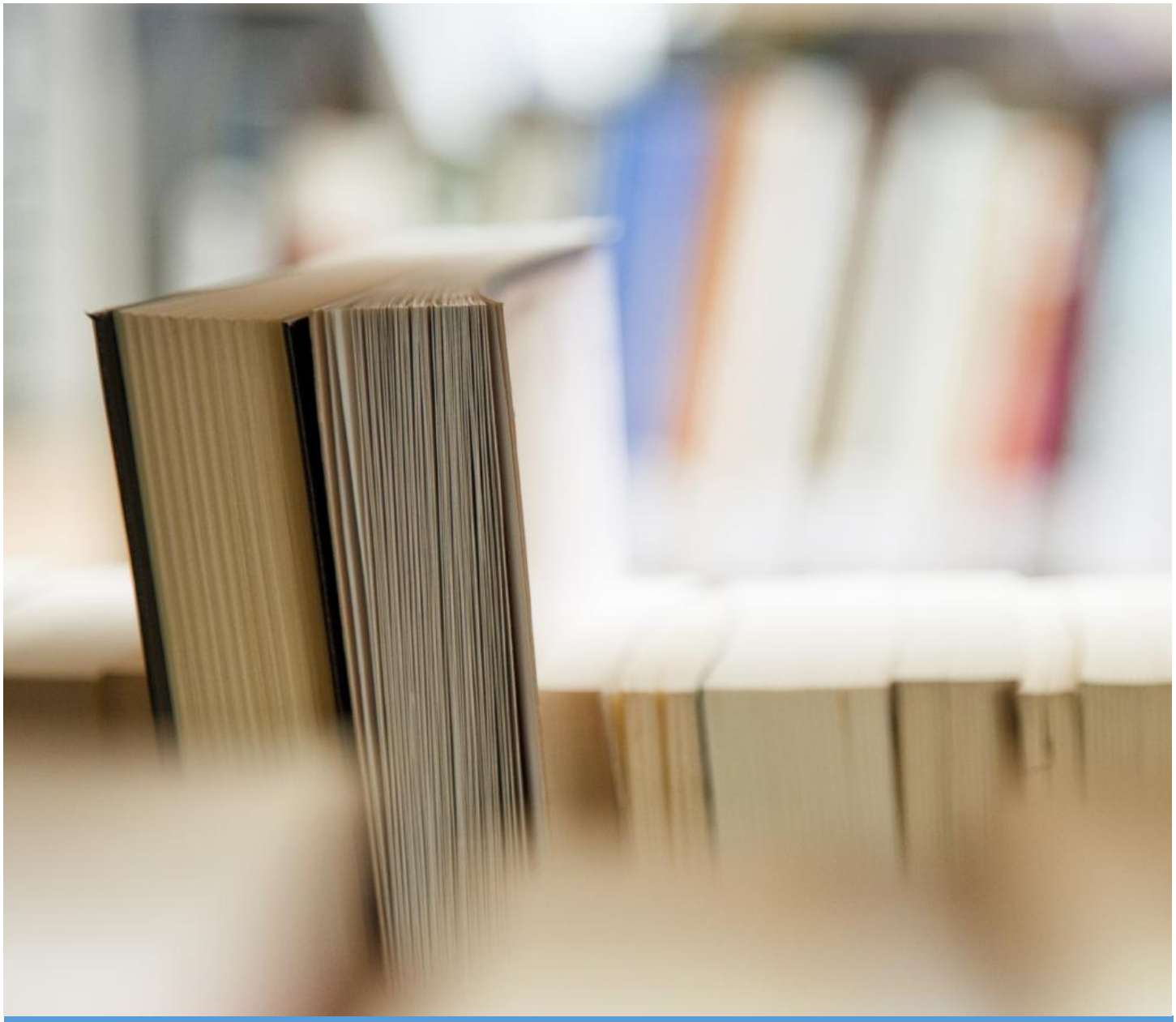

Reviewing the status of education in tribal areas in Maharashtra

A Comprehensive Report

Centre for Budget and Policy Studies (CBPS), Bangalore

June 2017

Executive Summary

One of the biggest challenges faced by the Indian education system in the last several decades since Independence has been expansion without a simultaneous assurance of equity in educational opportunity or quality of education. While the passage of the Right to Education Act, 2009 (RTE) has, at least in principle, sought to guarantee equal opportunity, learning levels and outcomes continue to remain poor for several children, especially those from the most marginalised communities.

This is particularly true for children from tribal communities affected by multiple disadvantages of economic, social, cultural and geographical nature. Tribal populations continue to have one of the lowest enrolments and retention rates as well as learning outcomes in the country, despite more than half a century of interventions to improve their educational status.

It is within this context that the present study 'Reviewing the status of education in tribal districts of Maharashtra', commissioned by the UNICEF, and undertaken by the Centre for Budget and Policy Studies (CBPS), Bangalore, unfolds. The main objectives of the study are:

i. to analyse the status of school education among tribal populations and review policies and programmes related to the education of tribal children in Maharashtra

ii. to understand the status of educational attainment and factors that contribute, or act as barriers, to higher educational attainment (retention, learning outcomes and completion of courses of study) of tribal children in districts with high concentrations of tribal populations

The study included a primary and secondary research component. A comprehensive review of secondary data (i.e. Census, National Sample Survey Office (NSSO), India Human Development Survey (IHDS), and Unified District Information System for Education (UDISE)), critical literature, national and state-level policies on tribal education and development and state-level budgets for education of tribal populations was undertaken to understand the existing provisioning factors that support tribal students' learning. This was combined with a primary survey of learning levels of students of classes II, V and IX, classroom observations, interviews with Principals, focus group discussions (FGDs) with parents and teachers and facility surveys of the existing infrastructure in three districts (Amravati, Thane and Yavatmal) to identify the present conditions and levels of education in tribal districts of Maharashtra. The primary learning survey adopted a Probability Proportional to Size (PPS) sampling technique in order to extrapolate the findings of the survey to all tribal districts of Maharashtra.

