	42.2	34.3	17.3	14.4	40.5	51.3	74.2	55.3	25.8	44.7	44.6	36.5	5.5	9.1	37.7	42.7
Odisha	88.5	69.6	11.5	30.4	54.6	62.9	28.3	15.6	17.1	21.6	89.8	74.3	10.2	25.7	46.7	65.4	43.7	18.2	8.4	13.9
West Bengal	76.7	58.1	23.3	41.9	83.9	81.9	13.2	10.8	2.9	7.2	79.2	57.3	20.8	42.7	89.5	84.9	0.5	1.0	4.1	11.9
West																				
Gujarat	64.3	46.5	35.7	53.5	23.7	20.2	51.9	41.2	24.4	38.6	64.8	45.9	35.2	54.1	9.0	7.8	63.4	38.5	27.5	53.6
Madhya Pradesh	54.1	40.1	45.9	59.9	46.4	37.6	4.0	4.2	49.6	58.3	69.2	48.0	30.8	52.0	67.1	50.1	1.8	1.6	31.1	48.3
Maharashtra	69.3	35.8	30.7	64.2	8.0	7.1	78.6	66.4	13.4	26.5	65.8	33.6	34.2	66.4	6.5	6.6	77.5	50.1	15.9	42.9
Rajasthan	66.1	37.7	33.9	62.3	32.9	29.4	1.3	2.5	65.8	68.1	79.1	54.3	20.9	45.7	56.2	43.8	0.0	0.0	43.7	56.1
North																				
Haryana	81.6	60.7	18.4	39.3	54.0	49.2	6.1	7.9	39.9	42.9	79.4	61.2	20.6	38.8	60.8	45.2	1.8	2.6	37.1	51.8
Punjab	72.1	53.8	27.9	46.2	60.3	41.7	6.8	6.0	32.9	52.3	74.5	56.1	25.5	43.9	69.4	47.9	3.5	2.8	25.3	44.9
Uttar Pradesh	77.1	75.6	22.9	24.4	18.0	16.5	19.0	16.1	63.1	67.4	81.0	66.0	19.0	34.0	4.8	13.8	32.6	17.6	61.4	67.2
South																				
Andhra Pradesh	72.9	56.9	27.1	43.1	63.0	56.7	3.4	5.6	33.7	37.7	75.1	66.1	24.9	33.9	68.1	66.3	2.4	3.0	29.3	30.3
Karnataka	61.8	38.8	38.2	61.2	38.6	35.6	31.8	15.1	29.6	49.3	66.8	44.0	33.2	56.0	41.4	36.0	35.6	15.2	22.9	48.8
Kerala	83.8	76.3	16.2	23.7	40.2	31.2	44.7	44.6	15.1	24.1	79.4	72.2	20.6	27.8	34.2	24.5	52.7	45.6	12.4	28.5
Tamil Nadu	67.7	53.3	32.3	46.7	38.7	28.9	18.1	15.0	43.2	56.1	65.0	51.2	35.0	48.8	59.0	50.3	18.7	14.8	22.3	34.9
All India	72.4	58.5	27.6	41.5	38.8	33.3	21.1	17.2	40.1	49.5	75.0	55.2	25.0	44.8	47.1	43.7	24.2	15.3	27.3	39.8

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.3.2 *Percentage of Female Teachers per 100 Male Teachers at Secondary Level by Management*

So far as gender equity in the availability of teachers is concerned, the share of female teachers in position at the secondary level is relatively low across rural schools and the schools managed by both government and private bodies. The situation is more acute in all the eastern and western states. In urban areas, 103 female teachers per 100 male teachers at the secondary level were in position at the national level in 2009-10, which has improved to 131 in 2016-17. However, there are states like Bihar from the east, Gujarat, Maharashtra, and Rajasthan from the west, UP from the north, and Andhra Pradesh from the south, where the number of female teachers per 100 male teachers in urban areas is not only very low but also far below the national average of 103. Only 54 female teachers per 100 male teachers were in position at the secondary level in rural areas in 2016-17. The number of female teachers per 100 male teachers in rural areas is not only low but also far below the national average of 54 in all the states of the eastern region except Chhattisgarh, all the four states of the western region, UP from the northern region, and Karnataka (southern region). The number of female teachers per 100 male teachers is not only very low but also below the national average for government secondary schools in all the states of the eastern region except Chhattisgarh, all four states of the western region, and only Karnataka in southern region in 2016-17. In the case of government-aided secondary schools, the situation in this respect is little better as there are 8 states (out of 17 major states) comprising Assam, Bihar and Odisha (east), Gujarat, Maharashtra, and Rajasthan (west), UP (north) and Karnataka (south) where the number of female teachers per 100 male teachers is not only very low but also below the national average of 46. In case of private-unaided schools, there are only six states (out of 17 major states) consisting of three states (Bihar, Jharkhand, and Odisha) from the eastern region, Rajasthan from the western region, only UP from northern region and Andhra Pradesh from the southern region where the number of female teachers per 100 male teachers is very low as well as below the national average 111 in 2016-17 (See Table 3.7).

Table 3.7

State-wise Percentage of Female Teachers per 100 Male Teachers by Location and Management in Classes IX-X in 2009-10 and 2016-17

States	No. of Female Teachers per 100 Male Teachers in Classes IX-X in 2009-10						No. of Female Teachers per 100 Male Teachers in Classes IX-X in 2016-17					
	Rural	Urban	Total	Government	Government Aided	Private Unaided	Rural	Urban	Total	Government	Government Aided	Private Unaided
East												
Assam	31	84	38	37	38	38	42	111	51	46	39	89
Bihar	15	47	23	23	0	0	25	48	29	30	35	28
Chhattisgarh	48	112	71	55	84	84	71	135	85	73	70	130
Jharkhand	38	86	54	44	45	69	43	101	58	48	96	66
Odisha	26	87	33	38	18	42	38	116	46	65	19	76
West Bengal	40	95	52	51	43	130	44	126	61	58	123	178
West												
Gujarat	33	68	45	38	36	71	38	82	54	46	33	104
Madhya Pradesh	49	86	66	53	69	77	49	121	71	53	63	111
Maharashtra	24	97	46	41	39	91	25	93	48	49	31	130
Rajasthan	17	54	29	26	58	30	29	94	43	33	0	55
North												
Haryana	61	176	82	75	107	88	83	203	108	80	156	151
Punjab	123	272	164	113	146	261	181	414	240	166	194	427
Uttar Pradesh	77	84	79	72	67	84	30	67	37	107	20	41
South												
Andhra Pradesh	54	109	69	62	113	77	64	98	72	70	92	75
Karnataka	43	111	69	64	33	115	51	131	78	67	33	165
Kerala	195	313	214	167	214	343	240	355	263	188	228	604
Tamil Nadu	133	243	168	126	139	219	156	276	198	169	157	310
Total (All India)	55	103	69	59	56	85	54	131	73	68	46	107

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

It can be concluded from the above that the number of female teachers per 100 male teachers has increased relatively more in urban areas than rural areas as well as in government and private-unaided secondary schools between 2009-10 and 2016-17

in a majority of states. Moreover, the increase is more in northern and southern states than the eastern and western regions (See Table 3.7).

3.3.3 Pupil-Teacher Ratio at Secondary Level

Though the Pupil-Teacher Ratio (PTR) is not a reliable indicator for analysing the teacher deployment pattern in secondary education, it provides some idea about the average number of teachers by location and funding sources in secondary schools. In 2009-10, the PTR at the secondary level was 14; it was 14 in rural and 13.4 in urban areas. In 2016-17, the PTR at the secondary level was 26; it was 27 in rural and 25 in urban areas. For example, assuming that a minimum of six teachers were in position for classes IX-X in rural areas, the average size of the secondary section in rural India has increased from 84 in 2009-10 to 150 in 2016-17. In 2009-10, the PTR at the secondary level was most favourable in unaided institutions, followed by aided and government institutions at the national level, but in 2016-17, the PTR was favourable in government institutions. However, there are considerable variations in PTR between states and regions within the locations and management types. All the eastern states except Assam and Odisha have not only high PTR but also above the national average. In contrast, all the states in the southern region have PTR below the national average. Assuming a PTR of 25 as an ideal size at the secondary level, the problem of high PTR is an issue in the eastern states in secondary schools of all managements. However, the two states (Gujarat and MP) of the western region and UP from the northern region have a high PTR in government and government-aided secondary schools (See Table 3.8).

Table 3.8

**State-wise Pupil-Teacher Ratio by Location and Sources of Funding for Classes IX-X
in 2009-10 and 2016-17**

States	PTR in Secondary (Classes IX-X) in 2009-10						PTR in Secondary (Classes IX-X) in 2016-17					
	Rural	Urban	Total	Government	Government Aided	Private Unaided	Rural	Urban	Total	Government	Government Aided	Private Unaided
East												
Assam	12	11	12	13	12	11	14	13	14	15	12	15
Bihar	64	50	60	60	0	0	67	57	65	70	55	49
Chhattisgarh	28	16	23	41	20	10	30	28	30	32	42	22
Jharkhand	42	22	34	57	29	15	61	40	54	80	39	46
Odisha	15	13	14	16	14	10	20	20	20	23	17	18
West Bengal	31	24	29	31	25	13	42	27	38	39	20	39
West												
Gujarat	19	18	19	20	22	13	33	35	34	30	39	28
Madhya Pradesh	25	17	21	32	16	13	35	36	35	37	41	32
Maharashtra	21	22	21	19	23	17	24	26	25	24	27	20
Rajasthan	13	10	12	18	15	9	21	21	21	21	0	0
North												
Haryana	10	10	10	11	10	8	13	18	15	12	20	18
Punjab	11	11	11	13	17	8	16	17	16	16	33	16
Uttar Pradesh	7	6	6	7	8	6	57	41	53	37	46	60
South												
Andhra Pradesh	11	10	10	11	13	9	10	43	19	17	26	25
Karnataka	16	13	15	18	19	8	16	17	16	16	19	15
Kerala	17	16	17	19	19	8	16	17	16	17	17	13
Tamil Nadu	23	19	21	35	35	8	20	23	21	19	36	17
Total (All India)	14	13	14	19	17	8	27	25	26	26	28	28

Source: Estimated from SEMIS 2009-10 and UDISE 2016-17 data, NIEPA, New Delhi

3.3.4 Subject Teachers at Secondary Level

At the secondary level, more emphasis is given on imparting knowledge of the subjects, and these teachers play an important role in the overall personality development of the students. Secondary education teachers work in high schools, where they teach students a particular subject area, such as History, English, Science,

or Mathematics. All public-school teachers must possess a teaching license, which can only be obtained after completing a bachelor's degree program. Most aspiring secondary school teachers earn a degree in the field they wish to study while concurrently taking education classes and completing a student teaching experience. Some states may require a post-graduate degree with B.Ed. for people who want to teach in government schools and follow the traditional path to teaching licensure, a bachelor's degree in education is mandatory. It is also seen that many private schools require that applicants for teaching positions have an education degree even though it is not required by law. They accept the above-given criteria, but offer classes below your eligibility, e.g., if they are eligible to be recruited as post-graduate teachers (PGT) level/ (senior secondary), they will give them classes below grade 10.

