



SECONDARY EDUCATION IN INDIA

Universalizing Opportunity



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**SECONDARY EDUCATION IN INDIA:
UNIVERSALIZING OPPORTUNITY**

**Human Development Unit
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Key Data Sources and Data Limitations

Data Sources

This report has drawn on several different data sources from India. The main ones used are as follows:

- ◆ National Sample Survey (NSS), conducted by the census bureau, provides data on wages and education levels. The NSS rounds used for the analysis were 1983/4, 1987/8, 1993/4, 1995/6, 1999/2000, and 2004/05. Because the NSS is a nationally representative household survey, it is more inclusive of all persons' education and labor force participation than administrative data.
- ◆ Ministry of Human Resources Development's (MHRD) Selected Education Statistics, 2004-05 provides national and state data on enrollment, number of schools, shares of schools by government and private management, and public expenditure on education by level on education and composition of spending.
- ◆ The 6th and 7th All India Education Surveys (1993 and 2002) provides information on school facilities and services, student enrollment, and teacher and principal qualifications and deployment in rural and urban areas.
- ◆ A Survey of Government and Private Secondary Schools in Rajasthan and Orissa (2005) provided in-depth information on the characteristics of students, teachers, schools, and on student achievement in mathematics. These data form the basis of in-depth case studies.
- ◆ Public examination records from the two Central Boards and from selected State Boards.

Data Limitations

The NSS rounds do not contain questions that provide information on enrollment in government and private schools, nor on household expenditure on education, except the 50th round in 1995/96 which has an expanded education module. The various rounds also do not contain questions that allow for estimation of repetition, promotion, and dropout in the school system. The NSS is a household survey which is not linked to any schools. It is quite difficult to estimate the extent to which school distance is associated with enrollment, although this has been attempted by alternative means.

MHRD's Selected Education Statistics does not contain information on unrecognized private schools. It has information on the number of schools, but not student enrollment, by government and private management.

Studies on secondary education in India are far fewer than those regarding elementary education. There have been no impact evaluations on what interventions are effective in expanding enrollment and raising student achievement. In addition, there have been no studies on issues such as teacher absenteeism and accountability at the secondary level. Additional research needs to be undertaken to fill these gaps.

Abstract

The dramatic growth in Indian elementary education enrollment and improvements in retention and transition rates over the past ten years, particularly among more disadvantaged groups, are increasing pressure on the secondary level to absorb new entrants. Given ongoing center and state investments in Sarva Shiksha Abhiyan (Education For All), this trend will continue for the next 10 years. At the same time, India's impressive, sustained economic growth has increased household and labor market demand for secondary and higher education. Secondary education's contribution to economic growth, demonstrated high social benefits (particularly for girls), and support of democratic citizenship reinforce the need for increased public support at this level, particularly in light of the very large inequalities in access to secondary education, by income, gender, social group and geography. **The challenge is to dramatically improve access, equity and quality of secondary education simultaneously.**

The role of government in secondary education (whether center, state or local) is not as clear as it is in elementary education. At this point in time, **government's role should be to universalize opportunity to attend secondary school, rather than to universalize access.** Clear distinction needs to be made between public financing and public provision of secondary education; **there appear to be significant opportunities to improve access, quality and equity of secondary education through public-private partnerships (PPP) and a variety of demand-side financing measures, which increase accountability and parental choice between public and private providers.** The current grant-in-aid PPP model urgently requires reform. PPP does not mean privatization. In poor and/or remote areas private providers are unlikely to establish secondary schools in sufficient quantity, such that the Government will likely need to both finance and provide secondary education. Increasing the supply of effective teachers is a major issue, which may require alternative paths to teacher professional development and certification.

Government has an important role to play in improving equity of secondary education. The bulk of the growth in secondary education over the last ten years has been financed by households for private schooling, such that the typical secondary school student is male, urban and middle class. Whether because of poverty, credit constraints, lack of information about perceived benefits of schooling, cultural norms or other factors, access to secondary education by girls and by children from scheduled castes, scheduled tribes, rural and poor households is significantly lower than state and national averages. Indicators of internal efficiency and quality of learning among these groups are also well below average. Targeted, demand-side programs for these groups are called for.

Small-scale learning achievement studies and parental preference for private schools suggest that the quality of public secondary education is alarmingly low. Efforts to improve the quality of secondary education are thus urgent, but medium- to long- term in producing results. **India needs to make the public qualitative investments now 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.**

The recently launched centrally sponsored scheme for secondary education, Rashtriya Madhyamik Shiksha Abhiyan (RMSA), offers a strategic opportunity to improve access and equity; enhance quality, accountability and ability to measure learning outcomes; and promote standardization of curriculum and examinations across states. In addition, India's recent decision to participate in international assessments of student achievement is an extremely positive sign. Over time, such participation will provide an important objective baseline of students' cognitive skills and a future measure of success of the country's investments in elementary and secondary education.

Executive Summary

This report on Secondary Education was prepared by the World Bank with the support of the Ministry of Human Resources Development (MHRD) and the Department of Economic Affairs of the Ministry of Finance, as a contribution to the Government of India's strategy for the development of secondary and higher education. The report analyzes secondary education from the perspectives of access, equity, quality, efficiency, management and financing, and proposes options for the improvement of secondary education in all these dimensions. It is hoped this will inform and stimulate the dialogue regarding central and state government policies and programs for the development of secondary education over the next decade, and shape the orientations of possible external partner programs, as well.

I. Rationale for Public Investment in Secondary Education

The primary justification for investment in secondary education lies in its contribution to economic growth and poverty reduction. Most of the economic and employment growth over the past ten years in India has taken place in skilled services (information technology, financial services, telecommunications, tourism and retail) and skill-intensive manufacturing, all of which require, at a minimum, a secondary education degree. However, employer surveys (FICCI 2007) increasingly indicate that shortages of skilled workers constitute constraints to new private sector investment and growth in these very sectors. Further, analysis shows steadily rising rates of return to secondary and senior secondary education, reflecting that demand for knowledge and skills gained at the secondary level (fueled by economic growth) has increased faster than supply. Public investment can accelerate the response to this skills demand and overcome certain market failures which would result in underinvestment in secondary education by the private sector alone.

Secondly, the positive externalities of secondary education on health, gender equality, and living conditions are even

stronger than those of primary education, although these are difficult to quantify in economic terms. Through its impact on young people's age at marriage, and its propensity to reduce fertility and improve birth practices and childrearing, expanded secondary education of girls leads to significantly lower maternal and child mortality, slower population growth and improved education of children, all of which are important GoI goals. These social benefits to secondary education are very clearly seen in the results of the recently released National Family Health Survey III (2007).

Elementary education is of course necessary for all, but it is frequently insufficient to enable young workers to lift themselves and their families permanently out of poverty; recent economic studies have shown that secondary education is critical to breaking inter-generational transmission of poverty. Unfortunately, access to secondary education in India is highly unequal. There is a 40 percentage point gap in secondary enrollment rates between students from the highest and lowest expenditure quintile groups (70 percent versus 30 percent enrollment, respectively). In addition, there is a 20 percentage point gap between urban and rural secondary enrollment rates, and a persistent 10 percentage point gap between secondary enrollment rates of boys and girls. Enrollment of STs, SCs and Muslims is well below their share in the population at large. **Public policy has an important role to play in ensuring learning opportunities for all students irrespective of their home backgrounds, through the use of public funding to alter the distribution of the costs and benefits of secondary education.**¹ Furthermore, to the extent that ability is not correlated with wealth, a society can gain by providing equal opportunity for equal ability, rather than equal opportunity for equal wealth (Das, 2008.).