The report is organised across nine chapters. Chapter 1 presents the background, introduction to the study and sampling plan. Chapter 2 presents a review of the policies, expenditure and the institutional framework for tribal education in Maharashtra. The chapter also reviews the organisational structures and convergence between the Tribal Development Department (TDD) and the Department of Education (DoE) with respect to the education of tribal students. Apart from managing their own schools, both the TDD and DoE provide grants-in-aid to private-aided schools and also contribute to the Tribal Sub Plan (TSP), managed by the TDD. A significant issue raised by the chapter is the lack of any other form of convergence (with the exception of training, provided by the DoE to teachers of ashram schools) between the two departments.

Further, it notes that TDD budgets are trifurcated into budgets for Scheduled Tribe (ST) schemes, for Scheduled Caste (SC) schemes and schemes meant for all students, including non-STstudents in tribal areas. While there are variations in the amount spent on ST schemes in tribal districts, the budget for SC and ST schemes in all tribal districts (except Yavatmal) does not exceed 1% of the total TDD allocations. Salaries constitute one of the biggest components of expenditure within elementary and secondary education budgets.The other large expenditure for TDD is non-salary components, which include the maintenance of residential schools. A critical point also raised by the chapter is that despite there being several schemes and provisions with respect to tribal education, these are largely limited to expenditure on school infrastructure, hostels and incentives such as various forms of scholarships and fees, though their coverage is low. These components, while being easily implementable or monitorable,are cost-intensive due to which other critical issues that affect schooling experiences and are less easily implementable, such as changes to the school environment and culture, receive little attention.

Chapter 3 presents a secondary data analysis of several large data sets and secondary literature to identify the reasons for low school enrolment among tribal children. It notes that while, on the whole, Maharashtra has a higher literacy rate compared to the national average (and this is true also for non-tribal populations in Maharashtra) within-state comparisons still show tribal populations to be lagging behind. Only half of the rural tribal populations in Maharashtra are found to be literate but a much higher proportion of urban tribal populations have been found to be literate, suggesting that locational factors play an important role.

Tribal populations in Maharashtra were also found to have higher rates of schooling at all levels - primary, upper primary, secondary and higher secondary - compared to national averages. However, these numbers are still low and large rural-urban gaps still persist. Gross Enrolment Ratios (GERs) for ST populations also shows large variations across districts and GERs for STs at the upper primary level were still low. Further, educational attainments also appear to significantly vary by specific tribes. Another observation with respect to school participation was that Net Attendance Ratios (NARs) were significantly lower than Gross Attendance Ratios (GARs), suggesting that students were still attending age-inappropriate levels.

With respect to provisioning factors, the chapter shows a trend of reduction of government schools as well as private-aided schools, along with an increase in the number of private schools in the period between 2010-11 and 2013-14. This is true of tribal districts as well and seen together with the other finding - Maharashtra having one of the highest out-of-pocket expenditure on education - this raises cause for concern as the lack of adequate numbers of 'free' government schools could affect enrolment and continuation of ST students in education. Similarly, other findings showed that the reasons most commonly cited for poor school participation were poverty and need to supplement household income (as against distance). It must be kept in mind that an increase in number of schools alone may not counter the problem of low enrolment and low retention. It is important to ensure that the cost of schooling is low.

Chapter 4 uses primary and secondary data to present a picture of school infrastructure in tribal districts in Maharashtra. On the positive side, the chapter notes that a large number of RTE-identified criteria are present in over 80% of the schools in Maharashtra. Private-aided schools are the least RTE-compliant in terms of infrastructure and local body schools, followed by TDD schools, are most RTE-complaint. The primary survey showed that a majority of schools in the three surveyed districts (i.e., Amravati, Thane and Yavatmal), and across the three school types (private-aided, local body, ashram) had a separate, pucca

building. However, one classroom per teacher was found in few schools, with private-aided ones having the lowest compliance with respect to this. Classrooms were also poorly ventilated and a large number of ashram schools were using their classrooms as living spaces. All schools (across the different management types) had toilets, but cleanliness was an issue, especially in Thane. Seventy five per cent of local body schools also did not have clean toilets. Drinking water facilities were available in all but one school surveyed but separate kitchens for mid-day meals were absent in several cases. Similarly, boundary walls were also absent or inadequate in several cases, raising security concerns, especially inashram schools. Ashram schools had several other issues, including lack of running water and the lack of living spaces for teachers. Health issues, security concerns, and teachers not residing within the schools were all noted inashram schools.

Chapter 5 presents details regarding teachers, teachermanagement and schoolmanagement issues. On the positive side, 70 per cent of the school heads in the districts surveyed reported that they were STs. However, on the whole, the school system is plagued by several issues, including large teacher vacancies that are sought to be filled by contract and clock hour teachers; lack of training particularly in how to handle tribal children and over 80 per cent of teachers coming from non-ST backgrounds. Teachers and school heads reported that they faced several challenges teaching tribal students, pointing to reasons such as the lack of understanding of Marathi among students, migration, cultural differences and unsupportive home environments, with uneducated parents who do not understand the value of education. Suggestions that teachers gave to bring improvements to children's learning included instituting more scholarships and hostels to pursue post-primary education, makingtransport available, publishing books in tribal languages, sensitising parents about school culture and reorganising timetables to take into account tribal festivals, one of the biggest reasons for absenteeism.

Chapter 6 discusses classroom observations undertaken in a limited number of schools from the perspective of curricular transactions. It notes that despite emphasis on progressive, child-friendly approaches to education given in the State Curricular Framework (SCF) 2012, as well as principles drawn from the National Curricular Framework (NCF) 2005, classrooms largely failed to have adequate teaching-learning material, did not go beyond the textbook to adopt alternatives to didactic teaching-learning practices and did not support tribal identitiesand languages within the classroom.

Chapter 7 presents a summary of the approach and tools used for the primary learning survey. Chapter 8 highlights the main findings of our survey which showed that, on the whole, all children assessed (across school management types in three districts and across social categories) were able to score at least 50 per cent out of 100. However, ST students were the least likely to score 40 or 60 percent or above compared to the other two groups (i.e. SC and Others). SC students also showed a trend of 'catching up' with other students in higher grades, not seen in ST students. District-wise comparisons showed that students from Thane had a higher likelihood of performing well than students from the other districts, despite the poor infrastructure and teachers with lower qualifications.