As per RMSA guidelines, subject-wise TG/PG teachers for each subject must be deputed at the secondary and higher secondary stage in every school. Besides, the specialized teachers for physical education, art/ craft, and culture education must also be deputed. However, the appointment of the subject-wise teacher was based on a PTR of 1:30. Accordingly, RMSA guidelines suggested the appointment of at least five core subject teachers, one each for mathematics, science, social science, and two language teachers in each secondary school by the society implementing RMSA.

Analysis of data shows that in the country, 33.5 per cent government, 18.7 per cent government-aided, and 17.4 per cent–private-unaided secondary schools had all the five core subject teachers in 2016-17. However, there are considerable variations in the availability of core subject teachers between regions and states, as well as management types.

The percentage of government secondary schools having five core subject teachers are not only very low but also below the national average of 33.5 per cent in 10 out of 17 major states namely, Bihar, Chhattisgarh, Jharkhand, Odisha, and West Bengal (East), Gujarat, Maharashtra, MP, and Rajasthan (West) and Uttar Pradesh (North). Likewise, the percentage of government-aided secondary schools with five core subject teachers in Jharkhand, Odisha, and West Bengal (East), Gujarat (West), Up (North), and Karnataka (South) fall below the national average of 33.5 per cent. A similar situation exists in private-unaided secondary schools. The percentage of private-unaided secondary schools having 5 core subject teachers lie below

the national average of 18.7 per cent in ten out of 17 major states, namely Bihar, Jharkhand, Odisha and West Bengal (East), Gujarat, Maharashtra, Rajasthan (West), UP (North) and Karnataka (South) (See Table 3.9).

Table 3.9
Percentages of Secondary Schools/Sections having 5 Core Subject Teachers by Management in 2016-17

State	Government	Government Aided	Private Unaided	Total
East				
Assam	47.0	41.4	28.7	39.8
Bihar	23.2	14.5	13.3	20.9
Chhattisgarh	10.0	17.6	31.3	16.5
Jharkhand	1.3	1.8	7.4	3.5
Odisha	4.0	2.6	7.6	4.0
West Bengal	13.2	9.7	9.4	12.7
West				
Gujarat	6.3	11.4	13.2	11.4
Madhya Pradesh	29.6	32.2	30.5	30.0
Maharashtra	8.5	13.5	9.4	11.9
Rajasthan	14.6	-	8.5	11.5
North				
Haryana	58.2	41.4	38.3	46.8
Punjab	51.0	32.2	30.8	40.2
Uttar Pradesh	4.7	14.7	6.5	7.8
South				
Andhra Pradesh	84.1	19.2	29.0	57.0
Karnataka	21.3	11.4	9.1	13.8
Kerala	41.5	48.8	46.1	45.7
Tamil Nadu	63.9	48.8	53.4	58.2
All India	33.5	17.4	18.7	24.7

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

Note: 5 core subject teachers, one each for Mathematics, Science, Social Science, and two Language Teachers

A close look at Table 3.9 reveals that in a majority of eastern and western states, the percentages of government and go-government-aided secondary schools with all the five core subject teachers are less than the percentages of private-unaided secondary schools whereas in the northern and southern states the percentages of

government and - government-aided secondary schools with all the five core subject teachers are more than the percentages of private-unaided secondary schools.

3.3.5 Teachers by Training Status at Secondary Level

Besides the shortage of teachers, the availability of trained teachers (i.e., the required pre-service training) is also an important issue at the secondary level of education in India. In 2009-10, 82 per cent of teachers at the secondary level were professionally trained, which has increased to 87.3 per cent in 2016-17. Besides, there is not much difference in the professional training status of male and female teachers in India in 2016-17. Around 81 per cent secondary level teachers in rural areas and 84 per cent in urban areas have professional training. Not much gender difference in professional training is seen among teachers of government, aided, and unaided institutions (SSE 2009-10, SSE 2016-17, NUEPA, New Delhi). However, the unavailability of trained teachers in 2016-17 is more acute in Assam, Bihar, Chhattisgarh, and Jharkhand; Madhya Pradesh, and Uttar Pradesh. It is interesting to note that the percentage of trained teachers at the secondary level is not only very high but also above the national average in all the southern states (See Table 3.10).

Table 3.10**State-wise Percentage of Trained Teachers in Position by Location, Management and Gender for Classes IX-X in 2016-17**

State	Rural (%)		Urban (%)		Government (%)		Government Aided (%)		Private Unaided (%)	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
East										
Assam	82.6	66.3	17.4	33.7	80.3	74.5	5.1	3.3	14.6	22.2
Bihar	81.0	68.4	19.0	31.6	86.8	88.5	1.9	2.6	11.2	9.0
Chhattisgarh	81.2	72.2	18.8	27.8	86.5	78.9	1.3	1.3	12.2	19.8
Jharkhand	74.8	57.4	25.2	42.6	53.3	44.4	6.4	11.4	40.3	44.2
Odisha	90.3	75.3	9.7	24.8	49.0	69.9	43.4	17.9	7.6	12.2
West Bengal	78.8	56.0	21.2	44.0	92.7	88.2	0.4	0.9	6.9	10.9
West										
Gujarat	64.8	45.9	35.2	54.1	9.0	7.8	63.4	38.6	27.5	53.7
Madhya Pradesh	73.1	53.2	26.9	46.8	76.1	62.5	1.6	1.5	22.3	36.1
Maharashtra	65.8	33.7	34.2	66.3	6.5	6.6	77.6	50.4	15.9	43.0
Rajasthan	79.8	55.0	20.2	45.0	57.5	45.5	0.0	0.0	42.5	54.5
North										
Haryana	79.6	61.4	20.4	38.6	61.6	46.0	1.8	2.6	36.6	51.4
Punjab	75.3	57.0	24.7	43.0	71.2	50.0	3.6	3.0	25.3	47.0
Uttar Pradesh	80.6	65.2	19.4	34.8	5.4	16.0	34.8	18.8	59.8	65.2
South										
Andhra Pradesh	75.28	66.34	24.72	33.66	68.45	66.88	2.36	3.02	29.18	30.1
Karnataka	67.3	44.8	32.8	55.2	41.9	37.1	35.9	15.5	22.3	47.3
Kerala	79.4	72.1	20.6	27.9	34.3	24.6	52.9	45.9	12.8	29.4
Tamil Nadu	65.1	51.5	34.9	48.5	59.1	50.6	18.8	15.0	22.1	34.4
Telangana	68.3	48.4	31.7	51.6	63.7	51.2	1.3	2.9	35.0	45.9
All India	74.2	54.6	25.8	45.4	48.0	45.0	25.9	16.2	26.2	38.8

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.4. Facilities in Secondary Schools

Facilities in secondary schools include buildings, fixtures, and equipment necessary for the effective, successful, and efficient functioning of the public education programme. Some notable and essential facilities for effective functioning

of secondary schools are: classrooms, libraries, rooms, and space for physical education, space for fine arts, restrooms, teaching, and non-teaching staff rooms, specialized laboratories, cafeterias, media centres, building equipment, building fixtures, libraries including books, furnishings, related exterior facilities. School planning should begin and end with a focus on learners' needs. The school building should be designed considering the learners' physical and emotional needs and demands. It is unquestionably and indisputably acknowledged that physical facilities augment and improve the educational process. These educational facilities help promote and enhance children's knowledge (Iqbal, 2005). Educational facility is the process of conceiving and selecting the structure, elements, materials, arrangement, and so on for a school building or facility; the plan or layout of the building (Australian Council for Educational Research, 2008).

According to Akande (1985), learning can occur through interaction with one's environment. The environment here refers to facilities available to facilitate students learning outcomes. It includes books, audio-visual, software, and educational technology hardware; so also, size of the classroom, sitting position and arrangement, availability of tables, chairs, chalkboards, and shelves on which instruments for practicals are arranged (Farrant, 1991 and Farombi, 1998). Zaidi (2013) maintained that facilities are required to be provided in all schools irrespective of their level. However, higher levels of schools such as secondary and higher secondary schools may need to have more facilities, and these schools need to be better equipped.

3.4.1 Availability of Building in Secondary Schools

Many research studies have shown that the success of any educational endeavour rests on the availability of physical facilities, especially the school building. Therefore, school buildings are critical to education infrastructure and the system; they do not teach, their use may facilitate or impede learning. Showing their importance, Olutola (1982) noted that the availability of the school building and other infrastructure facilities contribute to good academic performance as they enhance the efficacy of teaching-learning activities. According to the scholar, well-sited school buildings with aesthetic conditions, playground, lavatory, etc., usually contribute to achieving higher educational goals by the students. Throwing more light on this, the Encyclopaedia of Educational Research recorded that the total environment within a

school building should be comfortable, pleasant, and psychologically lifting. Furthermore, it should provide a passive physical setting that is educationally stimulating. It should also produce a feeling of well-being among its occupants, thus supporting the educational process (p.1156). The above condition can only be met through the cooperative efforts of imaginative teachers, administrators, and creative and knowledgeable architects.

Analysis of data shows that in the country, about 1.8 per cent of government secondary schools and only 0.2 per cent of government-aided and private-unaided secondary schools do not have a building of their own. However, out of 17 states, there are only 5 states, namely, Assam, West Bengal, Maharashtra, Rajasthan, and Punjab, where all government secondary schools have their building. In contrast, there are 5 states, namely Assam, Gujarat, Rajasthan, Andhra Pradesh, and Karnataka, where all private-unaided secondary schools have buildings. However, only 6 out of 17 states, namely Assam, Gujarat, Rajasthan, Haryana, Andhra Pradesh, and Karnataka), here all secondary schools have buildings (See Table 3.11).