Fourthly, **public investment can overcome education market failures and household misperceptions of the value**

¹ "Expanding Opportunities and Building Competencies for Young People: A New Agenda for Secondary Education", World Bank, 2005.

of secondary education, particularly among the poor. Many poor households simply cannot afford the direct and opportunity costs of secondary education, nor can they access credit markets because of lack of collateral and other credit requirements. Other households, for socio-cultural reasons, under-value the benefits of secondary education, particularly for girls (Kingdon, 2002).

Fifthly, secondary education makes an important contribution to democratic citizenship and social cohesion, which are extremely important principles in India. Given India's size and diversity in terms of languages, ethnicities, religion and caste, secondary education enables students from different backgrounds to learn together and provides all youth with the foundations for democratic and civic participation. This simply cannot be done adequately at the elementary level, and by higher education the vast majority of youth have already left the education system.

Sixth, there can be no major expansion or improvement of higher education in India without first improving and expanding the secondary level. Given the relatively small enrollment rates at higher education (11 percent), and higher education's critical role in knowledge generation and promoting India's integration with the global knowledge economy and society, there is a rationale for public investment in higher education, albeit limited. Secondary education is the basic requirement for continuation to higher education. In addition, the opportunity to attend secondary education has been proven to be a powerful incentive for students to complete elementary schooling, reinforcing achievement of Millennium Development Goals. Indeed, secondary education can be a "bridge" or a "bottleneck" between elementary and higher education; public policy has an interest in ensuring it is the former, not the latter.

Finally, India's gross enrollment rate (GER) at the secondary level of 40 percent is far inferior to the GERs of its global competitors in East Asia (average 70 percent) and Latin America (average 82 percent). Even countries such as Vietnam and Bangladesh, which have lower per capita incomes than India, have higher gross enrollment rates. The relative success of these countries suggests that India is underperforming at the secondary level, and has scope for significantly improving access and quality of secondary education given its current

(and projected) GDP per capita. It also suggests that India needs to increase public investment in secondary education to remain globally competitive.

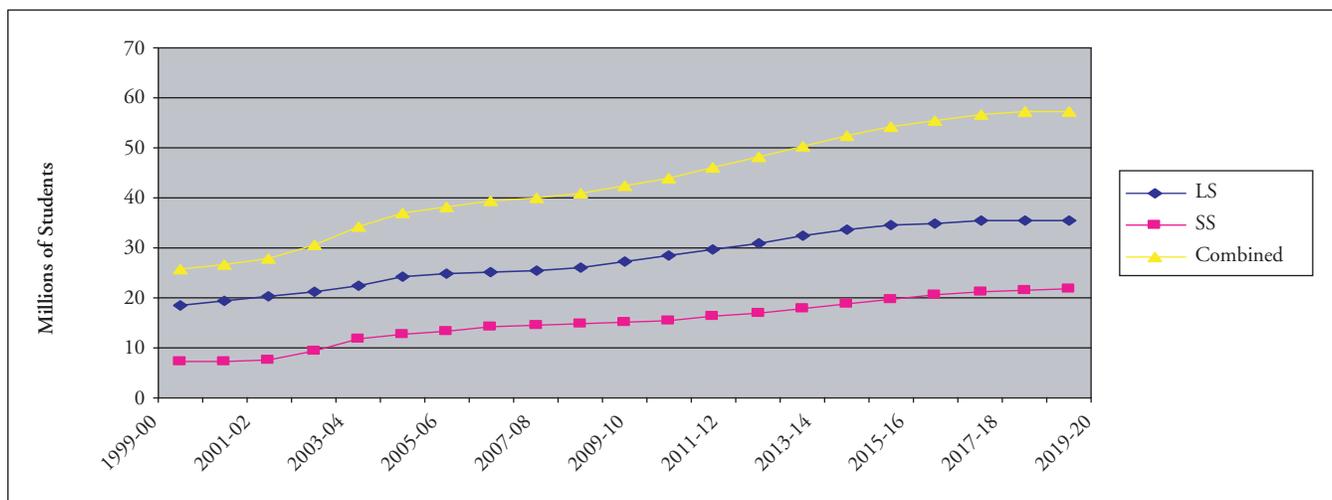
II. Access and Equity of Secondary Education

At the lower secondary level (grades 9 and 10), the gross enrollment rate (GER) is 52 percent, while at the senior secondary level (grades 11 and 12) it is just 28 percent, for a combined GER of 40 percent (2005). In absolute terms, total secondary enrollment (lower and senior secondary) in 2004/05 was 37.1 million students, with 65 percent (24.3 million) in lower secondary and 35 percent (12.7 million) in senior secondary. It is estimated at over 40 million in 2008. Secondary education has expanded slowly, but steadily, over the past twenty years, largely contingent on the growth of elementary education. The growth in the number of secondary schools over the last two decades has occurred primarily among private unaided schools, which now represent almost one out of three of India's secondary schools. Jointly, private aided and unaided schools make up 60 percent of all secondary schools. Most secondary students are boys, and disproportionately from urban areas and wealthier segments of the population.

Projections suggest an increase in absolute demand for secondary education between 2007/08 and 2017/18 of around 17 million students per year, with total enrollment growing from 40 to 57 million students. (Note: the projections use rather conservative assumptions regarding retention and transition rates at elementary and secondary levels.) The number of students finishing upper primary education has been increasing at over five percent per year since 2001; this is projected to continue through 2014 with increased elementary enrollments linked to Sarva Shiksha Abhiyan (SSA), the Government of India's massive centrally sponsored scheme for elementary education.² Secondly, the benefits of secondary education are increasingly apparent to Indian households, at the same time as household incomes have increased (and average family size has decreased). This has made secondary education more affordable and in greater demand. However, an increasing share of these students will come from rural

² Projections suggest an additional 4-5 million grade 9 students per year by 2014 over 2008 levels.

Actual and Projected Demand for Secondary Education, 1990–2020



LS: Lower Secondary, Grades 9–10; SS: Senior Secondary, Grades 11–12.

Source: *Selected Education Statistics, 2004-05 and author's calculations*

and lower income quintile groups, who will be less able to afford private unaided secondary education.

Access to secondary education is highly inequitable, across income groups, gender, social groups, geography, and states. Wealthier children are more than twice as likely to be enrolled in secondary education as poor children. In some states (e.g. Rajasthan, Uttar Pradesh, Madhya Pradesh) there is more than a twenty-point percentage gap in enrollment between boys and girls. Secondary attendance of the general population is 80 percent higher than that for STs, SCs and Muslims. Finally, secondary enrollment by state varies greatly, from 22 percent in Bihar to 92 percent in Kerala; and from 4 percent in Jharkhand to 44 percent in Tamil Nadu at the senior secondary level. Such huge differences reflect, in part, a lack of central government involvement in secondary education to equalize opportunities, particularly in the poorer states.

