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Education

INTRODUCTION

21.1. Education is the most important lever for social, economic and political transformation. A well-educated population, equipped with the relevant knowledge, attitudes and skills is essential for economic and social development in the twenty-first century. Education is the most potent tool for socio-economic mobility and a key instrument for building an equitable and just society. Education provides skills and competencies for economic well-being. Education strengthens democracy by imparting to citizens the tools needed to fully participate in the governance process. Education also acts as an integrative force in society, imparting values that foster social cohesion and national identity. Recognising the importance of education in national development, the Twelfth Plan places an unprecedented focus on the expansion of education, on significantly improving the quality of education imparted and on ensuring that educational opportunities are available to all segments of the society.

21.2. Recognising the importance of education, public spending on education increased rapidly during the Eleventh Plan period. Education expenditure as a percentage of gross domestic product (GDP) rose from 3.3 per cent in 2004–05 to over 4 per cent in 2011–12. Per capita public expenditure on education increased from ₹888 in 2004–05 to ₹2,985 in 2011–12. The bulk of public spending on education is incurred by the State Governments and their spending grew at a robust rate of 19.6 per cent per year during the Eleventh Plan. Central spending on education increased even faster at 25 per cent per year during

the same period. Aggregate public spending on education during the Eleventh Plan period is estimated at ₹12,44,797 crore for both the Centre and States taken together. Of this, 35 per cent was accounted for by Plan expenditure and 65 per cent by non-Plan expenditure. About 43 per cent of the public expenditure on education was incurred for elementary education, 25 per cent for secondary education and the balance 32 per cent for higher education. About half of the Central Government's expenditure was incurred for higher education and the remaining for elementary (39 per cent) and secondary (12 per cent) education. In the State sector, about 75 per cent of education expenditure is for school education, of which 44 per cent is on elementary education and 30 per cent on secondary education.

21.3. The following sections of this chapter provide details of the strategy and initiatives for school education and literacy and then for higher education. Issues related to skill development that have close linkages to education are dealt with in Chapter 3 along with a discussion on employment.

SCHOOL EDUCATION AND LITERACY

21.4. The country has made significant progress in improving access to education in recent years. The mean years of schooling of the working population (those over 15 years old) increased from 4.19 years in 2000 to 5.12 years in 2010. Enrolment of children at the primary education stage has now reached near-universal levels. The growth of enrolment in secondary education accelerated from 4.3 per cent per year during the 1990s to 6.27 per cent per year in

the decade ending 2009–10. Youth literacy increased from 60 per cent in 1983 to 91 per cent in 2009–10 and adult literacy improved from 64.8 per cent in 2001 to 74 per cent in 2011.

21.5. A good progress has also been made in bridging the equity gap in education. India's educational inequality, measured in terms of the *Gini co-efficient*¹ for number of years of education, has decreased from 0.71 in 1983 to 0.49 in 2010, indicating a large reduction in inequality. The gender gap in elementary education has declined with the female/male ratio for years of education and literacy reaching over 90 per cent in 2009–10. A significant reduction in socio-economic inequality in access to education and a narrowing of the gap between SCs/STs and other social groups has been achieved.

Challenges

21.6. Despite many gains during the Eleventh Plan, education in India faces several challenges. The country's mean years of schooling at 5.12 years is well below the other emerging market economies such as China (8.17 years) and Brazil (7.54 years) and significantly below the average for all developing countries (7.09 years). A matter of particular concern is the steep dropout rate after the elementary level. The sharp drop-off in enrolment at the middle school level and the increasing enrolment gap from elementary to higher secondary suggests that the gains at the elementary level have not yet impacted the school sector as a whole. Disadvantaged groups are worse off with the dropout rates for SCs and STs higher than the national average.

21.7. While enrolment levels at the elementary level are generally high, studies of student attendance show that there is considerable variation across States in the percentage of enrolled students who are attending school on any given day during the school year. Of particular concern is that some of the most educationally backward States (Uttar Pradesh [UP], Bihar, Madhya Pradesh [MP] and Jharkhand) have the lowest student attendance rates (below 60 per cent). In the Twelfth Plan, there is a need for a clear shift in strategy from a focus on inputs and increasing access and enrolment to teaching-learning process

and its improvement in order to ensure adequate appropriate learning outcomes. In this context, States need to set up transparent and reliable systems for tracking attendance in a meaningful way and work on effective strategies for boosting attendance and sustaining high levels of attendance throughout the school year.

21.8. While there has been a decline in the percentage of out-of-school children (OoSC) across gender and social categories, Muslim, scheduled caste (SC) and scheduled tribe (ST) children need greater and focused attention. The number of OoSC who are physically or mentally challenged remains a cause for concern. The proportion of disabled out-of-school children in 2005 was 34.19 per cent and remained unchanged at 34.12 per cent in 2009. It is important to note that the maximum number of OoSC are those with mental disabilities (48 per cent), followed by children with speech disabilities (37 per cent). Neither the school system nor any other institutional mechanism is equipped to address the challenging needs of mentally disabled children who are most disadvantaged both socially and educationally in the system.

21.9. There has been a substantial increase in the availability of teachers at elementary level during the past few years and if all the teacher posts sanctioned under both Sarva Shiksha Abhiyan (SSA) and State budgets are filled, the pupil-teacher ratio (PTR) at the national level will almost be 27:1. The challenge, however, lies in correcting the imbalance in teacher deployment. The number of schools that do not comply with the Right to Education (RTE) norms for the required PTR is fairly high. School-wise analysis based on District Information System for Education (DISE) 2009–10 indicates that 46 per cent of primary and 34 per cent of upper primary schools have poor PTRs. Another serious challenge is the presence of teachers without professional qualifications approved by the National Council of Teacher Education (NCTE), as is required under the RTE Act. There are about 8.1 lakh untrained teachers in the country with four States—Bihar, UP, Jharkhand and West Bengal—accounting for 72 per cent of them.

21.10. Under SSA, the country has seen massive infrastructure development at the school level. Apart from opening over 3 lakh new schools, SSA has also provided basic facilities in existing schools. The average student–classroom ratio (SCR) which was 39 in 2005–06 has come down to 32 in 2009–10. There are still a large number of schools which do not have these minimum facilities. Only 4.8 per cent government schools have all nine facilities stipulated in the RTE Act, approximately one-third of the total schools have up to seven facilities, and about 30 per cent schools do not have even five of these facilities. Keeping in view the RTE stipulations, these facilities have to be provided in all schools in a time-bound manner.

21.11. The biggest concern in elementary education is the poor level of student learning—both scholastic and co-scholastic/non-cognitive. Evidence suggests that learning outcomes for children in Indian schools are far below corresponding class levels in other countries, and that the learning trajectories for children who remain in school are almost flat. Clearly, the additional time spent by students in school as they move from one class to another is not translating into much improvement in learning levels.

21.12. At the heart of the issue of quality are the weak teaching processes and transactions between teachers and learners that are neither child-friendly nor adopt child-centred approach to curriculum. The capacity, motivation and accountability of teachers to deliver quality education with significant and measurable improvements in learning outcomes of students need to be critically and urgently addressed. Similar challenges of quality of learning also exist at the secondary and higher education levels. Dropout rates in secondary and higher education continue to be high, especially for socially excluded and economically marginalised groups of learners.

21.13. Despite higher levels of enrolment at all levels of education, and a massive increase in physical infrastructure, the value added by formal education is still weak. Poor quality of education resulting in weak learning outcomes at each stage of education is the central challenge facing the Indian education

sector today. This is particularly disturbing since both macro- and micro-level evidence suggests that what matters for both national economic growth as well as individuals' ability to participate in this growth process is not the total years of education as much as the quality of education and value-addition for each successive year in school as represented by continuously improving learning outcomes and skills. Improving learning outcomes is crucial for inclusive growth and, therefore, a major focus of the Twelfth Plan will be on measuring and improving learning outcomes for all children, with a clear recognition that increasing inputs (number of schools, classrooms, teachers and so on) will by themselves not be enough to ensure quality education for all children.

Strategies

21.14. The Twelfth Plan needs to address these challenges in an integrated and holistic manner. The focus needs to be on meeting the residual needs of access with sharper focus on the needs of the disadvantaged social groups and the difficult-to-reach areas; improving the school infrastructure in keeping with the RTE stipulations; increasing enrolment at the upper primary and secondary school levels; lowering dropout rates across the board; and, broad-based improvement in the quality of education with special emphasis on improving *learning outcomes*. The four main priorities for education policy have been access, equity, quality and governance. The Twelfth Plan will continue to prioritise these four areas, but will place the greatest emphasis on improving learning outcomes at all levels.

21.15. It is critical for the country to make secondary education much more job-relevant through skills training within the schools. For this, higher investments will need to be made to equip secondary schools with teachers/trainers who have technical skills, and equipment (such as workshops, machines, computer equipment) that can be used to impart technical and vocational skills. In countries such as South Korea and Australia, 25–40 per cent of high school students opt for vocational courses, making them job-ready once they finish Grade 12. The vocational credits they earn in secondary schools are

recognised by the general education system and a high proportion of these students return to universities to pursue a college degree at a later stage.

Access

21.16. The challenge of access is no longer one of enrolments at the primary level, but one of increasing attendance, reducing dropouts and increasing enrolments at the secondary level. These challenges will have to be tackled through a multi-pronged strategy that should include: (i) a realistic assessment of the problems of the most vulnerable categories of children; (ii) measures to help schools meet the required PTR, classroom and other infrastructure norms (since they impact the retention of children); (iii) improving management systems for better tracking and monitoring of school functioning; (iv) a focus on improvements in teaching-learning processes; and (v) on developing schools as inclusive learning spaces. Improving learning outcomes at the upper primary level is a critical requirement for improving enrolment levels in secondary schools. A big part of the increase in secondary enrolment has to come from students who are better prepared to benefit from secondary education and, therefore, are able to continue their education rather than drop out. This will require increasing the effectiveness of teaching models at both the primary and the secondary levels.

Equity

21.17. While discussing the issue of social access and equity, the tendency is to confine it to broad categories like SC, ST, Muslims, girls and so on. But these are not homogenous groups. Social realities are far too complex and there are groups within these groups, which for different reasons are more disadvantaged than the category as a whole. In order to fully meet the goal of universal access, the Twelfth Plan will need to remove barriers to access arising out of such social and economic realities. Special focus would be to ensure educational access in civil strife-affected areas and in context of rising urbanisation. While the gaps in average enrolments between disadvantaged groups and the general population have decreased, there is still a considerably large gap in learning levels with historically disadvantaged and economically

weaker children having significantly lower learning outcomes. These gaps exist at the point of entry into the school system and continue to grow over time. Large and growing learning gaps threaten the equity gains achieved on the enrolment front because children with lower levels of learning are more likely to drop out. Therefore, it is essential to bridge gaps in learning levels at an early stage if the equity goals of the Twelfth Plan are to be met effectively.

21.18. Given the complex and chronic nature of inequality and exclusion, the strategies adopted so far have tended to be somewhat isolated, fragmented and devoid of institutional support. As a result, the many forms that exclusion takes, and the different ways in which it is manifested, have not been sufficiently addressed across the landscape of access, participation, retention, achievement and completion of elementary education. This makes exclusion the single most important challenge in universalising elementary education. The Twelfth Plan will, therefore, address the issue of equity as integral to the whole gamut of elementary education, moving away from an incentives-and-provisions-based approach to a rights and entitlements approach.

Quality

21.19. Improvement of the quality of education is strongly linked to the quality of physical space, textual materials, classroom processes, academic support to the teachers, assessment procedures and community involvement. All these areas will continue to receive support during the Twelfth Plan period. While adequate inputs and infrastructure are necessary for the proper functioning of schools, inputs will not automatically translate into effective teaching-learning processes or satisfactory learning outcomes. Therefore, the Twelfth Plan will treat improving school inputs as just the starting point in improving educational quality, and will take a more comprehensive view for building a strong systemic focus on teacher capacity, improving school leadership/management, strengthening academic support system, better community and parents' participation, measuring and improving learning outcomes in a continuous manner. Focus would be on provision for child-friendly schools and systems in teaching

and learning processes as well as in improved water, sanitation, hygiene and midday meal practices. Considerable resources will be invested to not only provide high-quality independent measures of student learning levels and trajectories over time, but also resources for large-scale instructional changes that will lead to improvement in classroom transactions leading to better learning outcomes.

Governance

21.20. Several studies have reported the challenges in education governance exemplified by teacher absence, delayed fund flows to schools and administrative capabilities at the school level. Studies have also found that improved measurement and management of teacher performance has a significant positive impact on student learning outcomes. Specific and targeted measures of student learning along with measures to hold teachers, schools and school systems accountable for these learning outcomes will go a long way in improving governance by orienting the education system towards outcomes. The Twelfth Plan will prioritise and invest in improving educational leadership and management at the district, block and school levels, with a focus on making better use of data and governing the education system with the objective of improving learning outcomes at all levels of schooling.

21.21. While there is a broad range of challenges facing education in the country, a focus on learning

outcomes is a unifying theme of the Twelfth Plan. Addressing the problem of quality will simultaneously address many of the other challenges. This is not to say that inputs and resources do not matter, but focusing on learning outcomes will also help to ensure that these inputs and resources are provided and utilised in a manner where they have the greatest impact. Research from around the world highlights the importance of early childhood education, and suggests that high-quality early childhood education may have the highest long-term returns in terms of improved human development. The Twelfth Plan will therefore place a high priority on universalising pre-school education and improving school preparedness—especially for historically and economically disadvantaged children. More broadly, the approach of the Twelfth Plan for school education will be to define and measure outcomes, and allocate resources in ways that maximise progress towards achieving these outcomes.

21.22. The Twelfth Plan strategies need to respond to these challenges and drive towards achieving the outcome targets laid out for the Plan (see Box 21.1). The six core elements of the driving principles and strategy for the Twelfth Plan are:

1. All stages of education need to be viewed in an integrated manner, through the perspective of lifelong learning and education;

Box 21.1 Targets for the Twelfth Plan

1. Ensure universal access and, in keeping with letter and spirit of the RTE Act, provide good-quality free and compulsory education to all children in the age group of 6 to 14 years;
2. Improve attendance and reduce dropout rates at the elementary level to below 10 per cent and lower the percentage of OoSC at the elementary level to below 2 per cent for all socio-economic and minority groups and in all States;
3. Increase enrolments at higher levels of education and raise the Gross Enrolment Ratio (GER) at the secondary level to over 90 per cent, at the Senior Secondary level to over 65 per cent;
4. Raise the overall literacy rate to over 80 per cent and reduce the gender gap in literacy to less than 10 per cent;
5. Provide at least one year of well-supported/well-resourced pre-school education in primary schools to all children, particularly those in educationally backward blocks (EBBs); and
6. Improve learning outcomes that are measured, monitored and reported independently at all levels of school education with a special focus on ensuring that all children master basic reading and numeracy skills by class 2 and skills of critical thinking, expression and problem solving by class 5.

2. Strengthening the quality of teaching–learning processes requires comprehensive concerted large-scale efforts with simultaneous attention to how these processes translate into better outcomes;
3. Motivation, capacity and accountability of teachers for improving learning outcomes at all levels must be focused upon;
4. Governance of educational institutions requires an institutional focus on quality based on principles of autonomy, accountability and performance; this may involve fundamentally re-defining the recruitment criteria, eligibility of teachers and merit-based processes of recruitment in these institutions;
5. Within a common national legal and policy framework, innovations and diversity of approaches will be encouraged in matters of curricula, pedagogies and community engagements in order to respond to the diversity of learner groups, regional/social contexts and various stages/forms of institutional and human development in the educational sector; and
6. It is imperative to strengthen the monitoring and accountability mechanisms of stakeholders in school education including community and parents as envisaged under the RTE Act.

21.23. The following subsections provide details of strategy and initiatives for elementary education and then secondary education. This is followed by a section on issues that cut across school education such as the use of technology, teacher education, governance and school leadership, followed by a section on adult education.

ELEMENTARY EDUCATION

21.24. Elementary Education comprising primary (Class I–V) and upper primary (Class VI–VIII) forms the foundation of the education pyramid. Unless this foundation is strengthened, it will not be feasible to achieve the goal of universal access to *quality education* for all. A major achievement in recent years has been the establishment of Constitutional and legal underpinnings for achieving universal elementary education. The *Right of Children to Free and Compulsory Education (RTE) Act, 2009*, became operative on 1 April 2010.

REVIEW OF THE ELEVENTH PLAN

21.25. With the RTE Act, 2009, becoming operational from 1 April 2010, the vision and strategies of the ongoing SSA were harmonised with the RTE mandate and the programme norms were revised accordingly. Financial outlays were enhanced and the changes approved to the annual work plans to enable government schools to become RTE Act compliant.

Enrolments

21.26. Against an estimated child population of 192 million in the 6–14 age group, 195 million children were enrolled at the elementary stage in 2009–10. The GER² increased from 111.2 per cent in 2006–07 to 115 per cent in 2009–10 and the Net Enrolment Ratio (NER)³ improved significantly from 92.7 per cent to 98 per cent during this period. The GERs for SCs and STs range between 130 per cent and 140 per cent at the national level and, in some States, these are nearly double that of eligible age group children. GER in excess of 100 per cent at the primary stage indicates presence of overage and underage children in the schools, and reflects the delayed provision of access to schooling and lack of pre-schooling facilities, particularly in rural areas.

21.27. Girls account for the majority (5.3 million) of the additional enrolment of 7.21 million children between 2006–07 and 2009–10. More than half of them (53 per cent) belong to SCs and STs. Three initiatives of the Eleventh Plan helped to increase the enrolment of girls. These included (i) setting up of 3,600 Kasturba Gandhi Balika Vidyalayas in 27 States and Union Territories (UTs), (ii) establishment of 7,000 Early Childhood Care Centres in EBBs and (iii) implementation of Mahila Samakhyia programme in ten States.

21.28. The GER at upper primary level is low, even though it improved by 11.8 per cent in the four years between 2006–07 and 2009–10. At 62 per cent the NER at upper primary level is also a cause for concern. This varies from 47 per cent in UP and 53.1 per cent in Bihar to 91 per cent in Tamil Nadu and 83 per cent in Himachal Pradesh.⁴ It is evident that although a larger number of children are entering the educational system, all of them are not

progressing through the system and this progression is uneven across the States.

21.29. A large number of children are still OoS. Of the 8.1 million OoSC in the country in 2009, UP (34 per cent), Bihar (17 per cent), Rajasthan (12 per cent) and West Bengal (9 per cent) account for 72 per cent.⁵ Although surveys have reported a decline in the proportion of OoSC to the corresponding child population of various communities such as SCs, STs and Muslims,⁶ these estimates need to be taken with caution, keeping in mind the steep decline in absolute numbers of OoSC reported in the corresponding period. A recent study for rural India places the proportion of children not enrolled in schools at 3.5 per cent.⁷ However, in a few States like Rajasthan and UP, the percentage of OoS girls in the age group of 11–14 years is as high as 8.9 per cent and 9.7 per cent, respectively.⁸

21.30. The Eleventh Plan had targeted a reduction in dropout rates from 50 per cent to 20 per cent at the elementary stage. Even though there has been some reduction, progress has not been satisfactory and the national average is still as high as 42.39 per cent. The dropout rates for SC and ST children at 51.25 per cent and 57.58 per cent, respectively, are much higher than that for non-SC/ST children at 37.22 per cent. This clearly suggests the challenge of school retention of children from vulnerable communities.

21.31. Having achieved near-universal enrolment at the lower primary level, it is critical to turn the focus on the poor levels of learning outcomes achieved by children who complete five years of primary schooling. Several independently conducted national studies including the ASER (2005 to 2011) and the School Learning Study (2010) have reported very low levels of learning among Indian school children. The ASER 2011 findings illustrate that over half the children in class V are unable to read even at class II level. In the recent Organisation for Economic Co-operation and Development–Programme for International Student Assessment (OECD–PISA) study, India has been placed at the tail-end in international comparisons rating (PISA-2009+). These results underscore the

fact that quality of education should be the key focus of attention in the Twelfth Plan. Improving learning outcomes, with a focus on supplemental instruction for disadvantaged children, will directly contribute to the objective of reducing dropouts, because evidence suggests that children who fall behind grade-appropriate learning levels are significantly more likely to drop out. The structure of enrolments in elementary education shows that about 80 per cent of children are enrolled in government and government-aided institutions; therefore, the focus on quality improvement in elementary education has to be on government institutions.

21.32. Some progress has been made in preparing children better for primary education. Pre-school enrolment has more than doubled from 21 per cent in 2005 to 47 per cent in 2010.⁹ More recent ASER data (2010) indicates that 83.6 per cent of 3- to 6-year-olds in rural areas are enrolled in some preschool programme mostly in Integrated Child Development Services (ICDS) centres, including those in private pre-schools. The quality issues of pre-primary education in Anganwadi need serious review.

21.33. During the Eleventh Plan, the Sarva Shiksha Abhiyan (SSA) was the flagship programme for impacting elementary education, but the following major Central Government schemes and programmes were also implemented: National Programme of Nutritional Support to Primary Education (NP-NSPE; commonly known as the Mid-Day Meal Scheme), Teacher Education Scheme; Mahila Samakhya; Schemes for Providing Quality Education in Madrasas (SPQEM) and Infrastructure Development in Minority Institutions (IDMI).

SARVA SHIKSHA ABHIYAN (SSA)

21.34. The SSA is implemented as India's main programme for universalisation of elementary education (UEE). Its overall goals include universal access and retention, bridging of gender and social gaps in enrolment levels and enhancement of learning levels of all children. The SSA has merged components of the National Programme for Education of Girls at Elementary Level (NPEGEL) and the residential school scheme, Kasturba Gandhi Balika Vidyalaya

(KGBV), that have focus on girls' education. The approved outlay for SSA in the Eleventh Plan was ₹71,000 crore. Against this, an amount of ₹77,586 crore was released to the States. Details of cumulative progress made under the SSA up to 2011–12 are given in Table 21.1.

TABLE 21.1
Cumulative Progress under SSA up to 2011–12

S. No.	Item	Sanctions
1	Opening of New Schools	2,09,914
2	Opening of New Upper Primary Schools	1,73,969
3	Construction of Primary Schools	1,92,392
4	Construction of Upper Primary Schools	1,05,562
5	Construction of Additional Classrooms	16,03,789
6	Toilets	5,83,529
7	Drinking Water facilities	2,23,086
8	Teachers	19,65,207

Source: Ministry of HRD.

21.35. Though there was notable success in expanding capacity and enrolments during the Eleventh Plan, the challenge of raising quality standards still remains. Although the number of elementary schools has increased to 13.04 lakh, many schools lack the basic infrastructure facilities required under the RTE Act. For example, the retention of girls in school remains difficult given that over 63 per cent of rural schools have no usable toilet facilities for them.¹⁰ If the envisaged convergence of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Total Sanitation Programme (TSP) and Drinking Water Supply (DWS) Mission materialises, some of these infrastructural shortcomings could be mitigated. While bridging infrastructure gaps may be achievable, it will be far more challenging to bridge learning gaps.

TWELFTH PLAN STRATEGY

21.36. The overarching goal of the Twelfth Plan is to enrol OoSC, reduce dropouts and improve learning outcomes across the elementary school years. In order to enrol OoSC, strengthening of institutional capacity, developing an appropriate statistical base, harmonising the definition of OoSC and finally

identification and mainstreaming of all children into age-appropriate class would be needed. Reduction in dropout rates is closely linked to quality. There is a need for a system-wide effort to move the focus of all activity in elementary education from schooling to learning. This entails a shift at every level, macro and micro, whether in planning, resource allocation and implementation or measurement of processes and practices that is designed to achieve significant, substantial and continuous improvement in children's learning outcomes. The entire process of education should be firmly anchored to the notion that every child must be in school and learning well.

21.37. A major focus of the Twelfth Plan will be on implementing the objectives of the RTE Act and aligning the government policies and practices with the overall goal of providing quality schooling for all children until the age of 14 years. The States that have seven-year elementary education cycle (four years of primary education and three years of upper primary education) have begun to realign to eight-year cycle. During the Twelfth Plan this would be implemented throughout the country. All the States have notified State-specific rules under the Act. Pursuant to the RTE Act, notifications of teacher qualifications under section 23 of the RTE Act and the prescription of a Teacher Eligibility Test (TET) by the NCTE have also been issued.

21.38. Clear articulation of learning goals is the critical first step in this process. National learning standards must be developed on the basis of which States should be encouraged to define, in simple terms, meaningful learning goals to be achieved at the end of each class or set of classes. Resources will have to be devoted to developing concrete, achievable measures of student learning at the State and national level. Articulation and expression, team work, critical thinking and problem solving are important skills to be learned, alongside basic literacy and numeracy. The meaning of literacy and numeracy should not be traditional, but keep in mind, reading, and math literacy as defined by PISA/OECD countries contextualised for Indian conditions. Teachers and administrators should be reoriented to ensure that they understand and imbibe the values of critical thinking,

problem solving and expression. The National Curriculum Framework 2005 (NCF-2005) and its accompanying 22 focus group reports form the basis for curriculum revival and improved learning outcomes in the country. The formulations of NCF-2005 need to be converted into tangible teaching–learning materials, classroom transactions and assessment systems in every State of the country. The creation of improved textbooks by the National Council of Educational Research and Training (NCERT) after NCF-2005, used mostly by schools affiliated with the Central Board of Secondary Education (CBSE), needs to be emulated in every State to cover all the children of the country.

21.39. Once basic goals are clearly articulated, all aspects of the elementary education system (such as methods of teaching–learning, use of materials, grouping for effective instruction, optimal use of time, daily instructional time and number of days of teaching, measurement of progress, capacity building and ongoing support for teachers and administrators) will need to be strongly aligned to the achievement of the learning goals. System-level administrators at various levels need to ensure that the activities of the system at every level are aligned to the stated goals. Periodic reviews (at least annually) need to be conducted to track progress and refine and rework strategies to reach the stated goals.

21.40. The elementary education system needs to focus on two major tasks. First, children entering school should be prepared and should learn basics by the time they complete class 2 or 3. Second, the proportion of children who are lagging behind in higher grades (class 3, 4 and 5 and also in upper primary) acquire required levels of competencies. There is strong evidence that for children whose home language is different from the textbook language with no supplemental parental guidance at home, problems of ‘coping’ eliminate them from the system earlier on by class 3. A great deal of attention needs to be paid to such linguistically determined barriers in the passage of children from lower to higher classes. There is a need to develop primers for bridging the home language to the school language from pre-school to

class 1 and 2, which is a very effective mechanism to ensure child motivation and ‘coping’ ability to deal with school texts. Besides, a strong foundational learning support needs to be immediately given to children in class 3–5, and 6–8 who have not even achieved basic skills to negotiate the curriculum of upper primary or secondary schooling to which they will transit. The methodology of Comprehensive and Continuous Evaluation (CCE) mandated by the RTE Act once properly implemented can go a long way in tackling this issue.

21.41. To make sure that all the children make progress towards the learning goals, new and innovative strategies will have to be tried in terms of teaching–learning and consequently in preparing and supporting teachers. The overall strategy for elementary education in the Twelfth Plan is summarised in Box 21.2.

TWELFTH PLAN INITIATIVES

21.42. SSA will continue to be the *flagship* programme for developing elementary education during the Twelfth Plan for realising the rights to elementary education for each and every child. There would be four strategic areas under SSA during the Twelfth Plan. These are: (i) strong focus on learning outcomes; (ii) addressing residual access and equity gaps; (iii) focus on teacher and education leadership; (iv) linkages with other sectors and programmes. These are described in the following sections.

I. Strong Focus on Learning Outcomes

21.43. Quality in education is inherently dependent on the following six aspects: (i) curriculum and learning objectives, (ii) learning materials, (iii) pedagogic processes, (iv) classroom assessment frameworks, (v) teacher support in the classrooms, and (vi) school leadership and management development. A new framework for curriculum is needed at regular intervals in order to take cognizance of the developing issues in society and how to address them. A variety of learning packages should be developed at State and district levels, with adequate provision for cluster- and school-level modifications to aid the teacher and provide increased choice. As

Box 21.2
Twelfth Plan Strategy for Elementary Education

1. Shift from a project-based approach of SSA to a unified RTE-based governance system for UEE;
2. Address residual access and equity gaps in elementary education by adopting special measures to ensure regular attendance of children in schools and devising special strategy to tackle the problem of dropping out before completing the full cycle of elementary schooling;
3. Integrate pre-school education with primary schooling in order to lay a strong foundation for learning during primary school;
4. Prioritise education quality with a system-wide focus on learning outcomes that are assessed through classroom-based CCE independently measured, monitored and reported at the block/district/State levels;
5. Focus on early grade supplemental instruction to ensure that all children achieve the defined age-/class-specific learning levels by the end of class 2;
6. Articulate clear learning goals that have to be achieved by the end of each class or set of classes. These goals should be understood by parents and teachers;
7. Improve teacher training with an emphasis on effective pedagogy given the realities of Indian classrooms such as multi-age, multi-grade and multi-level contexts. Also, make teachers' professional development a needs-driven process as opposed to top-down decision wherein curriculum design and delivery is centrally driven;
8. Invest in both top-down administrative oversight and bottom-up community-driven monitoring of schools;
9. Focus on strengthening practices of good governance in all schools and related institutions that ensure performance-based internal and external accountability for teachers and administrators at all levels and also ensure holistic assessment-driven development of schools;
10. Invest in strengthening ongoing and continuous field-based systems of academic support to schools and teachers and in strengthening district and block-level capacity for better management and leadership;
11. Support States to set learning goals and invest in independent monitoring of outcomes, but provide States with substantial autonomy in how to achieve these goals, and provide additional results-based financing to States who show the most improvement in educational outcomes;
12. Provide a supportive environment for evaluation of innovative practices, and sharing of best practices across States and districts;
13. Support States towards motivation, capacity development and accountability of community and parents for ensuring regular attendance and quality education; and
14. Ensure convergence with panchayats, Community-Based Organisations (CBOs) and other sectors at school level.

education is concerned with all-round development of the child (physical, socio-emotional along with cognitive), all aspects need to be assessed rather than only academic achievement. During the Twelfth Plan, however, there will be a system-wide focus on holistic development of children by improving learning outcomes and other non-scholastic areas. Learning enhancement programme (LEP) under the SSA would be continued in the Twelfth Plan, for which specific zones of operation should be identified by the concerned State/District authorities. Every year, States need to articulate the learning goals that are being targeted and the strategies (methods, materials, models and measurement) that will be used to reach those goals. Institutional assessment/accreditation of the elementary schools will be introduced in the Twelfth Plan, and possibly made mandatory from the Thirteenth Plan onwards.