School management type was also found to affect the results on the learning survey.Students from private-aided schools more often scored 60 per cent or more (compared with students from ashram and local body schools). However, infrastructure does not seem to explain this as private-aided schools have the poorest record with respect to RTE Act infrastructure compliance. Pupil-teacher ratios (PTRs) might be a factor contributing to this or the differences in the socio-economic composition of students in private-aided schools.

Overall, class II studentshave been the most successful on the learning assessments given, though this could be because an oral test was administered to them as opposed to written tests for classesV and IX. Class V scores appear to have been adversely affected by language tests, suggesting that perhaps formal and written language skills in the school language (Marathi) may have not have fully developed even at class V level. Students across the three classes also had the greatest difficulty with Mathematics which might be because of the more abstract nature of the subject.

The final chapter presents a summary and conclusion based on the various sources of data collected for the study. Overall, it argues that addressing the issue of the poor outcomes of education for tribal populations is a complex problem, needs to be addressed holistically and relationally. It argues for the need to pay attention not only to provisioning and financial allocations to improve access but the need for such investments to be made considering socio-cultural and geographic factors affecting learning outcomes. Educational planning and budgets need to keep in mind critical barriers such as language and cultural differences in knowledge systems while identifying solutions to the problems plaguing the education of tribal populations. There is a need to innovate pedagogically and increase resources, pedagogic support systems as well as bring about inter-departmental coordination to ensure more contextualised and sensitive education. Ashram schools, conceived with this ideology, are functioning less optimally and are out of touch with the times. It is important to revisit the vision of ashram schools and strengthen itby grounding it incontemporary contexts, conditions and demands by parents and other stakeholders.

The TDD spends more on non-salaries and a large number of schemes exist in the name of education of tribal children.These are largely limited to expenditure on school infrastructure, hostels and incentives such as various forms of scholarships and fees but their coverage is low. Also, Maharashtra currently has a policy of sponsoring a small number of tribal students to privateEnglish schools (a policy that has not so far been publically reviewed) and the Government of India (GoI) also has a scheme where a few tribal students are supported for higher education in private institutions. This together with earlier observations, (for example, that the state had one of the highest out-of-pocket expenditure for schooling) point towards a potential risk that socio-economically weaker populations such as tribal students stay outofschool or dropout. It raises a central question on policy choices being made: is incentivising private education in tribal areas for a few, using public money,more desirable than reforming the public system of which a large proportion of tribal children are part?

Further, the chapter also discusses the lack of convergence between the TDD and DoE, except for training that is provided by the DoE to teachers of ashram schools.

Table of Contents

List of Tables

List of Figures

Acknowledgements

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Acronyms

ACR	Annual Confidential Report
ASER	Annual Status of Education Report
ATC	Assistant Tribal Commissioner
ATSP	Additional Tribal Sub Plan
B.Ed	Bachelors of Education
BEAMS	Budget Estimation, Allocation & Monitoring System
BPEA	Bombay Primary Education Act
BPL	Below Poverty Line
BRC	Block Resource Centre
CBPS	Centre for Budget and Policy Studies
CBSE	Central Board of Secondary Education
CCE	Continuous and Comprehensive Evaluation
CLR	Centre for Learning Resources
COC	Classroom Observation Checklist
CRC	Cluster Resource Centre
CSR	Corporate Social Responsibility
D.Ed	Diploma in Education
DIET	District Institute for Education and Training
DoE	Department of Education
DPEP	District Primary Education Programme
EGRS	Eklavya Girls Residential Schools
EMRS	Eklavya Model Residential School
EO	Education Officers
EVS	Environment Studies
FGD	Focus Group Discussion
GER	Gross Enrolment Ratios
GIA	Grant in Aid
GoI	Government of India
GoM	Government of Maharashtra
HM	Head Master
HT	Head Teacher
IHDS	India Human Development Survey
IIE	Indian Institute of Education
ISKON	International Society for Krishna Consciousness
ITDP	Integrated Tribal Development Project
JRF	Junior Research Fellow
LL	Lower Level
MAAS	Maharashtra Association for Anthropological Sciences
MADA	Modified Area Development Approach
MCQ	Multiple Choice Questions
MEPS	Maharashtra Employees of Private Schools Act

MHRD	Ministry of Human Resource Development
MoSPI	Ministry of Statistics and Programme Implementation
MS	Matric Scholarship Scheme
MSBSHSE	Maharashtra State Board of Secondary and Higher Secondary Education
MSBTPCR	Maharashtra State Bureau of Textbook Production and Curriculum Research
MSCE	Maharashtra State Council of Examinations
MTA	Ministry of Tribal Affairs
NA	Not Applicable
NAR	Net Attendance Ratios
NAS	National Achievement Survey
NCAER	National Council of Applied Economic Research
NCERT	National Council for Education Research and Training
NCF	National Curricular Framework
NFG	National Focus Group
NGO	Non-Governmental Organisation
NSSO	National Sample Survey Office
OBC	Other Backward Classes
OE	Other Expenditure
PD	Personality Development
PMS	Post-Matric Scholarship Scheme
PO	Project Officer
PPS	Probability Proportional to Size
PSM	Pragat Shaishanik Maharastra
PT	Physical Training
PTR	Pupil-Teacher Ratio
PVTG	Particularly Vulnerable Tribal Groups
RDD	Rural Development Department
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RTE	Right to Education
SC	Scheduled Caste
SCERT	State Council for Education Research and Training
SCF	State Curricular Framework
SD	Standard Deviation
SED	School Education Department
SL	Same Level
SM	School Management
SRF	Senior Research Fellow
SRS	Simple Random Sampling
SSA	Sarva Shiksha Abhiyan
SSC	Secondary School Certificate
SSC	Secondary School Certification
ST	Scheduled Tribe
SWD	Social Welfare Department
TDD	Tribal Development Department

TET	Teachers Eligibility Test
TRTI	Tribal Research and Training Institute
TSP	Tribal Sub Plan
UDISE	Unified District Information System
UNICEF	United Nations International Children's Emergency Fund
UT	Union Territory
ZP	Zilla Parishad

1. Introduction

1.1 Background

The diverse and complex structures of communities pose some serious challenges to India's education system. Adivasis, known officially as Scheduled Tribes (STs), are one of the officially recognised 'educationally backward' population groups. Article 366 (25) of the Constitution of India refers to STs as those communities who are 'scheduled' in accordance with Article 342 of the Constitution. The term ST represents more an official/administrative, rather than a sociological or historical, category and is used to refer to a group of indigenous people who have for long remained distinct and isolated from the largerHindu society (Jha and Jhingran 2005).The population of tribal communities stands at 104.28 million as per 2011 Census,showing a rise of 23.7 percent over the previous decade.