On the supply side, four key constraints limit access to secondary education: (i) insufficient and uneven distribution of school infrastructure; (ii) lack of trained teachers and inefficient teacher deployment; (iii) sub-optimal use of the private sector to expand enrollment capacity and to achieve social objectives; and (iv) insufficient open schooling opportunities for those who have left the formal system. For example, 27 percent of India's districts have less than one secondary school for every 1,000 youth aged 15–19 possessing their grade

8 diploma, meaning many schools are located too far from home to be accessible. Furthermore, multi-level regression analysis shows that more than 25 percent of the variance in secondary school attendance by grade 8 graduates can be explained by secondary school availability, after controlling for individual and household factors. Regarding teachers, projected expansion is likely to require at least 500,000 new secondary teachers for both public and private schools, not considering normal attrition. As for the private sector, the current grant-in-aid system (a form of public-private partnership) includes no incentives for improved student learning or expanded access. Finally, with respect to system flexibility, almost 50 percent of all secondary students either drop out or fail the 10th grade exam and leave the education system, resulting in a huge loss of human capital.

Options to increase the supply of secondary education include:

- i. **innovative public-private partnership models (including reform of the current grant-in-aid system)** which take advantage of existing underutilized capacity in the private sector and induce a supply response to expand that capacity;
- ii. **public classroom and school construction,** especially in rural areas where private suppliers are unlikely to venture;

- iii. **training and hiring of more teachers**, including implementation of alternative paths to certification and rationalization of their deployment, so that supply better matches demand; increasing the size of classes and schools to make better use of available subject teachers;
 - iv. **introduction of double-shift and multi-grade teaching** where appropriate; and
 - v. **expanded use of open learning and new technologies** to complement and supplement face-to-face teaching, particularly for those who wish to re-enter the education system at the secondary level.
- ii. **provision of financial and in-kind assistance for poor and disadvantaged students**, to offset direct and indirect costs of schooling, and overcome household reluctance to send their children (especially girls) to school;
 - iii. **public information campaigns** to change attitudes about the benefits of schooling and delayed marriages; and
 - iv. **investments in curriculum revision, progressive pedagogy, technology and examination reforms**, to make secondary schooling more relevant and attractive to young people and their parents. This would include remedial education programs to help children who may have attended poor quality elementary schools re-gain their grade learning levels.

On the demand side, the biggest factor is the low completion rate of elementary education, which limits the number of students ready for secondary education. Currently, fewer than 60 percent of children complete grade 8, even allowing for repetition, although this completion rate is improving with SSA. Other factors limiting demand include the high direct and indirect costs of schooling borne by families, parents' misperceptions of the benefits of secondary education, especially for girls and among rural families, and poor quality and relevance of secondary education. The average direct costs of secondary education are double those of primary education, the costs of senior secondary education are four times as much, and the costs of tertiary education are six times as much. The opportunity costs of education may be an even more important factor than direct costs in dissuading parents from secondary education, given average annual wages for grade 8 completers (Rs. 16,000) in a fast growing economy. Households have to forgo earnings and bear the direct cost of schooling, with just a 50 percent chance on average their child will graduate from Grade 10 (never mind Grade 12); demand-side constraints are real.

Options to raise demand for secondary education include:

- i. **programs to improve the internal efficiency and quality of elementary education** (this is being addressed through Sarva Shiksha Abhiyan), so as to increase the number and quality of grade 8 graduates;

III. Quality and Efficiency of Secondary Education

Recent research (Hanushek and Wobmann, 2007) indicates that quality (measured by students' cognitive skills) is more important than access (measured by years of schooling completed) in determining future income and contribution to economic growth. **Unfortunately, small-scale standardized assessments of student achievement in mathematics at the secondary and senior secondary levels in two states suggest that the quality of instruction and learning is very low.** (Recent, reliable, large-scale learning assessments at the secondary level simply do not exist.) Statistically, it is possible to place the results of these small-scale assessments from Rajasthan and Orissa, based on published TIMSS test items, within an international league table. Both the methodology and results are somewhat controversial and should not be over-stated; nevertheless, this exercise places students from these two states in mathematics on average in 44th place out of 51 countries tested, just above South Africa and Botswana. On the other hand, the top performing 5 percent of students in Orissa and Rajasthan performed far higher, on average, than most of their peers around the world, including in OECD countries (Das and Zajonc, 2007). The sheer size of India's student population translates this small percentage into a large absolute number of high performing children.

Analysis of key factors affecting student achievement confirms that schools play a very important role, determining approximately 50 percent of student achievement. This is an important finding relevant for policy, insofar as it shows that schools can overcome to some extent disadvantageous socio-economic backgrounds of children and their parents. Analysis of these key factors and international research more generally indicate some consensus regarding the elements of educational quality, which include *inter alia* the quality and availability of teachers, the curricula and pedagogical processes applied to master it (Wu et al, 2008), the quality and availability of learning materials (e.g. textbooks, ICTs), learning assessments and examinations, and quality assurance/supervision.

Recent research clearly establishes the importance of well-trained teachers (Hanushek and Wobman, 2007; McKinsey, 2007). Unfortunately, **teachers' pre-service education at the secondary level (university degree plus teacher education) suffers from poor standards, weak accreditation and monitoring, outdated pedagogical approaches, inadequate supplies of basic teaching and learning materials (including ICTs), and few incentives for improvement.** This is a critical issue facing the country as it proposes a massive expansion of secondary education which will require an estimated 500,000 new teachers, plus replacement of those currently teaching who will retire,

In-Service teacher professional development secondary level is ad hoc, poorly resourced, and disconnected from classroom realities. Teacher effectiveness is also weakened by a lack of teacher accountability. Unlike elementary education which has undertaken serious efforts over the last five years to enhance teacher effectiveness, increase community oversight of school performance (including teacher attendance), and decentralize teacher recruitment to local levels (increasing accountability), no such reforms have been undertaken at the secondary level. Publicly financed secondary teachers are thus largely unaccountable to parents, headmasters and educational administrators.

Secondary education in India is institutionally diverse, with three National Boards and 34 State and Union Territory Boards. Each Board has its own specified curriculum and school certificate examinations for Grades 10 and 12. **The**

result is lack of coordination and non-comparability of learning outcomes as measured by Board examinations between states and over time, a critical weakness in system accountability. More positively, the National Curriculum Framework (NCF) of 2005 provides a set of guidelines for secondary education across the country, while leaving the states to determine their curricula and examination content within its broad direction and parameters. The NCF aims to lighten the overloaded curriculum in India's schools and to shift emphasis from rote memorization to conceptual understanding, synthesis, and application through an integrated and/or thematic approach to teaching and learning. Its approach accords with the worldwide trends in curricula, and is a very important reference point to build from. State Boards need to do more to align themselves with the NCF.

A comparison of Indian and international curricula in language arts, mathematics and sciences highlights the issue of over-emphasis on rote learning of facts as opposed to development of students' higher-order thinking skills. In addition, the sheer volume of facts which students are expected to master in order to succeed on examinations appears to exacerbate this problem, pointing to **curriculum overload.** More generally, secondary education curricula must address two objectives simultaneously: helping youth develop the skills, knowledge and attitudes they need to succeed in the labor market upon graduation, while preparing others for higher education.³ This challenge implies periodic curriculum reform to remain relevant, which has been slow to materialize in most Indian states.