(A) Strong Focus on Early Years in School

21.44. Research on the impact of PTR on student learning suggests that a low PTR matters most at younger ages, when children are being socialised into the process of learning, and less so in older classes. Thus, it may make sense to supplement the requirements under the RTE, for communities to hire multiple community-based teachers on contract to focus on improving school preparedness and basic literacy and numeracy for pre-school children. In addition, class I should receive special attention in the Twelfth Plan period. Ideally, the strongest or most experienced teacher in the school should be assigned to this class. States must develop a process to identify specialist teachers of early/initial primary education and design specific professional development and academic support programmes for them. If the foundations are strong and solid in class I, many of the

later problems that children encounter—both academically and non-academically—would be reduced. Special training needs to be provided each year to the teachers who will work with class I. Countries like Finland, Sweden and Denmark, who top the PISA tests have demonstrated that equity can considerably help to improve overall learning outcomes, through mixed and inclusive classrooms, that do not segregate the so-called ‘bright’ and ‘slow learners’, or children from different social, ethnic or other differences. Students who had attended pre-primary tend to perform better than those who have not. These approaches need to be emulated in our classrooms too so that the classrooms of the country resonate with the diversity of our country, and help improve learning outcomes as the Scandinavian school systems have shown.

(B) Review of School Textbooks

21.45. School textbooks should be reviewed by NCERT/State Council of Educational Research and Training (SCERT) to be made more engaging yet simple and interesting. Review of textbooks must always be accompanied by special development of teachers to use these books effectively. Learning levels expected of children as seen in textbooks should be aligned to the overall learning goals—keeping in mind that the goals and standards should be achievable by majority of the children. Work-books should accompany textbooks for mathematics, science and languages. The textbook should be supplemented by learning facilitation manuals for teachers for improving classroom transaction. All government schools should be provided with electricity and facilities for computer-aided learning on a large scale. Private sector resources should also be enlisted for content development based on curriculum and syllabi.

(C) Enhancing Facilities in Schools

21.46. A programme for Information and Communication Technology (ICT) in elementary schools will replace the erstwhile Computer-Aided Learning (CAL) under SSA. This would include provision of networked computers, accessories and an Internet connection in a phased manner. A variety of software tools and pedagogically appropriate e-content in local languages will be sourced or developed to serve the school curriculum. The focus will be to

enable students and teachers to access wide variety of resources available in the digital format, and digital resources that are seamlessly integrated in classroom processes. Efforts will be made to adopt energy-efficient, cost-effective ICT solutions, which increase the number of access points in each school enabling more and more children to use the facility more frequently. Appropriate mechanisms to maintain the infrastructure and protect it from breakdowns will be ensured. ICT should also be used to network teachers and schools in a specific geography—this would enhance collaborative teaching and learning. The RTE Act mandates provision of laboratory and library facilities in schools. SSA funding would be made available for this purpose particularly to cater to children from the disadvantaged groups.

(D) Research for Quality Improvement

21.47. Priority will be given to research projects concerned with quality-related issues, including, for example, assessing States’ curriculum in the light of NCF-2005, students’ learning outcomes, students’ and teachers’ attendance rates, effectiveness of teacher training, efficacy of textbooks and other TLMs, quality of academic supervision provided by Block Resource Centres (BRCs)/Cluster Resource Centres (CRCs)/District Institutes of Education and Training (DIETs), discriminatory practices in schools, teaching–learning in classrooms, implementation of CCE in schools, role of School Management Committees (SMCs) in school management; estimating OoSC; status and effectiveness of Special training centres, completion rate/dropout rate and transition rate; and so on.

(E) Pre-Primary Education

21.48. Every primary school would be facilitated to have a pre-primary section to provide pre-primary education with a school readiness programme for at least one year for children in the age group of four to six years. The concept of ‘early learning units’ would be introduced which would bring together the pre-primary and early primary grades into an integrated unit. The implementation would be phased out and by the end of the Twelfth Plan, about 50 per cent of the schools would have pre-primary classes. Educationally lagging States/Districts/Blocks should be covered on priority basis. For this, pre-school

education would be included under SSA/RTE as a separate component with a specific budget line. NCTE would lay down standard qualifications and adapt its TET guidelines to accommodate teachers of this Early Learning Stage, that is, pre-primary and Grades 1 and 2. A few States have planned Anganwadi in primary schools. Pre-service teacher preparation curriculum needs to be enhanced to address needs of pre-primary children. Pre-Service Teacher Education in the area of Early Childhood Education must be significantly strengthened. Selected universities and institutions must be specifically encouraged to run rigorous exemplar Early Childhood Teacher Education programmes. There is a huge dearth of other specialists in this area—developmental psychologists, curriculum developers for early childhood education and so on. Similar programmes in these areas too need to be designed and implemented. Short-term certified refresher programmes for in-service early childhood teachers and Anganwadi workers (this could also include teachers of early primary classes) must be designed and implemented by identified organisations.

21.49. The RTE Act has provided for pre-primary education for underprivileged children enrolled in private schools in 25 per cent earmarked seats. States should also be free to obtain services from reputed private-aided and unaided institutions/NGOs and to compensate them on a cost recovery basis for these services. Communities can also be empowered and provided the financial resources to hire one or more educated local young men and women (meeting minimum qualifications) on a contractual basis for dedicated pre-school instruction. Broadly, from planning to implementation, this pre-school year should be well resourced and supported. Currently, there is an overlap with ICDS in so far as pre-primary education is concerned. A strategy could be developed for gradual shift of the pre-primary year from the purview of ICDS to the primary schools. The nutrition component of ICDS in any case gets addressed through midday meal. Thus, in the third and fourth year, children go to the Anganwadi centres for early childhood education and in the fifth year, children attend pre-primary classes in regular schools that would have adequate provision for the

same. This would help to improve retention at the primary stage.

(F) Moving From Grade-Level to Ability-Level Teaching–Learning

21.50. Recent research in the country and abroad underlines the need for teaching children from the level that they are and taking them to the level that they need to be. This requires a substantial rethinking of the age–grade instructional pattern by which the education system is organised. In the last decade there have been several promising approaches to break away from this mould in order to enhance and accelerate children’s learning. Such approaches have been tried on scale in the government and also by non-governmental organisations (NGOs). However, barring the effort of some NGOs, none others have been rigorously evaluated. The main government effort in this direction is activity-based learning (ABL) or multi-grade multi-level learning (MGML) that is reaching more than 3 million children. Three States—Andhra Pradesh, Karnataka and Tamil Nadu—have expanded the programme to all schools in their States. This method promotes child-friendly learning and assessment methods that enable children to be ‘free from fear and anxiety’ and in promoting social inclusion among children in the classroom situations. Systemic reforms are needed to ensure its sustainability, including its integration with curriculum/textbooks, pre-service teacher education, sustainability across leadership changes. There is a need for an objective evaluation of these efforts along with other initiatives that are child friendly, effective in multi-grade, multi-ability situations before scaling up in the country.

(G) Promote State-Level/Local-Level Innovation

21.51. Across the country, there are several promising approaches to improve teaching–learning at the elementary stage. These need to be explored in greater depth to understand the basic elements of their functioning and their impact on learning outcomes. Among others, these include ABL initiated by the Government of Tamil Nadu, Gujarat government’s innovative Gunotsav programme, and Punjab government’s Purrho Punjab initiative. Among efforts initiated by non-government bodies (often

working in collaboration with State Governments), among others, there is the Pratham Read India programme, the Hoshangabad Science Teaching Programme and Prashika of Eklavya, and other initiatives undertaken by UNICEF, Azim Premji Foundation, Tata Institute of Social Sciences and Shiv Nadar Foundation. These are all promising interventions that can be scaled up further during the Twelfth Plan in order to achieve explicit focus on learning outcomes.

(H) Child-Friendly Assessment

21.52. The RTE Act mandates that a system of Continuous and Comprehensive Evaluation should be put in place to enable the teacher to be continuously guided by the child's response and participation in classroom activities. Support will, therefore, be provided to enable teachers to maintain child-wise portfolios, incorporating a record of children's work and progress—as an integral part of their teaching–learning process. Teacher Training programme will include training on systems for CCE. Since a majority of children in Indian schools are not at grade level, adequate flexibility needs to be provided in the CCE framework and in its implementation to identify and to address the needs of such children. In fact, teacher education institutes must be mandated to use (not just teach) CCE during the pre-service teacher preparation programmes.

21.53. Regular and accurate reports of student learning and progress should be provided to parents, along with encouragement and guidance for parents on how to support their child's educational progress. It is important to de-stigmatise falling behind ('failing'). Every child (and parent) needs to be assured that learning basic skills is well within his/her reach, and if he/she is not learning, it is a failure of the system rather than that of the child. 'Assessment of learning' and 'assessment for learning' are two aspects of education representing accountability and improvement. One cannot be emphasised over the other and neither can be sacrificed in favour of the other. While the teacher needs to 'assess for learning', the administrators and the parents of the children need 'assessment of learning'. In the spirit of these aspects, teachers must be supported to use

these 'learning reports' to modify their classroom/teaching–learning approaches.

(I) Measuring Learning

21.54. Considerable efforts and resources are needed to develop independent and objective and achievable measures of student learning at the school, block, district and State levels that approach the issue with an understanding of the linguistic complexities while formulating their testing methods. It is expected that better measurement and reporting of outcomes will play a strong catalysing role in making State, district and block-level education administrators focus more on improving education quality as measured by student mastery of achieving the defined grade-wise learning outcomes. States should be encouraged to define transparent, meaningful and simple learning levels to be achieved at the end of class 2, 5 and 8. Mechanisms must be put in place to ensure that schools neither 'teach these external tests' nor use these for punitive measures.

(J) Learning from International Experience

21.55. There are also several international initiatives that have recognised the centrality of moving from focus on enrolment to learning outcomes. United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Centre for Universal Education (CUE) at the Brookings Institution have recently set up a 'Learning Metrics Task Force' to investigate the feasibility of identifying common learning goals to improve learning opportunities and outcomes for children and youth. India should both learn from these international efforts, where possible, and more importantly, play a leading role in defining and implementing these standards, since it has the largest primary school education system in the world and also has the world's largest number of children who do not meet basic learning levels.

II. Address Residual Access and Equity Gaps

21.56. Special efforts are needed in the Twelfth Plan for those children who are still not in school or who need sustained attention for remaining linked to school. Here the focus has to be on every child in school and learning well. So efforts must include strategies for effective and sustained mainstreaming

with accelerated learning strategies built in as part of the mainstreaming strategy. Special focus would be on targeting OoSC, girls and socially excluded groups in specific locations.

(A) Targeting Out-of-School Children

21.57. In order to achieve universal elementary education in a planned and time-bound manner, better targeting of uncovered and under-covered children is necessary. Concerted and flexible efforts are needed to reach out to all OoSC, including children with special needs (CWSN) and street children. Bridging the social and gender gaps in enrolment with regard to SCs, STs and minority girls should receive special attention. Residential programmes for the 11–14 age group need continued support as do the efforts to ensure sustained mainstreaming into the regular school system. The option of open schooling needs to be strengthened so that rural labour, artisans and others in petty jobs in villages and urban slums achieve some learning equivalency in order to enable them to continue in community polytechnics, part-time community colleges, Jan Shikshan Sansthan (JSS) and accredited Skill Knowledge Providers (SKPs) to pursue secondary education and acquire upgraded vocational skills. Those who have dropped out before completing the elementary stage need opportunities for education and certification in a flexible manner. Helping such children (those who have been left out or left behind) to accelerate to the learning levels of their counterparts in school has to be an important part of the strategy for mainstreaming. Hence, the identification of OoSC should include an assessment of current ability to read and to do arithmetic, comprehension, critical thinking, problem solving as well as their ability to express themselves. Teachers would require special training for ‘accelerated learning’ of OoSC to be mainstreamed into age-appropriate class. States would need guidance for this.

(B) Provision of Residential Schools

21.58. Residential schools are particularly useful to reach out to children from vulnerable sections of society. The RTE-enabled SSA envisages the provision of residential schools for children in areas of civil strife, children of migrating populations and

tribal children. Special thrust is needed for children at risk that include orphans, run-away platform children, Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) patients, children of sex workers, and so on. It also requires that transport/escorts be provided for children in areas of civil strife, for children with disabilities, and for children of the most marginalised ST and SC groups. Residential schooling opportunities are also excellent for accelerating learning among children. Residential facilities for children should be provided by: (i) redeploying existing government/local body buildings and underutilised schools, (ii) constructing new buildings where redeploying existing buildings is not possible. New buildings will be as per KGBV norms and school playgrounds will be developed in convergence with Sarva Krida Abhiyan (SKA).

(C) Focus on SC/ST Children

21.59. At least 5 per cent of existing Government elementary schools in all EBBs with more than 50 per cent tribal population would be converted into residential school complexes (RSCs) having provisions for pre-school (non-residential), primary and middle schools. There should be provision of seasonal hostel facilities for children of migrating families both at the place of origin and of migration in urban and rural areas. These hostels will follow norms set out in the KGBV scheme. In EBBs with over 50 per cent tribal population, government schools would be converted into RSCs and seasonal hostels for migrating tribal children. A few State Governments, such as that of Andhra Pradesh, have integrated *Ashram* schools (regular residential schools) under the RTE-harmonised SSA. Other States should follow the same approach. Further, convergence with the Ministry of Tribal Affairs for all *Ashram shalas* should be forged to achieve adequate PTR and infrastructure/facilities/Teaching–Learning Equipment (TLE) as per the RTE norms. Special support would be needed to ensure retention and improved learning for children from SC communities that are socially, economically and educationally deprived and discriminated. These efforts need to converge with the programmes of the Ministry of Social Justice and Empowerment (MSJ&E). There is a need to review and revise curriculum addressing caste-based

exclusion and promoting inclusion. Interventions for SCs include (i) process-based interventions such as curricular review to include discussion on caste-based discrimination in textual material; (ii) residential schools run with assistance from the MSJ&E to conform to the RTE norms; (iii) convergence on pre-matric scholarships and incentives provided by MSJ&E; (iv) partnerships with Dalit Civil Society Organisations (CSOs) for support of Dalit children. As discussed in the previous sections, it is important to plan for improvement of learning of children from disadvantaged backgrounds. It is only when the special efforts and provisions translate into learning gains that such children have a real chance to complete and go beyond elementary education.

(D) Special Provision for Children with Special Needs (CWSN)

21.60. For CWSN, efforts will include identification, educational placement in general schools, school readiness programmes, provision of aids and appliances, development and production of Braille books and construction of ramps and disabled-friendly toilets. Considering the complexities and enormity of the work involved in developing appropriate curricula, NGOs and competent private entities with relevant experience and ability to work in this area should become natural partners in implementation of this aspect of the RTE Act. Such children would need individualised educational plan, for which community mobilisation, parental training and peer sensitisation would be necessary. Engagement of resource teachers and volunteers/caregivers to cater to their needs would also be needed. States must work closely with the Rehabilitation Council of India on this—it is important not to duplicate efforts especially where teacher development in this area is concerned.

(E) Special Focus for Education of Girls

21.61. Promoting girl's education is a critical issue. During the Twelfth Plan not only efforts will be made to enable girls to keep pace with boys, but girls' education will be viewed from the perspective spelt out in the National Policy on Education 1986/92 which states that education should be a transformative force, build women's self-confidence and improve their position in society. Interventions

in the Twelfth Plan will be guided by the principle that gender equality in elementary education is both a quality issue and an equity issue. Special focus needs to be placed on developing gender-sensitive curricula, pedagogical practices, teacher training and evaluation. Schools should be developed to be inclusive and safe places. Specific modules on issues such as sexual harassment and violence will need to be developed and integrated into the teacher training design. Other specific initiatives to improve girls' education include:

1. Strengthening and expansion of KGBVs to provide one more KGBV in EBBs, with special focus on wards with high migration rates in urban and semi-urban areas, and EBBs with a high concentration of SC, ST and Muslim populations.
2. NPEGEL programme to include running Bridging Centres, developing MCS as Model Schools for gender, equity and quality integration, development of MCS library to include digital content, including audio visual resources, development of bridging modules and manuals and training of SMCs on gender and equity issues.
3. Mahila Samakhya would be continued as an independent programme with full operational and programme autonomy and a National Resource Centre, with strong State-level or regional units would be set up to strengthen this programme (see 21.84 and 21.85 for details).

21.62. Overall, the interventions with regard to girls' education would be aligned to the 'National Vision for Girls' Education in India: Road-map to 2015' which was developed last year at State and national level through partnership between SSA, Mahila Samakhya and civil society with the support of UNICEF with the aim of ensuring increased and more targeted investments for girls' education through strengthened systems for local service delivery which ensure gender equality in basic education.

(G) Focus on Educationally Backward Minorities

21.63. Even though there has been significant improvement in enrolment and retention of Muslim children in elementary education, the gap between Muslims and non-Muslims continues to be high.

During the Twelfth Plan, the unit of earmarking, targeting and monitoring of interventions for Muslim children would be changed from District to Block. SPQEM and IDMI could be merged. Urdu would be offered as an optional language in schools located in Muslim-dominated areas, along with its attendant requirements like teacher training, TLMs and so on. There seems to be some overlapping activities with the Multi-Sectoral Development Plan (MSDP) of the Ministry of Minorities Affairs and the support extended on a 'first come first serve' basis by the Ministry of Human Resources Development (MHRD). The specific activities of minority institutions supported under the MHRD schemes should be part of the larger district plan prepared for minorities, particularly with regard to the convergent infrastructure approach which is recommended.

21.64. The Central Government has been implementing the *SPQEM* to encourage traditional institutions like madrasas and *maktabs* to modernise their curriculum by giving financial assistance to introduce science, mathematics, social studies, Hindi and English in their curriculum so that academic proficiency for classes I–XII is attainable for children studying in these institutions. This has enabled Muslim children to transit to higher studies and also ensured quality standards similar to the national education system. The States of UP, MP, Andhra Pradesh, Tripura and Jharkhand have been supported with teachers, book banks, science kits, computer laboratories and teacher training for madrasa teachers teaching modern subjects in about 1,000 madrasas. The *Scheme for Infrastructure Development of Private Aided/Unaided Minority Institutions (IDMI)* facilitates education of minorities by augmenting and strengthening of infrastructure

in minority schools and expanding facilities for formal education of minority children. Over 100 minority institutions have been assisted during the Eleventh Plan Period. Both these schemes need to be continued in the Twelfth Plan with larger outlays and wider coverage of minority institutions. There is a need to ensure that all efforts for inclusion also result in improved learning outcomes for children from educationally backward communities which is essential for sustained mainstreaming of such children and their continued progress through the education system.

(H) Focused Efforts in Urban Areas

21.65. Along with growth in urban population, urban poverty has increased, as large numbers of families migrate to urban habitations in search of livelihoods. Greater attention needs to be paid to enhancing the access to elementary education by children of urban poor families. Innovative partnerships with urban local bodies are the key to enhancing access and improving learning outcomes (see Box 21.3). Allotment of land and buildings for new schools and extension of existing schools needs to be facilitated. The requirement that schools earmark 25 per cent of their admission for children from disadvantaged groups and weaker sections will require support for related costs: uniforms, bags, books and bridging and supplementary support. SSA norms would need to be revised to provide for financial support to the State for reimbursement of cost to private unaided schools against such admissions and also for other costs mentioned above. In order to cater to the high population density in urban areas, the norms for establishment of new schools in urban areas with high population density should be based on number of children being served per school rather

Box 21.3

School Excellence Programme—Mumbai

1. Programme taken up by the Mumbai municipal authorities with technical support of UNICEF to enhance learning outcomes of urban slum children in Mumbai municipal schools targeting 5,00,000 children across 1,327 schools.
2. Involved systematic tracking of school and children, baseline assessment of learning levels of children, development of pedagogy and training of teachers in more inclusive and interactive teaching and learning process, training of headmasters on school leadership and partnership development.
3. Multiple partners involved included the State Bank of India, Tata Consultancy Services, McKinsey as well as several reputed CSOs including Naandi Foundation and Rishi Valley.

than distance. Migration brings huge challenges for children—regular/typical school programmes will not work. States must be encouraged to use specific approaches which have been tried and established as useful.

III. Focus on Teachers and Education Leadership

21.66. Competence of teachers and their motivation is crucial for improving the quality. This would require a number of initiatives towards (i) addressing teacher shortages, particularly through new and rigorous approaches to imparting teaching certifications, (ii) improving the quality of pre-service teacher education, (iii) improving the quality of in-service teacher professional development and options for their upward career mobility with special attention to para-teachers in many States, (iv) enhancing the status of teaching as a profession and improving teachers' motivation to teach well and their accountability for ensuring learning outcomes, (v) improving the quality of teacher educators. It is important to align all ongoing teacher capacity and capability building exercises to the achievement of improved learning outcomes.

21.67. Teachers need to be adequately prepared to deal with the realities of their schools. In many areas, particularly rural areas, there are multi-age, multi-grade and multi-ability classrooms. This would require special competencies amongst teachers to not only have the necessary subject knowledge, but a repertoire of pedagogical approaches and techniques that help them to teach effectively to improve learning outcomes for a diverse group of children. For improving teacher competence, quality of teacher training and the rigor of teaching certification have to be considerably enhanced. Motivating teachers is more difficult. Teachers usually get motivated when they are supported to achieve attainable learning goals for their students, and are recognised and rewarded for the same. The issue of teachers is critical and needs focus; hence, it is discussed separately later in the chapter after secondary education. Similarly, the issues of governance and leadership development, building community partnership and parental engagement, educational leadership and

institutionalising a system of school mentoring are common in elementary and secondary education sectors and are dealt later in the chapter.

IV. Linkages with Other Sectors

21.68. In order to achieve targeted outcomes for elementary education, there is a need to bring in resources and knowledge from related sectors. Several States, particularly those that have acute school infrastructure gaps, will face limitation of funds to implement the RTE Act. A pragmatic approach to meet the goals with limited resources is through convergence with schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). Appropriate revision in the MGNREGA guidelines would be required to bring about such convergence. Decentralised implementation would ensure that local bodies take up these works on a priority basis and ensure full access to elementary education in a convergent manner.

21.69. The Twelfth Plan target for civil works is given in Table 21.2. School buildings being meaningful assets, particularly in rural areas, additional support could come from Member of Parliament Local Area Development Scheme (MPLADS) and Member of the Legislative Assembly (MLA) funds as well. A few States are already utilising funds under Integrated Action Plan (IAP) and Backward Regions Grant Fund (BRGF) for strengthening school infrastructure. Besides, there is a need to tap funds from philanthropy for accelerated infrastructure building. One creative way is to allow donors to name

TABLE 21.2
Civil Works under SSA in the Twelfth Plan

Items	Number	Estimated Cost (₹ in Cr)
1. New School Buildings	67,010	7,685
2. Residential Schools	10,500	10,500
3. Additional Classrooms	4,98,560	19,942
4. DWS	62,366	468
5. Toilets	3,43,013	2,884
6. KGBVs and so on	3,598	3,692
Total		45,171

Source: Ministry of HRD.

buildings or rooms or install plaques, or other such commemorative features (such as naming a scholarship scheme after a benefactor).

Develop Partnerships with the Community-Based Organisations (CBOs)

21.70. A Council for People's Participation in Education (CPPE) will be set up as a registered autonomous body for institutionalising the partnership through well-defined structures involving both government and voluntary agencies on a regular basis. In addition to processing proposals for funding support for educational projects, such partnerships will provide technical support, facilitate peer interaction amongst practising groups and provide resources and technical persons on a continuous basis. CPPE will be a permanent structure, funded by the government, with functional autonomy but working in consultation with the Central and State Governments.

Integration of Sports and Physical Education

21.71. Physical education, games and sports should be made an integral part of the curriculum and daily routine in schools for the holistic development of children. Provision of infrastructure for these activities should also be made in the Twelfth Plan in convergence with SKA, the principal scheme for broad basing of sports and developing a sports culture in the country. The Schedule to the RTE Act mandates that all schools shall be provided play material, games and sports equipment. Since many urban schools have inadequate facilities of sports on their own, other neighbourhood schools with such facilities in the public and private sectors and also municipal parks and public play fields should be opened up for children of such schools during school hours on nominal maintenance costs. Building on innovative approaches undertaken during the Eleventh Plan, teachers must also be trained to lead quality and inclusive physical education sessions as part of both their pre-service and in-service training.

Integration of Arts in Education

21.72. Visual and performing arts are a critical part of school education and also provide space for children with different abilities. Arts are a powerful tool in the teaching learning process. It enables children

to express ideas, emotions and thoughts freely, to comprehend and build perspectives. Children experience joy, sense of freedom in the process of learning when they have the opportunity to explore, to imagine, visualise, observe through their senses, to participate and communicate. It enhances interest as children connect arts with all subjects and with their daily lives. Art also has a cognitive component; it makes us think, reflect, hypothesise, perceive, comprehend and create. Institutions like the National Centre for Performing Arts and the National School of Drama along with the Central academies should contribute significantly to the inclusion of arts in the school curriculum and its implementation.

Increased Role of the Private Sector

21.73. Private providers (including NGOs and non-profits) can play an important role in elementary education. Their legitimate role in expanding elementary education needs to be recognised and a flexible approach needs to be adopted to encourage them to invest in the sector. The current licensing and regulatory restrictions in the sector could be eased and a single window approach should be adopted so that the process of opening new schools by private providers is streamlined. It is also important that the regulations be flexible and context-dependent—care needs to be taken so that schools that are serving disadvantaged populations effectively do not get shut down. A few States have already adopted a more flexible approach in this regard in framing State rules. In all, private players would be encouraged to set up more schools, provided they are committed to, and held accountable for, providing high-quality education and are transparent in their operations.

FUNDING PATTERN

21.74. Government has revised the fund-sharing pattern between the Central and State Governments for implementation of the modified SSA programme, which is now fixed in the 65:35 ratio. The fund-sharing pattern for the States in the NER, however, continues to be in the ratio of 90:10. While the revised fund-sharing pattern may be adequate for most States, some States that are educationally disadvantaged with low levels of literacy, grossly inadequate school infrastructure and difficult terrain face

a heavy financial burden to meet the RTE mandate and norms. A big push is called for to enable these States to come at par with other States. This is crucial to achieve national and international goals under the Millennium Development Goals (MDG). Over time, financing of SSA has to be made more sustainable. Since the grants available based on the Thirteenth Finance Commission recommendations for elementary education for the States would extend up to 2015, the new funding pattern (50:50) would be deferred until the beginning of the Thirteenth Plan. Central assistance to the States in terms of per child norms and performance-based financing would gradually be built in along with results-based management. States and institutions which perform well should be incentivised with untied funds. Educational spending should be equitable and more efficient. More pragmatic tax concessions should be devised to encourage private investment in education.

IMPLEMENTATION, MONITORING AND EVALUATION

21.75. The focus in the Twelfth Plan is to address the weaknesses in implementation that have been a major constraint in achieving the goals of previous Plans. Implementation needs to take into account local conditions, it would therefore be desirable to give States (and even districts) a lot of autonomy. Consequently, the approach in this Plan would be to provide clear goals and direction to States and education departments, provide considerable operational autonomy to States on how to achieve these goals, and invest in strong and independent monitoring of outcomes by the Central Government.

21.76. In implementation, equal emphasis would be placed on provision of inputs for quality education (infrastructure, teachers, training, enrolment and other inputs) as well as ensuring that these inputs translate into improved processes (attendance, instructional time) and outcomes (retention, learning outcomes, equity). States will be encouraged to innovate and experiment with ways of achieving these outcomes effectively. Innovations can cover a very broad range of areas—some of which may include methods for systematic assessment of student learning, improved teacher training, innovative

pedagogies in the classroom including those that leverage technology in the classroom, supplemental instruction for first-generation learners, methods for improving teacher motivation and effectiveness, and methods for leveraging resources from third parties for improving education. States may also become partners with appropriate third parties to provide key capabilities that may help these goals. States will be encouraged to carefully document and evaluate these initiatives and to share best practices with other States and with the Centre.

21.77. To encourage innovation and sharing of best practices, the Plan will provide a certain amount of untied ‘flexi’ funds to the States and also provide additional amounts of ‘results-based’ financing. States in turn will be encouraged to invest in district-level leadership and provide autonomy and resources to districts and encourage capacity building at the district level to monitor and improve education outcomes. To support this endeavour, the Plan will also dedicate resources to high-quality independent measurement and monitoring of learning outcomes (along the lines of the Annual Health Survey). The annual reporting of learning outcomes at State, district and block levels can in turn be used to encourage a mission-like focus on improving education outcomes in the Twelfth Plan.