Tribal communities have historically occupied more remote and inaccessible parts of the country which continues to remain a crucial challenge for ensuring inclusive development for these groups today. While distinct from one another, a key factor that differentiates STs from mainstream society is their distinct ways of life, which include differences in socio-cultural and political organisation, though these are undergoing rapid changes as a result of modernisation and development(Nambissan 2000). This has also put them at a significant disadvantage as these changes have resulted in further cultural and economic marginalisation of STs, particularly through the deprivation of their traditional rights over forests and other resources (Jha and Jhingran 2005; Veerbhadranaika, Kumaran, Tukdeo and Vasavi 2012).

Attempts to integrate ST populations with the mainstream have led to this situation of declining control over traditional resources and erosion of culture heritages (Nanjunda 2008). Another significant factor that has contributed to this has been the large-scale displacement of tribal populations in the name of'development' (Apte and Lama 2008). These pressures of 'modernisation' and 'development' have, in fact, pushed many ST families below the poverty line (BPL), with half the BPL population now comprising STs. These conditions are even more severe in the case of Particularly Vulnerable Tribal Groups (PVTGs; earlier called 'Primitive Tribal Groups),characterised by extremely low literacy levels, a declining or stagnant population and pre-agricultural level technology (Ministry of Tribal Affairs 2013). According to data obtained from the Registrar General of India, literacy rates among STs was 58.96 percent as compared to all-India literacy rate of 72.9 percent. In terms of higher education, the percentage drops very low with 1.6 percent of the ST population in rural areas having completed graduation while the figure for urban areas is 12.6 percent. The corresponding figure for 'all social groups' is 3.2 percent in rural areas and 17.9 percent in urban areas (NSSO 66th Round 2009-10).

Amidstactive debates on isolation, integration and assimilation as the most suitable policy approaches for tribal population, the GoI set up the Ministry of Tribal Affairs attempting a focused approach to the educational development of tribal communities. It was a division of the Home Affairs Ministry till 1985 after which it was shifted to the Welfare Ministry. From 1998 to 1999, the division worked under the Ministry of Social Justice and Empowerment. It was set up as an independent ministry in 1999 after the bifurcation from the Ministry of Social Justice and Empowerment. It is now the nodal agency to look into the socio-economic development of the most underprivileged of Indian society in a coordinated and phased manner.

Andhra Pradesh (now divided into Andhra Pradesh and Telangana), Chattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Uttarakhand and the Northeastern states are states with high concentrations of tribal populations in India. Children constitute a larger proportion of the tribal population when compared to non-tribal populations (Rustogi, Mishra and Mehta 2012). However, ST children are found to lag further behind in education when compared with other deprived groups such as the SCs, despite the number of special educational provisions and incentives designed for them (Jha and Jhingran 2005; NCERT2006b).Even though in recent years there has been a large growth in enrolment of tribal children, their enrolment ratios continue to be below the national averages (NCERT 2006b). Access and enrolment of tribal students also vary both geographically as well as in terms of gender, with girls in particular seriously lagging behind boys (Nanjunda, 2000; Sujatha, 2004). The reasons for the poor educational status of tribal children are many. Studies have shown that deprivations faced by tribal children consist of a larger set than what is accounted by conventional measures of poverty (Rustogi et al., 2012). Sujatha (n.d.) points out that the educational outcomes of tribal children are affected by social and locational factors, in addition to school-related variables. Access to basic education still remains a challenge for a large segment of this population across the country, especially in economically or/and educationally backward areas (NCERT, 2006b)This report discusses these issues in greater detail.

The dropout rates for tribal children between classes I-V have been particularly high in India (65 per cent, with the dropout rate for tribal girls being as high as 82 per cent). The sharpest drop in enrolment is seen to be between classes I and II (NCERT 2006b).Manehas pointed out that retention has been a crucial challenge when it comes to tribal education, compounded by problems of high absenteeism and large-scale failure in year-end assessments (Mane 2010a). However, high dropout rates between classes I and II could also imply that class I enrolment is exaggerated. Nevertheless, a number of studies have shown that tribal children have lower achievement levels when compared with non-tribal children (Sujatha, 2004).

1.2 The Study

This report is based on research that focuses on understanding the status of school education and learning levels of children in tribal areas of Maharashtra. The Centre for Budget and Policy Studies (CBPS) undertook this study commissioned by the United Nations International Children's Emergency Fund (UNICEF), Maharashtra.UNICEF, Maharashtra initiated the process of commissioning in response to the need for such a study expressed by the government of Mahrashtra.[1]

The share of tribal population in Maharashtra state is 9.35 per cent of the total population. Tribal populations in the state constitute 10 percent of the total tribal population of India. Tribal groups in Maharashtra have been seeing a decadal growth of 22.5 percent (2001-2011) with 37.9 percent of that growth coming from urban areas of the state. Among the 47 ST groups in Maharashtra (egs. Bhils, Gonds, MahadeoKolis, Pawras, the Thakurs, Varlis, etc.), three tribes have been classified as PVTG - the Kolams (in Yavatmal district), the Katkaris (in Thane and Raigad districts), and the MadiaGonds (in Gadchiroli district). The Katkaris are the poorest tribal group in the state and their literacy rates are lower than even the other PVGTS such as the Kolams and Madia Gonds (Tribhuwan and Patil 2008). The table below shows the population of all STs present in the state, according to the 2011 Census.