Table 3.11

State-wise Percentages of Secondary Schools by Availability of School Building and Type of Classrooms by Management in 2016-17

States	Percentage of Secondary Schools with			Percentage of Secondary Schools by Type of School Building and Condition of Classrooms in 2009-10									Percentage of Secondary Schools by Type of School Building and Condition of Classrooms in 2016-17								
	No Building			Classrooms in good condition			Classrooms for Minor Repair			Classrooms for Major Repair			Classrooms in good condition			Classrooms for Minor Repair			Classrooms for Major Repair		
	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided
East																					
Assam	0.0	0.0	0.0	35.7	18.0	21.9	42.4	63.1	61.0	21.9	18.9	17.0	47.9	49.0	69.9	20.3	10.0	13.7	22.2	10.1	8.7
Bihar	0.2	0.7	0.4	65.7	0.0	0.0	23.3	0.0	0.0	11.0	0.0	0.0	61.6	89.9	86.6	20.3	3.6	8.6	19.0	0.7	6.1
Chhattisgarh	3.6	0.0	0.1	61.7	76.9	93.8	15.8	16.3	3.6	22.5	6.9	2.6	80.7	94.1	94.4	9.1	3.9	3.8	4.5	1.0	0.8
Jharkhand	0.5	0.0	0.7	57.4	74.3	87.5	24.7	15.0	6.0	17.9	10.7	6.6	77.2	92.1	87.7	13.4	8.5	6.3	17.4	7.9	3.6
Odisha	0.1	0.8	0.4	38.9	32.3	65.4	38.0	44.0	20.9	23.1	23.7	13.7	78.4	75.4	85.6	25.4	24.6	17.6	21.6	21.1	9.3
West Bengal	0.0	0.0	0.4	52.1	54.2	89.0	26.2	25.9	6.1	21.7	19.9	4.9	88.9	93.5	78.9	41.4	9.7	19.2	41.1	4.8	16.7
West																					
Gujarat	0.3	0.0	0.0	89.4	89.6	97.6	4.8	3.9	1.2	5.9	6.6	1.3	95.3	97.8	98.3	0.5	0.3	0.4	0.1	0.1	0.1
Madhya Pradesh	18.4	0.3	0.1	66.3	87.3	94.7	15.6	5.6	3.2	18.2	7.1	2.0	73.3	98.3	97.4	0.1	3.1	3.9	0.0	0.3	0.6
Maharashtra	0.0	0.1	0.1	66.9	77.2	84.9	15.9	10.3	7.5	17.3	12.5	7.6	90.2	96.0	96.2	17.1	7.0	1.0	12.2	1.8	0.2
Rajasthan	0.0	0.0	0.0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	76.8	0.0	93.7	32.4	0.0	3.4	21.2	0.0	0.7
North																					
Haryana	0.2	0.0	0.0	76.3	98.5	97.9	10.1	0.6	1.2	13.6	0.9	0.9	86.3	99.0	99.2	19.0	1.0	0.9	16.9	0.0	0.2
Punjab	0.0	0.0	0.1	59.9	90.8	97.4	17.9	3.1	1.2	22.2	6.1	1.3	88.0	97.0	98.4	12.4	7.3	0.9	9.0	3.0	0.1
Uttar Pradesh	1.3	0.3	0.3	48.8	59.1	64.8	26.5	20.5	18.2	24.7	20.4	17.0	93.8	95.7	97.5	4.1	9.2	3.6	1.5	3.6	0.5
South																					
Andhra Pradesh	0.3	0.2	0.0	58.9	91.2	98.5	19.9	2.7	0.5	21.2	6.1	0.9	87.0	88.4	87.1	29.5	13.7	1.8	17.3	4.7	0.2
Karnataka	0.1	0.0	0.0	61.3	84.0	96.0	16.5	6.1	1.7	22.2	9.9	2.3	88.6	94.0	90.1	17.1	4.9	1.9	10.6	3.9	0.5
Kerala	0.1	0.5	0.9	43.2	80.7	95.6	26.4	4.0	1.6	30.4	15.3	2.8	84.8	96.5	96.4	33.8	12.7	2.5	26.4	1.9	0.3
Tamil Nadu	0.2	0.2	0.2	55.7	93.8	98.6	24.8	2.6	0.8	19.5	3.5	0.6	92.1	99.0	98.4	16.2	1.3	0.3	9.0	0.2	0.0
Telangana	0.1	0.0	0.0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	83.0	89.4	96.7	29.6	10.2	2.0	17.1	3.2	0.3
Total (All India)	1.8	0.2	0.2	57.5	77.1	88.0	22.1	11.1	6.6	20.3	11.8	5.5	80.3	92.4	94.1	22.0	7.8	3.5	16.4	3.9	1.2

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

N.A.: Not Available

It is also expected that the secondary schools have classrooms in good condition. At the all-India level, a greater percentage of (increased from 88 per cent in 2009-10 to 94.1 per cent in 2016-17) private-unaided secondary schools had classrooms in good condition followed by the government-aided (increased from 77.1 per cent in 2009-10 to 92.4 per cent in 2016-17) and government schools (increased from 57.5 per cent in 2009-10 to 80.3 per cent in 2016-17). This shows that although the increase in the number of classrooms in good condition is more in the case of government secondary schools, a greater number of government secondary schools had classrooms needing both major and minor repair. However, considerable variations existed between schools run by different managements in a region and states within the regions. Out of 17 major states, there are 4 states, namely, Assam and Bihar from the eastern region and MP and Rajasthan, where the percentage of government schools with classrooms in good condition was not only very low but also fell below the national average. These states also have a considerable percentage of government secondary schools having classrooms needing both major and minor repair. However, in this respect, states in the northern and southern regions have a large percentage of government secondary schools with classrooms in good condition and relatively lower percentages of classrooms requiring major and minor repair. It is very alarming that except Assam, all the remaining 17 states have a very high percentage of government-aided and private-unaided secondary schools with good condition classrooms, and a very low percentage of secondary schools with classrooms that require major and minor repair (See Table 3.11).

3.4.2 Availability of Various Types of Rooms in Secondary Schools

Facilities at secondary schools include buildings, sufficient classrooms, and other rooms like headmaster's room, assistant headmaster's room, teachers/staff room, office room, library room, laboratory room and rooms for students, etc. Analysis of data shows that around 71 per cent secondary schools in India had separate rooms for principals or headmaster 2009-10, which has increased to 75.9 per cent in 2016-17. However, the percentage of secondary schools with separate rooms for headmaster is highest in the case of private-unaided schools (87.2%) followed by the government-aided schools (85.6%) and lowest in the case of government schools (61.1%). The situation seems to be pretty worse in the eastern states where, except in Jharkhand

and West Bengal, the percentage of government secondary schools having separate rooms for principal/headmaster is below the national average of 61.1 per cent in all the remaining states. Besides, in three states (Gujarat, MP, and Rajasthan) in the western region, in 2 states (Andhra Pradesh and Karnataka) in the southern region, the percentages of government secondary schools having separate principal/headmaster rooms are below the national average. Interestingly in all the northern states, the percentage of government secondary schools with separate principals/headmasters above the national average. However, there are very few states, namely, Assam, Bihar, and Odisha, where the percentage of government-aided and private-unaided secondary schools with separate rooms for headmaster is not only significantly low but also below the national average of 85.6%. As far as a separate room for vice-principal/assistant headmaster is concerned, the same situation prevails in government secondary schools, government-aided secondary schools, and private-unaided secondary schools across states and at all India level. It may be concluded that the percentage of government-aided secondary schools with separate rooms for vice-principal/assistant head masters are below the national average of 85.6 per cent in all the eastern states.

It is expected that secondary schools should have separate rooms for teachers and a common room for students. Unfortunately, the situation in this regard is far from satisfactory. It may be seen from Table 3.19 that only 52.2 per cent government secondary schools, 83.9% government-aided secondary schools, and 75.5% private-unaided secondary schools in the country have separate rooms for teachers/staff. The states where the percentage of government secondary schools having teacher/staff room is below the national average are Bihar and Jharkhand, MP and Rajasthan, Uttar Pradesh, and Andhra Pradesh. Similarly, the states where the percentage of government-aided and private-unaided secondary schools with teachers/staff rooms is not only low but also below the national average are Assam, Bihar, West Bengal and Odisha (East), UP (North) and Andhra Pradesh and Karnataka (South) (See Table 3.12).

Table 3.12
State-wise Percentages of Secondary Schools having Separate Rooms for Teachers, Staff and Students in 2009-10 and 2016-17

States	% of Secondary Schools having Separate Rooms in 2009-10 for												% of Secondary Schools having Separate Rooms in 2016-17 for																																																																																																																											
	Headmaster				Assistant Headmaster				Staff Teachers				Girls' Common Room				Headmaster				Assistant Headmaster				Staff Teachers				Girls' Common Room																																																																																																											
	Government	Government Aided	Private Unaided		Government	Government Aided	Private Unaided		Government	Government Aided	Private Unaided		Government	Government Aided	Private Unaided		Government	Government Aided	Private Unaided		Government	Government Aided	Private Unaided		Government	Government Aided	Private Unaided																																																																																																													
	East																																																																																																																																							
Assam	65.5	41.5	39.6	3.3	1.6	5.4	88.8	79.1	72.6	29.1	7.6	12.9	35.1	23.0	60.5	5.2	5.1	31.3	67.8	55.9	59.8	12.8	9.2	16.4	79.3	0.0	0.0	7.0	0.0	0.0	72.4	19.1	32.6	35.8	30.4	73.2	48.3	13.6	37.7	37.3	17.2	75.0	65.4	1.2	0.0	12.2	8.9	50.2	52.4	2.4	0.0	17.5	56.4	83.3	90.7	19.1	34.3	63.5	54.0	92.2	85.1	14.4	40.2	43.9	58.4	87.5	91.7	8.5	18.8	37.7	53.1	83.3	88.9	17.7	35.8	38.0	64.6	83.6	84.0	29.2	44.8	56.6	37.4	83.0	69.8	15.0	26.1	38.3	63.8	46.0	53.6	2.1	1.6	6.7	60.1	47.6	52.2	5.2	3.3	7.4	55.0	38.2	64.5	11.5	10.4	37.9	55.6	45.5	58.7	2.9	3.4	16.7	61.0	56.5	92.6	2.5	2.9	38.3	83.2	74.3	85.2	17.3	16.9	32.1	67.0	74.2	67.5	17.9	56.5	29.5	93.1	79.0	68.1	23.6	24.2	35.6
	West																																																																																																																																							
Gujarat	74.4	82.4	89.5	5.9	6.3	18.6	58.4	62.7	71.1	27.0	33.1	33.6	59.3	88.9	93.6	45.4	67.2	82.7	53.1	92.8	89.4	26.6	52.4	54.3	47.2	92.4	95.1	14.9	32.9	35.4	35.2	68.4	82.2	14.5	32.9	37.5	53.1	87.1	89.6	14.6	61.0	65.0	31.3	87.1	78.3	6.1	61.4	51.1	79.9	79.6	87.0	9.3	7.6	13.9	57.6	65.1	72.9	15.8	9.8	16.7	87.4	95.8	95.4	41.0	45.9	64.4	60.9	89.0	87.6	24.4	23.2	41.7	64.5	98.3	94.6	1.6	15.3	16.2	44.5	86.4	75.8	4.9	22.0	20.0	58.0	0.0	92.2	29.3	0.0	76.9	31.7	0.0	79.1	6.8	0.0	42.0																																								