21.78. A key challenge for e-monitoring is the absence of high-quality data that is updated on a frequent and reliable basis. Infrastructure such as the Unique Identification (UID) could be deployed to keep track of student enrolment, attendance, and dropouts, and biometric authentication could also be deployed to improve teacher attendance. Modern cell phone-based technologies may prove to be a promising way of empowering communities to report real-time data on school performance metrics such as teacher attendance, student attendance, availability of midday meals and so on. Technology platforms such as mobile phones and tablet personal computers (PCs) can also be used for rapid diagnostic testing of student learning, analysis of common mistakes and areas of misunderstanding, and dynamic testing based on performance on initial questions. Several non-profit and third-party organisations are

working on building such applications, and States/districts will be encouraged to experiment with such methods for improved real-time data collection on the performance of the education system.

21.79. Finally, it is worth noting that the evidence base for effective policymaking in elementary education is quite limited—especially in crucial areas such as the effectiveness of different types of pedagogy, the effectiveness of using technology within the classroom, the optimal ways to organise children of different initial learning levels in a classroom, and handling multi-grade teaching more generally. The Twelfth Plan will place a high priority on improving research and the evidence base for policymaking, and will provide both funds as well as strong encouragement to States to take up high-quality research studies on primary education in India in partnership with universities and reputed individual researchers. Each State should be encouraged to earmark and spend adequate funds for independent measurement of learning outcomes. While each State may adopt different ways of doing it, some broad central guidelines may be desirable.

MID-DAY MEAL SCHEME (MDMS)

21.80. In keeping with the Constitutional provisions to raise the level of nutrition of children and enable them to develop in a healthy manner, the NP-NSPE was launched as a Centrally sponsored scheme in 1995. Commonly referred to as MDMS, this was expected to enhance enrolment, retention, attendance of children in schools apart from improving their nutritional levels. This was extended to upper primary (classes VI to VIII) children in 3,479 EBBs in 2007 and then universalised at the elementary level in the year 2008. The scheme is implemented through the States/UTs. MDMS is managed and implemented by School Management/Village Education Committees, Panchayati Raj Institutions, and Self-Help Groups. MDMS now includes madrasas and *maktabs* supported under the SSA as well as children under the National Child Labour Projects. A detailed survey of implementation of intended nutritional values including calorific value, protein inclusion, additional nutritional supplements and vitamins, as detailed in the scheme, needs to be carried out to

ensure that the nutrition scheme is implemented in both spirit and letter.

Coverage

21.81. MDMS covered 7.18 crore primary school children and 3.36 crore upper primary school children in 2010–11. The coverage of children in the States of Bihar (43 per cent), UP (57 per cent) and Jharkhand (58 per cent) is below the national average of 72 per cent, whereas it is well above the national average in Chhattisgarh (83 per cent) and Odisha (82 per cent). Based on the Annual Work Plan and Budget of the States/UTs for the year 2012–13, the district-wise performance of the MDMS in all the States/UTs has been analysed and the poor performing districts (144) have been identified for focused attention. Of the poor performing districts, 17 are in areas affected by the Left Wing Extremism (LWE); 11 in the North Eastern States (Tripura—3, Meghalaya—4, Assam—4); 17 in tribal districts, and 13 in the hilly areas (Uttarakhand—4, J&K—9).

21.82. During the Twelfth Plan, MDMS will be expanded to cover pre-primary schooling in a progressive manner, private unaided schools, particularly in the SC/ST and minority-concentrated areas, and poor children admitted in neighbourhood private schools against the 25 per cent earmarked seats as per provisions of the RTE Act. While expanding the coverage, fiscal incentives like tax exemptions may be considered to encourage private participation in the scheme. Partnerships with panchayats and municipalities, as well as with other NGOs and government agencies may be developed to ensure good-quality, nutritious and regular supply of food to all children. The guidelines revised in 2009 require supply of cooked food. For this, funding for construction of kitchen-cum-store for proper storage of foodgrains and preparation of meal in hygienic environment is being provided. This would be implemented throughout the country and capacity-building initiatives would be taken up for this. Full convergence of the MDMS with the school health programme would be ensured during the Twelfth Plan to benefit from synergy in two programmes. Over a period of time, this will provide good longitudinal data on the impact of MDMS.

Monitoring and Evaluation

21.83. There are several concerns in implementation of the MDMS, namely, wide variations in enrolment, attendance and actual coverage of children, mismatch of foodgrains and cash fund utilisation, lack of controls over the quantity and quality of meals, irregular and uncertain supply of meals, and poor quality of grains in certain States. In order to address these concerns, the monitoring system under MDMS would be made more effective during the Twelfth Plan. An MIS portal for monitoring of the scheme has already been launched. All the States/UTs are now feeding data into the portal and annual data for 2.7 lakh schools have already been fed into the portal. The MIS would be integrated with Interactive Voice Response System to capture the information on daily basis and monitor the Scheme on real time basis. The MIS would enable the States/UTs and Central Government to plan the visits to the poorly performing area of the respective States. It will also be used as a mechanism for social audit as the data fed into the system through the IVRS would also be sent back to SMC members for verification. This will enhance transparency and accountability in the implementation of the MDMS and enhance the overall effectiveness of the Scheme. Such independent evaluations would be strengthened during the Twelfth Plan.

MAHILA SAMAKHYA (MS)

21.84. Mahila Samakhya (MS) launched in 1988–89 is being implemented in 10 States across 105 districts, 495 blocks (including 233 EBBs) and 33,577 villages and has special focus on the EBBs. Successive evaluations have acknowledged Mahila Samakhya as a unique process-oriented programme which has demonstrated ways of empowering rural poor and marginalised women and thereby enabling their effective participation in the public domain and in educational and learning processes. Through sustained perspective building and training of field staff, it has been possible to keep the focus of MS programme on most marginalised women. Of the 10.5 lakh women that were covered until the end of the Eleventh Plan, 36.74 per cent are SC, 16.33 per cent ST, 27.47 per cent OBC, 9.13 per cent Muslim and only 10.38 per cent are women from the general categories.

21.85. Continuance of Mahila Samakhya during the Twelfth Plan is crucial due to current thrust on inclusive education through the RTE-SSA. The large pool of trained women associated with MS would be used to achieve goals of the RTE, namely, equity and equality in and through education. Once the external funding is completely utilised, the programme would be brought under RTE-harmonised SSA with 100 per cent internal funding. A National Resource Centre with strong State level or regional units would be set up to bring MS programme's varied insights on women's empowerment, learning, agency, girls' education and institution-building to address gender barriers into the mainstream. The programme itself would be strengthened and expanded both in its coverage as well as scope/role during the Twelfth Plan.

SECONDARY AND HIGHER SECONDARY EDUCATION

21.86. With a dramatic growth in elementary education enrolments and improvements in retention and transition rates in recent years, particularly amongst the more disadvantaged groups, there is an increasing pressure on the secondary schools to admit more students. With the enforcement of RTE Act and further improvement in retention and transition rates, demand for secondary schooling will grow rapidly in the coming years. Meeting this demand is critical for three reasons. First, the secondary education fulfils large manpower needs of the semi-organised and the organised sectors of the economy. Second, it is the supply chain for higher education. And, finally, it caters to the needs of teachers for primary schooling. Low participation rates and poor quality at the secondary stage are a bottleneck in improving both the higher education participation and the schooling at the elementary stage.

21.87. Further, there are both social and economic benefits of secondary schooling. While there are clear improvements in health, gender equality and living conditions with secondary education, investments in secondary schooling have high marginal rates of return. Thus, the country needs to move towards universalisation of opportunity to attend secondary schooling of adequate quality. With enrolment in elementary education reaching near universal levels,

there would be an opportunity to move towards universal access to secondary education. The current GER for the combined secondary and senior secondary stages (Classes IX–XII) in 2009–10 at about 50 per cent is woefully low. Thus, the capacity of the secondary schooling system has to be expanded significantly. There are very large inequalities in access to secondary education, by income, gender, social group and geography. The average quality of secondary education is very low. Thus, urgent efforts are needed to improve its quality. The challenge is to dramatically improve access, equity and quality of secondary education simultaneously.

21.88. India has a long tradition of partnership between the public and private sectors in secondary education. There are four types of schools: (i) government—established by State Governments (as well as some Centrally established institutions); (ii) local body—established by elected local government bodies; (iii) aided schools—private schools that receive State Government grants-in-aid; and (iv) private unaided schools. Most of the growth of secondary schools in the private sector in the last two decades has occurred among unaided schools (25 per cent of schools). About 60 per cent of schools are now aided or unaided. It is essential, therefore, that the private sector’s capabilities and potential are tapped

through innovative public–private partnerships, while concurrently stepping up public investment by the Central and State Governments at the secondary level. And given that the presence of private schools varies considerably across States, context-specific solutions need to be promoted.

21.89. While private provision in secondary education should be fostered wherever feasible, the government will have to take the prime responsibility to provide access to disadvantaged sections and to bridge the rural/urban, regional, gender and social group gaps. Simultaneously, government must invest in teacher education and accountability, curriculum reform, quality assurance, examinations reform, national assessment capabilities and management information systems, which will require time and significant institutional capacity building to succeed at a national scale.

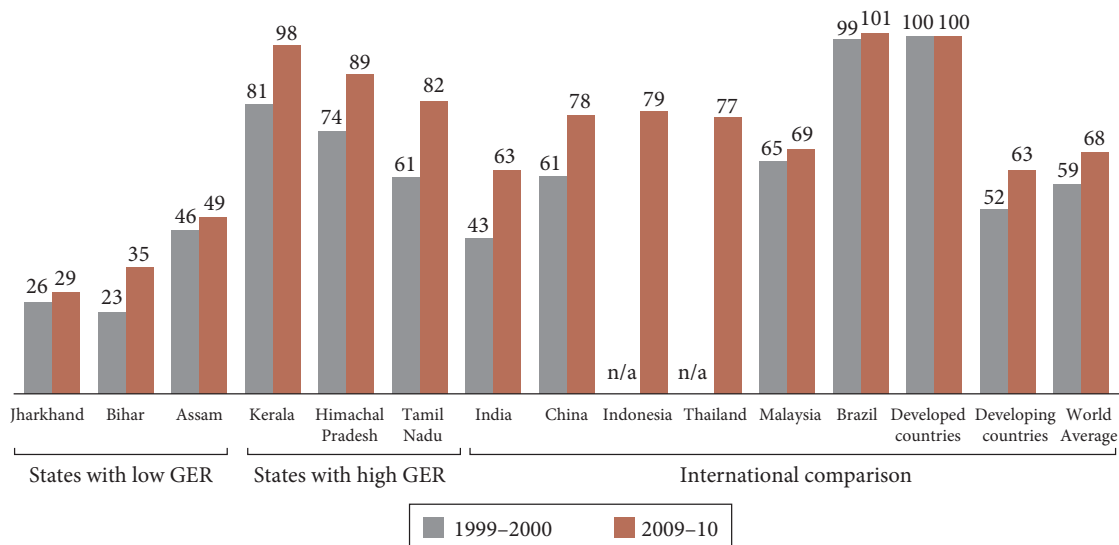
ENROLMENTS

21.90. GERs at the secondary (Class IX–X) and senior secondary (Class XI–XII) levels are 62.7 per cent and 35.9 per cent, respectively, leading to a combined GER for Class IX–XII at a considerably low 49.3 per cent (see Table 21.3). The significant dip in GERs from secondary to senior secondary level for all categories is driven by a number of factors including

TABLE 21.3
GER for Secondary Education by Social Groups (2009–10)

	SCs	STs	Non-SCs/STs	Overall
Secondary Level				
Boys	71.19	54.24	67.02	66.65
Girls	63.50	44.22	58.97	58.45
Total	67.58	49.41	63.13	62.71
Senior Secondary Level				
Boys	37.42	31.36	39.17	38.31
Girls	33.48	22.32	34.39	33.31
Total	35.60	26.91	36.88	35.92
Both Secondary and Senior Secondary Level				
Boys	54.52	43.45	52.86	52.39
Girls	48.86	33.68	46.54	45.86
Total	51.88	38.70	49.82	49.26

Source: Selected Education Statistics, Ministry of HRD, 2009–10.



Source: Selected Education Statistics, Ministry of HRD, 2009–10, EFA-GMR-2011 and UIS.

FIGURE 21.1: GER for Secondary Education: By States/Select Countries (High/Low GER States and International Comparisons)

general lack of access, paucity of public schools, high cost of private senior secondary education and poor quality of education, along with the very important factor of high opportunity cost of deferred entry into the workforce. India's GER at the secondary level is close to that of the average for all developing countries (63 per cent), but substantially lower than that of emerging economies like China, Indonesia, Thailand and Brazil (see Figure 21.1).

21.91. Enrolments of the SCs—both boys and girls—have improved significantly in recent years and now compares favourably with the non-SC/scheduled tribe categories. This has been possible with government support for hostels, scholarships and other forms of financial aid combined with increased access to secondary education, particularly in urban and semi-urban slum areas. However, despite similar efforts, the GER for STs continues to be significantly low at the secondary level. This may be attributed to low transition rates from the elementary to the secondary level as well as access related challenges in disadvantaged locations—both of which are accentuated for girls.

21.92. Within the relatively low GER at the secondary level, there are wide regional and inter-State variations. Among the major States, secondary-level GERs are as low as 29 per cent in Jharkhand and 35 per cent in Bihar and as high as 89 per cent in Himachal Pradesh and 98 per cent in Kerala, as compared to the national level (62.7 per cent). At the Senior Secondary level, the GER ranges from being very low at 6.5 per cent in Jharkhand and 13 per cent in Assam and quite high at 60 per cent in Haryana and 69 per cent in Himachal Pradesh. In addition, in some States like Rajasthan and MP, the gender gap in GER is as wide as 20 per cent.

21.93. In India, only 5 per cent of the population of 19–24 age group has acquired some sort of skills through vocational education, while the corresponding figure for Korea is as high as 96 per cent. The National Knowledge Commission has recommended expansion and re-designing of vocational education and improvement of its quality. The mid-term appraisal of the Eleventh Plan emphasised the need for curriculum revision in vocational education, appropriate certification by accrediting

agencies, horizontal and vertical mobility with multiple entry/exit possibilities and linkage with industry for employment opportunities. The National Skill Development Mission has also recognised the demand for employment-oriented vocational education programmes with provision for hands-on training. In order to reap the benefits of the demographic dividend, it is critical to align vocational education within the composite framework of secondary schooling. Thus, more efforts are needed for vocational education at the secondary stage.

GOVERNMENT SPENDING

21.94. Public expenditure on secondary education has increased from ₹35,806 crore in 2007–08 to ₹94,183 crore in 2011–12, leading to an increase in its share as a percentage of GDP from 0.78 per cent to 1.05 per cent. Per capita expenditure on secondary education has gone up from ₹315 to ₹784 during this period. The Central Government's expenditure has gone up from ₹2,578 crore in 2007–08 to ₹13,278 crore in 2011–12, a five-fold increase. There is significant private expenditure as well. The average private expenditure on secondary education in private schools is as high as ₹893 per month as compared to only ₹275 per month in Government Schools.¹¹ This difference is primarily due to high tuition fees in private schools.

21.95. During the Eleventh Plan, the Central Plan outlay for secondary education was ₹54,945 crore. Against this, an amount of ₹17,723 crore (or 32.26 per cent of the outlay) was actually spent. Elaborate consultation process with stakeholders including the State Governments preceded launch of the new schemes, resulting in sub-optimal utilisation of planned resources in the first three years of implementation. However, in the last two years of the Eleventh Plan period, the Ministry was fully geared to implement schemes rapidly, but only limited resources were made available.

REVIEW OF THE ELEVENTH PLAN

Rashtriya Madhyamik Shiksha Abhiyan (RMSA)

21.96. Secondary schooling received a major thrust during the Eleventh Plan with the Central

Government support for it increasing several fold. The Rashtriya Madhyamik Shiksha Abhiyan, a Centrally sponsored scheme with a funding pattern of 75:25 between Centre and States (90:10 for Special Category and NE States), was launched in 2009–10.

21.97. The major objectives of the RMSA are to (i) raise the minimum level of education to class X and universalise access to secondary education; (ii) ensure good-quality secondary education with focus on Science, Mathematics and English; and (iii) reduce the gender, social and regional gaps in enrolments, dropouts and improving retention. The interventions supported under RMSA included (i) upgrading of upper primary schools to secondary schools; (ii) strengthening of existing secondary schools; (iii) providing additional classrooms, science laboratories, libraries, computer rooms, art, craft and culture rooms, toilet blocks and water facilities in schools; (iv) providing in-service training of teachers; and (v) providing for major repairs of school buildings and residential quarters for teachers. Despite being launched in the third year of Plan, there was good progress under the RMSA during the Eleventh Plan (see Table 21.4). Against a target of enrolling an additional 3.2 million students, 2.4 million additional students were enrolled in secondary schools during the Eleventh Plan period.

Other Schemes

21.98. In addition to the RMSA, the following five Centrally sponsored schemes were launched during the Eleventh Plan: (i) setting up of model schools; (ii) setting up girls' hostels in secondary and senior secondary schools; (iii) National Scheme of Incentive to Girls for Secondary Education (NSIGSE); (iv) Inclusive Education for the Disabled at the Secondary Stage (IEDSS); and (v) National Merit-cum-Means Scholarship scheme (NMMS). In addition, the ongoing scheme of ICT in Schools was revised. The targets and achievements under these schemes are given in Table 21.5. In addition, the scheme of vocational stream at the +2 stage that was launched in 1988 and revised in 1992–93 was continued after further revision as approved in 2011. Despite massive infrastructure of 21,000 Sections in over 10,000 schools for vocational streams catering

TABLE 21.4
RMSA: Achievement in the Eleventh Plan

Sl. No.	Items	Target	Achievement (Approved)
1	Sanction of New Schools	11,188	9,636
2	Strengthening of existing Schools	44,000	34,311
3	Additional Classrooms	88,500	49,356
4	Additional Teachers	1,79,000	59,000
5	In-Service Training for All Teachers	100 per cent	100 per cent
6	Annual Grants to Schools	Full coverage	75,394
7	Minor Repair to Schools	Full coverage	62,221

Source: Department of School Education and Literacy, Govt. of India.

TABLE 21.5
Centrally Sponsored Schemes for Secondary Education
Target/Achievements in the Eleventh Plan

Sl. No.	Schemes	Start Year	Target	Achievement
1.	Model Schools	2009–10	3,500	1,940
	(a) EBB (KV Template)			
	(b) Non-EBB (PPP Mode)	2012–13	2,500	–
2.	Girls' hostels	2008–09	3,479	958
3.	Inclusive Education for Disabled at the Secondary Stage			
	(a) Beneficiaries (in lakh)	2009–10	–	10.76
	(b) School Covered (in lakh)	2009–10	–	2.18
4.	NSIGSE (in lakh)	2008–09	–	12.60
5.	NMMS (in lakh)	2008–09	4.0	1.04
6.	ICT in Schools			
	(a) School covered (nos.)	2009–10 (Revised)	–	90,209
	(b) Smart Schools (nos.)	2009–10 (Revised)	150	63

Source: Department of School Education and Literacy, MHRD. Govt. of India.

to over 1 million students, only about 4.8 per cent of all students are enrolled in the vocational streams against a target of covering 25 per cent of such students.

21.99. There are 1,740 schools (Kendriya Vidyalayas—1,092, Jawahar Navodaya Vidyalayas—586 and Central Tibetan Schools—62) with an enrolment of about 13 lakh students that are directly under the Central Government. These schools usually outperform other schools both academically and otherwise and hence there is demand for more such schools all over the country. During the Eleventh Plan, over 100

new schools were set up. In addition, there are Sainik Schools and Eklavya Residential Schools under Ministry of Defence and Ministry of Tribal Welfare under the Central Government, respectively.

21.100. The apex bodies in school education, National University of Educational Planning and Administration (NEUPA) for policy, planning and data collection, National Council of Education Research and Training (NCERT) for curriculum design, and developing textbooks and teaching-learning materials for school education, Central Board of Secondary Education (CBSE) for affiliation,

examination and assessment and National Institute for Open Schooling (NIOS) were very active during the Eleventh Plan and played a key role in school education reforms.

TWELFTH PLAN STRATEGY

21.101. The Twelfth Plan's objective for secondary education is to make quality education available, accessible and affordable to the target population in the age group of 14–18 years. Given this general objective, the following targets (see Box 21.4 below) will need to be achieved during the Plan period:

Box 21.4 **Secondary Education: Twelfth Plan Goals**

1. Achieve near-universal enrolment in secondary education, with the GER exceeding 90 per cent by 2017;
2. Raise the GER at the higher secondary level to 65 per cent by 2017;
3. Reduce Dropout rate to less than 25 per cent by 2017;
4. Ensure quality secondary education with relevant skills including basic competency in mathematics, science, languages and communication;
5. Implement common curricula and syllabi of nationally acceptable standards for Science, Maths and English in all schools in the country.
6. Develop life skills including skills of critical and constructive thinking, use of ICT, organisation and leadership, and community services.

21.102. Key elements of the strategy to achieve these objectives include: (i) consolidation and optimum use of existing resources; (ii) facilitating private growth, (iii) improving quality, (iv) focus on teacher availability and teacher training, (v) ICT integration in education and (vi) renewed focus on vocational education at the secondary level. Each of these elements is briefly described below.

Consolidation and Expansion

21.103. Strategies for universal secondary education must be based on population projection of the secondary education age group. There have been some projection exercises for some States on secondary age group population and demand for secondary education depending upon population growth rate and rate of transition from elementary to secondary education corrected by dropout factor. Some States

are already stagnating, some will reach the peak by 2016–17, some will stabilise only by 2025. Micro-planning for secondary education is hence necessary with proper future projections. Each State may devise a 10-year perspective plan for school education that would cover the period till the end of the Fourteenth Plan.

21.104. Enrolment in more than one-third of the secondary schools in the country is less than 80 students per school. The numbers of such schools are about 40,000 and 16,000 in rural and urban areas, respectively. About one-half of the rural schools are government funded. Secondary and higher secondary schools must be viable and large enough to benefit from investment on quality. The fact is that it is much harder to have good-quality education in very small schools with few teachers. The consolidation in secondary education will be achieved by (i) creating more and more composite schools from grades 1 to 12; (ii) upgrading primary schools into elementary schools in phases to fulfil the commitments of RTE-universal elementary education; (iii) upgrading every third elementary school to a secondary school; (iv) upgrading every fourth Secondary School to a Higher Secondary School by adding additional classrooms, laboratories, strengthening libraries and sports and games facilities and teachers. The cost of additional classrooms and facilities will be far less than establishing new schools. New schools will be set up only in un-served areas. Provision of transport, especially in rural areas, will be made for schools to avoid school dropout, especially among girls and economically weaker sections due to non-availability of schools within 'walking distance'. The transport facility will be more cost-effective and socially acceptable than setting up hostels. Nonetheless, hostel facilities would be provided in these schools on a priority basis in order to make them operationally viable in terms of teacher deployment and provision of other infrastructure facilities. In the unaided private sector, there are about 25,000 schools operating with enrolments of less than 80 pupils, per school. Efforts are required to utilise the surplus intake capacity in these schools to meet additional demand for secondary education. There are about 14,000 such schools located in rural

areas. These schools may also be incentivised to cater to the educational needs of disadvantaged groups in their neighbourhoods.

21.105. Several institutions of higher education have vast tracts of unutilised or underutilised land. Model schools/JNVs/KVs could be set up in such places. The public sector should also concentrate on opening new secondary schools in un-served and difficult areas where availability of land is not a major constraint. Second shift operations in schools in thickly populated areas and urban slums should also be evaluated. Overall, the strategy should be on consolidation by better use of existing land, infrastructure and physical facilities through resource-mapping and leveraging private and non-governmental expertise and resources to improve the quality of education.

Facilitating Private Growth

21.106. The role of the private sector in secondary schooling can be further strengthened through right policies, proper regulation, innovative public-private partnerships and a variety of demand-side financing measures that improve accountability and enhance parental choice, thereby achieving all three objectives of access, quality and equity in secondary education. This would require easing of entry barriers with dismantling of multiple licensing systems and procedures and the State Governments should revisit norms including requirement of land for setting up institutions. Many States have school land norms laid down in the 1960s and 1970s which need to be immediately revisited. A single window approach needs to be adopted to facilitate barrier free entry of private institutions including online monitoring of application status for setting up of new schools. Suitable taxation and land policies are needed to encourage expansion of secondary schools in the private sector, along with concessional loans for NGOs, trusts and registered societies for building new schools or improving the infrastructure of existing schools. Most of the publicly funded schools that have been in existence for some time have large open spaces, particularly those in rural areas. Most of these old school buildings require repair and upgradation and, in several cases, reconstruction. SSA and RMSA do not fund the reconstruction of old schools.

Some portion of the land area could be evaluated to be leased out to private schools under contractual obligation of the lessor for reconstruction of existing government school building. The contractual agreement should provide for access of government school children to laboratory, library and common playfield facilities of the private partner in the same campus.

21.107. Many schools in the country that were initially started as private schools through local initiatives have become government grant-in-aid schools. This system encourages local participation and fills the gap that exists in interior areas. Devising a good regulatory mechanism designed to ensure quality will be a preferable option over governments setting up their own schools and operating with very low levels of enrolments. Encouraging private unaided schools would cater only to the population which can pay, unless there is a policy of cross subsidisation of fees so that certain percentage of children from the poorer sections of the society can also be accommodated for free or at subsidised tuition fees. There is no ceiling on their intake capacity but resource constraints could come in the way of expansion. Institutional funding for expansion of school infrastructure is essential for accelerated growth of secondary education. This is also an important opportunity which should be seized to link new funding to the performance of institutions in achieving certain objectives, such as graduation of students, academic improvement and retention of disadvantaged groups.

21.108. There is an urgent need to focus on Economically Backward Blocks (EBB) to reach the learning population from marginalised groups and provide them access to secondary education. Public Private Partnerships in secondary education should be fostered wherever feasible. In private schools, a mechanism could be devised to fund enrolment of disadvantaged children with reasonable cost per child norms. For this to happen, three elements are essential: (i) funding facilities for investible resources for additional infrastructure development of recognised schools; (ii) proper accreditation of schools for ensuring quality education; (iii) revisiting of

rules and regulations infringing upon autonomy of schools, including prescription of teachers' salary for private schools. If minimum prescribed standards and norms are met for school infrastructure and qualified teachers with CTET/STET eligibility are deployed, the market should be left to determine the compensation structure for the faculty and staff.

Improving Quality

21.109. No recent, reliable, large-scale learning assessments at the secondary level exist. However, small-scale standardised assessments of student achievement in mathematics at the secondary and senior secondary level in two States (Rajasthan and Odisha) suggest that the quality of instruction and learning is very low at the secondary level. There are multiple factors for low levels of learning. Schools play a very important role in determining nearly half of student achievement. Thus, in the Twelfth Plan, all secondary and higher secondary schools would be made to conform to minimum standards in facilities and quality. This will require a greater role for the Central Government in supporting the States, particularly those lagging in secondary education. The focus should be on building the capacity of schools in terms of knowledge and skills, autonomy and accountability structures, and allocation of untied grants for undertaking school improvement measures for imparting quality education. Local capacities would be strengthened at the school level giving them the ability to 'think and innovate'.

21.110. In secondary schooling, there is too much emphasis on rote learning and insufficient development of conceptual understanding and higher order thinking skills. There is insufficient quality assurance and accountability mechanisms in place, while capacity and quality of pre-service and in-service training of teachers is low. The issues of curriculum, examinations reforms, school leadership, assessment and accreditation would also have to be addressed.

Curriculum Renewal

21.111. The outdated curricula and syllabi in the educational system need a complete overhaul. There is a need for periodic revision of curricula and for reforms in the examination system. Directorates

of School Education, State Boards of Secondary Education, Resource Institutions like NCERT, SCERTs, SIEs and such other institutions should be strengthened as part of RMSA/Teacher Education schemes so that these institutions lend credible support services and undertake effective periodic monitoring and concurrent evaluations. While the rate of funding for MMR (Management, Monitoring, Evaluation and Research) will be suitably raised under RMSA, its current skewed distribution across the States should be revised with minimum funding ensured for smaller States/UTs. National programmes on curriculum renewal, school-based Continuous and Comprehensive Evaluation (CCE), innovation and related institution-building would be launched during the Twelfth Plan. Each State has multiple agencies, that is, SCERTs, SIEs, Education Boards, SPOs, Directorates and so on, which have more or less the same objective of imparting quality education to all and improving the education system but they lack synergy. There is an urgent need to establish effective linkages amongst them for achieving the desired results.

Examination Reforms

21.112. Examination reforms that would focus on problem-solving, critical thinking and reasoning skills and decrease the emphasis on rote memorisation are critical to improving quality at the secondary level. Such reforms have the potential to change the teaching-learning processes inside the classrooms and have direct relation to improving learning outcomes. In recent years, CBSE has introduced wide-ranging examination reforms in 13,000 schools affiliated to it (see Box 21.5). During the Twelfth Plan, other Boards would be facilitated to emulate these reforms.