The quality of learning materials in secondary education, particularly of textbooks, is low. National and state Boards differ widely in their approach to the organization of information and presentation of content in textbooks, with Central Board textbooks considerably better than State Board textbooks. State-level textbooks predominantly address students' examination needs, with even less emphasis on conceptual understanding than in the Central Board textbooks. In an effort to ensure affordability, states have compromised on the physical quality and attractiveness of the books. Finally, in some

³ "Meeting the Challenges of Secondary Education in Latin America and East Asia", World Bank, 2006.

states, textbook development remains a virtual monopoly of central institutions such that government schools and teachers lack choice and private publishers are excluded from the market; in those cases there is little incentive to improve.

At the secondary level, other learning materials than textbooks are required, such as information and communication technologies (ICTs), laboratory equipment, visual aids, audio-visual equipment, library and reference books. It is not possible within the context of this study of secondary education to assess the availability and quality of these learning materials, but it is safe to say these are in short supply. **The very limited availability of ICTs at the secondary level, in particular, limits teachers' ability to upgrade their subject-matter knowledge and students' ability to access essential learning materials,** in addition to constraining the development of ICT-related skills and behaviors youth need to succeed in the global knowledge economy.

India lacks an effective quality assurance mechanism at the secondary level, for government, aided, and unaided schools. The growth of the educational administration has not kept pace with that of the school system, particularly at the district and sub-district levels. Staff are often hindered by the large number of pending legal cases regarding transfers, promotions, and pensions, and by lack of computerization. Teachers' service records and student enrollment statistics often are manually updated and processed, leading to inefficiency and mistakes. Data are not available on a timely basis for district offices to monitor key performance indicators at the school, block, or district levels. School inspectorates' staff numbers and travel budgets are too limited to supervise schools adequately; when inspectors do visit schools their focus is on administrative compliance, not effective student learning. Finally, the gaps between most parents' educational backgrounds and the academic level of secondary education make community-based school inspection a weak (though still important) alternative. There is a need for improved professional supervision.

Unlike in elementary education, there are no national assessments of student learning at the secondary level, essential for the identification of key determinants of

achievement and the design of interventions to improve it, and to compare educational performance of states and sub-groups across time. This is a critical gap; unless quality can be measured it is impossible to know if it is improving or declining. Furthermore, as India has not participated in international assessments of student learning, such as the Programme for International Student Assessment (PISA), it is very difficult to benchmark its emerging human capital against that of other countries. (Note: In December 2008 MHRD committed to participation in PISA 2009, an extremely positive sign.)

Options to improve quality of secondary education include:

- i. **Strengthened secondary education teacher training colleges,** including institutional accreditation assessments and improvement plans; competitive funds for investments in facilities, equipment, faculty upgrading, etc.; and increased intake of trainees for underserved subjects. This could be complemented by expansion of **alternative paths to teacher certification** which allow those with strong educational backgrounds in needed subject areas to enter the profession;
- ii. **Peer-based, mentor-led, practical, subject-specific professional development of teachers,** which networks teachers across schools for mutual exchange and observation (this is currently being practiced in CBSE schools under the name of "Sahodya"). This would include remedial education strategies to get all new students to grade 9 levels;
- iii. **Definition and dissemination of clear teacher performance standards and their use for teacher performance evaluation;**
- iv. **Financial incentives and technical assistance for state Boards to align both curriculum and examinations to the National Curriculum Framework;**
- v. **Reforms in textbook development and procurement,** including teacher participation in their revision and a focus on enhanced quality and focus on higher order thinking skills, and

investments in ICTs to enable more student-centered learning which draws from a wide range of resources available on the Internet;

- vi. **Reforms and investments in secondary education quality assurance mechanisms**, emphasizing strengthened pedagogical supervision and links to in-service teacher professional development;
- vii. **Examination reform**, to increase the focus on problem-solving and information-reasoning skills and decrease the emphasis on rote memorization of facts presented in textbooks. Until examinations change, it is unlikely that what is taught and how it is taught will change.⁴ This could include modification of the State-level Grade 10 “high stakes” examinations, to increase the weight of internal assessment to determine if a student passes and to include common questions in all States in math and sciences. The pass/fail nature of the exam could be replaced by (a) an optional exam for those wishing to leave the system and obtain a Grade 10 diploma; and (b) an optional exam for those students wishing to enter the most competitive academic track in senior secondary education. Under this scenario, other students who succeed on internal assessments would continue to Grade 11;
- viii. **Development and administration of national sample-based assessments for Grade 10 and 12**, and careful analysis of results to define quality improvement interventions;
- ix. **Participation in international assessments of student achievement at the secondary level**, and use of the results of those assessments to determine needed remedial investments.

Finally, it must be emphasized again that the parameters of access, equity and quality are integral and synergistic. They should be addressed simultaneously, not in sequence. Furthermore, the expansion of access will increase the challenge in some respects of maintaining, much less

⁴ Recent moves by the Central Board of Secondary Education to emphasize higher order thinking skills (HOTS) is a very welcome step in the right direction, which State Boards should follow.

improving, educational quality, given that more students will be first-generation learners from less advantaged households.

IV. Management of Secondary Education

India’s secondary school sub-sector comprises approximately 150,000 schools, of which about 100,000 are secondary (Grades 9–10) and 50,000 are senior secondary (Grades 11–12). Secondary education is largely a state-level issue, with relatively limited involvement by central, Panchayat Raj Institutions, or community-level authorities, compared to elementary education. Management is defined here to cover the administrative aspects of secondary schooling, including the ownership and financing of schools, recruitment and deployment of teachers, regulation of schools, and information-gathering and processing.

Central government manages slightly less than 1,000 Kendriya Vidyalaya (KV) schools (serving about 1 million children of central government employees who are frequently transferred), and 550 Navodaya Vidyalaya (NV) schools (serving 200,000 academically gifted children from rural areas). In addition, it runs the National Institute of Open Schooling (NIOS), operating in 11 regional centers and 1,943 accredited institutions, serving 1.4 million students who did not complete formal secondary education. Given this relatively small number of centrally-managed schools (accounting for less than ten percent of total enrollment), this study focuses on state-recognized schools which enroll more than 90 percent of all secondary students.