		North																South															
Haryana	83.7	97.4	97.6	2.5	14.0	19.4	58.6	78.3	85.9	5.0	31.3	24.5	91.6	96.6	95.8	16.4	30.0	58.6	72.6	95.1	89.5	12.8	44.3	50.0									
Punjab	74.4	95.4	98.7	7.6	18.5	38.1	41.7	75.0	87.3	1.6	20.4	22.3		98.1	24.9	46.1	69.5	57.0	92.1	80.5	6.2	26.6	28.8										
Uttar Pradesh	95.9	92.8	96.5	46.7	40.1	52.7	78.1	77.2	84.8	62.0	59.5	63.8	76.2	91.0	88.3	35.1	48.9	63.1	47.7	81.6	69.9	19.9	51.0	60.3									
Andhra Pradesh	45.4	93.5	96.1	3.7	17.4	35.7	41.2	87.6	89.0	5.6	23.0	39.5	52.4	80.3	64.2	20.0	37.6	47.1	43.6	71.2	54.8	6.5	15.9	30.9									
Karnataka	50.4	77.5	89.6	8.5	13.0	25.0	50.1	78.3	82.3	4.0	14.6	21.4	60.4	86.0	90.9	44.6	62.5	63.1	57.1	82.2	71.5	9.4	23.2	38.8									
Kerala	57.4	86.9	96.2	1.9	3.3	36.5	90.0	95.7	94.4	3.2	11.6	34.4	71.4	94.9	97.5	13.5	20.4	65.2	89.3	99.1	90.0	6.2	14.0	41.0									
Tamil Nadu	23.1	81.8	92.3	1.1	4.8	22.7	17.3	54.4	67.9	1.0	10.8	15.3	64.4	97.0	98.5	19.2	44.7	72.8	54.9	94.9	91.7	9.6	26.4	47.1									
Total (All India)	56.2	75.3	89.5	4.9	8.1	26.1	51.2	68.8	78.6	9.1	14.1	27.5	61.1	85.6	87.2	22.7	45.0	62.9	83.9	75.5	10.5	28.1	43.6										

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

Girls' common rooms are available in 10.5 per cent government, 28.1 per cent government-aided and 43.6 per cent private-unaided secondary schools in the country, which shows that nearly 90 per cent of government secondary schools and more than 70 per cent government-aided secondary schools do not have common rooms for girls, even though RMSA mandated it for every government secondary school that enrolls girls. The states with below national average of separate girls' common rooms are Odisha (2.9%) in the east, Madhya Pradesh (6.1%), and Rajasthan (6.8%), Punjab (6.2%) in the north, Andhra Pradesh (6.5%), Karnataka (9.4%), Kerala (6.2%), and Tamil Nadu (9.6%) in the south. It is noteworthy to mention that there has not been a significant increase in the provision of girls' common room in the government secondary schools between 2009-10 and 2016-17 (See Table 3.12).

Only around 40 per cent secondary schools in India have separate library room. The percentage of secondary schools with library rooms is not only very low (less than 21%) in most of the eastern states (Assam, Chhattisgarh, Odisha, and West Bengal) but also below the national average. The percentage of government and government-aided secondary schools with separate library rooms/facilities have increased from 20.6 per cent and 41.4 per cent in 2009-10 to 40.4 per cent and 59.0 per cent respectively in 2016-17. However, the percentage of private-unaided secondary schools having separate library rooms/facilities has decreased from 66.5 per cent in 2009-10 to 62.8 per cent in 2016-17. Similar is the situation in the case of integrated science laboratory where the percentage of government and government-aided secondary schools with integrated science laboratories has increased from 22.3 per cent and 47.6 per cent in 2009-10 to 35.7 per cent and 57.8 per cent respectively in 2016-17. However, the percentage of private-unaided secondary schools having integrated science laboratory have decreased from 54.8 per cent in 2009-10 to 53.2 per cent in 2016-17. Besides, four states, Assam, Chhattisgarh, Odisha, and West Bengal, have very low percentages of government secondary schools with integrated science laboratories. Gujarat and Kerala show a declining trend in the percentage of government secondary schools with integrated science laboratories between 2009-10 and 2016-17 (See Table 3.13).

Table 3.13
State-wise Percentages of Secondary Schools having Rooms for Teaching and Non-Teaching Activities in 2009-10 and 2016-17

States & UTs	Percentage of Secondary Schools with Separate Rooms in 2009-10 for												Percentage of Secondary Schools with Separate Rooms in 2016-17 for											
	Library			Integrated Science Laboratory			Cultural Activities			Staff Quarter			Library			Integrated Science Laboratory			Cultural Activities			Staff Quarter		
	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided
	East																							
Assam	13.6	6.0	11.0	3.7	1.4	5.2	1.2	1.2	3.1	2.0	1.1	4.6	24.7	5.2	28.9	20.7	0.8	13.9	4.6	2.1	15.3	3.3	1.4	9.0
Bihar	43.4	0.0	0.0	49.8	0.0	0.0	6.1	0.0	0.0	2.6	0.0	0.0	29.5	65.9	43.7	28.5	63.0	41.3	9.7	17.4	20.1	4.2	10.9	14.6
Chhattisgarh	4.6	50.0	43.4	6.3	50.0	43.4	1.6	25.0	9.2	1.1	25.0	8.4	58.2	52.9	65.8	60.9	76.5	69.1	48.9	24.5	39.1	4.2	11.8	21.7
Jharkhand	32.2	64.6	76.5	39.0	70.0	77.0	7.6	14.6	30.0	8.9	18.8	28.7	45.6	68.5	62.7	42.4	66.1	51.4	17.1	30.3	38.9	10.4	15.8	22.9
Odisha	18.8	6.3	16.8	14.7	3.6	12.1	3.5	1.3	6.4	10.6	2.7	8.4	37.6	5.7	41.0	20.6	2.1	29.6	18.5	1.9	27.1	10.3	1.7	19.5
West Bengal	19.6	19.8	75.3	6.7	6.5	65.4	3.8	3.9	37.0	1.9	2.7	30.9	57.2	72.6	49.6	22.8	38.7	27.6	10.3	41.9	23.5	3.0	25.8	9.8
	West																							
Gujarat	46.4	54.5	61.2	48.2	59.7	50.9	13.4	12.5	23.1	8.2	5.5	8.2	38.9	71.9	74.5	26.8	61.3	55.5	20.3	36.8	51.3	18.4	13.3	14.9
Madhya Pradesh	17.3	76.0	82.6	21.0	74.7	78.8	13.5	27.9	30.3	12.6	20.3	23.9	33.8	80.3	73.9	44.1	75.3	64.4	27.1	40.3	44.7	4.1	21.7	23.1
Maharashtra	35.6	39.9	55.4	58.7	54.1	61.0	8.7	7.5	18.8	18.9	4.3	8.7	44.3	61.3	78.7	62.7	75.2	76.1	23.5	22.3	47.6	28.1	6.8	15.3
Rajasthan	28.8	67.8	58.4	6.0	27.1	11.5	4.0	20.3	15.0	2.4	0.0	7.4	27.5	0.0	47.0	26.4	0.0	46.1	6.5	0.0	28.7	13.8	0.0	24.6

North																								
Haryana	32.2	89.6	84.8	51.9	66.1	71.8	4.5	27.8	26.5	2.9	5.2	9.0	74.9	87.2	85.3	74.4	81.3	74.0	40.4	45.8	55.4	5.7	11.3	26.9
Punjab	24.6	58.3	91.2	55.1	72.2	88.4	2.6	12.0	39.3	1.2	5.6	12.2	77.1	76.7	87.9	70.0	79.1	71.5	73.4	26.6	46.5	3.8	5.4	9.8
Uttar Pradesh	71.1	68.8	79.0	73.6	70.9	76.0	41.3	38.0	37.6	41.3	36.3	36.0	38.5	66.0	56.8	39.5	60.5	51.0	23.5	33.8	40.0	16.2	17.4	25.9
South																								
Andhra Pradesh	11.8	67.3	79.7	18.3	63.2	70.2	4.0	21.0	35.2	5.5	13.7	17.4	28.5	55.0	49.2	21.5	33.4	31.5	13.4	18.6	28.7	4.9	6.6	12.9
Karnataka	15.1	41.9	65.1	19.9	41.6	54.5	4.7	11.1	25.6	3.4	3.9	7.8	32.8	56.9	64.0	22.8	36.9	44.8	14.6	23.6	43.2	7.3	6.0	13.8
Kerala	64.8	87.9	94.4	73.0	94.5	92.7	6.3	18.6	52.9	4.6	2.1	18.0	75.4	93.6	87.2	46.3	72.1	72.0	9.6	26.0	67.0	6.3	2.2	17.4
Tamil Nadu	7.6	59.0	86.0	20.2	52.5	82.3	2.0	10.6	21.5	1.0	6.5	8.7	35.0	87.3	87.1	41.2	74.7	71.1	22.1	53.7	61.8	4.1	11.1	12.7
Total (All India)	20.6	41.4	66.5	22.3	47.6	54.8	4.9	9.4	24.6	5.2	5.2	13.7	40.4	59.0	62.8	35.7	57.8	53.2	20.0	25.3	40.4	7.4	8.6	19.2

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

It is generally expected that every secondary school should have an auditorium for conducting various indoor literary and cultural activities and festivals. However, the situation in this regard is very poor as only 12.3 per cent secondary schools in the country have auditoriums. Except Jharkhand, in all remaining eastern states, the percentage of secondary schools with auditoriums are not only below the national average but also very low (i.e., below 5%). The same situation exists in Rajasthan, , Haryana, and Punjab. All the states in the southern regions lie above the national average with regard to this facility. A similar situation is observed at the national, regional, and state-level with regard to the availability of indoor games rooms, activity rooms, first aid/sick room, guidance, and counseling rooms in the secondary schools. It is interesting to mention that only about 8 per cent secondary schools in the country have staff quarters. Out of 17 major states, only five states (Jharkhand, Odisha, Madhya Pradesh., Uttar Pradesh, and Andhra Pradesh) lie above the national average, and the remaining 12 states fall below it so far as availability of staff quarters is concerned (See Table 3.13).