SCHOOL BOARDS FOR ACADEMIC TRANSFORMATION

21.113. Exceptions apart, currently, all School Boards function exclusively as examining bodies. During the Twelfth Plan, the School Boards should be enabled to take up leadership for reforms in the school system. They must remodel themselves in such a way that they have strong academic and IT divisions closely coordinating with examination

Box 21.5 **CBSE Examination Reforms**

Class X Board Examination has been made optional from the year 2011 for students studying in CBSE's Secondary Schools and who do not wish to move out of the CBSE system after Class X.

Continuous and Comprehensive Evaluation (CCE) has been strengthened in all CBSE-affiliated schools from October 2009 onwards in Class IX, wherein both scholastic and co-scholastic areas, including life skills of the students, are assessed on an ongoing basis for their holistic development.

In order to bring greater objectivity in reporting of performance and to reduce stress and undesirable competition, a system of grading in place of marks has been introduced.

and administration divisions for academic transformation and capacity building. They should take upon themselves the role of capacity building of the school principals, headmasters, teachers and even parents. Quality initiatives taken up by some School Boards like the CBSE should be promoted as national programmes. Among the important initiatives are producing quality-assured digital content in local language and encouraging teachers to create their own content and upload on a common web portal, provisioning affordable ICT facilities in classrooms, ICT-integrated education supported by LMS, Continuous and Comprehensive Evaluation for reducing stress on students through adopting scientific techniques of evaluation, School Quality Assessment and Accreditation for Social Accountability, and such others. All State boards must be encouraged and supported wherever necessary for implementing these quality interventions. CoBSE shall catalyse this development. The voluntary association of School Boards and CoBSE needs to be strengthened and made much more effective. Most School Boards are financially sound and may not need additional funding.

Development of School Leadership

21.114. Programme of Leadership Development in School Education will act as the vehicle to empower and drive critical education reforms through intensive and interdisciplinary curricular experiences, active exchange of ideas, adoption of an interactive pedagogical approach that promotes team work and collaboration; creation of opportunities for professional development of leaders in school education; identification and nurturing of talent within and

outside the school system to take up leadership; and establishment of a network of institutions to impart leadership education. The programme will have two-tier institutional arrangement with a National Centre for Leadership in School Education and Leadership Academies in selected Institutions of Higher Learning. NUEPA through the National Centre for Leadership in School Education (NCLSE) will be entrusted with the responsibility of coordinating the work of the Leadership Academies located in different Institutes of Higher Learning.

School Quality Assessment and Accreditation

21.115. A School Quality Assessment and Accreditation System would be established to cover all aspects of school functioning, including scholastic and co-scholastic domains, physical infrastructure, faculty management, school leadership, learning outcomes and satisfaction of pupils and their parents/guardians. This system should be in sync with similar accreditation systems in advanced countries and in CBSE-affiliated schools. Examination reforms are needed to promote the acquisition of analytical and thinking skills amongst students rather than emphasising rote learning. The Government is already committed to developing a national assessment survey at grade X, which could lead the way to new forms of learning assessment, and which will enable cross-State comparisons of performance to be made. Schools should be encouraged to work towards achieving average international standards and this effort should be led by the Centrally funded KVs and JNVs, which would function as exemplars. There are half-a-dozen States with GERs above the world average.

21.116. Orientation and capacity-building programmes need to be organised for officials of school boards, teachers, principals and school administrators on a massive scale for effective implementation of NCF and RTE. Close collaboration is needed between SCERTs and school boards for organising workshops for teachers and educators for strengthening skills in teaching–learning and assessments. Involvement of grass-roots teachers drawn from schools including KVs and JNVs for preparation or adaptation of NCERT textbooks should also be promoted. Continued benchmarking against international performance is essential to measure India’s progress. The outcomes for this system of assessment and accreditation must be made public so as to promote greater accountability of secondary schools.

School Mentoring

21.117. The Government will reach out to private schools with a reputation for quality and standards to ask them to support government schools in their neighbourhoods to improve quality. Partnerships will be forged for sharing their infrastructure and academic facilities with neighbourhood schools for teacher training and empanelment of certified resource persons. The Centrally funded KVs and NVs could become hubs for inter-school activities so as to catalyse improvement in other publicly funded schools in the area. This is especially true in the case of science and mathematics education, organising joint school seminars and educational exhibitions and running bridge courses in English. Well-functioning schools under the State Governments and private schools could also become hubs for inter-school activities.

Teacher and Training

21.118. Teacher training for secondary education was launched in the Eleventh Plan but the approach so far has been mechanical and limited to training teachers to help students score high marks in national board exams so as to raise school averages with very little focus on developing thinking, application skills, attitudes and values. The Twelfth Plan will promote professional cadre development in education and will empower educators to develop effective tools for promoting and gauging creative

problem solving and ideation in the classroom setting. Research scholars in the field of education in Universities/Colleges should be brought in to conduct seminars, classes and tutorials and should be compensated over and above their fellowships.

21.119. Significant shortages of secondary school teachers exist, especially in the critical subjects of mathematics, science and foreign languages. A major recruitment effort is needed. Curricular reform can also promote more efficient use of teachers. Moreover, new and flexible ways of encouraging people to come into or return to the teaching profession are needed; with an emphasis on identifying those with relevant competencies rather than those who have certain qualifications. National Mission on Teachers and Teaching should address issues of teachers at the secondary stage in a comprehensive manner.

Renewed Focus on Vocational Education

21.120. Recognising the fact that younger children learn and acquire skills faster, skills training of elementary nature, for example, manipulating simple instruments at the elementary level, and pre-vocational courses as an alternative to work education would be offered in Class IX and X. Students who take these pre-vocational options could be encouraged and facilitated to take up advanced vocational subjects at the higher secondary level. In addition, vertical mobility options for students taking vocational courses should be available at the undergraduate and postgraduate level. For high-quality vocational education at school level to evolve and grow in the country, there is a need to train and equip teachers on a continuous basis with the latest skills and pedagogy techniques in vocational education.

21.121. The vocational curriculum needs to be integrated and closely aligned with the academic curriculum and should contain modules on various generic and specific vocational skills for which industry should be involved. There should be an emphasis on development of generic and multiple skills so that trainees/students may respond to changes in technology and market demands. The revised scheme of vocationalisation of secondary education should be

revisited based on the pilots that have been undertaken to test and to ensure that it is aligned with the new qualifications framework and industry-led sector skill councils, so that vocationalisation does not become an expensive dead end for students. Given the different economic contexts across the country, system of monitoring and evaluation of the scheme must be strengthened.

TWELFTH PLAN INITIATIVES

Rashtriya Madhyamik Shiksha Abhiyan (RMSA)

21.122. During the Twelfth Plan, RMSA will be made a single comprehensive scheme to address issues of coverage and quality in secondary education. This should be gradually extended to the higher secondary stage and should cover all government and government-aided schools. There are several Centrally sponsored schemes that benefit secondary school students of different categories and background. These are:

1. Rashtriya Madhyamik Shiksha Abhiyan (RMSA)
2. Model Schools Scheme
3. Girls Hostel Scheme
4. ICT @ Schools
5. Inclusive Education for Disabled at Secondary Stage
6. Scheme of Vocational Education
7. National Means-cum Merit Scholarship Scheme
8. National Incentive to Girls
9. Appointment of Language Teachers

21.123. While the RMSA is a large scheme, others are comparatively smaller schemes. For convergence and improved efficiency, the smaller schemes shall be merged into RMSA. This should be done without losing focus on the objectives, goals and targets of any of the existing schemes. In following the example of RTE, RMSA shall develop and/or adopt/adapt national norms of secondary schooling for universalisation of secondary education. This will be required to ensure minimum quality of schooling. Significant issues to be addressed within the RMSA framework include construction of residential facilities for boys and girls, revising civil works norms to State schedule of rates, review of school infrastructure, coverage

of aided schools and higher secondary schools, provision of untied funds for innovation and so on. In addition, the RMSA framework should focus on promoting better-quality education against clear-cut benchmarks and enable States, districts and schools to respond flexibly to their specific needs.

21.124. The RMSA should continue with the current funding pattern in the Twelfth Plan period. RMSA should have inter-State allocation criteria for equitable distribution of Central assistance so that educationally backward States are not denied their legitimate share, while advanced States take additional advantage due to prior preparation. The RMSA should gradually move towards funding States on per child cost basis/norms which would incentivise enrolment, retention and completion, and thus move away from inputs-based funding to outcome-based decision-making.

21.125. The RMSA will make provisions for residential schools/hostels for boys and girls in existing schools to enhance access and participation of children from hilly and sparsely populated areas and from districts afflicted with civil strife as well as support OoSC as per guidelines developed by NIOS. It would include provision for schools without buildings and relax ceiling on civil works for infrastructure-deficient States with adoption of State Schedule of Rates for civil works. Provision should be made for ramps and at least one toilet for CWSN.

21.126. Science and Maths education would need special attention during the Twelfth Plan. Poor science and maths education (and English) accounts for 80 per cent of total students who fail in Tenth Board Examination. The transition rate from X to XI in Science is very small as indicated by less than 12 per cent share of students in UG Science stream. This low enrolment in science stream at higher secondary level and poor-quality education is a constraint in development of scientific manpower in the country. Under RMSA, a special component will be created to identify scientific talents at the secondary level and to strengthen science and mathematics education; teachers will be trained and retrained on modern methods of science education.

21.127. Physical education and games and sports would be made an integral part of the curriculum in schools for the holistic development of youth. Minimum infrastructure and consumables will be made available under RMSA in convergence with MYA&S (Ministry of Youth Affairs and Sports) schemes to all government and government-aided schools. School playgrounds of NVs and KVs will be opened up to neighbourhood schools. Local bodies would be impressed upon to extend support in earmarking open fields, sports stadia and community playgrounds for neighbourhood schools in urban areas, as many private schools and even some publicly funded schools do not have playgrounds within school campuses in many cities and towns. Such schools will be encouraged to adopt alternative sports and games activities that support physical development and nurturing of kinaesthetic intelligence. Appointment of additional Physical Education Teachers (PETs) would be funded under RMSA.

21.128. In an effort to ensure coordination and efficient implementation across a range of secondary education programmes, RMSA will become the umbrella programme and four other schemes would be subsumed under it during the Twelfth Plan. These are:

1. ICT@Schools will be integrated with RMSA to provide greater flexibility, enable optimal utilisation of resources and yield better results.
2. Inclusive Education for Disabled at Secondary Stage (IEDSS) scheme will be subsumed under RMSA and will cover children with blindness, low vision, leprosy cured, hearing impairment, locomotor disabilities, mental retardation, mental illness, autism and cerebral palsy. Coordination of the scheme with other programmes will be emphasised.
3. Girls' Hostel for Students of Secondary and Higher Secondary Schools will be subsumed under RMSA. The scheme also provides for a PG teacher as warden to support residents in scholastic assignments and boost their confidence.
4. The Scheme of Vocational Education will be subsumed under RMSA without any modification in the existing fund-sharing pattern and

will be implemented from the secondary stage onward.

21.129. The National Scheme of Incentive to Girls for Secondary Education will be continued as separate scheme. Schemes that are based on specific proposals from the States could easily be integrated within the composite RMSA. MHRD could provide financial assistance to the State/UTs for (i) appointment and training of Hindi teachers in non-Hindi-speaking States/UTs; (ii) appointment of Urdu teachers and grant of honorarium for teaching Urdu; (iii) appointment of teachers of Modern Indian Language (other than Hindi) in Hindi-speaking States/UTs; (iv) appointment of Urdu Teachers in any locality where more than 25 per cent are from Urdu language-speaking group.

Vocational Education

21.130. Vocational education at the secondary stage provides for diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provides an alternative for those pursuing higher education. Hence, it is important and would be implemented from class IX onwards, unlike the present provision for its implementation from class XI, and would be subsumed under RMSA. Vocational Education courses will be based on national occupation standard brought out by the Sector Skill Councils (SSCs) that determine the minimum levels of competencies for various vocations. Academic qualifications would be assessed and certified by educational bodies and vocational skills would be assessed and certified by respective SSCs.

21.131. In the Twelfth Plan, a mechanism would be created for convergence of vocational courses offered by various ministries, private initiatives and vocational education institutions, and use schools as the outlet for vocational education of young people. A comprehensive repertoire of vocational courses, duration of each course, equipment and facilities, costs and agencies will be developed. Like Germany and many other industrialised countries, the repertoire should have modular courses, which allow exit and entry into the job market and further.

21.132. The process for revamping of the scheme of vocational education at the higher secondary stage has already been initiated. This is now aligned with NVEQF (National Vocational Education Qualifications Framework) to create clear educational pathways from school to higher education level and provide more options to students to choose vocational modules depending on their aptitude and economic requirements. The revised scheme has been designed to address the weaknesses identified in the current system of vocational education. The salient components of the revised scheme include (i) strengthening of existing schools imparting vocational education; (ii) establishing new schools; (iii) in-service teacher training of seven days for existing teachers; (iv) 30-day induction course for new teachers and (v) support to private schools in PPP mode and support to NGOs for carrying out innovative practices. Competency-based modules will be developed for each individual vocational course. It will be mandatory for schools to revise their curricula every three years to ensure that it is guided by the needs of the industry. A separate Pilot programme within the National Vocational Education Qualifications Framework has been launched in Haryana. Assam, West Bengal and Karnataka are also in the process of launching a pilot. Based on the learning from the pilot, this would be scaled up in the Twelfth Plan. An MIS and web portal on vocational education will be set up to share best practices and experiences. Haryana has launched a pilot for introducing vocational education under NVEQF in 40 pilot schools in eight districts (see Box 21.6).

21.133. Based on the learning from the pilot(s), a possible road map could be to expand the coverage of vocational education from 2013–14 to about 400 schools in Haryana. The number of courses offered could be increased from 8 to 10 and pilots be started during 2013–14 in all States which show interest. States which manage the pilot successfully could expand the coverage in year 2014–15 to about ten times the number of schools covered under pilot. A nodal resource centre could be created at the national level to support the State Governments.

21.134. Students pursuing vocational courses at +2 level would be provided facilities for apprenticeship training under the Apprenticeship Act. While skill formation has to be mainstreamed in the formal education system right from class IX onwards, skill creation outside the formal education system needs coordinated action and innovative approaches. A VE cell has been established within the CBSE. The States would also be encouraged and supported to set up similar cells in the State Boards and encourage students to take vocational courses along with academic courses either as combination subjects or additional subjects, and allow credit accumulation and transfer on the pattern of CBSE-NIOS collaboration. The National and State Boards would draw up a detailed scheme of evaluation with respective SSCs to enable competency-based assessment of students. As the course design and TLM development get decentralised, PSSCIVE, the expert central institution, should be elevated for quality assurance in vocational education.

Box 21.6 **Pilot Project on Vocational Education under NVEQF**

- Each of the pilot schools offers two vocational subjects out of IT/ITes, Retail, Automobile and Security. These would be started from Class 9 and Class 11.
- The Curriculum has been designed by the respective Sector Skills Councils (SSCs) under NSDC. The content has been created by PSSCIVE, CBSE and Wadhvani foundation.
- Teachers have been recruited on contract basis, and have undergone training in pedagogy and domain skills. Principals of schools have undergone orientation.
- Each school has a vocational coordinator to create and nurture linkages of local industry and business with the school and its students. They will also facilitate guest lectures, industry visits and placements.
- Assessment will be done by Board of School Education Haryana and assessors of respective SSCs.

21.135. PSSCIVE in collaboration and partnership with State Boards/CBSE/Experts will develop exemplar competency-based curricula with inputs from industry, business organisation, agricultural initiatives for contextualisation and localisation of content by States. Competency-based curricula will be adopted/adapted by Central/State Boards of Education. Each curriculum will have to meet national standards for competencies and other applicable norms set by SSCs.

21.136. Vocational education at the secondary level would be aligned with skills training under the Ministry of Labour through Industrial Training Centres and modular training programmes as well as short-term training provided through National Skills Development Corporation (NSDC). Skills training under the JSS and NGO schemes of Adult Education programmes would be aligned with the framework for vocational education at the secondary level. In order to roll out these skills programmes, a massive effort would be needed for professional development of school leadership, master faculty trainers, inspectors, test evaluators and counsellors. Appropriate institutional arrangements with linkage to NSDC for capacity development for professional certification and accreditation systems for institutions should also be put in place.

Model Schools

21.137. During the first three years of the Twelfth Plan, 2,500 Model Schools in PPP mode would be rolled out in non-EBBs in a phased manner. Instead of setting up of a new organisation to oversee implementation of Model Schools, it is preferable that the additional responsibility is given to KV Sangathan so that the new schools can benchmark the format of KVs. However, the number of Model Schools being substantially large, as compared to existing KVs, the Sangathan needs to be considerably strengthened with resources and their role with regard to Model Schools should be clearly defined. It should also be ensured that these Model Schools indeed serve as exemplars in their blocks and carry out specific activities to share their best practices with other government schools in their vicinity.

National Means-Cum-Merit Scholarship

21.138. This scheme will be continued in the Twelfth Plan to award 1,00,000 scholarships each year, at class IX stage. The scheme should have reached a targeted coverage of 4 lakh scholarship by 2011–12. Reasons for poor performance of the scheme should be studied and remedial action taken. The States in which the number of candidates selected is low in comparison with the quota allotted to them may require remedial classes for students. There is a need for wider publicity for the scheme to generate awareness. There are several NGOs, Foundations and Corporate organisations which offer merit-cum-means scholarship to students in schools. To avoid duplication and avoidable waste of resources, a database of all such agencies will be developed; similarly, a database of all beneficiaries will be created so that scholars can be traced for evaluation of the scheme and for improving its effectiveness.

Schools under the Central Government

21.139. During the Twelfth Plan, an additional 500 KVs and 378 JNVs, including 27 for uncovered districts and 2 special NVs in Manipur, will be set up. The intake capacity will be expanded from 80 to 160 students per class and 10 Science Magnet schools will be set up within or in close proximity to the institutions of higher education and other scientific research institutions. The charter of KVs and NVs will be revisited and their scope expanded including provisions for economically weaker section enrolments. About one-third of enrolments could be allowed for wards of non-Central Government employees.

21.140. The Twelfth Plan will work towards shaping KVs and JNVs into pace setting schools with specific activities such as acting as Smart Schools. To begin with, about 500 KVs and 500 NVs covering all States will commence pace setting activities by extending their facilities after school hours to students of neighbouring State/UT Government schools. The KVs/NVs could use outsourcing model for innovative programmes including training of students for participation in international assessments and allow the use of their premises for the purpose. Arts Departments will be established in KVs to achieve

excellence in co-scholastic areas such as visual and performing arts.

21.141. The KVs/NVs will also be able to avail funding for additional sports activities from the schemes of Urban Sports Infrastructure/PYKKA under the Ministry of Youth Affairs and Sports. Rural KV/NVs will allow rural youths to utilise their facilities after school hours. Neighbouring school children will be allowed enrolment in NCC/NSS/Scouts and Guides/Judo/Karate/Yoga/Archery and so on in KVs/NVs. These schools will be hubs for the National Physical Fitness Programme to be launched during the Twelfth Plan with 100 per cent Central Assistance. These new initiatives of KVs/NVs, including hiring of personnel for providing coaching and other recurring expenses, will be supported with budgetary provisions to cover about 20,000 children per year.

21.142. All facilities, provisions, and quality initiatives stipulated for JNVs shall be made available to Eklavya and Sainik Schools, which are residential schools. The respective Ministries would be required to provide financial resources for these initiatives. MHRD will coordinate with other ministries and wherever necessary shall provide academic inputs. Similar coordination would also be required with Atomic Energy Education Society.

21.143. The Twelfth Plan will strengthen the infrastructure facilities for NIOS and 16 State Open Schools (SOS) under RMSA in order to improve the outreach of open schooling programmes with special focus on skill development and vocationalisation, particularly in the educationally backward districts of the country. An enrolment target of 25 lakh students has been set for NIOS/SOS. The Accredited Vocational Institutes (AVIs) under NIOS will be evaluated and rated before expansion. Examination reforms will be carried out so that year-round facilities are made available for open schooling.

RESEARCH, MONITORING AND EVALUATION

21.144. There are three areas that require urgent attention with regard to secondary education, namely, Curriculum Reform, Reform in Assessment and Examination and Reform in Pre-service and

In-service teacher education. These three areas require in-depth studies, impact studies as well as action researches. A proper system of documentation for researches and best and innovative practices in secondary education needs to be evolved at various levels. Moreover, researches must not be limited to only providing research reports; there is also a need to evolve a mechanism for sharing of these researches with various stakeholders including curriculum developers and policymakers.

21.145. A panel of agencies both at the national and State levels will be put in place to carry out third-party appraisals and evaluations of ongoing schemes by identifying sectors/sub-sectors and developing appropriate tools for evaluation. There is a need to involve national-level institutions to build the capacity of teacher educators and resource persons in States/UTs and help them to evolve a mechanism for monitoring the introduction of the interventions in the classroom process which have been provided during the training programmes. Resource and Responsibility centres at national, State, district and sub-district levels for enhancing the quality of secondary education would be put in place.

21.146. A school-based Annual Information System, called SEMIS, is already in place to collect data on physical infrastructure and facilities, availability of teachers, enrolment and academic performance of students, professional development of teachers, and so on. This needs to be strengthened. A number of quality indicators could be generated for different levels that will reflect the wholesome educational scenario of the respective State. This will also promote micro-planning and the preparation of annual work plans for a district/State. Unified System of Data Collection for School Education Statistics would be put in place in the Twelfth Plan.

USE OF TECHNOLOGY IN EDUCATION

21.147. Most of the secondary schools have limited availability of computer facilities. This constrains the students from acquiring ICT-related skills essential in the knowledge economy and limits teachers' ability to upgrade their subject-matter knowledge and students' ability to access essential learning

materials. ICT can potentially make significant difference in improving quality. The National Policy of ICT in School Education envisions and provides for the development of a holistic framework of ICT support in the school system. Mission Mode Project (MMP) on School Education is now under the National e-Governance Plan (NeGP). This would enable comprehensive technology enablement of the school education sector. More specifically, this would cover:

1. Developing ICT skills of all heads of schools, teachers, non-teaching staff and students;
2. Creating a repository of quality-assured digital contents in English, Hindi and regional languages in all subjects especially in science and mathematics;
3. Training and encouraging teachers to develop and use e-content;
4. Creating provisions for ICT in classrooms or portable facilities like a netbook/laptop/iPad and a projector with rechargeable battery, and implement ICT-integrated education;
5. Enabling provision of ICT-integrated examination and e-governance at the institutional and systemic level including setting up of education portal(s).

21.148. The MMP also envisions extensive use of technology to ensure delivery of services to students, teachers, autonomous institutions and partners on an 'anytime-anywhere' basis by leveraging the Common Service Centres (CSC) established up to the village level across the country. This along with the policy on ICT in School Education will enable a holistic and coordinated attempt to optimally use and leverage technology to achieve quality and efficiency in all of the interventions under various schemes.

21.149. There would be special focus on Aadhaar linkage of teachers and students databases with a view to remove ghosts, fakes, duplicates and cleaning up databases. This linkage coupled with effective analytics can help in addressing accountability, traceability and measurement-related challenges. It could also be used for tracking students and teachers

attendance, tracking deployment, training programme attended by teachers, their skills/capability areas and so on. Using this targeted deployment plan, skill development programme could be developed. Tagging records of students with those of teachers can help build accountability of teachers. In long run, this may also provide pointers to interventions (made at teachers' improvement areas) that have had a higher impact on improving learning outcomes. Aadhaar seeding would be used in tackling scholarship funds misuse. Recently, Andhra Pradesh has used it to identify fake student enrolments, same student enrolments in multiple colleges/courses, same faculty teaching in a large number of institutions. Aadhaar-enabled payment system could be used for transferring and managing scholarship payments.

TEACHER EDUCATION

21.150. There is a large number of teacher vacancies in the school system. An estimated 12.58 lakh (5.64 lakh old and 6.94 lakh newly sanctioned under SSA) vacancies exist at the elementary level. These are mainly accounted for by six States: UP (3.12 lakh), Bihar (2.62 lakh), West Bengal (1.81 lakh), MP (0.89 lakh), Chhattisgarh (0.62 lakh) and Rajasthan (0.51 lakh). Several States in the North, East and North-Eastern regions have an acute problem of untrained teachers. Therefore, pre-service and in-service training of teachers needs to be mounted on a mission mode during the Twelfth Plan. In particular, modular teacher training programmes should be developed so that para-teachers can attend training courses during the summer and winter vacations and get formally qualified over a three- to five-year period. In-service training using technology and innovative delivery methods could address the problem of poor quality of existing teachers.

21.151. In order to address the issue of availability and quality of teachers for the school system, each State must maintain a detailed district-wise database of teachers, teacher educators and teacher education institutions. National professional standards for teachers and teacher educators must be evolved. These must be used as a basis for designing pre-service and in-service training programmes and their performance assessment processes for professional

development. A system of teacher performance appraisal and feedback needs to be put in place as a tool for their development and empowerment and not as punitive measures. These systems are directly linked to improved classroom teaching and student learning. Rational deployment of teachers and objective and transparent policies for their transfers and placements would help in mitigating teacher shortages. Innovative ways need to be found to attract talent from other streams into the teaching profession. Superannuated qualified teachers may be re-employed in subject areas that have severe shortages. This strategy would be particularly useful in States like Kerala and Andhra Pradesh that have a relatively low retirement age for teachers in the government schools.

21.152. Upward career mobility options for teachers should be developed within each stage of education rather than across the stages, and should be linked with achievement of specific in-service certifications and experience criteria. High-quality teachers who wish to remain in active teaching as opposed to taking up administrative roles should have opportunities for career progression. A system of teacher evaluation based on objective measures of performance can be used as a basis for career ladders for teachers for bonuses, increments and promotions. These efforts along with continued professional development of teachers will ensure the teachers are motivated and lead to improving learning outcomes of the children.

Revamp Pre-Service Teacher Education

21.153. In view of large gaps in both quantity and quality of teachers, pre-service teacher education would be revamped. A revised scheme for teacher education would be implemented during the Twelfth Plan. The Scheme would strengthen institutional structures of DIETs, CTEs, IASEs and SCERTs. For their regular monitoring, elaborate process and performance indicators would be developed. In order to ensure adequate representation of teachers from the SC/ST/Minority communities, Block Institutes of Teacher Education in 196 SC/ST/Minority concentration districts would be set up.

21.154. The content and pedagogy of teacher education would be gradually aligned with the National Curriculum Framework for Teacher Education, 2009, which, inter alia, recommends a shift to a four-year integrated degree programme with concurrent study of a subject discipline and education after Class XII or two-year Bachelors in Education degree after graduation. Diploma in Education programmes for teachers for the elementary stage currently imparted by DIETs and other independent institutes should be progressively upgraded to degree programmes and these institutions could be upgraded as undergraduate colleges affiliated to the universities.

21.155. Distance-cum-contact degree programmes, increased use of ICT in regular programmes and adopting learn-work-learn cycles as an alternative to one-shot training would also be promoted. The professionals and BRCs/CRCs should be organically linked with DIETs under SCERT with knowledge capital infusion. It is essential that all these institutions are headed by professionals with appropriate qualification, experience, competence and vision. A large number of institutions and individuals must be identified to develop material for teachers and teacher educators in Indian languages based on curricular needs of pre-service programmes to begin with.

21.156. Linkages of teacher education institutes with each other, for example, of DIETs with CTEs and IASEs, and with the field, for example, the school system and NGOs operating in the sector need to be strengthened across the country such that academics and practitioners can work together towards the improvement of teacher education and school education more broadly. There should be effective use of technology as a tool for teacher education where special modules could be imparted to candidates across different geographical locations. These modules should integrate video lectures of professionals and highly reputed facilitators with careful selection of content. This can be combined with practical 'hands on' training in school environments in identified schools. Videos of best practices in teaching and pedagogy in Indian languages should be made available at these centres. Innovative alternate paths that would also allow lateral entry of talent from various

other streams into the teaching profession by choice should be explored and appropriate policy and regulatory structures put in place to support their adoption.

21.157. Regulatory arrangements for teacher education require overhaul with proper oversight in each State. Accreditation arrangements need to be strengthened and new credible agencies could be roped in for the purpose. There is an immediate need to lay down performance standards and benchmarks for teacher education institutions with clear accountability. This needs to be balanced with greater flexibility and rational norms and standards around infrastructure, faculty, curricula and entry eligibility from regulatory and governing bodies and Boards, in particular the National Council for Teacher Education (NCTE). Importantly, innovative programmes should be recognised by NCTE promptly so that these programmes can begin developing teachers in a short period of time. The recently introduced *Teacher Education Index* would be widely used to measure the quality of teacher education institutions. This third-party assessment by approved entities to avoid malpractice should be done periodically every five years and made public to ensure transparency.

Develop Teacher Educators

21.158. Availability of adequate number of quality teacher educators will receive high priority during the Twelfth Plan. A large number of teacher educators would be developed by identifying potential teacher educators through a transparent competency-based process. They will then undergo full-time capacity programmes at selected institutions. For this purpose, credible institutions in both the public and private sectors would be involved. Voluntary professional networks of teacher educators must be facilitated and strengthened to provide forums for professional interaction and development.

21.159. New programmes would be conceptualised for teacher educators. Curriculum, duration and structure of the M.Ed. programme would be revamped based on NCFTE 2009 and the new model curricula proposed by NCTE. At least 100

institutions across all States in the country would be identified and prepared to deliver such programmes. Selected multi-disciplinary public and private universities must be facilitated to establish departments/schools of education with direct links to good schools which can serve as a practice ground for honing practical teaching skills. Universities can also provide special courses which could be designed to combine specialised subject knowledge with educational courses and practical learning in an integrated manner, so that the problem of shortage of subject teachers is also addressed.