India has a long history of multiple management models at the secondary level, which provides opportunities for further experimentation and reform, particularly with respect to public-private partnership models. There is great diversity at the state level in the mix of government, private aided, and private unaided schools for secondary education. Some states (e.g. Bihar, Jharkhand, Punjab and Himachal Pradesh) have large government school systems, while others (e.g. West Bengal, Maharashtra, Gujarat) have predominantly private aided systems, and others (e.g. Uttar Pradesh, Tamil Nadu, Rajasthan) rely mainly on private unaided schools. Analysis of relative cost-effectiveness and equity of different school management types leads to mixed conclusions, with no

model unambiguously better, although private schools tend to do better on Board examinations, even after correcting for student selectivity bias, and have lower cost structures because teacher salaries are generally lower. More research is needed which compares learning outcomes to the locus of decision-making authority. **In summary, no single, “one size fits all” model will suffice for all states.**

The most important management issue in the education sector is teacher recruitment, given that teacher salaries consume the largest share of education budgets and the quality of teaching is the most important factor in student achievement. **Common problems in teacher recruitment in India are centralized hiring, insufficient objectivity, a shortage of candidates with the necessary attributes, and a high frequency of court cases.** Government teachers are hired through state-level commissions, after which they are assigned to schools, with no input from the principal, community or local authority. Each state has its own academic and professional standards for teachers in government schools, although a university degree plus a Bachelor of Education (B.Ed) degree is typically the minimum requirement for secondary education. For senior secondary education, the requirement is typically a post-graduate degree. The booming private sector labor market for higher education graduates has started to make it increasingly difficult to attract young people to consider secondary education as a career (particularly in mathematics and sciences), given their other options after completing university and/or post-graduate degrees. Subjectivity, reservation policies and political interference in teacher recruitment has led to tens of thousands of lawsuits across the country. This has a substantial impact on the school system, because once litigation on a recruitment case has started a court injunction prohibits any recruitment of civil service teachers until the lawsuit is settled. In addition, the relative job security of a secondary teacher in either government or private aided schools can lead to corruption, such as the sale of teaching posts (a recent study indicated Rs.100,000–200,000, or US\$2,500–5,000, per position in private aided schools is common)⁵.

Secondary teacher salaries in government and private aided secondary schools average Rs.9,000–10,000 per month (US\$225–250), whereas in private unaided schools they average about Rs.6,000 per month. (National Sample Survey, 61st round, 2004-05). **The limited employment opportunities in many sectors and in many states have enabled private schools until now to hire secondary teachers at lower salaries than government school teachers. This situation is changing, as the rate of expansion of secondary education (hence teacher demand) outstrips the supply of teachers, at the same time as other sectors also expand and compete for people with similar skills, particularly in mathematics, science and English.** The rapid growth in private sector salaries for university graduates over the last five years suggests that teachers who are required to earn university and post-graduate degrees may choose not to pursue teaching as a career when they graduate. In addition, some states have recently introduced the subject of English in the first grade; if this policy is adopted across all states, the demand for English teachers will surge, further increasing pressure on salaries. Private schools are likely to have to pay increased wages in order to attract and retain teachers with marketable skills. Rural schools will face even greater difficulty attracting and retaining subject teachers unless they can offer stronger financial or other incentives to serve there. **However, the issue is not so much relative teacher salaries between publicly and privately funded schools, but rather relative teacher effectiveness and accountability (a topic which requires additional research).**

Options to improve school management include:

- i. **Reform of the Grant-in-Aid System**, through which the state provides financing to private secondary schools. At a minimum, school grants could be made conditional on achieving certain performance standards (e.g. independently verified student and teacher attendance, retention/pass rates, examination results, etc.). More substantive reform would shift from financing of teacher salaries to financing per student capitation grants based on average public school unit costs,

⁵ “Financing of Secondary Education in India”, edited by J.B.G. Tilak, NUEPA, 2008. In addition, teacher interviews as part of Rajasthan and Orissa case studies showed 17 % of Grade 9 teachers in urban aided schools in Rajasthan paid money to get their job, and 33 % of Grade 9 teachers in rural aided schools in Orissa paid money to get their job.

conditional upon previous year's fulfillment of minimum quality criteria (Bashir, 2003);⁶

- ii. **Introduction of school-based management in India's publicly funded secondary schools**, both public and private, to promote (i) improved decision-making based on better information, and (ii) increased community and parental involvement, which can increase accountability of decision makers and teachers (World Bank, 2008);
- iii. **Decentralization of new teacher recruitment to increase accountability**, with all new teachers recruited at the district or school level, initially on a contractual basis, from among those who have passed a state-level certification (Pritchett, 2007);
- iv. **Application of clear teacher performance standards**, their use for teacher evaluation in decisions regarding contract extensions, promotions and other forms of incentives, and enactment/enforcement of policies which prevent teacher transfers during the school year;
- v. **Strengthened inspectorate and process for recognizing private schools (including their affiliation with Boards)**; and
- vi. **Immediate improvements in basic management information collection and analysis for secondary education**, with Central and state investment and recurrent financing, building on the District Information System for Education (DISE).

V. Financing of Secondary Education

During the recent drive to achieve universal elementary education, the share of public investment in secondary education has dwindled, although recurrent spending on this level has stayed relatively constant. Secondary education currently accounts for less than a third of India's total public spending on education, equivalent in absolute terms to

about US\$7.2 billion per year (less than 10 percent of this on investment). About 75 percent of the public spending on secondary education comes from the states, which spend less than 1 percent of their per capita incomes for this purpose.

Compared with international benchmarks, India's per student public spending on secondary education as a percentage of GDP per capita is somewhat high (27 percent, compared to a benchmark for fast-growing economies of 18 percent). India's per-student public spending on secondary education is also high as a ratio of per student spending on primary education (2.9, compared to a benchmark for fast-growing economies of 1.4). On the other hand, by international standards, India's per student spending on secondary education appears quite reasonable in absolute terms (average US\$173, compared to spending per student in secondary education of US\$577 in Latin America and the Caribbean, US\$257 in Sub-Saharan Africa, and US\$117 in South Asia). Public teacher salaries as a ratio of GDP/capita are 4:1 (private teacher salaries as a ratio of GDP/capita are 2.3:1). International experience suggests such a high ratio constitutes a major challenge in achieving financially sustainable massification of secondary education through an approach based purely on public provision.

With current low levels of efficiency in India's secondary schools, the estimated cost of producing a lower secondary graduate is high, at around Rs. 21,500 (about US\$500 in 2005), or about Rs. 40,000 (US\$911) for both levels of secondary education. Government schools spend less per student than private aided schools; approximately half of public funds in secondary education are spent through grants-in-aid to private schools, although these schools constitute just 30 percent of the total number. Sustainable expansion of secondary education will require efforts to control (or reduce) unit costs where possible, through more efficient use of infrastructure, teachers and open schooling (where appropriate).

Inequities in access to secondary school mean that public subsidies at this level of education are distributed inequitably. The subsidies are becoming more progressive, however, with the voluntary movement of the upper and upper middle classes out of publicly financed secondary education, and they will become more so as proactive efforts are made to expand the secondary enrollment of the poor

⁶ Bihar (March 31, 2008) recently announced its intention to provide public financing for private schools, based on student performance, with funds transferred to school management committees, not directly to teachers.

and disadvantaged groups in public and aided schools. Not surprisingly, the equity of secondary education spending varies enormously among states. In Kerala, public subsidies are distributed almost equally between urban and rural areas, among boys and girls, and among students from all consumption quintiles. By contrast, public spending on secondary education in states such as Rajasthan favors urban boys from the upper three consumption quintiles.

User fees are prevalent in secondary education, in government, aided, and unaided schools alike. (Unlike for elementary education, India has no constitutional commitment to provide free education at the secondary and post-secondary levels.) The most prevalent user charges are tuition fees. Other types include: one-off admission or entry fees to a school; semester or annual examination fees; charges for using library, laboratory, or sports materials; and charges for participating in school activities.