[1]The study originated in response to call for proposals from UNICEF, Maharashtra. The Terms of Reference for the Call included a number of details of the study, which, along with the technical proposal submitted by CBPS, influenced the research design.

Table 1.1 Population of STs in Maharashtra

Name of the ST	Males	Females	Total
Andh	2,43,300	2,30,810	4,74,110
Baiga	195	138	333
Barda	628	619	1,247
Bavacha, Bamcha	186	159	345
Bhaina	148	122	270
Bharia Bhumia, Bhuinhar Bhumia, Pando	750	598	1,348
Bhattra	31	35	66
Bhil, Bhil Garasia, Dholi Bhil, Dungri Bhil, Dungri Garasia, Mewasi Bhil, Rawal Bhil, Tadvi Bhil, Bhagalia, Bhilala, Pawra, Vasava, Vasave	13,06,793	12,81,866	25,88,659
Bhunjia	1,155	981	2,136
Binjhwar	4,256	4,311	8,567
Birhul, Birhor	90	55	145
Dhanka, Tadvi, Tetaria, Valvi	17,969	17,135	35,104
Dhanwar	2,125	1,969	4,094
Dhodia	8,652	8,868	17,520
Dubla, Talavia, Halpati	9,204	9,493	18,697
Gamit, Gamta, Gavit, Mavchi, Padvi	33,911	33,885	67,796
Gond, Rajgond, Arakh, Arrakh, Agaria, Asur, Badi Maria , Bada Maria, Bhatola, Bhimma, Bhuta, Koilabhuta, Koilabhuti, Bhar, Bisonhorn Maria, Chota Maria, Dandami Maria, Dhuru, Dhurwa, Dhoba, Dhulia, Dorla, Gaiki, Gatta, Gatti, Gaita, Gond Gowari, Hill Maria, Kandra, Kalanga, Khatola, Koitar, Koya, Khirwar, Khirwara, Kucha Maria, Kuchaki Maria, Madia, Maria, Mana, Mannewar, Moghya, Mogia, Monghya, Mudia, Muria, Nagarchi, Naikpod, Nagwanshi, Ojha, Raj, Sonjhari Jhareka, Thatia, Thotya, Wade Maria, Vade Maria	8,18,955	7,99,135	16,18,090
Halba, Halbi	1,32,245	1,28,766	2,61,011
Kamar	793	598	1,391
Kathodi, Katkari, Dhor Kathodi, Dhor Kathkari, Son Kathodi, Son Katkari	1,42,619	1,42,715	2,85,334
Kawar, Kanwar, Kaur, Cherwa, Rathia, Tanwar, Chattri	13,697	12,657	26,354
Khairwar	1,107	736	1,843
Kharia	370	375	745
Kokna, Kokni, Kukna	3,46,001	3,41,430	6,87,431
Kol	3,548	3,326	6,874
Kolam, Mannervarlu	98,319	96,352	1,94,671
Koli Dhor, Tokre Koli, Kolcha, Kolgha	1,12,666	1,07,408	2,20,074
Koli Mahadev, Dongar Koli	7,42,439	7,17,126	14,59,565
Koli Malhar	1,41,698	1,41,170	2,82,868
Kondh, Khond, Kandh	272	243	515
Korku, Bopchi, Mouasi, Nihal, Nahul, Bondhi, Bondeya	1,34,931	1,29,561	2,64,492

Koya, Bhine Koya, Rajkoya	209	179	388
Nagesia, Nagasia	75	58	133
Naikda, Nayaka, Cholivala Nayaka, Kapadia Nayaka, Mota Nayaka, Nana Nayaka	11,717	10,590	22,307
Oraon, Dhangad	22,943	20,117	43,060
Pardhan, Pathari, Saroti	73,575	71,556	1,45,131
Pardhi, Advichincher, Phans Pardhi, Phanse Pardhi, Langoli Pardhi, Bahelia, Bahellia, Chita Pardhi, Shikari, Takankar, Takia	1,13,380	1,10,147	2,23,527
Parja	184	131	315
Patelia	1,372	1,202	2,574
Pomla	26	18	44
Rathawa	262	226	488
Sawar, Sawara	206	142	348
Thakur, Thakar, Ka Thakur, Ka Thakar, Ma Thakur, Ma Thakar	2,87,764	2,80,204	5,67,968
Varli	3,94,144	4,02,101	7,96,245
Vitolia, Kotwalia, Barodia	228	220	448
All STs	**53,15,025**	**51,95,188**	**1,05,10,213**

Source:https://data.gov.in/catalog/state-and-district-wise-scheduled-caste-and-schedule-tribe-population-each-caste-and-tribe

According to a benchmark survey conducted by the TRTI, 91.11 per cent of the ST population in Maharashtra was below the poverty line (having an income of less than Rs. 11,000per annum).[2]The educational status of tribal communities needs to be understood within this socio-economic context, in which survival and basic requirements of food, health and shelter continue to begrave challenges, as several studies show.

The study included a primary learning levels survey as well as an in-depth review of policies and programmeson tribal education, exploring the convergences between the DoI and the TDDto arrive at a better understanding of the status and issues impacting formal schooling in tribal areas of the state. The main objectives of the study are:

i. to analyse the status of school education among tribal populations and review the policies and programmes related to the education of tribal children in Maharashtra

ii. To understand the status of educational attainment and factors that contribute to or act as barriers to higher educational attainment (retention, learning outcomes and completion) of tribal children in districts withhigh concentrations of tribal populations

The first part of the study included desk-based analysis of existing literature and secondary data. A combination of secondary data analysis, policy review and literature review was undertaken for this purpose. The secondary data analysis covers household-level datasets (NSS, IHDS), school-level datasets (UDISE) and Censuses. This was coupled with a review of existing schemes related to promotion of education among tribal communities in Maharashtra, along with allocated budgets and incurred expenditures, to understand the range of incentives provided by the state and their financial commitments.