Ensure Continued Professional Development

21.160. The system of continued professional development of in-service teachers would be strengthened during the Twelfth Plan. For this, training needs would be systematically identified and programmes designed to meet their local requirements so that the teachers are engaged and find the programmes useful. Capacity-building programmes of short duration as well as relatively longer full-time or distance-cum-contact degree programmes should be encouraged. These programmes should develop in teachers the necessary orientations and expose them to the range of skills/activities which impact upon quality classroom transactions. Use of technology and innovative delivery methods would be important components. Along with specific training programmes, exposure visits or action research projects to be conducted with field organisations and academia should be organised. Appropriate enablers in the form of long-leave options or a significant number of mandated required days of in-service training along with appropriate budgetary support per-day/per-practitioner should be provided to the schools.

21.161. Untrained teachers and para teachers would require special attention. Modular courses to be delivered in distance-cum-contact mode could be developed and delivered so that these teachers can obtain formal qualifications over a three- to five-year period. Partnerships between teacher education institutes and colleges, both public and private, and National and State Open Universities to develop and deliver these programmes at an accelerated pace should be actively encouraged.

Quality and Certification Issues

21.162. In order to assess the quality of teachers, TETs would be institutionalised and made mandatory for teacher hiring. This would ensure that despite alternate pathways open to become teachers, standards of teaching are maintained. Teachers could be required to renew their certifications periodically so that they continue to invest in their own development. With focus on outcome, teacher education institutions could be rated on the basis of the scores in the eligibility tests. While focusing on eligibility tests as objective and transparent outcome measure for performance of teacher and teacher education institutions, care is needed that such eligibility tests do not become an end in themselves.

21.163. Thus, in addition to TETs, national performance standards for teachers, teacher educators and teacher education institutions must be developed. A well-defined system of teacher performance appraisal (based on teacher competencies, teacher performance, efforts made by the teachers to transact learning-related processes in the classroom and learning levels) would be introduced in stages. These could include (i) possibilities for internship for three years before getting a 'license', (ii) introducing a system of teacher evaluation based on attendance, effective teaching, evaluation of classroom work and so on, (iii) teachers once appointed could come up for evaluation and renewal of license every 5 years, (iv) teachers should have avenues open for retraining for other jobs they may want to take, and (v) lateral and vertical mobility for professional growth of teachers.

National Mission on Teachers and Teaching

21.164. During the Twelfth Plan, a National Mission on Teachers and Teaching would be launched so that issues of teacher education are dealt with in a holistic manner. This would also strengthen institutional mechanisms for strengthening vertical and lateral linkages. This would consolidate and strengthen ongoing programmes related to teachers and teaching through effective coordination and synergy by significantly enhancing the investment. Under the proposed mission, 30 Schools of Education will be established in the selected universities that will

conduct research into curriculum, pedagogy, and assessment and evaluation issues and offer degree programmes and conduct training for teacher educators. While CTEs that offer B.Ed. degrees are undergraduate colleges, these and organisations like the NCERT and the SCERTs lack any meaningful linkages with the university system.

GOVERNANCE AND EDUCATION LEADERSHIP

21.165. Performance-based innovative practices like social audits, linkages with panchayats and municipalities, energising and empowering village education committees, public reporting of expenditures linked to outcomes and results, and multi-stakeholder dialogues would be used to improve governance in the school system. Most important would be to empower local communities so that they have better oversight over schools and teachers. Local community could be given authority to hire, pay, and renew the contracts of community-based contract teachers (hired over and above the stipulated number of regular teachers), who can focus on supplemental and remedial instruction after school hours or during summer camps.

21.166. Overall strategy in governance reforms would be to strike a right balance between mandating and persuading. While efforts should be made to listen to stakeholders and embrace their concerns, a line must be drawn when it came to pushing through a reform or in ensuring commonality across the system. At the initial stage, the reforms are almost always driven from the Central agencies. Later, as the system improves, the locus for improvement shifts to instructional practices and primarily driven by the teachers and the schools by themselves.

21.167. A system of regular assessment of schools for both managerial and pedagogical aspects is needed. This would set the stage for formal accreditation of schools. In addition, there is a need to establish a vibrant teacher support system closer to the school setting. Block Resource Centres and Cluster Resource Centres that were conceptualised under DPEP and continued under the SSA would be revamped and repositioned so that these can work effectively for improving teacher performance. Their role could be

extended to the secondary schools. Finally, systemic improvement requires integration and coordination across different levels as can be seen in Table 21.6. The Twelfth Plan would focus on such integration and ordination.

21.168. Seven specific interventions are proposed in the Twelfth Plan. First is to improve functioning and strengthening of existing institutions such as the SCERT, SIEMAT, and DIETs. These entities would develop and disseminate best practices for effective classroom instruction, support teachers in effective pedagogy and efficient organisation of resources at school level (that is, people, teachers and students, space and time) so as to optimise learning opportunities for all children. A key goal will be to identify highly effective teachers for positions of educational leadership and mentoring, and to identify less-effective teachers for coaching and support.

21.169. Second would be on training of district and block-level education officers as well as head teachers for better management practices, on using data to better monitor and support school performance, and to mobilise community resources and efforts to improve school performance. Good performance of schools and teachers should be recognised and

rewarded to motivate teachers and administrators to achieve excellence. This recognition can be either financial or non-monetary, but the system as a whole should show that effort and performance is valued and rewarded. Third is to ensure full functioning of the already established National Centre for School Leadership and setting up of four Regional Centres of Educational Management co-located in existing institutions.

21.170. Fourth, the parents have to be more effectively engaged so that they demand better quality education and result-oriented teaching-learning process. For this, effective functioning of SMCs and Parent Teacher Associations (PTAs) is essential. These are central to the formation of School Development Plans and effective working of the schools. Special efforts and innovative approaches would be needed to enable illiterate, semi-literate or less-educated parents to partner with schools in their children's learning process. Fifth is focus on the role of community-based structures and the complementary and mutually reinforcing nature of their responsibilities in support of government machinery in monitoring of schools. Given the technical requirements, while the government can go deeper into the issue of inclusive classroom, some simple indicators

TABLE 21.6
Roles in System Improvement

Stakeholder	Key Role
Teachers	Deliver classroom instruction Collaborate with peers to develop, and share pedagogical practices that raise learning outcomes Engage parents as needed to advance student performance
School Administrators	Define and drive school improvement strategy, consistent with direction from district/State headquarters Provide instructional and administrative leadership for the school Involve school community to achieve school improvement goals
District/Sub-district School Leadership	Provide targeted support to schools and monitors compliance Facilitate communication between schools and the State Encourage inter-school collaboration Buffer community resistance to change
State Leadership	Set system strategy for improvement Create support and accountability mechanisms to achieve system goals Establish decision rights across all system entities and levels Build up skills and leadership capacity at all system levels

Source: Adapted from 'Education: How the World's Most Improved Systems Keep Getting better' by Mona Mourshed, Chinezi Chijioko and Michael Barber.

could be developed for monitoring by community-based institutions.

21.171. Sixth, good schools could act as exemplars for neighbourhood schools and a system of mentoring of schools, particularly in educationally backward regions, would be institutionalised. A system of sharing of best practices would also be introduced. This means that schools should match the best practices from a variety of perspectives from other schools in the same region. All Kendriya Vidyalayas and Navodaya Vidyalayas, along with newly set up Model Schools, should undertake pace setting activities for neighbourhood schools.

21.172. Seventh, sensitisation and re-orientation programme for national, State and field-level functionaries of the education departments would be conducted to bring quality and learning outcome focus in their work. Quality indicators need to be included in the agenda of review meetings at all levels. This would include attendance of students and teachers, learning outcome, supportive supervision provided by the field functionaries, graduation/dropout rate and so on. Revamping MIS/reporting systems having specific provision for reporting on

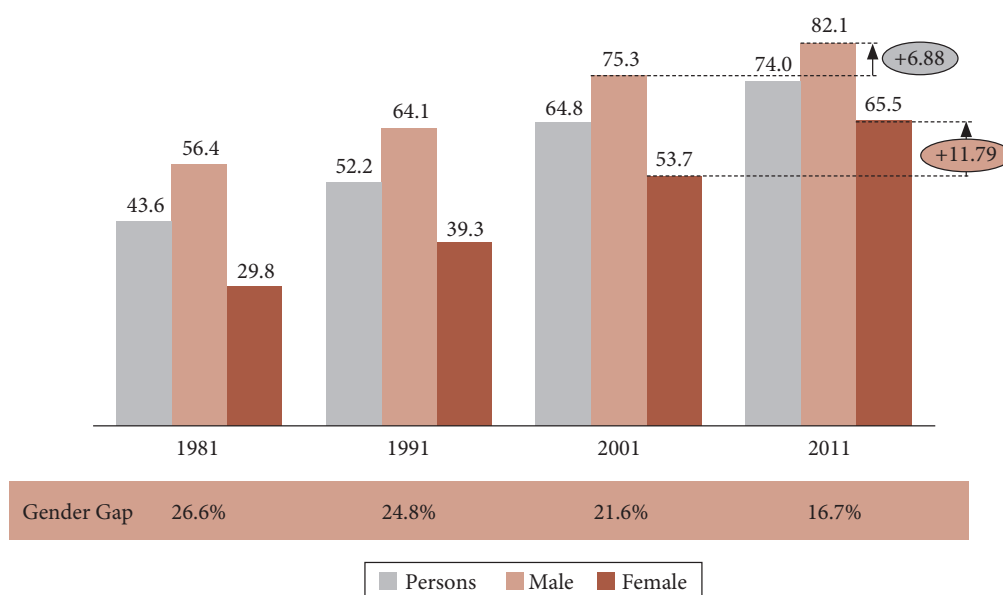
quality issues and active involvement of parents in the monitoring of quality of education imparted in the schools will also be ensured.

ADULT AND ADOLESCENT EDUCATION

21.173. As shown in Figure 21.2, in the decade from 2001 to 2011, literacy levels rose from 64.8 per cent to 74 per cent and the number of illiterates declined in absolute terms by 31 million with the number of literates rising by 218 million. The gap in literacy rates between urban and rural areas reduced by 5 percentage points. Female Literacy rate increased at a faster rate (11.79 per cent) than that for males (6.88 per cent), thus reducing gender gap from 21.59 per cent to 16.68 per cent. Gains in literacy levels are in part due to success of the adult education programmes and in part due to improvements in primary schooling. Relative contribution of each would be known once the age-wise disaggregated data for the 2011 Census is available. Despite these significant gains, large gender and regional disparities in literacy levels persist.

Saakshar Bharat

21.174. During the Eleventh Plan, *Saakshar Bharat*, a Centrally Sponsored Scheme that focused on women



Source: Census of India, 2011.

FIGURE 21.2: Improvements in Literacy Levels, 1981–2011 (%)

in particular and the disadvantaged groups in general, was launched. *Saakshar Bharat* is currently in operation in 372 districts. Under this scheme, functional literacy would be provided to 70 million adults (60 million women and 10 million men) in the age group of 15 years and above. Besides 3 million adults, half of them under basic education programme and the other half under vocational education and skill development programme are aimed to be covered. The scheme is anchored with Panchayati Raj Institutions and local self-government bodies and adopts a targeted approach with focus on women, SC, ST, and minorities; gives emphasis on quality; user context and group specific approach; promotes convergence and partnership and effectively uses ICT in implementation. *Saakshar Bharat* is using the concept of total quality management and is developing core curriculum framework for adult literacy.

21.175. Though *Saakshar Bharat* is conceived as a variant of National Literacy Mission (NLM), yet due to hiatus during the Tenth Plan period, management structures under the NLM had become moribund. Thus, galvanising the implementation machinery for *Saakshar Bharat* was a huge challenge. Now that it is in third year of its operation, significant support for *Saakshar Bharat* has been mobilised. Through large scale countrywide environment building and mass mobilisation campaigns, voluntary teachers/*preraks* have been motivated and trained in large numbers and community has been mobilised. A meaningful synergy between schemes of adult education, school education, departments of adult education in the universities, and other departments is being created.

Strategic Shift from Literacy to Lifelong Learning

21.176. *Saakshar Bharat* as a flagship scheme for adult education would be continued during the Twelfth Plan and, by 2017, it shall strive to raise the literacy rate to 80 per cent and reduce the gender gap to less than 10 per cent. Through continuing focus on literacy in the years to come, the goal of universal literacy by 2025 or even earlier would be achieved. During the Twelfth Plan, *Saakshar Bharat* will give special focus on young adults and OoS adolescents (15–19 years).

21.177. At the same, there is a need to redefine literacy and go for a paradigm shift from basic literacy to lifelong learning. In the present technology-driven knowledge-based competitive economy, even the basic ability to read and write with understanding is not enough; adults need to learn to manage information and knowledge in a critical and reasonable manner, learn to search, identify, evaluate, select, and use information and knowledge wherever they are available: print, mass media, or the Internet. Nevertheless, becoming literate can no longer be viewed as a specific and terminal period in the life of a person. In fact, literacy is the entry point to basic education and a stepping stone to lifelong education. Lifelong learning is today essential for survival and for enhancing people's quality of life, as well as for national, human, social and economic development. It should cover 'all learning activity undertaken throughout life-whether in formal, non-formal and informal settings with the aim of improving knowledge, skills and competence within personal, civic, social and for employment related perspective'. Under this new paradigm of lifelong learning and literacy, the focus is not only on non-formal education set up but on establishing strong linkages with the formal system with mechanism for recognising prior learning and accreditation.

21.178. Accordingly, *Saakshar Bharat* would be revamped during the Twelfth Plan and aligned to the new paradigm of lifelong learning. The key features of this programme would be:

1. It would provide opportunities to meet all types of learning needs including functional literacy, basic education, vocational education, physical and emotional development, arts, culture, sports and recreation. Such opportunities of learning will be for all adults, disadvantaged and advantaged, in the age group of 15 years and above, who missed the opportunity of formal education as well as all adults who wish to learn outside the formal system of education. It would continue to focus on inclusion with programmatic interventions in rural areas, urban slums, low literacy areas, tribal areas, SCs and minority concentrated areas. To facilitate more equitable access

and participation, the revamped programme would create appropriate infrastructure, especially in difficult, backward, tribal, and rural areas, and enhance culture of learning and education by eliminating barriers to participation through ICT, awareness, mobilisation, environment building and well-designed and targeted guidance, information and motivation.

2. At the Gram Panchayat level and at the equivalent levels in the urban areas, the existing well-equipped ICT-enabled multi-purpose Adult Education and Skill Development Centres (AESDCs) would be strengthened (or set up where these do not exist) to offer a range of adult learning and education programmes to meet local needs of the adults. For higher levels of adult education, secondary level institutions at the block and community colleges at the district level need to be set up.
3. Existing programme structures, including National Literacy Mission Authority at the apex level, the State Literacy Mission Authorities at the State level and the Lok Shiksha Samitis at the District, Block and the Gram Panchayat, as well as the resource support bodies, would be remodelled, strengthened and aligned to lifelong learning and literacy. Inter-sectoral and inter-ministerial cooperation would be obtained. In addition, active involvement of public authorities at all administrative levels, civil society, private sector, community and adult learners' organisations in the development, implementation and evaluation of adult learning and education programmes would be obtained. The revamped programme would need a permanent system with nationwide and multilevel network of institutions and structures that conform to these parameters. Additional resources should be allocated for building capacities of PRIs and other implementing agencies.
4. Objective criteria to assess learning outcomes, skill development, prior learning and equivalency should be developed based on which third party assessment and certification should be undertaken. For this, partnerships should be developed with accredited national and State-level agencies and open and distance learning

systems. *Lifelong learning and literacy* under the revamped programme should be seamlessly integrated with formal education system for horizontal and vertical migration by establishing equivalency frameworks to facilitate credit transfer among formal, non-formal and informal education.

21.179. The revamped *Saakshar Bharat* would be a continuing programme as a lifelong learning and literacy support system for the country. To promote a systematic lifelong learning, the country might require comprehensive legislation to formally recognise forms of education other than formal, integrate formal, non-formal and informal learning and for recognition, validation and accreditation of learning obtained in non-formal ways. Need for enabling legislative measures would thus be examined to provide a robust framework for lifelong learning and literacy.

HIGHER EDUCATION

21.180. Higher education is critical for developing a modern economy, a just society and a vibrant polity. It equips young people with skills relevant for the labour market and the opportunity for social mobility. It provides people already in employment with skills to negotiate rapidly evolving career requirements. It prepares all to be responsible citizens who value a democratic and pluralistic society. Thus, the nation creates an intellectual repository of human capital to meet the country's needs and shapes its future. Indeed, higher education is the principal site at which our national goals, developmental priorities and civic values can be examined and refined.

21.181. It is estimated that developed economies and even China will face a shortage of about 40 million highly skilled workers by 2020, while, based on current projections of higher education, India is likely to see some surplus of graduates in 2020. Thus, India could capture a higher share of global knowledge-based work, for example by increasing its exports of knowledge-intensive goods and services, if there is focus on higher education and its quality is globally benchmarked. The country cannot afford to lose time. The demographic bulge evident in India's population pyramid is encountering lower fertility rates,

leading to a rapid slowdown in population growth rates and a looming decline of the population in the prime educable age up to 25 years within the next couple of decades.

21.182. Despite considerable progress during the Eleventh Plan, less than one-fifth of the estimated 120 million potential students are enrolled in HEIs in India, well below the world average of 26 per cent. Wide disparities exist in enrolment percentages among the States and between urban and rural areas while disadvantaged sections of society and women have significantly lower enrolments than the national average. The pressure to increase access to affordable education is steadily increasing with the number of eligible students set to double by 2020. At the same time, significant problems exist in the quality of education provided. The sector is plagued by a shortage of well-trained faculty, poor infrastructure and outdated and irrelevant curricula. The use of technology in higher education remains limited and standards of research and teaching at Indian universities are far below international standards with no Indian university featured in any of the rankings of the top 200 institutions globally.

21.183. The key challenge is to find a path to achieve the divergent goals for the growth of higher education in India. Combining access with affordability and ensuring high-quality undergraduate and post-graduate education are vital for realising the potential of the country's 'demographic dividend'. Future expansion should be carefully planned so as to correct regional and social imbalances, reinvigorate institutions to improve standards and reach international benchmarks of excellence, match demand with supply by improving employability, and extend the frontiers of knowledge.

STRATEGIC AIMS OF THE TWELFTH PLAN

21.184. The Twelfth Plan will build on the momentum generated during the Eleventh Plan and continue the focus on the 'Three Es'—expansion, equity and excellence. However, the Plan proposes a paradigm change in the way we achieve such goals—through three new principles. First, an overriding emphasis will be given to quality—as further

expansion without quality improvement would be counterproductive for the future of India, given the serious quality issues noted in the sector. Second, the Plan also strives to diversify higher education opportunities, not only to meet the needs of employers, but also to offer a wide range of paths to success for our youth. India must develop world-class research universities as well as have sophisticated teaching institutions to impart key vocational and generic skills in a timely manner to cope with the rapidly changing labour market needs. Third, this excellence in diversity will be implemented through governance reforms, to enable institutions to have the autonomy to develop distinctive strengths, while being held accountable for ensuring quality. Hence, the Twelfth Plan adopts a holistic approach to the issues of expansion, equity and excellence so that expansion is not just about accommodating ever larger number of students, but is also about providing diverse choices of subjects, levels and institutions while ensuring a minimum standard of academic quality and providing the opportunity to pursue higher education to all sections of society, particularly the disadvantaged.

21.185. These objectives must guide the development of all three segments of higher education: Central institutions, which account for 2.6 per cent of the total enrolment; State institutions which account for 38.5 per cent of enrolment; and private institutions that cater to the remaining students. All three segments have to be expanded to achieve enrolment target (see Box 21.7) by creating additional capacity and ensuring equal access opportunities, while being supported to improve the quality of teaching–learning, attain excellence in research, and contribute to economic development.

STRATEGIC FRAMEWORK OF THE TWELFTH PLAN

21.186. In the light of past experience and considering the inter-linkages between expansion, equity, and excellence, a new strategic framework (see Figure 21.3) is required to pursue the objectives of the Twelfth Plan. This would involve cultural, strategic and organisational changes impacting on all aspects of higher education ranging from access and equity to governance,

Box 21.7 Enrolment Target for the Twelfth Plan

Additional enrolment capacity of 10 million students including 1 million in open and distance learning would be created by the end of the Twelfth Plan. This would enable roughly 3 million more students in each age cohort to enter higher education and raise the country's GER from 17.9 per cent (estimated for 2011–12) to 25.2 per cent by 2017–18 and reach the target of 30 per cent GER by 2020–21 which would be broadly in line with world average.

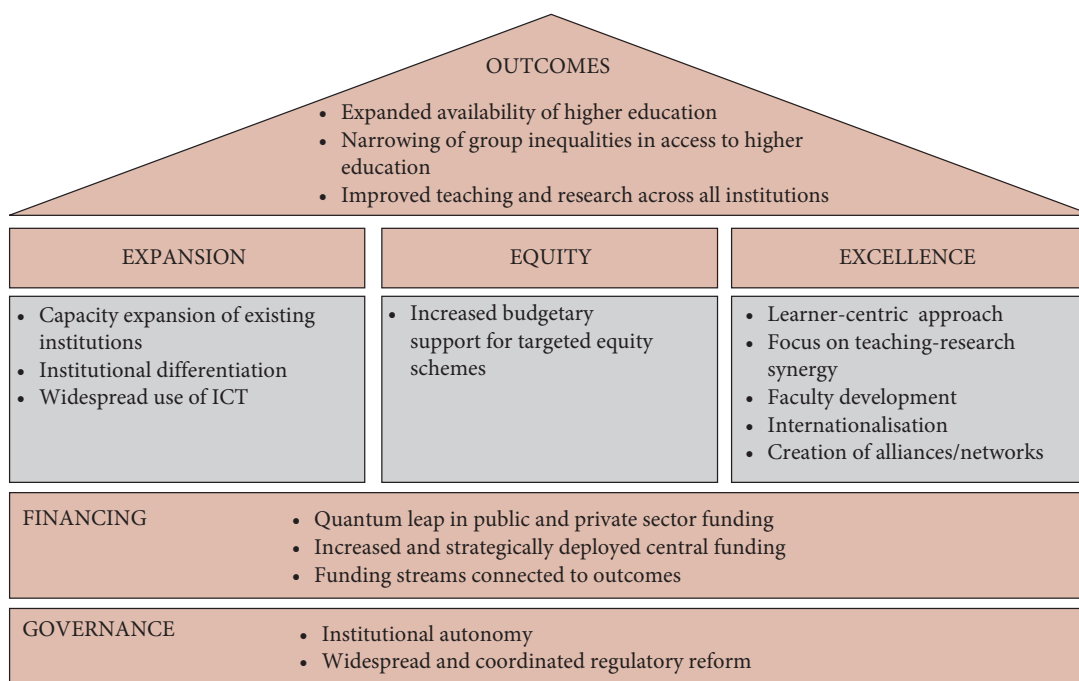


FIGURE 21.3: Strategic Framework

funding, monitoring and regulation, institutional structures, curricula and teaching–learning processes.

21.187. The strategic framework for the Twelfth Plan for higher education identifies such a paradigmatic shift in the following critical areas related to expansion, equity, excellence, governance and financing.

Expansion

1. Expand access by scaling up capacity in existing institutions rather than increasing the number of institutions, with the exception of new institutions needed to address critical regional and social gaps.
2. Create a system of institutional differentiation and distinctiveness to cater to a diverse body of students and the varied needs of employers.

3. Use the transformative potential of new technologies to improve quality, reduce costs, improve processes and efficiency and reach a larger body of students, while promoting efficient and transparent governance and raising the quality of teaching and research.

Equity

4. Provide significant increase in budgetary support for equity-related measures through targeted, integrated and effective equity-related schemes, which will replace the existing maze of multiple and diffused small outlay schemes.

Excellence

5. Foster a shift from an input-centric and credential-based pedagogical approach to a

- learner-centric and learning-outcome based approach to improve the quality of teaching and research.
6. Ensure availability, recruitment and retention of qualified people to meet the growing need for quality faculty; upgrade the skills of existing faculty; and, build synergies between teaching and research to promote excellence in both.
 7. Facilitate translation of academic research into innovations for practical use in society and economy and foster entrepreneurship that creates wealth and public goods.
 8. Promote internationalisation by encouraging and supporting institutions and their faculty to engage more deeply with institutions and faculty around the world in areas ranging from teaching-learning to research and outreach.
 9. Create and facilitate alliances, networks, clusters, and consortia of academic institutions amongst themselves and with research institutions and industry to accelerate the process of knowledge development by better resource utilisation and by complementing mutual expertise.

Governance

10. Enable institutional autonomy by transforming the role of government from command and control to a steering and evaluative role.
11. Enhance the capacity of the higher education system to govern itself by widespread and coordinated regulatory reform.
12. Increase transparency in both public and private institutions by requiring them to disclose important standardised information related to admissions, fees, faculty, programs, placements, governance, finance, business tie-ups and ownership.

Financing

13. Implement a quantum leap in both public and private sector investment in higher education to achieve the various goals set out for the Twelfth Plan.
14. Implement a significant increase in Central plan funds for higher education and strategically deploy these funds to improve the entire system of higher education, including State systems.

15. Directly connect funding streams to specific outcomes and desired impacts related to the Plan objectives through reforms in governance arrangements at the national, State and institutional levels with suitable implementation and monitoring mechanisms.

21.188. Figure 21.3 shows the various elements of the strategy framework and inter-linkages amongst them. The issues of expansion or widening access, improving equity in access, improving quality and fostering research and innovation, governance, financing, Plan implementation, monitoring and evaluation have been further elaborated in the subsequent sections. In each section, the experience of the Eleventh Plan is first analysed which leads to the specific strategy to be adopted and initiatives to be undertaken in the Twelfth Plan.

EXPANSION OF ACCESS TO HIGHER EDUCATION

Enrolment Expansion in the Eleventh Plan

21.189. The Eleventh Plan recognised and responded to the rising demand for higher education.¹² Enrolment increased in government as well as private institutions. Table 21.7 provides the enrolment numbers for the Tenth and the Eleventh Plan, the increase in enrolment and the compounded annual growth rate (CAGR).

21.190. Enrolment¹³ in open and distance learning (ODL) programmes also grew rapidly during the Eleventh Plan from 27.41 lakh students in 2006–07 to 42.01 lakh students in 2011–12 (Table 21.8). Apart from the Indira Gandhi National Open University, there are 13 State Open Universities and 183 other Distance Education Institutions (DEIs) approved by the Distance Education Council. Enrolment in DEIs that includes at least 44 private institutions grew most rapidly over 10 per cent per year during the Eleventh Plan period.

21.191. GER is often used to measure the higher education access. GER is the total enrolment in higher education (both degree and diploma programmes) as a percentage of the population in the eligible age

TABLE 21.7
Growth of Enrolment in the Eleventh Plan

Category	(Enrolment in lakh)					
	2006-07		2011-12		Increase	Growth Rate (Per cent)
	Total	Per cent	Total	Per cent		
By type of institutions						
Government	63.38	45.8	89.63	41.1	26.25	7.2
Central	3.10	2.2	5.63	2.6	2.53	12.7
State	60.28	43.6	84.00	38.5	23.72	6.9
Private	75.12	54.2	128.23	58.9	53.11	11.3
By degree/diploma						
Degree	123.54	89.2	184.84	84.8	61.30	8.4
Diploma	14.96	10.8	33.02	15.2	18.06	10.8
Total	138.50	100.00	217.86	100.00	79.36	9.5

Source: University Grants Commission (UGC), All India Council for Technical Education (AICTE), NCTE, Indian Nursing Council (NCTE).

Note: Central institutions include Indian Institutes of Management even though they award PG diplomas in management.

TABLE 21.8
Growth of Enrolment in ODL Programmes in the Eleventh Plan

Enrolment	(Enrolment in lakh)			
	2006-2007	2011-2012	Increase	Growth Rate (per cent)
Indira Gandhi National Open University	4.68	6.97	2.29	8.3
State Open Universities (SOU)	7.77	10.80	3.03	6.8
Distance Education Institutions (DEI)	14.96	24.24	9.28	10.1
Total	27.41	42.01	14.60	8.9

Source: Distance Education Council.

cohort of 18–23 years. Using this definition, GER for higher education was 12.3 per cent in 2006–07 and increased to 17.9 per cent in 2011–12. In regular programmes alone, GER has increased from 10.4 per cent in 2006–07 to 15.2 per cent in 2011–12.

21.192. Increased enrolments in the Eleventh Plan enabled Indian higher education to cross the threshold of 15 per cent GER, moving the country from an ‘elite’ to a ‘mass’ higher education system. Despite this, the unmet demand for access to higher education remains significant, indicating that a further expansion is required. However, expansion during the Twelfth Plan must factor that the recent growth has been skewed in favour of certain regions,

disciplines and sectors (see Table 21.9 for growth by field of study) and ensure further expansion has diversity in the provision of higher education including a focused emphasis on improving the quality of institutions, faculty and curricula.

INSTITUTIONAL EXPANSION IN THE ELEVENTH PLAN

21.193. Increase in higher education capacity during the Eleventh Plan was largely achieved through the setting up of new institutions by Central and State Governments and the private sector. The number of institutions grew by 58 per cent from 29,384 to 46,430. By the end of the Plan, the country had 645 degree awarding institutions, 33,023 colleges affiliated to

174 universities and over 12,748 diploma granting institutions. Table 21.10 provides a snapshot of this growth. With the growth rate of institutions matching that of enrolment, the problem of low enrolment per institution evident at the start of the Eleventh Plan remains. Combined with the skewed growth

of engineering and technical disciplines, this indicates that further expansion should be undertaken in the context of also achieving disciplinary diversity and increasing capacity within existing institutions rather than creating new institutions.