3.4.3 Availability of Infrastructure Facilities in Secondary Schools

Apart from the building and rooms, the secondary schools also need to have the proper infrastructure as it helps ensure constructive teaching-learning process in the classrooms and facilitates the teachers in imparting quality education. On the other hand, poor and inadequate educational facilities negatively impact teachers' effectiveness and performance and therefore have a negative impact on students' performance.

In India, about 67 per cent of secondary schools in the country had boundary walls in 2009-10, which has increased to around 85 per cent in 2016-17. The percentage of government, government-aided and private-unaided secondary schools in the country having boundary wall have increased from 61.5 per cent to 76.1 per cent, 56.3 per cent to 85.6 per cent and 81.7 per cent to 92.2 per cent respectively between 2009-10 to 2016-17. This shows that nearly 24 per cent of government secondary schools in the country do not have boundary walls, which is a matter of concern. Besides, it may also be noted that in 7 out of 17 major states, namely Assam, Chhattisgarh and Jharkhand, Madhya Pradesh, Uttar Pradesh, Andhra Pradesh, and Karnataka, the percentage of government secondary schools having

boundary wall fall below the national average of 76.1 per cent. However, the situation with regard to playgrounds is satisfactory as about 70 per cent of government secondary schools in the country have playgrounds of their own. Besides, in all the eastern states and Uttar Pradesh, the percentages of government secondary schools with playground facilities are not only very low but also lie below the national average of 70 per cent.

Analysis of data shows that about 8 per cent government secondary schools did not have drinking water facilities in the school in 2009-10, which has decreased to 0.6 per cent in 2016-17. However, it should be noted that except Uttar Pradesh, about 90 per cent of government secondary schools in all the states have drinking water facilities. It is also disheartening to note that the availability of hostel facilities in the secondary schools is very poor across regional and state levels. Boys' hostels are available in only 6.8 per cent of government secondary schools while girls' hostels are available in only 6.0 per cent of government secondary schools in 2016-17. Besides, there is not much difference between government, government-aided and private-unaided secondary schools with regard to the availability of boys' and girls' hostel facilities (See Table 3.14).

Table 3.14
State-wise Percentages of Secondary Schools by Management having Various Infrastructure Facilities in 2016-17

States & UTs	Percentage of Secondary Schools with such facilities in 2009-10												Percentage of Secondary Schools with such facilities in 2016-17																							
	Boundary Wall (%)				Water Facility (%)				Boys' Hostel (%)				Girls' Hostel (%)				Boundary Wall (%)				Playground (%)				Water Facility (%)				Boys' Hostel (%)				Girls' Hostel (%)			
	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided	Govt. Aided	Private Unaided				
	East																																			
Assam	49.1	32.7	23.8	80.9	85.2	86.2	91.4	89.8	86.8	1.3	0.8	4.5	0.7	0.9	4.1	52.8	30.2	66.5	65.2	74.2	61.9	96.0	90.5	92.3	1.9	0.9	5.9	1.3	0.9	4.6						
Bihar	66.6	0.0	0.0	82.4	0.0	96.5	0.0	0.0	0.0	6.0	0.0	0.0	0.7	0.0	0.0	72.2	76.1	75.8	72.0	83.3	76.1	99.6	98.6	99.1	4.8	3.6	11.6	2.4	3.6	3.9						
Chhattisgarh	13.7	100.0	54.2	36.9	75.0	65.4	52.2	100.0	90.7	5.2	50.0	4.5	3.6	25.0	3.9	58.3	94.1	90.1	62.9	95.1	85.3	98.5	100.0	99.9	10.9	14.7	5.6	6.8	16.7	4.3						
Jharkhand	51.4	65.8	74.2	56.7	88.8	90.4	87.4	98.3	97.9	14.5	15.0	26.1	11.4	17.9	24.3	59.3	89.1	77.0	68.7	80.6	79.2	98.8	98.8	96.9	4.1	7.3	6.7	8.0	7.3	5.2						
Odisha	69.3	52.1	53.5	69.1	84.8	84.8	9.5	90.2	86.1	11.7	13.8	18.2	7.7	4.4	9.4	87.8	66.6	77.6	57.1	76.1	77.6	99.9	99.8	99.9	9.7	8.8	14.2	10.4	4.5	9.7						
West Bengal	52.3	53.5	84.0	60.1	60.4	72.8	95.5	97.1	100.0	13.0	26.1	13.6	3.6	4.3	12.4	81.0	95.2	74.8	65.6	67.7	58.0	99.6	100.0	98.0	14.7	9.7	9.7	4.7	8.1	6.2						
	West																																			
Gujarat	66.9	68.5	81.6	78.2	86.2	86.2	92.3	98.0	98.9	16.4	13.4	15.2	11.0	7.2	7.6	85.5	89.9	97.3	70.9	91.1	93.3	100.0	100.0	100.0	11.8	8.2	8.0	15.2	6.0	4.6						
Madhya Pradesh	41.7	77.2	82.2	47.9	94.9	91.9	82.8	98.7	99.1	11.3	12.7	11.4	9.3	12.7	11.3	47.2	92.9	92.6	63.6	87.5	92.2	96.7	100.0	99.9	4.5	4.4	2.2	4.4	2.7	1.6						
Maharashtra	70.8	48.5	60.8	84.5	84.2	80.7	96.4	97.8	97.7	25.7	8.6	7.2	27.1	6.4	5.8	90.2	90.6	91.0	92.9	97.5	95.3	99.5	100.0	99.8	25.9	9.5	5.0	27.8	6.6	3.8						
Rajasthan	87.0	94.9	93.2	66.3	1.2	80.3	92.2	98.3	98.6	0.8	1.7	3.2	0.3	3.4	1.0	93.9	0.0	96.4	58.7	0.0	84.6	97.8	0.0	99.8	4.5	0.0	6.3	2.5	0.0	2.1						

North																															
Haryana	96.9	97.4	98.5	84.0	94.8	92.9	98.1	98.3	98.4	4.4	52.2	84.8	0.2	1.7	0.7	98.3	99.5	99.7	87.7	93.1	94.6	100.0	100.0	100.0	0.6	2.0	1.5	1.0	1.5	1.0	1.0
Punjab	84.3	93.5	97.0	70.9	73.2	90.0	98.4	98.2	99.9	1.0	0.9	1.5	0.9	1.9	0.7	98.6	98.1	99.2	100.0	98.6	97.2	100.0	100.0	100.0	1.2	0.3	1.2	1.2	0.0	0.9	0.9
Uttar Pradesh	96.3	94.1	97.9	94.2	94.5	97.8	88.0	90.7	92.3	27.3	23.6	20.1	28.1	22.4	20.0	74.0	96.6	95.9	42.7	73.1	58.8	93.9	100.0	99.7	3.8	2.1	3.2	2.3	1.2	2.9	2.9
South																															
Andhra Pradesh	69.3	90.7	93.0	80.8	92.3	90.3	85.2	97.8	98.9	8.4	9.8	14.3	8.5	12.9	13.5	71.4	90.3	93.2	75.4	96.4	88.4	96.7	99.2	99.7	9.3	4.0	2.7	11.8	4.2	3.4	3.4
Karnataka	43.4	59.6	78.5	74.8	93.8	90.3	70.7	96.8	98.3	12.4	11.8	9.1	6.5	3.5	6.5	74.3	76.3	85.9	81.8	95.6	86.8	99.4	99.9	97.8	10.1	5.3	5.6	14.4	8.0	7.5	7.5
Kerala	73.4	75.5	87.9	72.7	94.7	95.7	94.0	97.1	97.7	3.1	2.5	14.2	3.2	5.2	16.0	92.7	87.6	92.0	71.3	96.2	95.8	99.8	100.0	99.8	3.7	2.9	6.5	2.8	3.4	6.2	6.2
Tamil Nadu	36.2	76.3	89.2	62.6	95.4	97.3	76.9	98.9	98.8	3.2	9.0	7.2	1.9	7.8	6.6	82.2	95.5	97.5	73.2	97.1	97.6	100.0	100.0	99.8	6.4	9.1	9.0	5.4	10.4	8.2	8.2
Total (All India)	61.5	56.3	81.7	69.8	85.7	87.0	86.5	95.7	96.7	7.8	10.0	10.6	5.5	6.3	8.9	76.1	85.6	92.2	69.6	89.5	81.8	98.4	99.4	99.2	6.8	7.1	5.0	6.0	5.6	3.8	3.8

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.4.4 *Availability of Computer and Related Facilities in Secondary Schools*

Table 3.17 gives data about computers and related facilities like electricity connection and internet connections in the secondary schools in the country. It is expected that all the secondary schools in the country should have computers that are to be used for both administration work and the teaching-learning process. However, the position of availability of computers in secondary schools is not very encouraging. An essential requirement for the availability of computers in the secondary schools is the electricity connection and perhaps a backup of electricity in the form of a generator set. Further, schools having computers are also expected to have internet connections (S.M.I.A. Zaidi, 2013).

Table 3.17 shows that computers were available in around 55 per cent of secondary schools (46.4 per cent government, 66.7 per cent government-aided, and 62.3 per cent private-unaided) in 2016-17. It means around 53 per cent government secondary schools in the country did not have computer facilities. Besides, in 3 out of 17 states, namely Bihar, Jharkhand, and Madhya Pradesh, the percentage of government secondary schools with computer facilities is not only very low but also falls far below the national average of 46.4 per cent in 2016-17.

In India, about 73 per cent secondary schools had electricity connections in 2009-10, which has increased to more than 90 per cent in 2016-17, thus indicating considerable improvement in the provision of electricity in all types of secondary schools of the country. The situation in this regard is worse in only two states, namely Jharkhand and Madhya Pradesh, where more than 35 per cent of government secondary schools did not have electricity facilities. However, the condition relating to the availability of internet connection in the secondary schools is notably worse, particularly in the government secondary schools across the states (See Table 3.15).