The second part of the study included a field-based survey across three districts in Maharashtra. The survey includes assessments for students in classes II, V and IX; classroom observations, interviews with Principals, FGDs with parents and teachers and facility surveys to assess existing infrastructures.

[2]Planning Commission (2007)

This report is divided into nine chapters. This chapter presents the background, introduction to the study and sampling plan. The tools and approach are discussed in respective chapters in detail. Chapter 2 is an attempt to present the public policy, expenditure and the institutional framework of tribal education in Maharashtra. The focus is on understanding budgets, schemesand policies through those analyses. Chapter 3 delineates the status of tribal education in India, with special emphasis on Maharashtra, based on an analysis of secondary data, using multiple sources. It also summarises the reasons for low schooling participation among tribal children, as emanating from a literature review and analyses of secondary data.

Chapter 4 uses both primary and secondary data to present a picture of school infrastructure in tribal Maharashtra. Tribal Maharashtra refers to the group of selected districts in the state with high tribal populations. Chapter 5 examines the situation pertaining to teachers, teachermanagement and schoolmanagement issues. The next chapter moves to curricular transaction as observed in classrooms during the fieldwork; it does not use any secondary information. Chapter 7 discusses issues of learning, learning outcomes and the approaches to measure learning outcomes, followed by descriptions of the tools used for the learning outcomes surveys in detail. It argues for an approach that is more appropriate to understanding the progress of formal learning among tribal children as compared to many others followed in India. The next chapter analyses the results of the the learning outcomes survey in detail. It includes discussions on regression results that were mapped to link the findings to other factors that possibly influenced learning results. The final chapter offers suggestions for understanding the needs of tribal children in Maharashtra and recommendations for policy and institutional-level actions from the state.

1.3 Sampling plan

The sampling plan for primary fieldwork for this study faced the dilemma of choosing a strategy that allows for higher levels of generalisation as against ensuring an understanding of specific variations. Finally, sampling for the primary survey was conducted in a stage-wise manner, so as to ensure that in addition to ensuring representativeness, the goal of highlighting variationswith respect to the literacy levels and school management types are also ensured. There are mainly three types of publicly funded/supported school management types: schools run by the DoE through the Zilla Parishad (ZP), schools run by the TDD, and schools that are run by private managements but receive aid from either the DoE or the TDD (private-aided schools).

Therefore, a mixture of PPS along with stratified sampling was used to select districts, blocks and, finally, schools. Stratification ensures that certain key features or variations present in population are emphasized, whereas PPS ensures representativeness of the sample.PPS is a probability sampling technique used when the size of the sampling unit is heterogeneous (Turner 2003)[3]. Normally, Simple Random Sampling (SRS) is used to select a representative sample. However in SRS, irrespective of size, each sampling unit has the same probability of being chosen. By using PPS, i.e. giving weightage to larger sampling units (in this case, districts with larger populations), it was possible to arrive at more precise estimates (Alam et al. 2015)[4], since individuals from sampling units with larger populations have the same probability of being selected as individuals from smaller sampling units. In this case, subject to stratification constraints, each child should have equal probability of being selected.

Step 1: Identification of tribal districts

[3] Retrieved on August 2, 2016 from http://unstats.un.org/unsd/demographic/meetings/egm/Sampling_1203/docs/no_2.pdf

[4]http://article.sciencepublishinggroup.com/pdf/10.11648.j.sjams.20150305.13.pdf (Retrieved on Aug 2, 2016)

In terms of geographical distribution, the scheduled area notified by the GoI in Maharashtra consists of 5,809 villages, 16 towns and 12 districts, and comprises 15.1 per cent of the state. The 12 districts with identified tribal populations are Thane (now segregated as Thane and Palghar and, therefore, 13 districts), Pune, Nashik, Dhule, Nandurbar, Jalgaon, Ahmednagar, Nanded, Amravati, Yavatmal, Gadchiroli and Chandrapur. In addition, the state government has also identified 773 villages in Raigad, Bhandara, Gondia, Chandrapur, Yavatmal, and Pune as Additional Tribal Sub Plan (ATSP) areas, though these do not satisfy the complete criteria of the GoI to come under the TSP. An additional 1,754 villages in the state have been identified as falling under the Modified Area Development Approach (MADA) and mini-MADA to cover the tribal population here. All benefits extended to the TSP areas are also extended to ATSP, MADA and mini-MADA areas[5,6]. For the purpose of sampling, all(and not only these 13) districts were considered and shortlisted as per the ST population as a percentage of the total population in the state.In the sampling plan for this study, firstly, the proportion of tribal population in a district (out of the total population) was the criterion chosen for classifying districts as tribal. Based on this criterion, the top 15 districts with the highest tribal populations according to the 2011 Census data were selected.

Step 2: Stratification of districts into literacy levels

To capturevariations in literacy levels,districts were classified into high, middle and low literacy strata based on the general literacy levels of the ST population in the 2011 Census. The five districts with the highest literacy rates were classified as highliteracy districts, the five districts with the lowest levels were classified as the low literacy districts, the remaining districts were nominatedmedium literacy districts.

Table 1.2: Tribal populations and literacy levels

	Districts	Population	ST population	ST literate population	ST population Percentage	ST literacy Percentage
High Literacy						
1	Nagpur	4653570	437571	320142	9.40	73.16
2	Gondiya	1322507	214253	151339	16.20	70.64
3	Wardha	1300774	149507	105473	11.49	70.55
4	Yavatmal	2772348	514057	344267	18.54	66.97
5	Chandrapur	2204307	389441	256363	17.67	65.83
Medium Literacy						
1	Amravati	2888445	404128	261753	13.99	64.77
2	Nanded	3361292	281695	172659	8.38	61.29
3	Hingoli	1177345	111954	68248	9.51	60.96
4	Gadchiroli	1072942	415306	248469	38.71	59.83
5	Nashik	6107187	1564369	871017	25.62	55.68
Low Literacy						
1	Thane	11060148	1542451	761121	13.95	49.34
2	Raigarh	2634200	305125	149610	11.58	49.03
3	Jalgaon	4229917	604367	295912	14.29	48.96
4	Nandurbar	1648295	1141933	528378	69.28	46.27
5	Dhule	2050862	647315	274313	31.56	42.38

Source: Census 2011 data[7,8]

[5]Please refer to https://tribal.maharashtra.gov.in/1062/Area--Population for description of TSP, ATSP, MADA and mini-MADA.
[6]Mane (2010a).
[7] Retrieved from http://www.census2011.co.in/census/state/districtlist/maharashtra.html

Step 3: Selection of districts and blocks using PPS

From each of these literacy strata, one district was selected employing the PPS method of sampling. Within each district selected, the PPS method was used to select two blocks in each selected district. The three districts chosen were Amravati, Yavatmal and Thane (undivided)[9]. The steps involved in the selection of a district from each strata were the following.