For user fees in government schools, the secondary education departments of the states have the prerogative to fix the amount and the periodicity of collection. Typically, this is between Rs.30–80 (US\$1–2) per month per student. Government schools are required to remit to the state department of education all the fees they collect. Private aided schools are required to remit part of their fees to government, but they are allowed to keep funds that they have raised for construction/repair or other specified activities. A 2005 survey in Orissa and Rajasthan indicated fees in private aided schools vary from Rs. 50–1,917 per month. Fee levels in

private unaided schools are decided by the school boards that manage these schools; the same 2005 survey indicated tuition fees between Rs. 80–2,186 per month. Fees are part of school revenue. While government and most of the aided schools make ends meet, unaided schools often make a profit from the fees and funds they raise.

There is some (albeit limited) scope for increasing school fees in publicly financed schools, particularly those from the top three consumption quintiles (although those in the highest consumption quintile have almost universally opted for private unaided schooling). Based on minimum estimates for teacher salaries, non-teacher expenditures, and classroom size, it is possible to calculate a theoretical minimum unit cost for a private secondary school of approximately Rs. 2,600 per year (US\$65), or Rs. 260 per month per child. Comparing that minimum monthly school fee with average household consumption quintiles provides a rough estimate of to what extent secondary education can be financed exclusively by households, under the assumption that households will be unable to spend more than 5 percent of total household consumption on one child's schooling. Calculations (see table below) suggest secondary schooling is unaffordable without public subsidization for households in the lowest three consumption quintiles (perhaps the lowest four quintiles in rural areas). **In other words, the upper limit of private unaided secondary schooling in India is 35–40 percent of total secondary enrollment, compared to 30 percent today.** (Note: this actually

Calculation of Affordability of School Fees (Indian Rupees, 2004-05), by Consumption Quintile, Urban and Rural

	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)
Rural Household Average Monthly Consumption ¹	1,299	1,786	2,230	2,845	5,378
Minimum Monthly Schooling Fee (Rs. 260) as % of Average Rural Household Consumption ²	20%	15%	12%	9%	5%
Urban Household Average Monthly Consumption ¹	1,772	2,717	3,734	5,351	11,570
Minimum Monthly Schooling Fee (Rs. 260) as % of Average Urban Household Consumption ³	15%	10%	7%	5%	2%

¹: Per Capita Consumption Quintiles from NSS, 61st round, 2004-05;

²: Average Rural Household Size: 4.9 (NFHS III)

³: Average Urban Household Size: 4.6 (NFHS III)

overestimates potential financing, because the lowest consumption quintile could not be expected to have much disposable income for schooling, having to focus their expenditures on basic needs.)

Generically speaking, there are five options to increase financing for secondary education: (1) increase overall allocations to the education sector, including to secondary education; (2) shift resources from other levels within the education sector; (3) reduce/cap unit costs and improve internal efficiency; (4) increase private and community contributions; and (5) mobilize external assistance. Given the importance of achieving the elementary education agenda (MDGs) and supporting higher education, as well, a combination of options (1), (3), (4) and (5) appears to be the best strategy for India at this time. In addition, given the 11th Plan's commitments to greatly increase central funding for secondary education, it will be important to use that funding to leverage both state funding and state-level reforms for improved access, equity, quality and management.

Conclusion

It is abundantly clear that enrollment capacity must expand in both public and private secondary schools. The pace of expansion of secondary schooling will depend on the numbers of students graduating from elementary education, and the extent to which both supply- and demand- side constraints on secondary education are reduced. Based on expected levels of efficiency and quality at the elementary level, projections suggest annual growth of secondary education on the order of 4–6 percent per year on average for the next 8–10 years. In the short term these increases may be absorbed without major new investments, but in the medium term additional secondary level classrooms and schools (both public and private) need to be built. **Each state needs to do its own analysis of enrollment capacity, equity, quality and affordable financing to determine how rapidly it can respond to this demand.**

Improved access must be accompanied by improved quality and equity, given their synergistic and integral nature. To be meaningful, expanded access must lead to increased cognitive skills development among India's youth. Qualitative investments have long lead-times. This means India must start now (e.g. curriculum revision and textbook development; teacher effectiveness frameworks; integrated educational

technology programs; student assessment and examination reform; strengthening of quality assurance mechanisms; and management reforms which change incentives to promote quality). **India does not have the luxury of addressing access first and quality later.**

The disproportionately limited access to secondary education in the rural areas and for disadvantaged groups, points to the need to adopt a more effective and equity-oriented approach to using public finance to support both private and public provision. This could include reform of the existing grant-in-aid system in favor of a student-based, capitation grant-in-aid system that provides incentives to private schools to increase enrollment, with demand-size financing to encourage enrollment of girls and disadvantaged students. Or it could include reforms which introduce performance criteria to the existing system. In states with a large unaided sector — from which the poor are effectively barred by high fees — the challenge is to provide targeted assistance for the poor to attend private schools where they operate in order to improve equity. In rural areas, however, the government is likely to remain the primary financier and provider of secondary education.

The financial implications of universalizing opportunity for secondary education, combined with needed investments in educational quality, reforms in public-private partnership models, and increased cost recovery, are manageable given India's forecasted strong economic growth and revenue generation over the next ten years. This report examines the financial costs of four plausible scenarios for secondary level expansion; all of them are affordable so long as growth remains at least 6 percent per year or so. However, given the primary role of the states in financing the recurrent costs of secondary education, sustainable expansion may not be affordable for those predominantly agricultural states whose growth is lagging behind the rest of the country (which typically also have relatively low elementary and secondary enrollment rates). In these cases the central government will have to increase financial transfers to cover both investment and recurrent costs associated with the expansion of secondary education, or expansion will need to proceed at a slower pace.

A consolidated agenda of options for reform and investment in secondary education in India is presented on the following pages.

Options for Reform and Investment in Indian Secondary Education

PILLAR ONE: IMPROVE ACCESS AND EQUITY	ACTION	SHORT-TERM (1–2 YEARS)	MEDIUM-TERM (3–5 YEARS)
<p><i>Theme 1:</i> Physical Capacity</p>	<p>Plan for expansion of supply of secondary and senior secondary school spaces;</p>	<p>State- and district- level secondary school GIS mapping exercise (covering public, private aided and private unaided schools), including current enrollments and enrollment capacities, cross-referenced against secondary-age population distribution from census data.</p>	<p>Maintain/update school infrastructure database, including enrollment capacities, school facilities, equipment, access to electricity, telecommunications, water, etc., at both central and state levels;</p>
	<p>Tap existing underutilized enrollment capacity in private schools;</p>	<p>Offer central and/or state funding to pilot per student capitation grants as new form of PPP, for attendance at private schools (aided or unaided), using independent monitors to verify enrollment/attendance. If needed, provide early remedial education to ensure subsidized students can keep up.</p>	<p>Evaluate pilot PPP programs (compare to current grant-in-aid system), revise and expand to new states and schools;</p>
	<p>Maximize utilization of existing secondary school places;</p>	<p>Introduce double-shift instruction in urban areas where demand justifies it, in public and private aided (PPP model) schools. Provide central and/or state funding for additional staffing, textbooks, etc., at agreed marginal unit cost.</p>	<p>Compare performance between single- and double- shift students; adjust double-shift components (e.g. times of operation, staffing, resources. etc); expand double-shift instruction to additional urban areas, in both public and private schools;</p>
	<p>Increase public secondary and senior secondary school places;</p>	<p>At state level, conduct feasibility studies for new public secondary classrooms and schools in areas where private sector is unlikely to serve. Provide partial central funding to pilot PPP model which transfers price and construction risk to private sector; develop standardized bid documents and contracts for new school construction under PPP model;</p>	<p>Transfer funds to school management committees (to be strengthened) for additional classroom construction; implement PPP model for new school construction, including long-term (e.g. 20-year) maintenance/facility availability contracts on annual lease basis;</p>
	<p>Expand supply of non-formal secondary and senior secondary schooling.</p>	<p>Expand enrollment capacity of National Institute of Open Schooling and expand NIOS marketing programs, for working and/or out-of-school youth, rural areas, Children with special needs, migrant children, etc.. Maximize use of on-line services for both instruction and assessment for “anytime, anywhere” learning.</p>	<p>Compare examination pass rates and cost-effectiveness between open and formal schooling; assess affordability of open schooling for working youth and adjust financing as required.</p>