Table 3.15

State-wise Percentages of Secondary Schools having Computer and Related Facilities in 2016-17

States & UTs	Percentage of Secondary Schools with such facilities in 2009-10									Percentage of Secondary Schools with such facilities in 2016-17								
	Computer Laboratory			Electricity Connection			Internet Connection			Computer Laboratory			Electricity Connection			Internet Connection		
	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided
East																		
Assam	5.9	0.4	5.4	55.1	19.2	20.0	0.5	0.2	2.2	56.6	14.8	31.6	99.0	34.0	60.9	12.6	4.2	17.1
Bihar	8.2	0	0	15.1	0.0	0.0	5.7	0.0	0.0	35.0	37.0	25.9	79.3	67.4	70.6	9.0	16.7	18.7
Chhattisgarh	1.9	25	13	29.5	75.0	67.7	1.1	25.0	5.3	56.1	53.9	66.0	91.5	97.1	97.8	11.2	42.2	51.6
Jharkhand	10.7	35.4	58.9	30.1	54.2	61.5	6.2	9.6	26.9	26.7	60.0	58.9	66.0	78.2	75.8	24.5	30.3	38.4
Odisha	7.2	1.9	8.3	70.7	37.0	41.8	2.7	2.2	7.9	55.4	8.3	43.1	83.7	55.3	71.2	28.4	2.5	38.1
West Bengal	6.2	5.9	64.2	76.3	70.8	87.7	1.9	2.0	46.9	62.6	67.7	51.2	98.3	95.2	92.7	49.1	56.5	37.6
West																		
Gujarat	33.1	33.6	40.9	83.4	89.2	90.0	12.2	12.0	25.9	53.2	92.0	82.0	100.0	100.0	100.0	29.8	70.8	79.7
Madhya Pradesh	6.3	27.9	23.1	41.7	83.5	79.3	12.1	30.4	31.0	12.5	56.6	69.3	64.4	88.5	94.9	20.9	48.8	65.8
Maharashtra	36.4	23.6	37.1	92.9	81.6	75.5	12.6	17.0	35.8	69.5	69.2	83.2	99.0	97.6	97.0	37.5	59.6	75.6
Rajasthan	3.3	22	13.9	62.4	81.4	79.9	1.4	10.2	8.8	19.3	0.0	52.3	93.1	0.0	92.4	38.8	0.0	59.8
North																		
Haryana	7.6	32.2	36.3	93.2	95.7	92.5	1.8	19.1	21.8	50.9	69.5	72.1	99.7	100.0	100.0	65.9	70.9	80.8
Punjab	76.4	51.9	72.2	97.5	99.1	96.5	83.8	15.7	38.9	49.9	82.9	90.1	100.0	100.0	100.0	95.1	84.3	79.3
Uttar Pradesh	38	31.7	33.9	44.2	46.4	40.4	36.0	25.3	25.3	52.6	75.0	44.5	61.3	84.1	80.1	14.8	33.5	34.6
South																		
Andhra Pradesh	37.1	25	47.3	84.8	87.1	89.0	42.0	25.7	43.0	50.7	26.6	54.6	98.4	97.3	97.5	29.9	16.7	48.7
Karnataka	35.5	16.9	40.1	64.2	80.5	84.3	34.0	9.2	26.8	63.4	67.8	67.7	98.8	99.7	97.7	17.4	24.6	53.2
Kerala	83.8	89	92.4	94.8	95.4	94.9	96.8	94.7	91.9	87.0	95.3	89.4	99.8	99.9	98.9	95.6	98.9	88.8
Tamil Nadu	14.9	11.1	56.7	87.9	97.7	96.6	7.6	16.1	35.9	62.4	79.9	92.8	100.0	100.0	99.9	75.8	90.5	93.1
Total (All India)	21.1	24.3	35.5	69.3	75.4	77.7	19.1	17.1	26.4	46.4	66.7	62.3	90.5	91.0	91.2	35.6	49.7	56.3

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.4.5 Availability of Library and Related Facilities in Secondary Schools

Table 3.18 provides data about the library and related facilities, such as librarians and the availability of books, newspapers, etc., in the secondary schools in the country. In India, about 75 per cent secondary schools had library facilities in 2009-10 which has increased to more than 90 per cent in 2016-17. It shows that there

has been considerable improvement in the provision of library facilities in all types of secondary schools in the country. The percentage of government and government-aided secondary schools having separate library rooms/facilities have increased from 61.3 per cent and 77.3 per cent in 2009-10 to 92.2 per cent and 93.1 per cent respectively in 2016-17. However, the percentage of private-unaided secondary schools having separate library rooms/facilities has increased from 82.1 per cent in 2009-10 to 88.5 per cent in 2016-17. The percentage of government secondary schools having library room is not only very low (less than 60%) in UP and Gujarat but also below national average.

It is noteworthy to mention that, though there are libraries in more than 90 per cent of secondary schools in the country, only about 20 per cent of schools have librarians in 2016-17. It means that 70 per cent of secondary schools in India have libraries without librarians. It is noteworthy that the percentage of government and government-aided secondary schools having librarian are pretty low, i.e., only 12.2 per cent and 13.7 per cent respectively in 2016-17. The percentages of government secondary schools with librarians lie above the national average of 12.2 per cent only in four states, namely Bihar, West Bengal, Punjab, and UP. It is very disheartening to note that the percentage of secondary schools having librarians has decreased between 2009-10 and 2016-17. For government-aided schools, it has decreased from 15.9 per cent to 13.7 per cent, and in private-unaided schools, it has decreased from 36.6 per cent to 26.7 per cent. However, in government schools, it has marginally increased from 11.3 per cent to 12.2 per cent between 2009-10 and 2016-17. Analysis of data shows that the condition relating to the availability of newspapers and magazines in the secondary schools is relatively better across different types of schools (75.8 per cent government, 79 per cent government-aided and 74.8 per cent private-unaided secondary schools) having across the states (See Table 3.16).

Table 3.16

State-wise Percentages of Secondary Schools having Library and Other Related Facilities in 2016-17

	% of Secondary Schools having these facilities in 2009-10						% of Secondary Schools having these facilities in 2016-17								
	Library (%)			Librarian (%)			Library (%)			Librarian (%)			Newspaper (%)		
	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided	Government	Govt. Aided	Private Unaided
East															
Assam	65.1	52.1	38.8	3.3	1.8	6	81.7	52.2	60.4	4.3	2.4	10.8	49.1	7.9	39.4
Bihar	52.2	0	0	2.3	0	0	89.9	94.9	84.5	29.0	14.5	39.2	71.3	79.7	74.4
Chhattisgarh	36	69.1	66.8	3.5	24.7	21.2	94.6	90.2	93.6	6.9	15.7	24.6	74.3	84.3	86.9
Jharkhand	50.5	80.2	80.9	4.1	14.1	38.8	93.8	93.9	85.9	4.2	3.6	21.1	75.5	87.3	78.9
Odisha	86.8	75.6	76.6	2.6	3	11.6	97.1	93.3	92.4	3.8	2.9	21.6	61.4	45.5	61.9
West Bengal	66.8	73.5	89	15.1	13.7	64.8	96.1	93.5	82.7	20.6	25.8	27.6	55.8	58.1	50.0
West															
Gujarat	71.4	74.1	76.9	20.1	20.5	20.9	76.0	92.5	90.0	9.0	21.8	25.0	58.6	94.4	88.8
Madhya Pradesh	24	83.6	81.4	5.6	37.5	43.5	83.4	94.2	96.9	6.4	21.4	25.7	82.2	76.9	83.2
Maharashtra	76	76.4	75.5	11.5	16	20	95.1	98.7	96.7	11.6	13.9	28.6	73.9	89.2	83.2
Rajasthan	71.9	93.1	81.1	30.5	61.5	37.6	93.5	0.0	87.4	19.7	0.0	27.5	90.3	0.0	89.8
North															
Haryana	83	96.3	94	4.3	38.1	43.9	99.8	99.5	98.0	3.9	12.3	28.9	82.5	85.2	91.3
Punjab	62.6	72	94.1	12.8	16.3	57.3	99.7	97.3	98.0	16.8	4.3	26.6	92.2	85.9	93.7
Uttar Pradesh	72.3	81.4	82.1	33.1	31.2	46.3	59.5	83.9	76.5	15.0	23.6	32.6	42.7	62.2	57.8
South															
Andhra Pradesh	61.1	80.5	88.0	4.6	17.0	30.6	95.2	97.3	93.3	0.0	0.0	0.0	76.8	42.7	57.8
Karnataka	63.7	84.2	85.2	4.1	10.8	31.0	98.0	99.5	95.6	8.1	9.6	24.6	92.2	92.5	87.4
Kerala	88.1	97.9	96.9	2.7	15.3	48.8	99.4	99.9	97.4	6.6	4.5	58.3	80.9	85.4	91.7
Tamil Nadu	51.6	90.8	96.9	2.7	15.3	48.8	99.2	99.9	99.9	7.9	9.2	31.7	96.4	95.4	96.0
Total (All India)	61.3	77.3	82.1	11.3	15.9	36.6	92.2	93.1	88.5	12.2	13.7	26.7	75.8	79.0	74.8

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.4.6 Availability of Sanitation Facilities in Secondary Schools

Table 3.19 presents data on various sanitation facilities available in the country's secondary schools. Non-availability of urinal and toilet facilities in secondary schools is a serious concern of the secondary schools. Analysis of data shows that more than 25 per cent secondary schools in the country did not have urinal facilities for boys, around 30 per cent secondary schools did not have separate urinals for girls, around 5 per cent of secondary schools in the country did not have separate toilet facility for boys, around 3 per cent secondary schools did not have separate toilet facility for girls in 2016-17. There is not much difference between government, government-aided and private-unaided secondary schools with regard to all these facilities at the all India level. However, there exists a considerable difference between different regions and between states within the regions as far as these sanitation facilities are concerned.