1) a list of total population sizes for each district in the literacy strata was created based on the 2011 Census
2) a list of the cumulative population was then calculated for districts
3) to arrive at the sampling interval, the total cumulative population was divided by the number of clusters to be sampled (In the case of the district, the sampling interval was the total population since only one district per literacy stratum was to be selected)
4) a random start was calculated. Arandom start is a random number between 0 and 1 multiplied by the sampling interval
5) the district chosen was the district with the smallest cumulative number greater than the random start
6) finally, the probability of sampling from each district was calculated which was equal to the total population in the district (or cluster) divided by the total cumulative population

This procedure was repeated thrice.[10]

Using PPS again, two blocks from each district were chosen. The total cumulative population was divided by two to arrive at the sampling interval (since two blocks were to be chosen from each district). The two blocks chosen from each district were Dharni and Warud from Amaravati, Zari and Zamani from Yavatmal and Bhiwandi and Palghar from undivided Thane.

Step 4: Stratification of schools into different management types

To understand the effects of the different management types on educational outcome, schools in each block were stratified according to the three management types:local body-run schools, TDD-run schools and private-aided schools. Using the UDISE categorisation of schools, private-aided schools under TDD or DoE were clubbed underthe private-aided category. Within each management stratum, the schools were then selected again based on the PPS technique.A sample size of 900 students per district across all school management types was chosen. Therefore, around 12 schools were chosen in each block.

UDISE data provides information on schools within each district. This information was used to compile a list of schools.This list also contained details of the total number of students enrolled along with that type of school management. This sampling plan (a time-consuming process) ensured that the sample schools covered all three types of schools and had an adequate number of students enrolled in each of the classes. Details of the final sample are represented in the sample below.

Table 1.3: Final sample by district

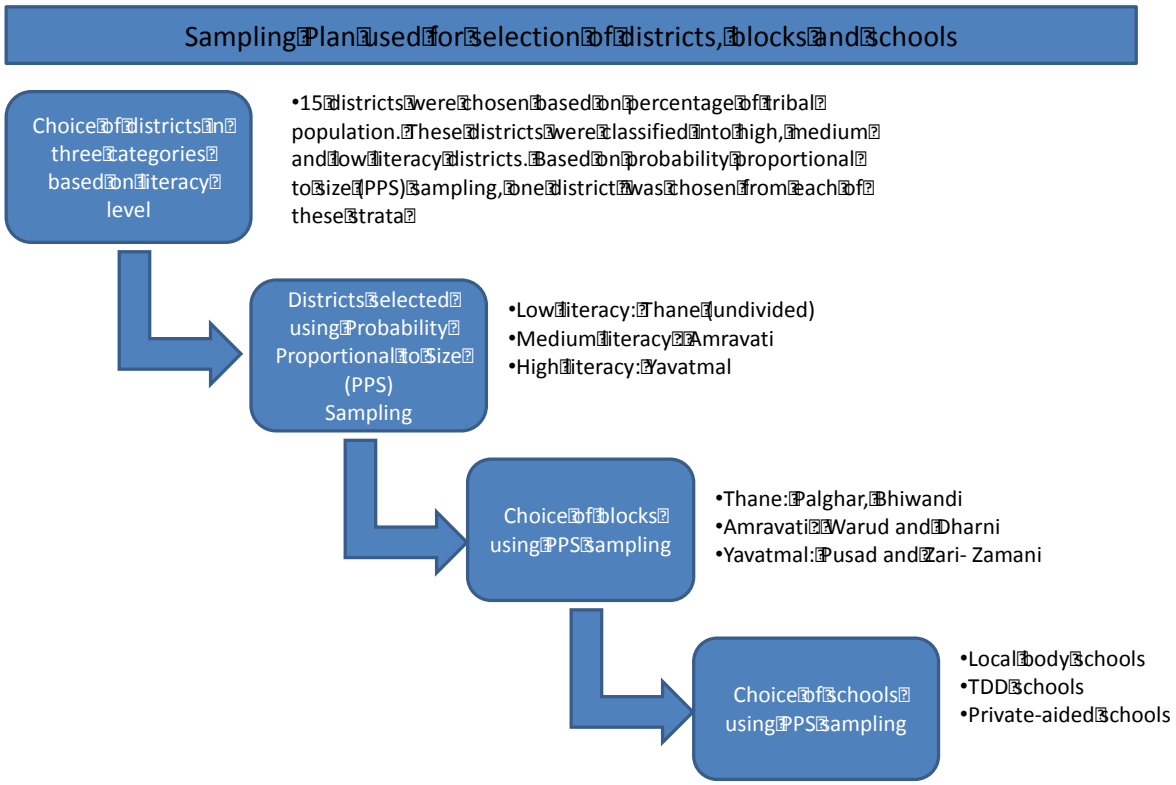
	class II	class V	class IX	Total

[8] Retrieved from http://www.censusindia.gov.in/2011census/dchb/Maharashtra.html
[9] Split into Thane and Palghar in August 2014
[10]The sampling steps are based on http://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/prevalence_survey/psws_probability_prop_size_bierrenbach.pdf Retrieved on August 2nd 2016.

District	No. of Students		No. of Students		No. of Students		No. of Students	
Amravati	305	33.6	304	31.4	305	33.5	914	32.8
Thane	339	37.4	339	35.1	303	33.3	981	35.2
Yavatmal	262	28.9	324	33.5	302	33.2	888	31.9
Total	**906**	**100**	**967**	**100**	**910**	**100**	**2,783**	**100**

Figure 1.1 provides a concise picture of the sampling plan used.