TABLE 21.9
Growth of Enrolment by Field of Study during the Eleventh Plan (in lakh)

Faculty	2006-07		2011-12		Growth Rate (Per cent)
	Total	Per cent	Total	Per cent	
Arts	54.86	39.6	65.78	30.2	3.7
Science	25.43	18.4	30.57	14.0	3.8
Commerce and Management	22.87	16.5	34.34	15.8	8.5
Education	6.21	4.5	13.00	6.0	15.9
Engineering	18.06	13.0	54.68	25.0	24.8
Medicine, Nursing and Pharmacy	5.98	4.3	12.02	5.5	15.0
Agriculture and Veterinary Science	0.93	0.7	1.21	0.6	5.4
Law	3.00	2.2	3.48	1.6	3.0
Others	1.16	0.8	2.78	1.3	19.1
Total	138.5	100	217.86	100	9.5

Source: UGC, AICTE, NCTE and INC.

TABLE 21.10
Growth of Institutions in the Eleventh Plan

Category	2006-07	2011-12	Increase	Growth Rate (Per Cent)
Central Institutions				
Degree Awarding Institutions	87	152	65	11.8
Colleges	58	69	11	3.5
Sub total	145	221	76	8.8
State Institutions				
Degree Awarding Institutions	227	316	89	6.8
Colleges	9,000	13,024	4,024	7.7
Diploma Institutions	1,867	3,207	1,340	11.4
Sub total	11,094	16,547	5,453	8.3
Private Institutions				
Degree Awarding Institutions	73	191	118	21.2
Colleges	12,112	19,930	7,818	10.5
Diploma Institutions	5,960	9,541	3,581	9.9
Sub total	18,145	29,662	11,517	10.3
Total	29,384	46,430	17,046	9.6

Source: UGC, AICTE, NCTE and INC.

Note: Central degree institutions include Indian Institutes of Management even though they award PG diploma in management.

21.194. Growth in private institutions was significant during the Eleventh Plan period. Ninety-eight private State universities, 17 private deemed universities, 7,818 private colleges, and 3,581 private diploma institutions were set up during the Plan period. While a majority of them offer professional or vocational programmes almost exclusively, it's worth noting that a number of arts, commerce and science colleges and a few comprehensive multidisciplinary universities have also been established in the private sector in recent years.

21.195. The expansion of Central institutions during the Eleventh Plan was historic. The Central Government has never established so many institutions in a single Plan period. The Central Government established 65 new institutions during the Eleventh Plan period (see Table 21.11). Each State now has at least one Central university except Goa, where the State Government did not want one. Special financial assistance was provided by the Central Government to existing Central institutions to raise their intake capacity in order to provide 27 per cent reservation to OBCs without affecting the number of general seats. The Central Government also supported the States to set up 45 model degree colleges (as against the 374 proposed in low enrolment districts) and 279 government polytechnics (as against the 300 proposed) during the Plan period.

On their own, the State Governments added 89 universities, 4,024 colleges and 1,340 diploma institutions during the same period.

21.196. Expansion of HEIs by Central ministries and departments other than MHRD was also significant with 14 institutions being established by other Ministries/Departments. These include medical and agricultural universities, institutes of fashion technology, pharmaceutical education and research institutes and the South Asia and Nalanda universities. However, this does not include institutions for maritime education and for flying and aeronautical education approved by the Directorate General of Shipping and Directorate General of Civil Aviation.

21.197. Affiliated colleges, which enrol 86.7 per cent of all students, are the mainstay of the country's higher education system. They enrol over 90 per cent of undergraduate students, over 70 per cent of the postgraduates and about 17 per cent of doctoral students. They follow curricula and examination systems determined by the affiliating universities.

21.198. Despite the growth in number of institutions, their geographical spread remains highly skewed with a large concentration in big cities and towns. While overall institutional density increased from 10 to 14 institutions per 1,000 sq. km. during

TABLE 21.11
Growth of Central Institutions during the Eleventh Plan

Type of Institution	2006-07	2011-12	Increase
Central Universities	19	40	21
Indian Institute of Technology	7	15	8
Indian Institute of Management	6	13	7
Indian Institute of Science Education and Research	2	5	3
School of Planning and Architecture	1	3	2
National Institute of Technology	20	30	10
Other Technical Institutions	15	15	0
Other Universities/Institutions	17	31	14
Total	87	152	65

Source: Ministry of HRD, Other Ministries.

Note: Other universities/institutions include deemed universities fully funded by the Central Government (via UGC) and institutions under other ministries.

the Eleventh Plan, a large number of habitations and settlement clusters with a population of more than 10,000 and less than 1,00,000 are without any proximate institution of higher education.

21.199. Even though GER at the national level is 18 per cent, there are wide inter-State variations. Delhi, Chandigarh and Puducherry, which attract a large number of students from outside their States, have GERs exceeding 30 per cent while States like Bihar, Jharkhand, Assam, Rajasthan, Odisha and West Bengal have significantly lower GERs. This suggests a need for State-specific strategies in addressing issues of expansion of higher education during the Twelfth Plan period.

21.200. To support institutional expansion, Central Government spending on higher education has grown steadily over the years and increased over six-fold between 2006–07 and 2011–12. In contrast, State non-Plan funding grew at a modest pace even though institutions in the State sector have also expanded significantly. As a result, the quality of State institutions has continued to deteriorate over the years.

21.201. During the Eleventh Plan, enrolment in higher education (including enrolment in open and

distance learning) grew by 9.3 million from 16.6 million (in 2006–07) to 25.9 million in 2011–12. Target for the Twelfth Plan is to increase enrolment capacity by another 10 million. Of this, 1 million will come from ODL, 3.3 million through large scale expansion of skill-granting diploma programmes and remaining 5.7 million will come from further expansion of degree programmes with accelerated expansion of postgraduate and doctoral programmes (see Table 21.12).

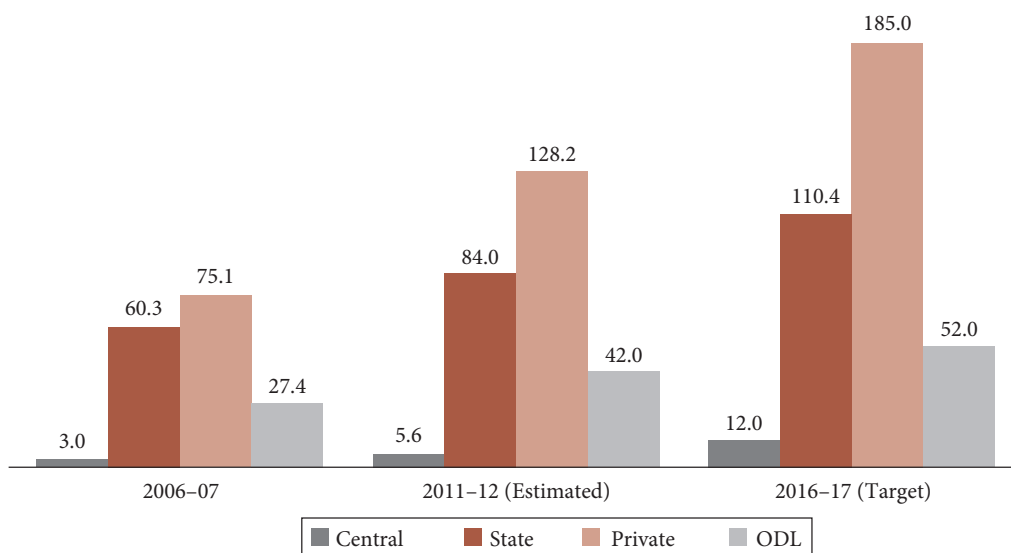
21.202. This additional enrolment capacity of 10 million students would enable roughly 3 million more students in each age cohort to enter higher education and raise the GER broadly in line with the current global average from 17.9 per cent (estimated for 2011–12) to 25.2 per cent by 2017. Enrolment capacity of Central institutions would be doubled from 0.6 million to 1.2 million. In the State institutions, it will increase from 8.4 million to 11 million. The bulk of growth would be in the private institutions. In private institutions, the enrolment capacity would increase from 12.7 million now to 18.5 million by the end of the Twelfth Plan period (see Figure 21.4).

21.203. Planning for expansion should be demand-driven. First, the national government would

TABLE 21.12
Enrolment Targets by Level/Type for the Twelfth Plan

Level/Type	(student numbers in lakh)		
	2011–12 (Estimates)	2016–17 (Targets)	Growth Rate (Per Cent)
PhD	1	3	24.6
PG General	17.3	33.2	13.9
PG Technical	5	12.2	19.5
UG General	116.6	128	1.9
UG Technical	45	66	8.0
Sub total	184.9	242.4	5.6
Diploma	33	65	14.5
Total	217.9	307.4	7.1
ODL	42	52	4.4
Grand Total	259.9	359.4	6.7
Population 18–23 years	1,451.2	1,427.4	–0.1
GER (%)	17.9	25.2	

Source: Planning Commission Estimates/Targets.



Source: Based on figures drawn from UGC, AICTE, NCTE, MHRD and INC.

FIGURE 21.4: Enrolments in Higher Education (in lakh): 2006-07 to 2016-17

prepare long-term occupational demand projections recognising that these must be updated periodically to meet the changing needs of the economy and society. For Central institutions, this would be followed through by developing institutional supply targets. For each State, the expansion plan should similarly be based on State-level demand projections. This would require coordinated efforts and enhancing the capacity for such planning both at the national and State levels.

TWELFTH PLAN EXPANSION STRATEGY

21.204. The expansion that took place in the Eleventh Plan was a logical response to the rising aspirations of young people, improved schooling, and the fact that jobs created through rapid economic growth and skill-based technical change require higher levels of education. During the Eleventh Plan, Indian higher education moved from 'elite' to 'mass' higher education (threshold of 15 per cent GER) and is now moving towards universal higher education (threshold of 50 per cent GER). This must be accompanied by offering a wider, diverse range of education—the student should be able to acquire skills in multiple disciplines while achieving a solid core set of skills and at a pace that is customised to individual's capacity to learn. With this in mind, further expansion will require a re-examination of the design, organisation,

definition, and purpose of higher education. The Twelfth Plan strives to create diverse education opportunities to cater to the growing number of students passing out of higher secondary classes on the one hand and the diverse needs of the economy and society on the other. Therefore, the four key principles that will drive the strategy for higher education expansion in the Twelfth Plan are as follows:

1. Expansion must focus on locations, States, subject areas/disciplines, and types of institutions where current capacity is low, instead of creating additional capacity across the board.
2. Expansion must be aligned to the country's economy. Therefore, a variety of HEIs offering innovative and relevant curricula designed to serve different segments of the job market or provide avenues for self-employment must be developed. Specific emphasis must be given to the expansion of skill-based programmes in higher education.
3. The relative strengths of different types of institutions must be harnessed to serve different needs. Central institutions must be assisted to become quality-leading institutions. State institutions must be supported to expand further and simultaneously address equity issues and improve quality. The philanthropic sector should

be invited and incentivised to infuse more funds and build larger, sustainable and higher quality private institutions. New models of Public-Private Partnership (PPP) in higher education must be encouraged not only for technology intensive education but also for multidisciplinary and research-based education. Open and distance learning must be used to widen access in a cost-effective and flexible manner.

4. Overall, expansion will be carefully planned to provide better access to the poor and disadvantaged social groups and first generation learners from backward areas.

21.205. Expansion should not only mean having more institutions of the same kind, but also developing new kinds of institutions. First, the country must have some globally competitive research-intensive institutions which should: (i) keep India abreast of the international scientific frontier; (ii) ensure that educational content and curricula is of world standards and updated regularly; (iii) ensure that research is actively used to solve India's own problems; and (iv) engage the best researchers in the country in teaching the next generation of students both within and outside their institution.

21.206. Second, teaching-focused institutions must offer a wide range of good-quality educational options, from liberal arts to professional and technical education. Part-time programs should also be introduced for working professionals and adult learners conferring the same degrees that are awarded through traditional full-time programmes.

21.207. Third, there must be institutions offering credible short-duration programmes that provide skills for development opportunities as well as remedial education—to make sure that those coming out of variable quality secondary schools have the opportunity to succeed in the higher education environment. Fourth, geographical mapping of HEIs should be done to identify habitations and settlements that lack higher education facilities. Expansion at the State or district level should be planned to develop diverse types of institutions of higher education depending on the opportunities for employment and

the size of the student body passing out at the higher secondary level.

21.208. While expanding capacity, costs have to be kept low while maintaining high quality. This can be achieved by ensuring that expansion primarily takes place by increasing the capacity of existing institutions. Several universities and colleges operate sub-optimally with just a few hundred students. Several specific strategies could be adopted for optimal operations. First, existing physical facilities can be used more efficiently through scheduling with multiple shifts and year-round operations. Second, high-cost full-time faculty can be engaged in high-value teaching while specially trained teaching assistants or adjunct faculty could be used for tutorials and online courses that are blended with face-to-face instruction.

21.209. Third, the land, which has become a binding constraint for setting up new campuses, should be efficiently used. Norms for land area requirement should be reviewed, keeping in mind energy and environmental impact, while affording adequate physical space for learning. The advent of new teaching technologies must be factored in the way, classrooms, laboratories and libraries are designed. Institutions, particularly in urban agglomerations, would be encouraged to consolidate capacity through mergers. The more reputed institutions would be encouraged to establish multiple campuses and benefit from the economies of scale and scope. And finally, there is benefit in co-locating institutions in large education or integrated hubs that would incubate and nurture talent, create innovation ecosystem and foster entrepreneurship. A few large education clusters would be established during the Twelfth Plan. These could be anchored by public and/or private universities with other higher education institutions and knowledge intensive industries in close proximity. This would facilitate and enhance interactions and collaborations across different higher education institutions and firms.

TWELFTH PLAN EXPANSION INITIATIVES

21.210. The Twelfth Plan initiatives would be designed to implement these strategic objectives

through new and continuing initiatives. The specific major Twelfth Plan initiatives are as follows:

Develop Central Institutions as Quality-Leading Institutions

21.211. Enrolment in Central institutions will be increased from 6 lakh to 12 lakh students mainly within existing Central institutions. Only research and innovation based institutions or exemplar institutions would be established in the Central sector or supported by the Central Government (see Box 21.8). Older Central institutions will be financially supported to redevelop campuses to achieve scale and build state-of-the-art facilities. In some cases, multiple campuses would be encouraged to enable economies of scale and institutional efficiency. The campuses to be upgraded during the Twelfth Plan would include ISM Dhanbad to IIT-level, BESU Shibpur to an Indian Institute of Engineering, Science and Technology, and NIFFT Ranchi as a premier institution for forging and foundry technology. HEIs with potential in the UTs that come under the Central Government (through the Ministry of Home Affairs) and have potential like the PEC University of Technology and Chandigarh College of Architecture would also be upgraded.

21.212. Central institutions should become catalytic role models for other institutions in all aspects including governance, infrastructure, faculty and curricula. For instance, in infrastructural development, they can help define new building technologies, the use of fixed-cost and time EPC contracts

and PPP models for the basic infrastructure. They will thus assist other institutions to improve standards, particularly in the States or regions where they are located. Co-location of State and private institutions and other enterprises with new Central institutions could build vibrant innovation clusters.

Strategic Support for State Higher Education

21.213. Central funding for State higher education is small; its reach is limited, and its impact insignificant. It is poorly coordinated and plagued by excessive bureaucracy, inefficiencies, low levels of monitoring and poor quality of outcomes. It therefore, provides little value for money. During the Twelfth Plan, State higher education would be provided significantly more Central funding. There will be a strategic shift in the manner in which State higher education systems are supported by the Central Government. Central funding for higher education will be done on a State-specific basis and allocated for the State's higher education system as a whole, even though it would flow to individual universities and colleges via the UGC as before. Details for allocation and flow of Central funds to State universities and colleges would be worked out through a consultative process. The UGC would play an important and more strategic role in allocation and disbursement of Central funds, particularly in funding strategic investment plans as proposed by institutions on a selective basis (see Box 21.9).

21.214. The goal of Central funding of State higher education should be to benefit from the synergies

Box 21.8

TISS: A Multi-Location Networked University

Tata Institute of Social Sciences has expanded rapidly since 2006 and emerged as a multi-location networked university for social sciences. It has enlarged its research base in social sciences and diversified its course offerings to provide access to a much larger body of students in various trans-disciplinary areas across the country. The capacity of its Mumbai Campus increased from 200 masters and 50 doctoral students in 2006 to 1,650 masters and 350 doctoral students in 2012; with a corresponding increase in the range of courses it offers. The Institute has established three campuses at Tuljapur (operational since 2004) and at Hyderabad and Guwahati, each of them will have about 1,000 students each by 2016. This expansion has been funded largely from resources mobilised through Indian trusts and foundations that have so far contributed about 130 crore with Central Government putting in another 26 cr. In addition, the Institute mobilised over ₹200 crore for research work and to set up new academic programs. Further, the Institute has collaborative research, faculty and student exchange programs with over 60 universities and institutions in the country—each of the collaboration is supported by competitive funding secured by the institute that enabled exchange at no extra cost to its students.

Box 21.9
Strategic Shift in Central Funding for State Higher Education

- Enable a State system-wide planning perspective and benefit from the synergy in spending by the Central and State Government.
- States to develop comprehensive State higher education plans that utilise an interconnected strategy to address issues of expansion, equity and excellence together.
- Central funding to be linked to academic, administrative and financial reforms of State higher education.
- Funding to be provided through a flagship programme: Rashtriya Uchcha Shiksha Abhiyan (RUSA).

between State and Central spending and to more effectively use Central funding to bring about administrative, academic and financial reforms in State systems, and as a powerful tool to address equity issues and improve quality at the State level.

Quality Private Growth

21.215. The Private sector has contributed significantly to higher education expansion during the Eleventh Plan and private higher education now accounts for 58.5 per cent of enrolments. The private sector will be encouraged to establish larger and higher quality institutions in the Twelfth Plan. Currently, for-profit entities are not permitted in higher education and the non-profit or philanthropy-driven institutions are unable to scale-up enough to bridge the demand–supply gap in higher education. Therefore, the ‘not-for-profit’ status in higher education should, perhaps, be re-examined for pragmatic considerations so as to allow the entry of for-profit institutions in select areas where acute shortages persist. This should, however, be subjected to the necessary oversight and accreditation arrangements to ensure quality and equity. For-profit private higher education can be taxed and the revenue from it can be channelled into large scale scholarship programme to promote equity as is practised in Brazil and China.

21.216. At the same time, innovative ways have to be found to encourage the infusion of more private capital in the traditional not-for-profit higher education. Some proposals that require serious consideration include: (i) enabling liberal financing options for the sector, like allowing private institutions to raise funds through public offerings of bonds or shares; (ii) changing the legal status of the sector to attract more investors, like allowing all types of institutions

to be established under Section 25 of the companies Act and allowing existing trusts and societies to convert to institution under Section 25 of the companies Act; (iii) giving priority recognition to the sector, like providing it ‘infrastructure’ status with similar, financial and tax treatment.

21.217. The government could support non-profit private institutions in three ways—(i) access to public student financial aid would be extended to accredited private institutions; (ii) access to research funding will be on an equal footing with public institutions with suitable protection for intellectual property derived from such research; and (iii) private institutions would benefit from various long-term quality enhancement efforts like enhanced use of technology and faculty development initiatives. The corporate sector could be involved in higher education and their large in-house training capacities, particularly in skill development and management, could be leveraged to improve access to higher education.

21.218. Simultaneously, measures to ensure that private institutions are committed to quality, equity and transparency will be introduced through reform of regulatory oversight. The current regulatory framework needs to be revamped to: (i) encourage serious private philanthropy and investment to innovate and provide high-quality education; (ii) promote better availability of information on private institutions to the public; (iii) ensure that institutions that indulge in unfair practices are dealt with swiftly. Accreditation will be central to such reforms.

21.219. New models of Public–Private Partnerships (PPP) in higher education will be encouraged in the Twelfth Plan, particularly in the establishment of research and innovation institutions. Based on

the Eleventh Plan experience of setting up Indian Institutes of Information Technology (IIITs) and polytechnics in PPP mode, a framework will be put in place to encourage the spread and growth of PPP models, increase and improve resource utilisation and enhance the quality of education in such institutions. In some cases, public institutions that are failing to meet standards could be assisted by the private partners to transform them through innovative PPP models.

Expansion of Skill-Based Programmes

21.220. Special emphasis will be placed on expansion of skill-based programmes in higher education during the Twelfth Plan. A framework for setting up community colleges based on the North American model is under development and has been endorsed in principle by the Central Advisory Body on Education (see Box 21.10).

21.221. Community Colleges can serve multiple needs, including (i) provide career oriented education and skills to students interested in directly entering the workforce; (ii) provide contracted training and education programmes for local employers; (iii) provide high-touch remedial education for secondary school graduates not ready to enrol in traditional colleges, giving them a path to transfer to three or four year institutions; (iv) offer general interest courses to the community for personal development and

interest. Given these objectives, community colleges would be located to afford easy access to underprivileged students. Such colleges could either be established as affiliated colleges of universities governed, guided and managed through a 'Department of Skills and Lifelong Learning' (DSL) or as entirely autonomous institutions linked to sector-skill councils.

21.222. Ongoing UGC initiative that supports career-oriented add-on courses in traditional universities and colleges and the IGNOU's scheme of community colleges would be reviewed. Technical support of Philanthropic Foundations and the Indian Centre for Research and Development of Community Education (which has 230 community colleges in its fold) would be taken to build on the current initiatives and create a robust framework for skill-based education within the higher education sector in the country. This could include institutional arrangements for recognition of prior learning.

Open and Distance Learning Initiatives

21.223. Open and Distance Learning (ODL) will be used to widen access and significantly expand capacity in a cost-effective and flexible manner. During the Twelfth Plan, support to IGNOU, State open universities and other institutions of distance education will be increased to expand access particularly for those beyond the normal schooling age. Such programmes will be regularly evaluated for learning

Box 21.10

Concept and Framework for Establishing Community Colleges

- Community Colleges will provide modular credit-based courses with entry and exit flexibility that conforms to the National Skills Qualifications Framework (NSQF).
- They will offer programmes leading to certificates (after one year), diplomas, advanced diplomas or associate degrees (after two years) with options to transfer to regular degree programmes.
- Their curricula will include an appropriate mix of academic and vocational skills and will be aligned to national occupational standards determined by employer-led sector skill councils.
- The assessment of vocational skills and training provided by Community Colleges will be done in accordance with assessment protocols developed by sector skill councils.
- Their faculty will typically consist of a permanent core, who will teach fundamentals (language, mathematics, science) and a large pool of adjunct or part-time faculty who will focus on specialisations.
- Well-designed online offerings would be integrated with face-to-face instruction to enhance and maintain quality.
- Community Colleges will be located in habitations with large potential student population.
- There will be local community involvement in their academic and administrative boards.
- They could be established in the premises of existing colleges, polytechnics, or even higher secondary schools and use online training and industry sites, wherever possible.

outcomes so that curricula and pedagogical changes can be made on an ongoing basis. In the face of growing concern about the quality of ODL programmes, regulatory oversight would be strengthened during the Twelfth Plan. Traditional institutions will be encouraged to offer part of their curriculum online to promote blended learning and provide students more choices while keeping costs low. This would also enable them to reach out to more students and non-traditional learners.

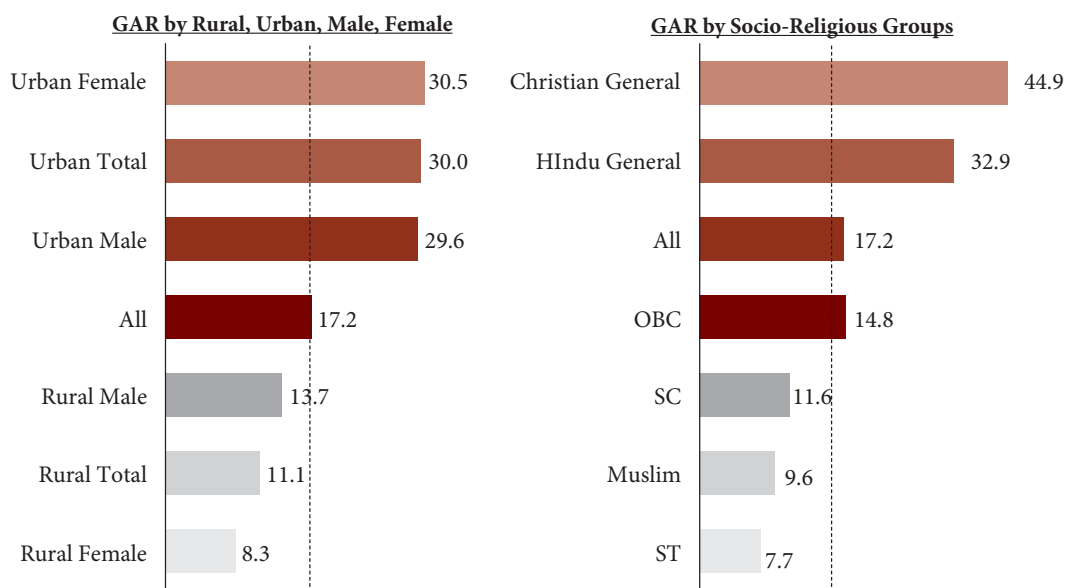
EQUITY IN ACCESS TO HIGHER EDUCATION

Multi-Dimensional Inequalities

21.224. Equitable access to quality higher education is an essential prerequisite for realising the Constitutional promise of 'Equality of Opportunity' as well as achieving the goal of inclusive development in the Twelfth Plan. However, many of these imbalances occur at the school level due to low enrolments and high dropouts amongst the deprived, underprivileged and marginalised sections. Thus, only a limited pool of such students is available for entry into higher education. As a result, a large proportion of seats in higher education reserved for SC, ST, OBC, and persons with disabilities remain unfilled (see Figure 21.5).

21.225. The data on Gross Attendance Ratio for 2007–08 confirms that higher education access for all disadvantaged social groups is well below the national average of 17.2 per cent. As Figure 21.5 shows, despite substantial overall improvement, the broad picture of inter-group inequality has changed only marginally. While access to higher education has improved for all social groups, including the disadvantaged, their relative disparities have not reduced substantially. These inequalities are not one dimensional: gender, disability, class, caste, religion, locality and region are some of the principal dimensions of inequality and when more than one of these conditions exist, their impact is compounded. Access to higher education, especially to prestigious programmes and institutions that are in demand, continues to reflect inherited social privileges.

21.226. The participation of SCs, STs and OBCs in higher education is significantly lower than the national average. The low percentage of students from the SC/ST and OBC categories in the domain of higher education is an acute problem that still persists and pulls the country backward. As per data of NSS 64th round, GER in the ST category is one-fourth that of general category students. It is less than half for the SC and more than half for the OBC



Source: Graph drawn from various sources like UGC, AICTE, NCTE, MHRD and INC.

FIGURE 21.5: Gross Attendance Ratio, 2007–08

students. When compared with the 2004–05 data, there is improvement in the educational levels of SC and the OBC groups, but a lowering of the figures for the ST group.

21.227. As higher education expands, more students will come from hitherto marginalised sections of society. HEIs must gear themselves to face the challenge of catering to the needs of such students to further reduce inequalities in access. The higher education system must:

1. Facilitate entry of the socially disadvantaged into HEIs and, in the case of some extremely disadvantaged communities, devise incentives that would allow ‘over-drawing’ from this currently small pool of eligible students.
2. Support retention of those disadvantaged students who enter higher education by ensuring that they do not drop out for lack of resources and inadequate academic preparation.
3. Enhance the quality of learning of disadvantaged students and provide guidance and support to improve their chances of entering disciplines that ensure decent employment opportunities or gaining admission to postgraduate degrees at top institutions.
4. Use the ‘community college’ as a key vehicle for entry into regular higher education by way of widely located, community-based institutions offering relevant education of high quality.

ELEVENTH PLAN EXPERIENCE

21.228. Several measures were initiated in the Eleventh Plan to achieve the goals of equity and inclusion. Centrally funded institutions received special financial assistance to increase the intake of disadvantaged groups and provide 27 per cent reservation for OBCs without affecting the number of general seats. Establishment of 374 colleges in low GER districts and setting up of 1,000 new polytechnics was taken up. Universities and colleges located in border, hilly, remote, small towns, and educationally backward areas and those with larger SC/ST/OBC/Minority/Persons with Disabilities student population were supported. Construction of a large

number of girls’ hostels was taken up to encourage girls to enrol in HEIs.

21.229. Merit-cum-means scholarships for students from families with annual incomes less than ₹4.5 lakh were started in 2008–09. Since 2009–10 the Central Government has provided 100 per cent interest subsidy during the moratorium period on educational loans taken by students with family income of less than ₹4.5 lakh per annum. A review of these initiatives and previous experience provides the following basic lessons:

- despite progress, relative disparities across various social groups and gender gaps in educational attainments continue to be high even today and area/beneficiary targeted approaches and specific interventions are necessary to narrow these inequalities;
- a substantial increase in funding is needed to achieve a quantum jump in the volume, range and amount of student support in the form of scholarships, stipends, assistantships and loans for disadvantaged students;
- the funding mechanisms for such aid should be structured in such a way that money follows the students for whom it is meant;
- it is necessary to have differentiated access strategies for different groups and in particular for those extremely disadvantaged communities/social groups that still remain largely excluded from the world of higher learning;
- special attention needs to be paid to measuring and redressing inequalities in high-end courses and institutions;
- special emphasis should be put on those schemes that recognise the intersectional nature of disadvantages to address all dimensions of inequality in a holistic manner;
- the delivery system for financial aid needs revamping to remove cumbersome processes and promote awareness of the schemes among the intended recipients;
- there is a need for mechanisms such as a ‘Diversity Index’ to monitor equity performance of institutions and to link it with monetary incentives.