<p><i>Theme 2:</i> Increase supply and quality of teachers</p>	<p>Rationalize existing teacher allocations;</p> <p>Increase supply of trained secondary and senior secondary teachers, particularly among reserved categories;</p> <p>Attract educated people to underserved areas of the secondary level teaching profession.</p>	<p>At state level, analyze existing teacher deployments in government secondary schools to identify those with very low Pupil-Teacher Ratios (PTRs), and revise policies and procedures governing teacher transfers;</p> <p>At central level, critically review existing Teacher Education centrally-sponsored scheme, and design a competitive, centrally funded program to increase pre-service teacher training capacity/intake (including civil works, curriculum revision, equipment, upgrading of faculty, learning materials, etc.), and at state level prepare promotional campaigns for targeted groups to enter teaching;</p> <p>NCTE to develop alternative paths to teacher certification (i.e. “easy entry” procedures), especially for those with math or science degrees who would only need short-term pedagogical training; pilot short-term pre-service training program.</p>	<p>Redeploy teachers from excess to underserved areas; enforce policies to restrict teacher transfers from rural to urban areas; offer non-salary incentives to teachers to remain in rural areas;</p> <p>Increase intake of secondary teacher trainees, with subsequent decentralized hiring at district or school level (initially on a contractual basis) from among candidates certified at the state level;</p> <p>NCTE and states to compare teacher performance between those with short- versus full- term teacher education; assess demand for alternative path entry into teaching profession and adjust incentives and pedagogical training as necessary.</p>
<p><i>Theme 3:</i> Stimulate Household Demand</p>	<p>Address financial constraints and defray opportunity and direct costs of schooling among disadvantaged groups;</p> <p>Address misperceptions of value of secondary education and socio-cultural constraints.</p>	<p>Provide central funding to pilot at the state level the provision of conditional cash transfers (CCT) and other forms of in-kind incentives to promote enrollment, retention and completion among targeted groups (girls, SCs, STs, Muslims, etc.). At central level, prepare templates for CCT administrative manuals which are adapted/adopted at the state level, train state-level administrative staff, publicize program, enforce conditionalities and ensure transparent flow of funds. Conduct baseline survey of beneficiaries.</p> <p>Provide central funding to conduct a national sample survey of poor households to identify and rank their reasons for not sending their children to school, disaggregated by gender, economic and social category.</p>	<p>Monitor, evaluate, revise and scale up provision of conditional cash transfers and other forms of in-kind incentives to promote enrollment, retention and completion among targeted groups (girls, SCs, STs, Muslims, etc.);</p> <p>At state level, launch public information campaigns among targeted groups, directed at poor parents, explaining benefits of obtaining secondary education degrees, using mix of state and central funds. Stress potential of securing jobs as teachers. Champion success stories of disadvantaged students who complete secondary education.</p>

PILLAR TWO: IMPROVE QUALITY	ACTION	SHORT-TERM (1–2 YEARS)	MEDIUM-TERM (3–5 YEARS)
<i>Theme 1:</i> Curriculum and Examinations	Promote national standards in core curriculum subjects;	States, NCERT and SCERTs to conduct comparative assessment of different curricula offered by various state and national boards, and develop consensus and roadmap for their alignment and convergence with National Curriculum Framework;	Center to provide financial incentives and technical assistance to align state curricula firmly with National Curriculum Framework.
	Align/Standardize State Board Examinations with National Curriculum Framework;	Center to provide states financial incentives and technical assistance to revise their Grade 10 and 12 Board Examinations to align with National Curriculum Framework;	At central level, establish and maintain web-based database and league table by States and districts of examination results;
	Consider reform of Grade 10 Board Examinations;	Include in all State Board exams (at least math and sciences) a core set of “anchor” test items issued by NCERT and COBSE, and increase assessment of higher order thinking skills. Promote public debate regarding revision of Grade 10 examination, recognizing its utility for (i) academic sorting for students going on to Grade 11, and (ii) labor market signaling for youth leaving school to enter job market, but questioning its “gate-keeping” function which eliminates 35 percent of Grade 10 students from the education system each year;	At state level, pilot revisions of Grade 10 examination, evaluate results and continue revision as necessary. Increase public dissemination of results and internal analysis of results to determine remedial interventions.
	Introduce National Student Achievement Diagnostic Testing for Grades 10 and 12;	NCERT to develop sample-based Baseline Achievement Surveys (BAS) in maths, sciences and language arts for Grades 10 and 12, pilot in sample of states, and revise;	Administer BAS in Grades 10 and 12 on a sample basis in all states, build database, distribute results to states, districts and schools, and use feedback for design of school-based quality improvement programs; develop Mid-Term Achievement Surveys (BAS).
	Benchmark student learning against international standards.	Obtain technical assistance from OECD and other sources in development of internationally-comparable student achievement tests, including test item development, testing standards/protocols, analysis and feedback of results into quality improvement programs.	Participate in international assessment programs at the secondary level, with capacity-building at central and state levels to administer and analyze international achievement assessments. Provide central funding to states to ensure participation.