Analysis of data shows that the percentages of government secondary schools with separate urinals for boys in the states; namely Assam, Bihar, Jharkhand and Odisha (East), Uttar Pradesh (North) and Andhra Pradesh and Karnataka (South) fall below the national average and all the northern states lie above the national average of 67.6 per cent. A similar situation exists as far as separate urinal facilities for girls at the national and regional levels are concerned. However, a close look at data shows that there are 10 out of 17 major states, namely Assam, Odisha, West Bengal, Gujarat, Madhya Pradesh, Rajasthan, Haryana, Punjab, Andhra Pradesh, and Karnataka, where the percentage of government secondary schools having separate urinals for girls are more than the percentages of private-unaided secondary schools. It may also be seen from Table 3.25 that the percentages of government secondary schools with separate toilets for boys in some states, namely Assam and Jharkhand (East), Madhya Pradesh (West), Haryana, and Uttar Pradesh (North), stood below the national average. All the southern states were above the national average of 92.0 per cent. But there are a few states like Assam, MP, Haryana, and Andhra Pradesh where the percentages of government secondary schools having separate toilets for girls lie below the national average of 96.5 per cent in 2016-17

Table 3.17**State-wise Percentages of Secondary Schools having Sanitation Facilities in 2016-17**

States & UTs	Percentage of Secondary Schools with Urinals and Toilets for Boys and Girls											
	Urinals for Boys			Urinals for Girls			Toilet for Boys			Toilet for Girls		
	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided	Government	Government Aided	Private Unaided
East												
Assam	56.9	29.0	54.6	70.3	35.5	56.9	71.7	47.1	76.2	90.4	63.6	82.0
Bihar	42.4	33.3	53.5	47.3	33.3	58.1	92.1	76.8	88.9	97.7	94.2	97.9
Chhattisgarh	74.6	62.7	80.6	77.9	73.5	79.7	94.2	100.0	100.0	96.8	100.0	100.0
Jharkhand	48.3	40.0	54.0	52.8	42.4	53.2	85.8	70.9	93.5	97.9	89.7	96.6
Odisha	60.0	41.2	53.0	66.6	49.2	56.4	92.3	84.2	86.3	97.7	94.2	95.9
West Bengal	72.3	58.1	73.9	84.0	58.1	75.4	98.4	77.4	89.8	99.7	80.6	93.9
West												
Gujarat	72.7	80.9	73.8	70.2	80.2	71.0	93.9	95.5	97.9	95.6	98.7	98.5
Madhya Pradesh	75.1	71.5	75.2	78.8	71.5	73.7	86.7	97.6	99.5	91.4	98.3	99.7
Maharashtra	84.6	94.0	94.6	86.9	95.9	92.9	93.5	96.8	99.1	97.0	99.2	99.4
Rajasthan	86.4	0.0	87.3	89.0	0.0	86.5	98.3	0.0	99.3	99.9	0.0	99.8
North												
Haryana	81.9	77.3	83.7	75.6	58.1	72.4	85.6	90.6	99.6	93.6	92.1	99.8
Punjab	73.0	40.4	53.9	12.6	4.6	11.0	93.8	93.0	98.9	97.5	97.3	99.8
Uttar Pradesh	53.2	67.2	67.7	53.2	65.7	68.4	90.1	96.0	97.8	95.3	97.5	99.5
South												
Andhra Pradesh	53.2	37.6	61.3	64.9	47.8	60.4	85.8	87.7	99.7	94.7	96.8	99.8
Karnataka	64.2	58.8	57.5	64.6	59.4	53.8	95.9	97.1	97.3	98.7	99.1	97.7
Kerala	77.7	79.8	78.5	68.7	77.9	71.1	95.6	92.1	99.3	97.9	97.5	99.5
Tamil Nadu	86.9	74.2	90.7	87.7	77.7	88.0	92.2	80.9	98.5	95.7	90.0	99.3
Telangana	54.1	45.2	57.3	64.7	47.3	55.3	91.6	96.8	99.7	96.5	99.3	99.8
Total (All India)	67.6	74.4	71.8	68.3	75.2	68.2	92.0	92.7	97.4	96.5	96.5	98.5

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

3.4.7 Core Facilities at Secondary Level

RMSA envisioned Universalisation of Secondary Education to move towards equity. It aims to ensure that all secondary schools have physical facilities, staff, and supplies at least according to the prescribed standards through financial support in case of government/ local body and government-aided schools, and appropriate

regulatory mechanism in the case of other schools. The norms for secondary schools were generally comparable to those of *Kendriya Vidyalayas*. Besides, the development of the infrastructure facilities and Learning Resources were carried out in three ways; (1) Universal Access; (2) Improving Quality; (3) Maintaining Equity. Out of these, priority was given to the following depending upon the availability of resources, (A) Physical Infrastructure- Non-Recurring which included class rooms/ additional classrooms, science laboratory, lab equipment, a room for the Headmaster/ Principal, office room, computer room/ laboratory, art/ craft/ culture room, laboratory, library, toilets, and drinking water facilities; (B) Physical Infrastructure- Recurring including repair and renovations (major, under special circumstances), repair/ replacement of laboratory equipment and purchase of lab consumable articles, purchase of books, periodicals, newspapers etc., *School Annual Grants- to meet electricity and water charges, and (C) Teachers, staffs and Lab Attendants- Recurring* consisting of In-service training of teachers and heads of schools and residential quarters for teachers in remote/ hilly areas. However, a secondary school is expected to have the following seven core facilities: Headmaster/ Principal room, a separate room for teachers, an integrated science laboratory, computer room/ laboratory, library room, toilets, and drinking water facilities.

Analysis of data shows 37.3 per cent government-aided and 36.4 per cent private-unaided government secondary schools have all the seven core facilities in the country. The situation in this regard is pretty worse in government secondary schools as only 12.3 per cent have all the 7 core facilities. However, there are considerable variations in the availability of core facilities between regions and states as well as management types. The percentage of government secondary schools with 7 core facilities are not only very low but also below the national average of 12.3 per cent in 7 out of 17 states, namely Assam, Bihar, Jharkhand and Odisha (East), MP, and Rajasthan (West) and Andhra Pradesh (South). On the other hand, the percentage of government-aided secondary schools, with 7 core facilities in Assam, Bihar, Chhattisgarh and Odisha (East), Rajasthan (West), Andhra Pradesh, and Karnataka (South), fall below the national average of 37.3 per cent. A similar situation exists in private-unaided secondary schools. The percentage of private-unaided secondary schools having 7 core facilities lie below the national average of 36.4 per cent in

7 out of 17 major states, namely Assam, Bihar, Odisha and West Bengal (East), Rajasthan (West), UP (North) and Andhra Pradesh (South).

Table 3.18

State-wise Percentages of Secondary Schools having 7 Core Facilities in 2016-17

State	Percentage of Secondary Schools/Sections having 7 Core Facilities			
	Govt	Govt. Aided	Pvt. Unaided	Total
East				
Assam	5.4	0.2	10.2	6.6
Bihar	6.4	19.6	16.5	8.8
Chhattisgarh	18.9	27.5	39.0	25.1
Jharkhand	12.0	40.0	36.9	21.9
Odisha	7.4	0.4	23.0	6.8
West Bengal	12.6	30.6	20.3	13.8
West				
Gujarat	20.0	48.8	46.2	43.9
Madhya Pradesh	5.1	40.0	45.9	23.9
Maharashtra	27.3	43.3	61.8	47.5
Rajasthan	4.9	0.0	19.8	12.4
North				
Haryana	25.3	49.8	51.4	40.3
Punjab	23.9	55.8	60.6	43.5
Uttar Pradesh	15.8	37.4	26.3	27.3
South				
Andhra Pradesh	7.3	12.5	20.1	13.2
Karnataka	12.7	25.9	38.1	26.4
Kerala	30.0	64.3	69.2	57.0
Tamil Nadu	19.2	57.2	65.5	40.5
All India	12.3	37.3	36.4	26.4

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

Note: 7 core facilities consisting of Headmaster/ Principal room, separate room for teachers, Integrated Science Laboratory, Computer room/ laboratory, Library room, toilets, and drinking water facilities

A close look at Table 3.18 reveals that in all the states, the percentages of private- unaided secondary schools having all the seven core facilities are more than the percentages of government secondary schools. However, the percentage of government-aided secondary schools with all seven core facilities is better than the respective percentage of private-unaided schools in five states, namely Bihar, Jharkhand, West Bengal, Gujarat, and Punjab. Besides, it is quite evident that core facilities in government secondary schools are very poor in almost all the states in the eastern and western regions.

3.5 *Examination Results at Secondary Level (Class X)*

Examination results (e.g., pass percentage) can be considered as an indicator of the quality of education imparted in the schools. However, public/board examination results are considered to be relatively more reliable than the results of home examinations. Data under SEMIS have been collected about the pass percentage of the class X board examinations. Analysis of students' performance reveals that 73.8 per cent of students in the country passed 2009-10 class X board examinations which have increased to 82 per cent in 2016-17. The pass percentage or the performance of students in class X board examination was highest in private-unaided secondary schools (85.7 per cent) followed by the government-aided secondary schools (83.9 per cent) and lowest in government secondary schools (72.9 per cent) in 2016-17. On the other hand, the pass percentage of students of government secondary schools in class X board examinations was below the national average of 72.9 per cent in a few states like Assam, Bihar, Chhattisgarh (East), Gujarat, MP (West), and Haryana (North). It may be noted that the pass percentage of students of government secondary schools in class X board examinations in all the southern states were not only very high but also were above the national average of 72.9 per cent in 2016-17.

In government secondary schools, the performance of boys in class X board examinations was slightly better than that of girls (boys 73.5 per cent and girls 72.3 per cent) whereas in government-aided as well as private-unaided schools, girl's performance was better than boys in 2016-17. As far as the pass percentage of boys in government secondary schools is concerned, it falls below the national average in Assam, Bihar, Chhattisgarh, Gujarat, and Madhya Pradesh, and Haryana. In the case of girls, Assam, Bihar, Chhattisgarh, Gujarat, and Madhya Pradesh in the west and Haryana (north) fell below the national average in 2016-17. As far as the pass percentage of boys as well as girls in government-aided secondary schools is concerned, the same six states, namely Assam, Bihar, Chhattisgarh (east), Gujarat and Madhya Pradesh (west) and Haryana (north), fell below the national average. As a similar situation exists in the case of students' performance in the class X board examination in private-unaided secondary schools (See Table 3.19).