TWELFTH PLAN STRATEGY

21.230. The thrust of the Twelfth Plan will be to achieve a quantum jump in the number, range and amount of student financial aid schemes in order to (i) significantly enhance funding for equity-related measures; (ii) evolve a differential response to the various dimensions of inequality; (iii) consolidate a range of schemes, especially those which address the intersection of more than one dimension of disadvantage.

21.231. The Plan will pay special attention to inter-State variations, the rural-urban divide, income inequality, gender disparities, persons with disabilities, marginal social groups such as SC, ST, Muslims, and the especially vulnerable sub-groups such as communities involved in scavenging, particularly vulnerable STs, most backward SEBCs and Nomadic/DNT communities. Muslim disadvantage has been highlighted by the Sachar Committee report and the needs of communities engaged in scavenging and DNT/Nomadic communities have also received a lot of attention in recent times. Inter-sectional dimensions of inequality shall be recognised by linking individual-oriented schemes to a multi-dimensional 'Index of Disadvantage'. HEIs would be encouraged to craft their admission policies to address inter-sectional dimensions of inequality as is practised by Jawaharlal Nehru University for over three decades now. The performance of institutions in increasing the participation of disadvantaged groups could be measured through a 'Diversity Index' and linked to budgetary incentives.

21.232. The reach of scholarships and student loans with government guarantees would be universalised so that no student is deprived of higher education opportunities for financial reasons. This will be complemented by schemes tailored to the specific needs of different groups. Attention to measures like improving the quality of teaching-learning in Indian languages should also be initiated in order to address the language-based dimension of inequality.

TWELFTH PLAN INITIATIVES

Creation of a Comprehensive Student Financial Aid Programme

21.233. Public spending on student financial aid would be enhanced considerably so as to increase the number and amount of scholarships. All student financial aid schemes under the Ministry of HRD would be consolidated under a single 'Student Financial Aid Programme' in order to rationalise and strengthen the administration of equity-related schemes by bringing them under a single umbrella initiative (see Box 21.11). An Empowered Committee would decide on guidelines for each of the scholarships keeping in mind the need for avoiding overlap and enhancing impact.

21.234. In addition to the Student Financial Aid Program, which focuses on scholarships, the Central Government will take significant steps to support student loan programs. A student loan guarantee corpus would be created under the management of a Credit Guarantee Trust to guarantee against default

Box 21.11 Student Financial Aid Programme (SFAP)

- Cover higher education at all levels—undergraduate, postgraduate, doctoral and post-doctoral research and include general as well as professional education;
- Cover significant costs of education in determining scholarship amounts and establish a mechanism to linking its revision to change in price index;
- Earmark a fixed proportion of these scholarships for SC, ST, SEBC, Minorities and Person with Disabilities as per the existing policy;
- Create a multi-dimensional 'Index of Disadvantage' that measures the inter-sectional dimensions of inequality that gives due weight to caste/community, gender, poverty and rural background and provide additional scholarships and individual-oriented financial aid schemes linked to such an Index;
- Simplify processes, self-certification and linkages to the unique identity numbers under the UID scheme; and
- Implement a single portal for delivery of all scholarships under the Central Government and explore the possibility of allowing States to join and integrate their student financial aid programmes with this single portal.

in repayment of student loans. This will substantially protect lending institutions from student default thereby encouraging them to make more student loans. In addition, the government guarantee should reduce the rate of interest on student loans (it should be only slightly more than the yield on comparable 10-year Government Securities) benefitting the student community at large.

National Initiative on Inclusion of Persons with Disabilities

21.235. All ongoing and several new initiatives for inclusion of persons with disabilities shall be covered under an umbrella National Initiative on Inclusion of Persons with Disabilities in higher education. This initiative would:

1. provide incentives and support to individual students and faculty with disabilities;
2. give support and policy direction to HEIs and services to make them disabled-friendly and create model universities and colleges at the State and district levels;
3. use new technologies effectively to address challenges of learning for persons with disabilities through various access devices and high quality learning materials;
4. create curricula, and provide research and training-related support to enhance awareness, knowledge and sensitivity about disability issues;
5. specify minimum standards of disability access that must be met by all physical infrastructures offering higher education.

National Initiative for Quality Higher Education in Indian Languages

21.236. The proposed national initiative (the 'Bhasha Initiative') recognises that language connects access and equity with quality of education and thus improving quality of teaching-learning in Indian languages is a cost-effective and sustainable intervention for reducing inequalities. This initiative is aimed at coordinating all the agencies that promote Indian languages with the aim of enhancing the teaching-learning process with Indian languages as the medium of instruction and promoting original research and publication in Indian languages in

colleges and universities. This initiative would have effective linkages with the other ongoing and new activities for language development and book promotion. This decentralised, flexible, and user-driven initiative would include setting up of new centres within and across universities, creation of teaching-learning resources, use of technology to create e-books and other learning media in Indian languages, career incentives and support for teachers and support for quality Indian languages publications in academic disciplines.

Focus on Muslims, SC, ST and OBCs

21.237. Schemes for establishing model degree colleges, community colleges and new polytechnics in the low GER districts would be modified to cover districts that have concentration of Muslims. Setting up of Women's Colleges in small towns and quantum jump in the capacity as also number of hostels for women would be given high priority. All these schemes should be included within the ambit of the State strategic plans for higher education to take into account the local context of each State.

21.238. Targeted schemes will be launched to draw students from Muslims that have low participation in higher education. These schemes will have to combine special incentives to the very tiny pool of school pass-outs from these communities (for example, scholarship from first degree to doctorate) with a pro-active approach to identification of beneficiaries with the help of non-governmental organisations working among these communities. Special scheme will be devised to support those HEIs in districts that have Muslim concentration. Particular emphasis will be given to educational opportunities for girls.

21.239. Despite a number of initiatives in the previous Plan periods, there is a staggering difference among different groups. Hence, a targeted approach with focus on SC and ST dominated regions and convergence of various equity schemes in a composite manner to address the educational needs of the disadvantaged sections including the OBCs will be critical to enhancing their inclusion in the mainstream of higher education. Given the co-existence of educational backwardness in both social and locational

factors, such as their greater presence in rural, hilly, geographically difficult to reach terrains, a synergy of efforts to address these multiple factors in a holistic manner will be significant.

Other Equity-Related Initiatives

21.240. Concerted efforts to increase the enrolment of students from disadvantaged communities will be supplemented by strengthening the current remedial teaching programmes with teaching/coaching modules, preparatory training and special coaching for entrance examinations to highly sought-after courses and institutions.

21.241. Schemes for establishing model colleges, community colleges and new polytechnics in low GER districts may be modified to cover minority concentrated districts and Fifth Schedule Districts with greater focus on States with low enrolment. Targeted schemes will be launched to draw students from especially vulnerable communities such as the most backward amongst the Muslim and the minority community. Given the negligible presence of such groups in higher education, these schemes will have to combine special incentives to the very tiny pool of school pass-outs from these communities with a pro-active approach to identification of beneficiaries with the help of non-governmental organisations working among these communities.

21.242. All equity-related schemes in higher education across different ministries under the Central Government would be brought under one umbrella, namely, 'Equal Opportunity for Higher Education Initiatives'. These would be coordinated by the Planning Commission to effectively monitor them and also take into account State-level initiatives.

EXCELLENCE AND IMPROVING ACADEMIC QUALITY

Criticality of Quality

21.243. Except at a few top-level institutions, quality is serious concern. The casual link between cognitive skills acquired through education and economic growth is now well-established. A major goal of the Twelfth Plan is, therefore, to improve the

overall quality of higher education in the country by improving the quality of the 'average' institution in the system.

21.244. Notwithstanding the growth of technical higher education, over half of students will enrol in general (meaning arts, science and commerce) undergraduate programmes. If properly imparted, general education could be an excellent foundation for successful knowledge-based careers. Therefore, focus should be primarily on improving the quality of general education. Graduates should be able to acquire skills beyond the basics of reading, writing and arithmetic (the '3Rs'). Critical thinking, communication, collaboration and creativity (the '4Cs') are increasingly important now. Special emphasis on verbal and written communication skills, especially, but not limited to, English would go a long way in improving the employability of the large and growing mass of disempowered youth. 'Professional' education that currently focuses on technical skills alone should adopt integrated curriculum with greater flexibility in choice of subjects and innovative pedagogic practices to improve its quality and enable better learning outcomes.

ELEVENTH PLAN EXPERIENCE

21.245. Several initiatives to improve quality were taken up in the Eleventh Plan. These were related to faculty issues, use of technology, academic and governance reforms and accreditation.

Faculty Initiatives

21.246. Measures taken during the Eleventh Plan to address faculty shortages, included (i) raising the retirement age of faculty to 65 years with provision for further extension to 70 years; (ii) institution of several fellowship and scholarship schemes for MPhil and PhD programmes; (iii) a faculty re-charge scheme to enable increased availability of young faculty; (iv) an initiative to enlist professionals and experts from outside academic institutions as adjunct faculty or scholars-in-residence; (v) a programme for post-doctoral fellowships for Indian scholars to augment faculty resources which will begin operations during the Twelfth Plan.

Technology Initiatives

21.247. The National Mission on Education through Information and Communication Technologies (NME-ICT) was launched during the Eleventh Plan. Under this initiative, 392 universities and 18,374 colleges were provided broadband connectivity. Ongoing initiatives for creation of e-content were strengthened and new initiatives were taken up. Virtual labs were developed for science and engineering and are currently being rolled out. Enterprise resource planning software for administrative and financial management of institutes and learning management system, both using open source software have been developed and are being tested by a number of institutions. A low-cost computing-cum-access device 'Aakash' was developed and is being currently tested for large-scale deployment. Overall, an investment of ₹1,472 crore was made on this mission during the Eleventh Plan.

Quality Initiatives

21.248. The first phase of the three-phase 'Technical Education Quality Improvement Programme (TEQIP)' with World Bank support was conducted from 2002 to 2009. With an investment of ₹1,378 crore, the programme covered 127 engineering institutions. Phase-II of TEQIP (2010–14), which extends into the Twelfth Plan, would cover another 180–190 institutions. Evaluation of the first phase has clearly shown a marked improvement in placement of graduates, more capacity in postgraduate and doctoral programmes and improved research performance.

Governance, Regulatory and Financial Initiatives

21.249. Several measures were taken during the Eleventh Plan to rationalise governance to promote innovative programmes and ensure standards, particularly in the areas of academic structure, interdisciplinary teaching and research, and accreditation. In order to promote interdisciplinary teaching and research both at the UG and PG levels, 417 departments of universities/colleges were provided financial support of up to ₹60 lakh during the Eleventh Plan. A few States adopted the semester system for their institutions and several universities, most notably University of Delhi, have shifted to the semester

system. While institutional accreditation through NAAC and programme accreditation through NBA gained momentum during the Eleventh Plan, the coverage is still small. Only about one-third (167 out of 516) eligible universities and about one-fifth (4,529 out of 22,500) eligible colleges have been accredited so far.

TWELFTH PLAN STRATEGY

21.250. Improving academic quality is a major objective of the Twelfth Plan. Higher education needs to prepare graduates not only for immediate employment but also for an economy in which most people will not only change jobs but also change careers several times in their lives. Hence, it requires inculcating the ability in students to think creatively, read critically, construct effective arguments using persuasive evidence, write clearly, remain flexible and look at issues with an open mind. This, in turn, requires the right curriculum, better teaching-learning processes, sharing of best practices nationally and internationally and the ability to impart a well-rounded and socially conscious education.

21.251. The Twelfth Plan strategy, therefore, includes a range of reforms aimed at improving the overall educational experience in HEIs. These include reforms in institutional organisation; reforms of pedagogy and curricula, particularly at the undergraduate level; and a focus on faculty and their work. These reforms would be supported by smarter use of technology, initiatives to promote internationalisation, the fostering of social responsibility in higher education, promotion of sports and wellness, increasing inter-institutional collaboration and coordination, and strengthening the accreditation system.

TWELFTH PLAN INITIATIVES

Reforming Institutional Organisation

21.252. During the Twelfth Plan, a five-pronged strategy will be adopted to reform the affiliating college system. First, large and reputed colleges with necessary capabilities and diverse learning streams will be converted into full-fledged universities. Second, college-cluster universities, under a new name, with each college working as a campus of

the university or its constituent unit will be created. Third, some of the large and unwieldy affiliating universities will be bifurcated or trifurcated into manageable units. Fourth, colleges desiring to scale up to leverage existing infrastructure and to offer new programmes would be allowed to consolidate through merger under an autonomous framework. Finally, affiliating universities will be required to revamp their college development councils and give greater autonomy to their colleges in all academic, administrative and financial matters.

Deepening Academic Reforms

21.253. The institutional framework to deepen academic reforms would include introduction of choice-based credit system, CCE, and regular revision of curricula for making them up-to-date and relevant to contemporary and future needs. To help institutions reform their courses, subject-specific model curricula and packaged, re-usable digitised content (such as packaged lectures and open source textbooks) would be created by instructors with the requisite expertise. This can best be done by subject-based networks such as Network of Social Work Education led by the Tata Institute of Social Sciences and the mathematics initiative taken by Delhi University. Such networks across subject areas would be encouraged. An important goal of these reforms would be to create active learning environments in colleges and universities.

Re-Crafting Undergraduate Education

21.254. Reforming undergraduate curriculum through funding and institutional support will be emphasised in the Twelfth Plan. Undergraduate programmes should provide a holistic education and give students opportunities for intellectual exploration, hands-on research, job skilling, experiential learning, creative thinking, leadership, ethics education, community service and more. In place of three-year programs, several institutions have introduced four-year undergraduate programs to achieve these multiple objectives. During the Twelfth Plan, four-year undergraduate programmes would be promoted. UGC currently provides financial support for starting specialised programmes in interdisciplinary and emerging areas, which could be strengthened

and could include support for four-year undergraduate programmes.

Focus on Teachers and Teaching

21.255. Due to rapid expansion, number of quality teachers in higher education is grossly inadequate. A doubling of faculty from the current 8 lakh to 16 lakh is envisaged during the Twelfth Plan. The large increase in capacity at the postgraduate and doctoral levels to enable this would require all institutions, whether Central, State or private to work in collaboration.

21.256. There is a common perception that higher education is a poorly paid profession in India. However, a recent survey¹⁴ of academic salaries across 28 countries shows that median academic salaries in India (on a purchasing power parity basis) are amongst the highest in the world. It is important, therefore, to correct the misperceptions about teaching careers in India in order to attract talent.

21.257. A large portion of those teaching in HEIs are currently casual or part-time academic staff and this is likely to continue. To improve their performance, improvements in their hiring practices and working conditions, and engaging them in faculty development programmes, including using online technologies for faculty development are needed. Most of the sixty-six Academic Staff Colleges (ASCs) established for faculty development have unfortunately not delivered. These were recently reviewed by NAAC. Based on the review findings, institutional weaknesses in the ASCs should be removed and a qualitative change in their content and methodology of faculty development must be brought about.

21.258. In addition to the ASCs, 'Teaching and Learning Centres (TLCs)' must be established in the country within existing universities, preferably those that have a strong research culture as well as large undergraduate programmes. During the Twelfth Plan, 50 such centres will be set up. In some cases the Academic Staff Colleges could also serve as a TLC.

21.259. To provide global exposure and thus facilitate adoption of innovations and best practices in

teaching and research, an International Faculty Development Programme would be launched. As part of this, Indian universities would be supported to organise 2–4 weeks summer workshops conducted by leading international teachers and researchers for select Indian post docs and faculty. Forty to fifty such workshops would be held annually on a range of topics and disciplines. Collaborations with foreign universities would be encouraged for organising such workshops. In addition, faculty in large numbers would be sent for three to six months to the best universities of the world for training and mentoring. An enabling policy framework would be put in place to attract faculty from abroad, particularly from amongst the overseas Indians teaching in universities abroad. Senior and tenured overseas faculty could be invited as international visiting professors by offering them attractive remuneration.

21.260. A programme to fund doctoral students to study at international institutions needs to be implemented, in return for commitments to join the faculty pool in India on completion of their studies. This could be supplemented by tapping the growing pool of retired experts. They could function as adjunct faculty and also enrol for doctoral degrees, for which current eligibility requirements could be waived.

21.261. Faculty motivation is crucial to improve academic quality. For faculty to be actively engaged in the teaching–learning process, they need control over their task, time, technique, and work environment, which is often not the case. Absence of basic amenities is one of the most de-motivating factors for a large section of faculty. The strategy for motivating faculty would focus on developing healthy work environment with high-quality minimum facilities and a flexible framework of accountability and performance evaluation. Consistent with international best practices, faculty selection, performance evaluation and promotion should be handled at the department level. New faculty may be kept under probation for a period of five years and confirmation could then be done on the basis of rigorous performance evaluation including peer review and student feedback.

21.262. Recognising the central role of teachers in improving academic quality, a ‘National Mission on Teachers and Teaching’ would be launched in the Twelfth Plan. This would address all the issues of teachers and teaching in a comprehensive manner and strengthen linkages between the school and higher education sectors. This would be organised under two sub-missions aimed at the school and the higher education sectors, respectively.

21.263. The sub-mission on higher education would pool all the ongoing initiatives and new initiatives on faculty development under one umbrella for their implementation and better monitoring. Under the sub-mission on school sector, the focus would be on expanding the capacity for preparation of teacher educators by setting up 30 Schools of Education in the university system. These schools of education would also conduct research and capacity building in curriculum, teaching–learning processes and assessment and evaluation systems. In addition, Schools of Academic Leadership will be established in select institutions.

21.264. The transformative potential of online learning is beginning to unfold now. From a few courses by a couple of elite universities, there are now global efforts to build massive online courseware by many of the world’s best universities. Given the acute shortage of faculty and the unlikelihood of our ability to overcome this severe constraint, technology would be leveraged by using these massive online courses so that the Indian students are a part of global learning systems at very low cost. The country’s efforts should be to contribute to this global repository, contextualise and perhaps translate these courses in the local languages to reach out to the maximum number of the students in the country.

National Mission on Use of ICT in Higher Education

21.265. During the Twelfth Plan various initiatives of the Eleventh Plan would be carried forward with an objective to make these programmes more effective, efficient and sustainable. These include:

1. Digital Infrastructure Initiatives: (i) upgrade connectivity for universities and colleges to 10GBPS and 1 GBPS, respectively; (ii) build computer labs in all institutions as required and increase availability of laptops and low-cost access devices for faculty and students; (iii) provide smart classrooms; (iii) set up classrooms with interactive video-conference facilities linking Meta-universities and affiliating universities; (iv) set up 100 server farms for cloud computing.
2. Content Initiatives: (i) develop virtual labs, to promote creation of user-generated content; (ii) establish a single national-level consortium for propriety content; (iii) create open access content repositories including interoperable institutional repositories; (iv) create platforms to facilitate user-generated content and related networks; (iv) create a single portal for access to all content; (v) continue current initiatives of DTH channels to telecast digital educational videos.
3. Governance Initiatives: (i) rollout institutional Enterprise Resource Planning (ERP); (ii) computerise examination wings of all universities; (ii) provide robust online linkage of all affiliating universities with their affiliated colleges; (iii) create online data collection system; (iv) library automation; (v) automation of grants management.
4. Training and Capacity-Building Initiatives: (i) train faculty in instructional design content creation; (ii) implement massive capacity-building efforts for adopting technology-mediated pedagogy in classrooms.

Technical Education Quality Improvement Programme

21.266. During the Twelfth Plan, the second phase of TEQIP would be continued and phase-3 of TEQIP would be launched. Under phase-3, focus would be on the 'eco-system' by supporting State Technical Universities introducing curriculum diversity and scaling up sector-wide programmes. This would ensure that the benefit of quality improvement interventions flow to all segments of technical education. The programme would also leverage synergy with other initiatives like the mission for teachers and teaching and mission for use of technology.

Architecture and town planning would be included in phase-3 of TEQIP. Separate and independent initiatives should be taken up for improving quality in other fields like management education, pharmacy education, and hotel management.

Language and Book Promotion Programmes

21.267. Promotion and development of Indian languages, including classical languages, English, and foreign languages will receive focused attention during the Twelfth Plan. Particular thrust would be on preservation, promotion and development of endangered languages which have less than 10,000 speakers. The National Translation Mission will be strengthened. There will be a focus on developing specialised courses in translation technology and related areas and capacity building of translators through short-term training programmes and language teaching programmes. Recognising the growing use of technology in knowledge delivery, promotion of e-books and digitisation of National Book Trust (NBT) books and records will be taken up during the Twelfth Plan. Capacity of NBT would be strengthened to discharge its new responsibilities.

Strengthening Intellectual Property Rights

21.268. During the Twelfth Plan, existing programmes under the Scheme of Intellectual Property Education Research and Public Outreach (IPERPO) will be continued. New Plan initiatives include: the setting up of new IPR Chairs, modernising the Copyright Office, and establishing a Centre for IPR studies. The rise of new electronic methods of publishing and distribution has resulted in an expansion of the scope of copyright issues internationally. The Copyright Board would be strengthened with experts in new and emerging areas of Copyright law as per the new Copyright (Amendment) Act, 2010 that came into force in June 2012. Copyright offices would also be modernised on the lines of other IPR offices like the Trademark office and the Patent office.

Higher Education Internationalisation

21.269. A strategy for higher education internationalisation to be developed during the Twelfth Plan would include faculty and student exchange programmes, institutional collaborations for teaching

and research, exposure to diverse teaching-learning models and enhanced use of ICTs. Globally compatible academic credit systems, curricula internationalisation and processes for mutual recognition of qualifications would be put in place. A professional national agency and on 'India International Education Centre' at New Delhi would be created to undertake internationalisation activities. It will support selected institutions to establish dedicated internationalisation units.

Fostering Social Responsibility in Higher Education

21.270. In the face of growing isolation of HEIs from society, there is a need for renewed effort for HEIs for genuinely engaging with community, conduct socially relevant research and education and foster social responsibility amongst students as part of their core mission. For this purpose, a National Initiative to Foster Social Responsibility in Higher Education would be launched. An Alliance for Community Engagement, an independent association of practitioners, academics and community leaders would be created to support its implementation.

Promoting Sports and Wellness

21.271. A National Initiative on Sports and Wellness would be launched in the Twelfth Plan. Activities under this initiative would include: (i) fitness and wellness programmes for all students; (ii) encouraging institutions to include physical education as a general institutional requirement; (iii) raising participation in competitive sports from the current 2 per cent of students to 10 per cent of students; (iv) creating and supporting departments and units for physical education in all institutions; (v) supporting creation of adequate sports infrastructure in institutions; (vi) encouraging development of a sports club system; (vii) establishing inter-disciplinary research centres on sports technology, sports medicine and sports management; (viii) creating an information network on sports.

Increase Inter-Institutional Collaboration and Coordination

21.272. In the Twelfth Plan, inter-institutional collaboration and coordination would be encouraged

to reap the benefit from synergies in capabilities and capacities and to create shared visions and agendas for excellence in teaching and research.

21.273. With a view to expanding student choice and increasing the design of innovative interdisciplinary programmes, a Meta-university framework as a network of universities would be promoted in the Twelfth Plan. This would enable several universities to come together and offer courses across disciplines, treat faculty and students from all institutions alike, and provide all network members access to content, teaching, and the research support they need. Massively open online courses (MOOCs) would also be encouraged under this framework.

Strengthening Accreditation System

21.274. Accreditation will play a central role in the regulatory arrangements for higher education under the Twelfth Plan. Accreditation will be mandatory with clear incentives and consequences. In order to handle large-volume accreditation, multiple accreditation bodies (in addition to NAAC for institutional accreditation and NBA for programme accreditation) would be established. In order to facilitate student mobility and academic articulation, it is important to develop easily comparable, comprehensible and consistent qualifications throughout the system. A new accreditation law that provides for accreditation by independent non-profit agencies registered with a national accreditation authority is currently under consideration. While, the proper institutional structure would only emerge once the new law is enacted, capacities of existing agencies, NAAC and NBA should be enhanced in the interim. Indian institutions would also be encouraged to obtain programmatic accreditation from a select group of credible international accrediting bodies.

RESEARCH AND INNOVATION

21.275. Research and innovation are now vital functions of higher education worldwide. The value of interdisciplinary research is recognised globally, as innovation is now happening at the intersections of disciplines. Collaboration is now central to innovation. Entrepreneurship that leverages innovation is also an increasingly integral part of

higher education systems. While all HEIs cannot be expected to become research-based institutions, it is vital that the country promote a research culture across all institutions while ensuring special support for those able to engage in state-of-the-art research.

21.276. The HEIs should contribute to the national innovation agenda, even when they are not research intensive—albeit in different ways. Teaching-focused institutions must train their students in the techniques of research so that the doors to research-based graduate education and employment are opened to them. Vocational institutions must enable the future workforce to engage at least in the ‘development’ component of R&D. It is essential that all institutions equip their graduates with core skills of critical thinking, communication, collaboration and creativity to enable the country to continuously innovate to adapt to new environments.

21.277. India’s research performance turned around in the last two decades, after over a decade of stagnation. An improvement in scientific output is evident both in absolute terms and relative to the comparison group. During the past 10 years, India’s overall share of publications in the world has risen from 2.8 per cent to 3.4 per cent, with a significant improvement in researcher productivity since 1999. India produces over twice as many scientific publications a year than it did a decade ago. Though dwarfed by China’s achievements, India’s output of publications has grown faster than that of Brazil and Russia.

21.278. There are indications that research quality has improved as well. India’s publications have accumulated 16,10,511 citations with 5.77 citations per paper, better than China, but still low compared to the world average of 10.81 citations per paper. The relative impact rose from 0.48 to 0.66 (world average being one). In 2009, India stood eleventh in terms of the number of papers published, seventeenth in terms of the number of citations, and thirty-fourth in terms of number of citations per paper as per the ISI Web of Science.

21.279. Notwithstanding such achievements, Indian higher education continues to have limited research

capacity. Low levels of funding and segregation of the country’s R&D institutions from universities and colleges have been responsible for the weak research capacity of Indian universities. It is disappointing to note that even the country’s top universities remain largely teaching-focused with limited research and doctoral education.

21.280. This lack of research orientation, even in the best of the Indian institutions, is reflected in their standing in global rankings, most of which rely heavily on measurable indices of research performance. No Indian university figured amongst the top 200 universities in the Times Higher Education (THE) Rankings or the Academic Ranking of World Universities (ARWU) for the year 2011. While it is neither necessary nor realistic to expect all institutions to achieve high levels of research excellence, a natural pyramid of quality excellence suggests that, if the average quality improves, then the best will enter the top leagues of research-intensive universities.

21.281. India’s output in PhDs was small at 10,781 in 2008–09, when compared against international peers. The total number of PhDs in science and engineering at 4,500 is miniscule as compared to the approximately 30,000 and 25,000 for China and the USA, respectively. In terms of innovation and the creation of intellectual property, Indians file and receive only a small number of worldwide patent applications (merely 11,937 applications filed by Indians compared to 2,41,546 by Chinese in 2009) and no Indian academic institution figures in the list of top applicants for patent filing.

21.282. Output measures related to publications, patents/licensing and spinoffs can provide some indications of research and innovation performance for research intensive institutions though even for them, these would be too narrow for gauging overall research performance. For less research intensive institutions, their contributions to innovation and economic development could derive from much less visible activities such as faculty consulting or development projects or education to instil students with creativity and entrepreneurship.

ELEVENTH PLAN EXPERIENCE

21.283. During the Eleventh Plan, several schemes for promoting excellence in academic research were implemented. A major scheme was to promote Basic Scientific Research (BSR). This included grants to departments and colleges for improving basic infrastructure; fellowships both for doctoral and post-doctoral work, networking centres, summer and winter schools, faculty recharge scheme, and promotion of research at the undergraduate level.

21.284. In addition, several new Central institutions with research focus were established in the Eleventh Plan. However, these initiatives tended to spread resources thinly and raised concerns about 'relevance' to needs and to innovation and entrepreneurship in particular. While national research institutions play key roles in meeting national needs in some key areas, much more could be done.

TWELFTH PLAN STRATEGY

21.285. In the Twelfth Plan, research efforts need to be more directly linked to the national development agenda and better connected to the needs of industry and society. Public R&D institutions should be permanently and closely coupled—including in governance structures—to local institutions of higher education. HEIs must, in turn, be the doors to collaborating with industry. There is also a need to look beyond an institutional focus for research productivity to a faculty focus, so as to enable creative faculty to build teams that cross the boundaries of institutions.

21.286. The Twelfth Plan would focus on the development of faculty, institutions, departments and centres of excellence in research and research training. Overall, investments in research will need to increase gradually from the current low level of less than 1 per cent of GDP to over 2 per cent nationally, with HEIs receiving a much higher share of research investments than before.

21.287. Emphasis will be laid on creating a better research infrastructure and work environment to attract the top talent from within the country and also bring back India's brightest graduates who left

the country to study abroad. Upper-tier institutions should be allowed to hire globally, including foreigners on permanent appointments, and provide compensatory benefits to those who relocate.