<p><i>Theme 2:</i> Improve Teacher Effectiveness and Support</p>	<p>Promote teacher effectiveness and accountability</p> <p>Improve quality of teacher preparation</p> <p>Upgrade skills/content knowledge of current teachers</p> <p>Strengthen pedagogical support for teachers, and enhance pedagogical competencies of Inspectors</p>	<p>NCTE, with NCERT/SCERTs, to develop, pilot and revise secondary level teacher performance standards, in consultation with teachers' unions and parent associations. All states to conduct sample survey of secondary schools (both levels and all management types) of teacher absenteeism, reasons for it, and propose measures to reduce it;</p> <p>Center and states to inform all teacher colleges receiving public funding that they must conduct self-assessment using National Assessment and Accreditation Council (NAAC) criteria, and submit to appropriate state, MHRD and NAAC authorities within period of 18 months or lose public funding. Based on institutional self-assessment (above), teacher colleges to submit institutional improvement plans for funding from central and state levels;</p> <p>NCTE and NCERT to establish minimum teacher knowledge and competency standards, including competency in ICTs (use of ICTs and integration into pedagogy). Develop new teacher professional development programs in DIETS, SCERTs/SIERTs, and Institutes of Advanced Study in Education, which emphasize inter-active, student-centered learning, and update teacher knowledge in their subject area which is directly relevant to the curriculum. Provide central funding for institutional improvement plans submitted by these entities, to ensure their capacity to offer quality professional development for teachers and headteachers;</p> <p>States, assisted by NCTE, to develop and pilot peer-based, mentor-led pedagogical groups among subject matter specialists to share topical resources, teaching techniques, lesson plans, assessment tools, etc. Center and states to provide minimal financing to ensure teacher participation in monthly meetings of pedagogical groups.</p>	<p>At state level, disseminate teacher performance standards to all secondary schools (teachers, administrators and school management committees, SMCs); provide central funding to train headteachers and SMCs in their role to oversee fulfillment of standards; meeting of standards as certified by headteachers and SMCs would be condition for contract extensions of recently hired teachers, and/or for existing teachers to obtain promotions. Repeat survey of teacher absenteeism;</p> <p>NAAC/NCTE/MHRD to develop independent accreditation experts and methodology, to review teaching college self-assessments, visit institutions, and recommend approval or rejection of accreditation to NAAC/MHRD. Review and approve institutional improvement plans for funding, including public financing to accredited teacher training colleges for better learning resources, Internet/computer facilities, upgrading of faculty, A/V equipment, etc., based on monitorable targets for increased teacher trainee intake and output, enhanced student teaching, and improved performance on final exams;</p> <p>Ensure all secondary teachers have opportunities and incentives to participate in teacher professional development programs in DIETS, SCERTs/SIERTs, and Institutes of Advanced Study in Education, which enable teachers to meet minimum knowledge and competency standards;</p> <p>Increase central and state funding to expand peer-based model for teacher professional development, through subject-matter networks at the district and/or sub-district level, using ICTs to enable teachers to participate in a "community of practice".</p>
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<p><i>Theme 3:</i> Improve availability and quality of learning materials</p>	<p>Improve textbook quality and supply</p> <p>Ensure complementary subject-matter specific educational resources which promote hands-on learning.</p> <p>Enable all secondary teachers and students to access ICT-enabled learning opportunities.</p>	<p>At state level, revise textbooks to emphasize higher-order thinking skills, improve production quality (paper, colors, graphics), and increase alignment with national curriculum framework;</p> <p>NCERT/SCERTs to develop, pilot and evaluate core sets of curriculum-specific learning materials and resources in language arts, mathematics, sciences and arts;</p> <p>At central level, prepare and introduce comprehensive policies and programs for integration of ICTs into teaching/learning of core secondary syllabi, including ICT infrastructure, capacity-building, content development, research and evaluation.</p>	<p>Provide central and state funding to ensure all government and aided secondary schools receive improved textbooks and core sets of learning materials; increase central and state funding to upgrade school libraries, science laboratories/equipment, recreational facilities and equipment, etc.;</p> <p>At state level, roll-out integrated, classroom-based ICT programs in all public secondary and senior secondary schools, using combination of central and state funding. Offer private aided schools increased unit cost funding if they invest in similar comprehensive ICT programs.</p>
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MANAGEMENT OF SECONDARY EDUCATION	ACTION	SHORT-TERM (1–2 years)	MEDIUM-TERM (3–5 years)
<i>Theme 1:</i> Improve secondary level planning and resource allocation.	Develop secondary education management information system (SEMIS).	At central level, in consultation with the states, design database architecture, reporting requirements, two-way information flows, etc. for SEMIS, building on District Information System for Education (DISE).	Roll-out SEMIS to all states, with financial incentives to states submitting information in timely fashion to MHRD/NUEPA. Continued government recognition of private schools would be conditional upon their prompt submission of this information.
<i>Theme 2:</i> Increase management effectiveness of secondary schools	Devolve new teacher recruitment to district level Increase parental/ community involvement in management of school resources.	At state level, assisted by central guidelines, establish policy framework, prepare training materials, allocate funding, and promote public debate for devolution of teacher hiring to the district level. At state level, assisted by central guidelines, establish policy framework, prepare training materials, and allocate funding for establishment of school management committees (SMCs) for all government secondary and senior secondary schools.	Devolve hiring and management of new teaching and non-teaching personnel to the district level (initial hires on a contract basis). Teachers should be State-certified, but funding for their salaries should be transferred to district level. Teachers may be transferred within districts, and only across districts on an exceptional basis. Establish SMCs in all government secondary schools; train SMC members in roles and responsibilities; introduce block grants to SMCs to cover operating costs and certain investment costs (e.g., for additional classrooms); conduct external audits of school accounts on a sample basis.
<i>Theme 3:</i> Reform and expand PPP models	Reform grant-in-aid system Develop alternative PPP models Increase credibility of recognition process, and supply of recognized private schools.	Pilot reform of current grant-in-aid system, making continued annual funding conditional on teacher and school performance (e.g. teacher and student attendance, student retention and dropout, examination pass rates, etc.). Develop incentives for expanded enrollment, enhanced internal efficiency and improved student learning outcomes. With central funding, pilot alternatives at the state level to current system, such that financing follows the student, not the teacher. Per student capitation grants would be paid to participating private schools, based on numbers of subsidized students enrolled, verified independently. Subsequent government payments would be conditional on achievement of minimum outcomes in terms of student and teacher attendance, student dropout and examination pass rates. Increase transparency and rigor of process for recognizing private schools, and ensure their affiliation to a Board, and offer incentives for achieving recognition.	Evaluate and compare reformed grant-in-aid system to current system; expand the revised grant-in-aid program to additional private aided schools, using mix of state and central funding. Compare student learning and efficiency results with traditional grant-in-aid system; revise and expand per student capitation model as per state demand. Increase availability of on-line information regarding private schools (recognition status, exam pass results, fees, etc.), so parents can make more informed choices.

FINANCING	ACTION	SHORT-TERM (1–2 years)	MEDIUM-TERM (3–5 years)
<p><i>Theme 1:</i> Increase volume, equity, efficiency and leverage of financing of secondary education.</p>	<p>Increase central and state public spending on secondary education, for both investment and recurrent demand-side financing. Use central financing to leverage state-level reforms.</p> <p>Increase financing for secondary education from households which can afford to pay.</p> <p>Mobilize external financing on soft terms and use strategically to support central/state reforms in secondary education.</p>	<p>States to prepare secondary level investment programs (3-year rolling design, with annual work programs and budgets). Beginning in FY09-10, MHRD to pilot fund transfer to selected states which have prepared their plans.</p> <p>MHRD and States work out cost-share arrangements for investments in expansion of secondary level capacity; prepare sample MoUs, clarify financial reporting requirements and formats, etc</p> <p>States to revise policies and regulations regarding government and private aided schools, to permit increased fees and retention of generated revenue, combined with development of demand-side financing mechanisms for households in lowest two income quintiles.</p> <p>Allocate external financing to pilot and evaluate innovations in secondary education, such as per student demand-side financing (CCT programs and per student capitation grants); PPP models for secondary school facility availability, teaching services and non-teaching services; student assessment systems; teacher performance incentives; national and international achievement assessments, etc.</p>	<p>Roll-out of centrally-supported investment program for secondary education to all states meeting specific planning, co-financing, fiduciary and outcome-oriented criteria.</p> <p>Reduce non-targeted public subsidization of private aided schools; re-direct public financing to needy students attending private schools.</p> <p>Evaluate pilots, revise and scale up as warranted, using combination of external and domestic financing.</p>



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