Table 3.19**State-wise Results of Class X Board Examination by Gender and Management in 2009-10 and 2016-17**

States & UTs	Pass % in Class X Examination in 2009-10									Pass % in Class X Examination in 2016-17								
	Government			Govt. Aided			Private Unaided			Government			Govt. Aided			Private Unaided		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
East																		
Assam	69.7	63.2	66.5	52.8	48.6	50.6	62.8	55.9	59.3	63.9	61.9	62.9	56.4	50.9	53.5	75.5	74.5	75.0
Bihar	74.1	62.9	69.4	0.0	0.0	0.0	0.0	0.0	0.0	55.5	40.9	48.6	53.5	53.9	53.7	65.1	51.3	58.5
Chhattisgarh	52.6	51.6	52.1	72.4	72.0	72.2	65.2	69.5	67.0	53.8	54.1	54.0	66.7	72.5	69.7	73.2	79.0	75.7
Jharkhand	81.4	73.6	78.2	83.6	79.6	81.8	92.1	85.6	89.1	99.0	98.7	98.9	100.0	99.9	100.0	98.5	99.0	98.7
Odisha	68.1	64.1	66.2	60.6	55.4	58.1	64.8	61.5	63.2	85.1	84.3	84.7	86.6	84.2	85.4	91.3	86.3	89.1
West Bengal	87.0	77.9	82.5	84.7	74.9	80.3	93.5	93.5	93.0	92.8	92.9	98.7	99.9	99.3	96.0	95.6	95.8	95.8
West																		
Gujarat	58.8	60.9	59.7	61.7	66.3	63.6	74.0	73.6	73.9	55.8	64.3	59.7	58.4	68.6	62.7	81.6	87.5	83.7
Madhya Pradesh	42.2	41.4	41.8	48.9	54.5	50.8	62.0	65.7	63.3	64.2	63.5	63.8	51.2	58.6	54.2	69.6	74.6	71.5
Maharashtra	78.9	79.2	79.0	82.7	83.0	82.8	90.0	89.7	89.9	80.5	84.5	82.5	88.2	91.4	89.7	93.4	95.3	94.2
Rajasthan	76.7	76.5	76.6	81.8	81.5	81.6	83.2	80.9	82.4	75.6	73.7	74.7	0.0	0.0	0.0	82.6	85.4	83.6
North																		
Haryana	81.8	83.6	82.7	90.9	95.2	92.7	93.5	94.1	93.7	44.7	46.7	45.8	55.6	67.5	60.9	76.5	84.2	79.3
Punjab	89.6	91.0	90.3	92.8	92.6	92.7	96.3	97.1	96.6	81.7	88.1	84.7	69.9	84.9	75.6	91.2	95.8	93.0
Uttar Pradesh	46.0	64.3	54.6	44.8	62.1	52.1	54.3	69.7	61.0	82.0	86.7	84.8	79.8	88.0	83.7	83.1	88.9	85.6
South																		
Andhra Pradesh	74.8	74.3	74.5	79.6	77.9	78.6	93.2	91.9	92.7	85.4	88.2	86.9	82.5	82.1	82.2	94.7	96.3	95.4
Karnataka	72.8	72.6	72.7	76.9	79.9	78.3	83.5	84.4	83.9	82.1	86.6	84.4	82.3	86.1	84.2	91.8	94.4	93.0
Kerala	88.9	92.3	90.7	90.5	92.6	91.6	97.8	98.0	97.9	96.5	96.7	96.6	96.5	96.2	96.3	98.4	98.9	98.6
Tamil Nadu	72.7	78.9	75.9	87.1	93.3	90.3	93.5	95.2	94.3	88.3	93.9	91.2	91.6	97.4	94.6	97.9	98.3	98.1
Telangana	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	85.4	88.2	86.9	82.5	82.1	82.2	94.7	96.3	95.4
Total (All India)	71.4	70.7	71.1	74.0	78.5	76.1	74.8	79.3	76.6	73.5	72.3	72.9	81.3	86.8	83.9	84.3	87.7	85.7

Source: SEMIS, 2009-10, and UDISE 2016-17, NIEPA, New Delhi

N.A.: Not Available

The above findings are also in line with the findings of the study by Desai et al. (2008), which reported a considerable-state variation in the relative performance of the children enrolled in private vis-a-vis government schools. After controlling for family background characteristics, students in private schools perform only modestly better than those in government schools. The study also found that the pattern is even reversed in some states

4. Findings, Conclusions and Suggestions

4.1 Findings and Conclusions

The *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) Programme was launched in April 2009 with the basic developmental objectives of universalising access to and improving the quality of secondary education (Grades IX-X) in the country. In other words, the RMSA aimed at making secondary education of good quality available, accessible and affordable to all young people. Specifically, the RMSA aimed at

- (i) maintaining standards in secondary education by making schools conform to the prescribed norms related to physical facilities, staff, and academic matters (for example, rationalising facilities, staff and teaching-learning materials (TLM) across secondary schools as per norms);
- ii) universalising physical access to all young people (taking a distance norm of 5 kilometres at secondary and 7 to 10 kilometres at higher secondary stages);
- (iv) (iii) improving participation and retention in secondary education (100% GER by 2016/17 and universal retention by 2020);
- (iv) overcoming barriers to secondary schooling due to gender, socioeconomic status, disability, and other disadvantaged circumstances (improving equity and delivery of secondary education); and
- (v) enhancing intellectual, social and cultural learning in secondary schooling. i.e., improving quality of learning outcomes.

The broad development strategies of the RMSA primarily focused on improving access, quality, equity, school effectiveness and governance, including support services (MHRD, 2009). Besides, the development of the infrastructure facilities and Learning Resources was carried out in three ways; (1) Universal Access through (a) Expansion/ Strategy of existing Secondary Schools & Higher Secondary Schools shift in existing schools, (b) Upgradation of upper primary schools based on micro-planning exercise with all necessary infrastructure facilities and teachers, (c) Ashram Schools were given preference while upgrading upper primary schools, (d) Upgradation of secondary schools to higher secondary schools based upon the

requirements, (e) Opening of new Secondary Schools/ Higher Secondary Schools in unserved areas based on the school mapping exercise. All the secondary school buildings were required to have mandatory water harvesting system and aimed to be disabled friendly, (f) Rain harvesting systems to be installed in existing school buildings also, (g) Existing school buildings to be made disabled friendly, and (h) New schools to be set up in PPP mode; (2) Improving Quality by (a) Providing required infrastructure like, black board, furniture, libraries, science & mathematics laboratories, computer labs, toilet cluster, (b) Appointment of additional teachers and in-service training of teachers, (c) Bridge course for enhancing learning ability for students passing out of class VIII, (d) Reviewing curriculum to meet the NCF, 2005 norms, and (e) Residential accommodation for teachers in rural and difficult hilly areas where preference being given to accommodation for female teachers; (3) Maintaining Equity by providing (a) Free lodging/ boarding facilities for students belonging to SC,ST,OBC and minority communities, (b) Hostels/ residential schools, cash incentive, uniform, books, separate toilets for girls, (c) Scholarships to meritorious/ needy students at secondary level, (d) Inclusive education being the hallmark of all the activities. Efforts were made to provide all necessary facilities for the differently-abled children in all the schools, (e) Expansion of Open and Distance Learning needs to be undertaken, especially for those who cannot pursue full-time secondary education, and for supplementation / enrichment of face-to-face instruction. This system was expected to play a crucial role in educating out-of-school children.

Although RMSA had put too much emphasis on improving physical access to and facilities in secondary schools/sections, filling in gaps in the infrastructure and staff in the existing secondary schools/sections (the only government managed) to make them conform to norms and standards, the success in this direction is far from satisfactory as evident from the following;

- Although there has been an equitable growth in secondary schools in rural and urban areas between 2009-10 and 2016-17, the percentage share of government secondary schools has decreased, and the percentage share of private-unaided secondary schools has increased between 2009-10 and 2016-17 at the national level and in a majority of states in the western, northern and southern India except the eastern states. It shows that RMSA has not been able

to fully address the issue of equal opportunity to access in secondary education in the country. Besides, RMSA has not made a significant impact/increase in the share of government and aided institutions since 2009-10 rather the percentage share of private-unaided secondary schools in these states has increased considerably. Consequently, the share of enrolment in classes IX-X has decreased in government and government-aided secondary schools and increased in private-unaided secondary schools between 2009-10 and 2016-17.

- It is alarming to note that only 5.3 per cent of the secondary schools (Government 1.4 per cent, Government-Aided 7.2 per cent and Private Unaided 8.5 per cent) in the country have all the ten basic infrastructure facilities like adequate pucca classrooms, urinals (04 or more), drinking water, separate headmaster's room, office room/staffroom, girls' activity room, art and crafts (Activity) room, library, integrated science laboratory, computer laboratory in 2016-17. It was also found that only 37.3 per cent government-aided and 36.4 per cent private-unaided government secondary schools had all the seven core facilities in 2016-17. The situation in this regard was pretty worse in government secondary schools as only 12.3 per cent had all the seven core facilities.
- There are considerable differences between government and private institutions in terms of in-school provisions (classrooms, infrastructure facilities, teaching-learning material, library, extra-curricular activity, etc.), including staffing patterns and teacher quality, variations in the participation of children, and their performance at the secondary levels between regions and also between the states within the regions. As a result, there is persistent regional disparity in access and quality of education as reflected by the low level of performance of students in class X board examination a considerable difference in the pass percentage or the performance of students in class X board examination between government and private secondary schools.

Analysis of data and information also shows that in-school facilities such as school building, boundary wall, playground, library, laboratory, computer and related facilities like electricity facility, generator set, internet and computer laboratory,

sanitary facilities mainly separate urinal and lavatory facilities for boys and girls including female teachers, female teachers including the qualifications and training status of teachers are potent to high academic achievement of students. Therefore, the Government should provide adequate material resources to the secondary schools to enhance the quality of teaching and learning processes. In addition, the Parent-Teacher Association (PTA) and collaborating with philanthropists and other charitable organisations may also be mobilised to complement the effort of the government to boost the performance of students in the board examinations. This effort would certainly go a long way in improving and strengthening secondary education and improving the overall performance of the students and institutions at the secondary school level in India.

4.2 *Scope of the Paper*

Notwithstanding the findings discussed in the preceding sections and their vital implications for programme planning for the development of secondary education, however, raises additional questions. Hence, there is a need to further investigate as to

- (a) What factors influence the schooling decisions that households make as they navigate the complex school hierarchies within their communities?
- (b) Whether households differentiate between their sons and daughters while choosing schools. In particular, are boys more likely to be sent to schools that are perceived to be of better quality, i.e., private schools?
- (c) What are the factors affecting household decisions with regard to investment in girls' education?
- (d) What is the policy impact of the state governments on privatisation of school education on parental choice (particularly parental preference of public education over private education in the state)?
- (e) Why are there significant variations in the availability of teachers and teacher quality and teaching practices between public and private schools? How do these variations affect the performance of children in secondary education between public and private schools?

- (f) What are the reasons behind the shortage of female teachers in secondary schools, particularly in rural schools and why do female teachers prefer urban and private- unaided schools to rural and government schools?
- (g) What is the relationship between school size and school effectiveness?
- (h) Is there any relationship between schooling provisions and school performance? If so, what is the relationship between schooling provisions and school performance? and (i) Do the in-school facilities play any role in choosing between public and schools? If so, how?

To find answers to these questions, there is a need to (i) do a meta-analysis of existing research; (ii) collect and analyse primary data and information from all stakeholders in secondary education. The arrived answers to the above questions based on the available and collected information would provide insights and implications for improving equity and quality of the secondary education delivery systems in India.

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