21.288. The governance and structure of doctoral education must be reviewed, as current programmes often sacrifice quality in the interests of rapid completion of the doctorate. Benchmarking doctoral programmes with global requirements on capacity to be developed is the key. Existing PhD programmes would be modernised, and new ones created, particularly in new institutions and those that require inter-disciplinary efforts.

21.289. There is a need for an overall increase in the level of research spending, more of which should be spent through HEIs which would provide multiple benefits. Concentrating significant resources in high-potential institutions and faculty through competition is necessary to create exemplars of global excellence. In funding research, social sciences require a greater boost given past neglect. The country must also put in place better mechanisms for university research capacity to lead to innovation, as has become the norm globally. This will require building university research capacity in areas of high potential, encouraging closer linkages between academia and industry, building institutional capacity to support academics to engage in innovation and commercialisation, and creating a dynamic ecosystem which can provide an enabling environment for innovation and entrepreneurship. There is a need for Indian institutions to build a range of institutional support mechanisms such as technology incubators, proof-of-concept centres, entrepreneurship programmes and technology transfer mechanisms within HEIs. Institutions should also be encouraged to build collaborative ties with private actors in the area of innovation and entrepreneurship including technology companies, venture capitalists, as well as national and international foundations.

21.290. During the Twelfth Plan, the country must develop objective and transparent research evaluation practices that are relevant to the national context and culture. To provide analytical underpinning

for research evaluation at national and institutional levels, a Centre for Research Evaluation within a research-intensive university could be established.

TWELFTH PLAN INITIATIVES

21.291. In the Twelfth Plan, universities at the top of the quality hierarchy would be identified and generously supported so they can reach the global top league. Equally important, promising faculty in all tiers of institutions will be identified through peer review and supported. Similarly centres of excellence within existing universities would be created. High-calibre faculty would be attracted from around the world on non-permanent teaching assignments and, similarly, Indian faculty would be provided exposure to teaching and research practices in the best universities from across the world. All related initiatives would be pooled to benefit from synergy under an 'India Excellence Initiative' during the Twelfth Plan. This would include:

Multi-Disciplinary Research Universities

21.292. During the Twelfth Plan, research universities with the capacity to engage in research and teaching in multiple disciplines will be promoted. A legislative framework to set up such universities termed 'Universities for Research and Innovation' is currently under consideration, with a target of 20 institutions by the end of the Twelfth Plan. These could be public or private universities or they could be set up as Public-Private Partnerships and may include both the conversion of existing institutions and new universities. Some may be mentored by existing world-class universities. At the core of achieving excellence is the ability of institutions to attract and retain high-quality faculty from across the world.

Centres of Excellence (CoE)

21.293. The Twelfth Plan will aim to create 20 Centres of Excellence as world-class research centres within existing universities and institutions of national repute. In addition, fifty (50) centres for training and research in the frontier areas of science and technology, social science and humanities would be established. The goal is to build the competencies of the host institutions in selected disciplines of

national importance. Collaborations with promising faculty across the nation will be encouraged.

NATIONAL INITIATIVES

21.294. A National Initiative for Excellence in Basic Sciences would cover the ongoing activities for promotion of basic scientific research that are being implemented by the UGC. A new National Initiative for Excellence in Social Sciences and Humanities would be launched to encourage bright students to choose programmes in the humanities and social sciences and improve the quality of teaching and research in these disciplines. An empowered committee may be constituted for revamping existing institutional funding and launching new schemes such as scholarships on the lines of INSPIRE scholarships for basic sciences, up-scaling doctoral and post-doctoral fellowships, flexible one-time support to existing centres of global excellence and creation of new Inter-University Centres.

21.295. A National Initiative for Innovation and Entrepreneurship will be launched. This initiative would (i) enable an environment that fosters innovation, value creation and technology transfer; (ii) aim at creating awareness and developing a culture for protection and management of IPRs in HEIs; (iii) help maximise benefits and returns from investments in research by developing partnerships amongst universities/institutes, R&D organisations and industry; (iv) creation of national research parks. This initiative would pool all related activities under the MHRD, UGC and AICTE and build synergy with similar activities, schemes and programmes under the Ministry of Science and Technology.

21.296. Design-centred innovation is a force multiplier that can help the country move up the value chain, making Indian industry globally competitive. In this context, a National Initiative for Design Innovation would be launched in the Twelfth Plan. Under this initiative, 20 new Design Innovation Centres (DIC), one Open Design School (ODS) and a National Design Innovation Network (NDIN), linking together all these schools, would be set up. ODS would ensure maximum reach of design education and practice in the country through various

collaborative education programmes (linking a broad spectrum of educational institutions), and free sharing of its courseware through the Internet. NDIN would be a network of design schools that work closely with other leading institutions of industry and academia, NGOs and government to further the reach and access of design education, to promote design innovation in all sectors, and to develop wide-ranging collaborative projects between institutions. ODS and NDIN would also raise the standards of design education and innovation in the country through various initiatives including the creation of fabrication labs and digital media zones across educational institutions on a large scale.

Promoting Collaborative Research

21.297. Driven by the success of the research-based Inter University Centres (IUCs) and their positive impact on the university system, several new research-based IUCs in different areas would be established in the Twelfth Plan. These areas would be broad, contemporary, inter-disciplinary and of strategic importance to the country, and would involve both basic and applied research. All research-based IUCs could be brought under an umbrella Governing Council, while each of them would have its own governing board.

21.298. In order to foster inter-disciplinary research, enhance research training and increase innovation capacity, about 10 Inter-Institutional Centres (IICs) would be established in the Twelfth Plan. These Centres could either emerge as broad partnership between multiple research-oriented institutions or programme-specific partnership between funding agencies and research institutions.

21.299. Excellence Clusters and Networks will be established by creating linkages between national laboratories/national research centres and the universities. During the Twelfth Plan, several of these cluster and networks would be supported through research funds earmarked for research teams involving two or more institutions.

21.300. Similarly, local alliances would be created in different cities and interaction across institutions in

such hubs would be enhanced through a structured, highly interactive and collaborative framework. The institutions would be incentivised to collaborate and allow their courses to be available for students of other institutions.

21.301. Even though the collaboration between the academia and the industry is now growing, but this continues to be low-key and has significant room for improvement. A systematic approach to strengthen the scale and scope of these partnerships would be adopted during the Twelfth Plan. For this, a nodal agency—potentially called the Council for Industry and Higher Education Collaboration (CIHEC)—would be established to promote and facilitate industry-higher education collaboration. CIHEC will be an independent not-for-profit organisation founded by contributions from industry and government and will comprise business and higher education leaders. The goals of the CIHEC span the entire higher education and research landscape including framework development, capacity creation, research, training, and certification. The corporate sector could participate in existing institutions of higher education by setting up institutes offering degree/non-degree programmes in specific fields, creating centres of excellence for research and postgraduate teaching, establish teaching–learning centres to train faculty. In addition, the Indian Corporate Higher Education Scholarship Fund with contribution from the corporate sector and the Indian Corporate R&D Fund jointly funded by the government and the corporate sector could also be established.

21.302. Finally, international research collaborations now hold the key to competitiveness in the global knowledge economy. Only a few top Indian institutions are currently engaged in international research collaborations. In the Twelfth Plan, special efforts would be made to strengthen international research linkages and involve a larger number of Indian institutions in forging such links. Such collaborations would leverage the 22 million-strong Indian Diaspora which is recognised worldwide as a powerful asset for research, innovation and entrepreneurship.

GOVERNANCE

21.303. The government needs to play a sensitive and less intrusive role in the governance and regulation of higher education than it does at present. In place of a uniform regulatory role in respect of all institutions, the government's role could be calibrated according to the type of institution involved. While, the government could have a promotional and evaluative role for upper-tier institutions, it may play a steering role in mid-tier institutions, and should actively regulate the lower-tier institutions. The governance structure should also enable institutions to increasingly differentiate themselves through course diversity, multi-disciplinary programmes and other approaches. Enabling differentiation requires a new regulatory structure that encompasses all fields of education rather than the current structure that separates the regulation of technical fields from other fields. In this context, a paradigm shift in governance is needed. It should shift from inspection-based processes to autonomy and accountability through independent third-party validation, regulation by mandatory self-disclosures, and objective evaluation schemes. The overall approach is to allow institutions to make their own policies and decisions within a broadly defined memorandum of understanding on performance.

National-Level Governance

21.304. Based on the recommendations of the National Knowledge Commission (2005) and the Committee on Renovation and Rejuvenation of Higher Education (2009), steps were initiated during the Eleventh Plan to create a new legislative framework and provide a new governance structure for higher education in the country. For this purpose, several new laws are currently under consideration. These include (i) The Prohibition of Unfair Practices in Technical Educational Institutions, Medical Educational Institutions and Universities Bill aimed at checking unfair practices relating to capitation fees and misleading advertising through mandatory disclosures by academic institutions; (ii) The National Accreditation Regulatory Authority for Higher Educational Institutions Bill that seeks to make accreditation by independent accreditation agencies mandatory for all higher educational

institutions; (iii) The Education Tribunals Bill to create a Central tribunal and State-level tribunals for expeditious resolution of disputes relating to institutions, faculty, students and regulatory authorities; (iv) Foreign Educational Institutions (Regulation of Entry and Operations) Bill to enable quality foreign education institutions to enter and operate in India and regulate operations of foreign education providers; (v) National Commission for Higher Education and Research (NCHER) Bill to create an umbrella regulatory authority subsuming the UGC, and current regulators, AICTE, NCTE and DEC; and (vi) The National Academic Depository Bill, 2011, to create a repository of all academic credentials in the country.

21.305. These new laws together reflect the Government's focus on quality, accountability, access, and inclusion and on preparing the country's higher education system for a more competitive globalising world. These reforms would enable and facilitate innovative and high-quality institutions to grow, while making it difficult for poor-quality institutions to operate. In the next few years, a new governance structure at the national-level consisting primarily of the NCHER, National- and State-level Tribunals and the National Authority for Accreditation would be in place.

21.306. In the meantime, the UGC and other regulatory agencies have an opportunity to revitalise themselves to ensure a smooth transition to the NCHER. In this context, a review of internal processes and staff capabilities is essential and agencies should draw up year-wise transformative action plans. In addition, the UGC could immediately implement a number of innovative financing schemes that could impact the state of higher education significantly. For example, (i) the UGC could shift from its current scheme-based approach to more effective programmatic interventions including norm-based financing of institutions; (ii) it could consider a move from historically determined detailed operational budgets to formula-based funding for general operations; (iii) it could start strategic funding of innovative programmes to promote certain activities/changes/investments based on institutional

proposals evaluated selectively and competitively; (iv) finally, the UGC or some other Central agency could further play a leading role in longitudinal profiling of students as they transition through the higher educational cycle into the workplace and could also play a role in institutional benchmarking on a longitudinal basis.

State-Level Governance

21.307. The structure of governance of higher education and their legislative framework varies widely across the States. All States will be encouraged to undertake a review of their current legislative and governance arrangements with a view to preparing themselves for the unique challenges they face in higher education.

21.308. It would be desirable for each State (except small States) to set up a State Council for Higher Education to lead the planned and coordinated development of higher education in the State and to foster sharing of resources between universities, benefit from synergy across institutions, lead academic and governance reforms at the institution level, maintain databanks on higher education and conduct research and evaluation studies. In small States, the main affiliating university can perform this role. Private universities and colleges form a bulk of higher education in several States. States could also establish independent agencies to regulate private HEIs.

Institutional Level Governance

21.309. Academic institutions primarily rely on individual initiative and creativity to develop their unique institutional culture and tradition over a long period of time. Principles of academic freedom, shared governance, meritocratic selection, promotion of diversity and institutional accountability are defining features of a well-governed academic institution. Moreover, the oversight, governance and management of HEIs should be closely tied to their mission. For this the current practice of treating all institutions alike will need to be abandoned. There is a need to move away from enforcing standardisation of education and processes to allow for diversity in institutional types, missions, resources and privileges. This would require a categorisation of

institutions of higher education, with each category of institutions being treated differently for purposes of academic regulation, governance and funding.

21.310. Empirical evidence suggests that better-run institutions are highly autonomous, especially when autonomy over academic matters vests with faculty. Autonomy in the areas of finance, organisational structure, operations and staffing is also important, but should be consistent with internal systems of evaluation and accountability and tied to the mission of the institution. Recently the Central Government has taken several measures to loosen its grip over institutions funded by it, as in the case of the Indian Institutes of Management, where the government no longer has any role in the selection of Board members. The Board plays the key role in the selection of the Director, though the final decision is still made by the government. The government has also explicitly promoted autonomy in State-funded institutions through programmes like the Technical Education Quality Improvement Programme. This process of freeing public institutions from government controls would be continued in the Twelfth Plan. This would be based on a framework for autonomy on all its five dimensions.

21.311. Institutional autonomy and external discipline arising from competitive grants and competition for students and faculty go hand in hand. For effective institutional governance, there is a need to shift towards smaller and more effective governing bodies that have several external experts that the universities select themselves, faculty representation and alumni that value the reputation of the institution. Given the potential positive contribution that the alumni can make in the growth of institutions, well-established institutions, with over 10 years in existence should have a fair representation of the alumni in their governing bodies. Overall, competition amongst institutions with nimble and professional governing boards responsive to external change would be encouraged in the Twelfth Plan.

Developing Academic Leadership

21.312. During the Twelfth Plan, an ecosystem for scholarship and development of professional

academic leadership in higher education would be created. For this, an 'Institute for Academic Leadership in Higher Education' could be co-located within NUEPA or any other institution of higher education. This institute would function as a hub with university-based 'Academy for Leadership Development' as nodes. At least five such academies would be set up in the Twelfth Plan.

Student Services and Admissions

21.313. Student affairs and services receive scant attention and are plagued by lack of professionalism in Indian higher education. The Twelfth Plan focuses on supporting universities and colleges to address the basic personal needs of students by providing them a comprehensive set of out-of-classroom student services.

21.314. Since HEIs fall under multiple agencies, reliable and current information about institutions is not available in any one place and information provided by regulatory agencies is not in a student-friendly format. As a result, students and their parents often rely upon brokers/agents, and promotion materials in the selection of institutions. Such information is often unreliable. The Prohibition of Unfair Practices in Technical Educational Institutions, Medical Educational Institutions and Universities Bill has provisions that can take care of such admission-related unfair practices and maladies. The Bill is under consideration. However, until the law comes into force, a centralised portal may be created to provide accurate and current information about institutions and courses to students and parents in a way that helps them in the process of decision-making with respect to institutions and courses for admissions.

21.315. There is also a very obvious need to reform the overall admissions process in the country. The multiplicity of admissions tests has resulted in large-scale coaching, often at the cost of regular education. The country should move towards fewer admissions tests, each of which should be conducted in a transparent and objective manner. Universities should be provided the autonomy to set their own admissions criteria and utilise the results of the nationwide tests for their admissions process as appropriate to their

academic mission and admissions philosophy. This would align students with the right institution, significantly reduce hardships on students and reduce admission-related unfair practices.

FINANCING STRATEGY

Review of Funding Trends

21.316. India faces a huge challenge to fund its rapidly growing higher education sector. Overall, the country spent about 1.22 per cent of its GDP on higher education in 2011–12. Household spending and investments by the private sector have grown more rapidly than government spending on higher education in recent years. Government spending, and particularly State Government spending, has fallen far short of the funding requirement in the face of a dramatic expansion of the system and the rising expectations of the people in terms of quality, equity and access. The Central and the State Governments jointly fund higher education. The Central Government's share is about 30 per cent, while the State Governments spend the balance 70 per cent mostly under the non-Plan head. Table 21.13 shows the funding responsibilities of Central and State Governments for the country's universities and colleges.

TABLE 21.13
Funding Responsibility for Universities and Colleges

Funding Responsibility	Universities	Colleges
Central govt. (both Plan and Non-Plan)	152	69
Central govt. (Plan only for State institutions via UGC)	144	6,285
State govt. (both Plan and Non-Plan)	316	13,024
No funding from Central or State Govt(s)	191	19,930

Source: Planning Commission.

21.317. Overall, Central funding of State institutions is meagre. Together the State systems enrolled 15 times more students than Central institutions, but received only one-third of the Plan grants during the Eleventh Plan. Half of the Central Plan funds (₹20,630 crore) went to Central institutions, with State universities, colleges and polytechnics receiving

just about ₹10,446 crore. In addition, Central institutions received about ₹25,000 crore as non-Plan grants during the Eleventh Plan period, while the State institutions do not receive any non-Plan grants. Consequently, State universities and colleges face serious financial difficulties that often result in poor quality.

21.318. The government spending on higher education has grown steadily over the years. Central Plan spending grew most rapidly from ₹1,600 crore in 2005–06 to ₹13,100 crore (over eight times), while State Plan funding increased much less. On the non-Plan side, while Central spending increased two and a half times, State non-Plan funding just about doubled during the same period. Thus, State Government spending has been growing slower than Central spending and the rise in funding levels do not match the rapid expansion of the State higher education systems.

21.319. The share of education in total Plan outlay increased from mere 6.7 per cent in the Tenth Plan to 19.4 per cent for the Eleventh Plan, of which 30 per cent was earmarked for higher education. This was a nine-fold increase over the Tenth Plan—₹84,943 crore against ₹9,600 crore during the Tenth Plan. Actual expenditure during the Eleventh Plan has been ₹39,647 crore (45.6 per cent of the Plan outlay). This was mainly due to the fact that funds were not allocated as per the approved outlays. It may be worthwhile to note that there is a committed investment of over ₹53,200 crore for activities initiated in the Eleventh Plan. A large part of this would in new Central institutions established during the Eleventh Plan, where investment so far has been very small.

Twelfth Plan Strategy

21.320. Higher education requires significantly larger investments to deliver on the multiple objectives and to achieve the various goals set out in the Twelfth Plan. This investment has to come from both public and private sources and from both Central and State exchequers. The role of Central Plan funds for higher education is critical not only to revamp Central institutions so that they can play national leadership roles in delivering three Es, but

also to leverage desired change in the entire system of higher education. This will include serious investments in building key institutions such as accreditation and funding bodies and mechanisms, so that they can take on the strategic central roles effectively. A continued and significant increase in Central Plan funds including investments to promote better implementation capacity is essential.

21.321. The Twelfth Plan advocates a paradigm shift in funding from demand-based grants and input-based budgeting to normative and entitlement-based grants and outcome-based budgeting. For example, block grants should replace line-item budgets and Plan allocations should be based on long-term strategic plans developed by the institutions. Consequently, annual funding should be linked to the performance of institutions against the milestones and targets laid down in their strategic plans. In turn, institutions need to provide complete transparency about their financial performance and use of funds by putting their financial statements online. All institutions should implement the recently finalised accounting standards developed by ICAI that lay down a common format for the reporting of financial statements.

Public Funding

21.322. Funding from both the Central and the State Governments has to be significantly increased and efficiency of its utilisation improved during the Twelfth Plan. The Plan should target public spending on higher education to reach 1.5 per cent of the GDP from the current 1.22 per cent. For this, the Central Government has to use its Plan funds strategically to encourage greater State funding and promote efficiency in expenditure.

21.323. During the Twelfth Plan, the States would be encouraged to draw up strategic plans for higher education. Such plans should be comprehensive and take a holistic view of increased demand pressure with improvements in the school system and greater need for more qualified people from the economy and the labour market. An institutional mechanism for joint funding of State plans by the Central and the State Governments would be evolved and there

would be a joint review mechanism to ensure proper use of funds. Central funding would be linked to governance and academic reforms in the State system that would focus on building overall system capacity.

Institutional Fee Structure

21.324. While, about 60 per cent students are enrolled in private unaided institutions and pay full fees, the remaining 40 per cent are enrolled in public-funded institutions and usually pay very low fees. Central universities, particularly that are Delhi-based, have not raised the fees for decades, while several State universities have raised the fees to reasonable levels. Maintaining low levels of fees is not sustainable; in fact, it is regressive since it often tends to benefit the better-off students. With growing prosperity, rising household incomes and strong family values, more and more households are now willing to pay higher fees. Hence, the process of raising fees, which started with the elite Central institutions like the IIMs and IITs raising their fees in recent years, should be continued and brought to reasonable levels. This should eventually cover all Central institutions. Similarly, State Governments should also be encouraged to raise fees to reasonable and sustainable levels in State universities and colleges. Some flexibility should also be provided to private institutions in matters related to fee fixation, which should be accompanied with transparency and provision of credible information about quality and fee levels to potential students.

Revenue from Other Sources

21.325. Institutions should be encouraged to mobilise resources through alternative sources so that student fees do not form the only source of revenue. They should be encouraged to seek funding from diverse stakeholders through external contracts/grants for research, consulting and/or training projects. The profile of external funding would be different across institutional types, with some having revenues from patent licensing, with others having greater incomes from short courses or consulting or even training. There is also a need to develop conducive framework to encourage endowment and promote culture of philanthropy in education sector in the country. Worldwide, individual and corporate donations have been a significant source of revenue for educational

institutions, a practice that should be encouraged and incentivised by the government. The focus can be on setting up empowered committees to devise and execute strategies to tap funds from individuals and corporates. Such funds can be targeted to be deployed for the purpose of specific projects like creating and running research centres for specialised subjects.

Twelfth Plan Outlay

21.326. During the Twelfth Plan, the focus will be on expansion by scaling up capacity of existing institutions, better targeting of equity initiatives and greater focus on improving quality and fostering excellence. Central institutions, in particular the new ones established in the Eleventh Plan, would require huge investments over the next few years for developing basic infrastructure and facilities to gain critical mass and make a meaningful impact. State universities and colleges that constitute the bulk of HEIs are poorly funded and suffer from acute quality deficit. A quantum jump in Central funding for State universities and colleges is envisaged. This funding would be strategically used to foster academic and administrative reforms, address challenges and fill in the gaps in the overall State plans for higher education. In addition, a separate outlay has been kept for creation of a large-scale ecosystem for skill-based higher education. A large outlay is needed for the revamped students' financial aid programme to significantly increase the reach of scholarships and education loans through government-backed guarantees as well as for various equity-related initiatives.

21.327. In addition, there are other ongoing schemes and initiatives of the Ministry of HRD, UGC and AICTE which require large outlays. These would also include the provision of flexi funds. Much of the focus is on consolidation and improving quality and focused interventions to address challenges of access, equity and excellence. Overall, an outlay ₹1,10,700 crore for higher education is proposed for the Twelfth Plan. This is merely 30 per cent more than the outlay in the Eleventh Plan, even though it is more than two and a half times the actual expenditure in the Eleventh Plan. Such a significant increase is justified because of the increasing demand for quality higher education driven by improved

schooling coupled with the shortfall in spending during the Eleventh Plan. A detailed matrix for the outlay is provided in the appendix.

21.328. About two-thirds of the increase in the Twelfth Plan outlays over the actual expenditure in the Eleventh Plan is accounted for by the following four major areas: (i) State universities and colleges (including polytechnics); (ii) equity initiatives (including student financial support); (iii) Central universities and institutions; and (iv) research and innovation initiatives.

IMPLEMENTATION, MONITORING AND EVALUATION

Implementation Framework

21.329. Specific interventions taken up during the Twelfth Plan would be aligned to the broad strategy spelt out in the Plan document. To overcome procedural bottlenecks, a system of empowered committees would be deployed wherever necessary. New structures and institutional mechanisms would also be created for coordination across ministries and agencies.

21.330. The implementation framework for the Twelfth Plan aims to:

1. Interlink expansion, equity and excellence, and focus on those programmes that serve as the locus at which more than one objective is met.
2. Bring down the walls that separate higher education from technical education with a focus on interdisciplinary action points.
3. Recognise State education systems as the principal site for expansion and focus on improving the average quality of State institutions.
4. Recognise that diverse disadvantaged groups suffer from different kinds of disadvantages and need specifically targeted interventions.
5. Revamp student financial aid programmes as the main channel for individual-focused equity schemes.
6. Recognise that fostering excellence is a multi-dimensional challenge requiring simultaneous action on many fronts.

7. Provide greater flexibility to the implementing agencies by grouping schemes under umbrella national initiatives.

Monitoring and Evaluation

21.331. Based on the implementation framework, it would be necessary to develop strategic indicators against various goals that clearly identify what would be measured. Monitoring of achievement of Twelfth Plan targets, annual and cumulative, may be done on the baseline data at the beginning of the Twelfth Plan. Monitoring would not be confined to the flow of funds and their utilisation, but will also include evaluation of programmes and initiatives for outcomes and impact. Services of independent evaluation agencies and researchers could be used for the purpose. Data on institutional performance on various parameters would be collected, compiled and shared. It is important that the practice to assess learning outcomes, to conduct student experience surveys, and to undertake longitudinal studies of students as they transition through the educational cycle into the workplace should be initiated. In order to globally benchmark Indian higher education, India should proactively participate in various international surveys and evaluations.

Higher Education Database Management System

21.332. The country lacks current and comprehensive data for evidence-based policymaking and effective planning. It would be critical to publish a comprehensive data book on the landscape of higher education with complete facts, figures and trends. This could include data across time and geography and should contain both State-level break-up and also inter-temporal trends. Data collection on higher education should be aligned to the International Standards Classification of Educational Data finalised by UNESCO recently. A classification framework of HEIs will also be necessary for getting a better sense of the institutional landscape in the country.

21.333. The Central Government is conducting an All India Survey on Higher Education. This should provide useful insights and can be the first step towards creating a comprehensive higher education

data management system. The onus of providing timely and reliable data on student enrolments and other strategic indicators/key metrics for a centralised web-based higher education data management system should rest with the educational institutions, whether public or private. The web-based higher education data management system should be used for tracking the progress of HEIs and for carrying out a variety of analysis leading to improved performance of HEIs. Also, the higher education data management system can be used for conducting surveys and generating additional data from educational institutions that could be used as inputs for higher education planning at the Central, State and institutional levels. Higher education database management system can also provide the desired data to various stakeholders such as national academic depository, planning bodies, research entities, students and other academic bodies.

Higher Education Policy Research

21.334. India does not have any major higher education research centre or a group of researchers focusing on this key subject. Higher education as an academic subject is not taught at Indian universities. As a result, there is a dearth of dependable, reliable, fact-based, unbiased, ideology-neutral policy information about Indian higher education. It is important for the country to create an ecosystem for higher quality policy research on higher education. In the Twelfth Plan, a network of centres for higher education research located at institutions that have the expertise for such research activity will be created.

21.335. In conclusion, it is imperative that during the Twelfth Plan period the country undertakes an overhaul of higher education and creates a robust, quality-driven system that is accessible to all segments of society. This is essential not only to ensure the continued economic growth of the country, but it is also necessary for social cohesion and to meet the rising aspirations of the country's young people. Building such a system of higher education requires clear articulation of the shortcomings and problems of the current system, a shared understanding of the solutions, and an alignment of the efforts of various stakeholders in higher education to implement these

solutions. This chapter has outlined the widespread systemic changes needed to effect such a paradigm shift in the cultural, policy, strategic and operational environment of higher education in the country.

FINANCIAL RESOURCES

21.336. The indicative Twelfth Five Year Plan Gross Budgetary Support for Ministry of Human Resource development is ₹4,53,728 crore. The Department wise allocation is given Table 21.14 below:

TABLE 21.14
Gross Budgetary Support for the Twelfth Plan

	₹ Crore
Department of School and Secondary Education	3,43,028
Of which	
1. Sarva Siksha Abhiyan	1,92,726
2. Rashtriya Madhyamik Shiksha Abhiyan	27,466
3. Mid-day Meal Scheme	90,155
4. Others	32,681
Department of Higher Education	1,10,700
Of which	
1. Central Universities and Centrally funded institutions	35,750
2. State Universities and Colleges, including RUSA	25,000
3. Equity initiatives (including students financial support)	11,300
4. Technical education quality improvement programmes	2,500
5. Research and innovation initiatives	5,900
6. Expansion of skill-based higher education including polytechnics & community colleges	4,450
7. National mission in education through ICT (NMEICT)	4,000
8. National Mission for Teachers and Teaching including teaching quality improvement initiatives	1,200
9. Open and Distance Learning	700
10. UGC (multiple schemes including flexi-funds)	9,000
11. AICTE (multiple schemes including flexi-funds)	5,000
12. Other initiatives (including language development, book promotion & copyright, Internationalisation, Planning etc.)	5,900

Source: Planning Commission.

NOTES

1. Gini coefficient is a measure of inequality. Zero value shows perfect equality where all values are the same, while value of one shows maximal inequality.
2. Total enrolment as a percentage of the child population in specified age groups including under-age and over-age children.
3. Percentage of age-specific enrolment to the estimated child population in specified age-groups.
4. DISE, 2010–11.
5. IMRB, 2009.
6. IMRB, 2005, 2009; ASER-Rural, 2011.
7. ASER, 2011.
8. ASER, 2011.
9. UNESCO, 2010.
10. ASER, 2010.
11. NSS, 2007–08.
12. Globally, enrolment in the 18–22 age cohorts is used to measure the GER. Using the global definition GER increased from 15.2 per cent in 2007–08 to 20.2 per cent in 2011–12.
13. Students enrolled in ODL programmes might not register in each semester/year. They usually take longer than students enrolled in regular programmes to complete their studies, and a large proportion of ODL students are older than those in the traditional age cohort and some of them may also be enrolled in regular programmes.
14. This survey was conducted by the Centre for International Higher Education at Boston College and Laboratory of Institutional Analysis (LIA) at the Higher School of Economics (Russia). See <http://acarem.hse.ru/>.