Figure1.1: Sampling Plan



Step 5: Calculation of representative estimates: calculation of weights and probabilities

To provide representative estimates across all districts, the data needed to be weighted by each individual student. The final weight of an individual student is the inverse of the probability of being selected: this probability is in turn based on based on the following probabilities

- P(A_i)- Probability that a particular literacy strata A_i is chosen –1/3
- P(B_j/A_i)- Probability that a particular district B_j given that literacy strata A_i is chosen

  = Total population of individuals in the district B_j/Sampling Interval

  =(Total population of individuals in the district B/Total population in literacy strata A)*1

- P ($C_k/A_i \cap B_j$)- Probabaility that block C_k given that district B_j and literacy strata A_i is chosen
  =Total population of individuals in the districtC_k/Sampling interval

  =(Total population of individuals in block C_k/Total population in districtB_j)*2

- P($D_l/A_i \cap B_j \cap C_k$) - Probability that a particular management type is chosen given that block C_k in district B_j and literacy strata A_i is chosen

  =1/3

- P($E_m/A_i \cap B_j \cap C_k \cap D_l$)- Probability that a particular school is chosen, a given school management D_l inblock C_k in district B_j and literacy Strata A_i is chosen= Total population of kids in the school E_m/Sampling Interval

  =(Total enrolment of Kids in school E/Total population of kids in school management))*

- P($F_n/A_i \cap B_j \cap C_k \cap D_l \cap E_n$)- Probability that a particular school is chosen a given school management D_l inblock C_k in district B_j and literacy Strata A_i is chosen= Total population of kids in the school E_m/Sampling Interval

  =(Total enrolment of Kids in school E/Total population of kids in school management D)*4

Probability that a class in a certain school is chosen

P($A_i \cap B_j \cap C_k \cap D_l \cap E_m \cap F_n$)-Probability that a particular school is chosen in school management D inblock C in district B and literacy Strata A_i is chosen

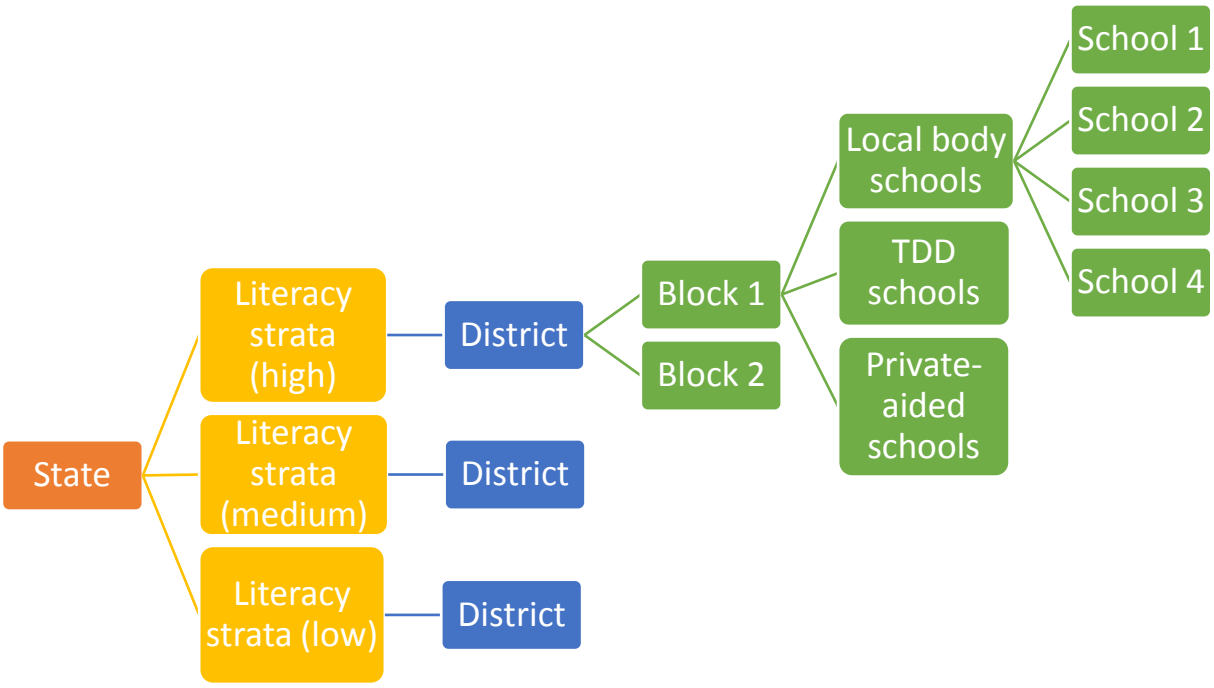
= P($F_n/A_i \cap B_j \cap C_k \cap D_l \cap E_m$) *P($E_m/A_i \cap B_j \cap C_k \cap D_l$)*P($D_l/A_i \cap B_j \cap C_k$*P ($C_k/A_i \cap B_j$)*P($B_j/A_i$) *P($A_i$)

=(Total Enrolment of Kids in school E/Total enrolment of kids in school management D_l)*4*1/3*1/no of classes sampled

*(Total population of individuals in block C_k/Total population in District B_j)*2*(Total population of individuals in the district B_j/Total population in strata A_i) *1/3

*=((Total enrolment of kids in school E_m*Total population of individuals in the block)*8)/(total ((Total enrolment of kids in school management D_l* total population individuals in literacy strataA_i)*9)*1/(no of classes*

Figure 1.2: Stages of sampling for which probability weights are calculated



Data and field issues

Due to time and logistical constraints, certain schools were replaced and, in some cases, schools were not sampled. Therefore, the weights needed to be adjusted to arrive at estimates at the district level.

During field visits, it was realised that the UDISE figures did not match with actual enrolment in a number of schools. There were cases where UDISE data indicated no tribal enrolment for a certain class in a certain school but when the fieldwork team visited the school, there were tribal children in the class. Therefore, we did not control for non-response within a classroom.

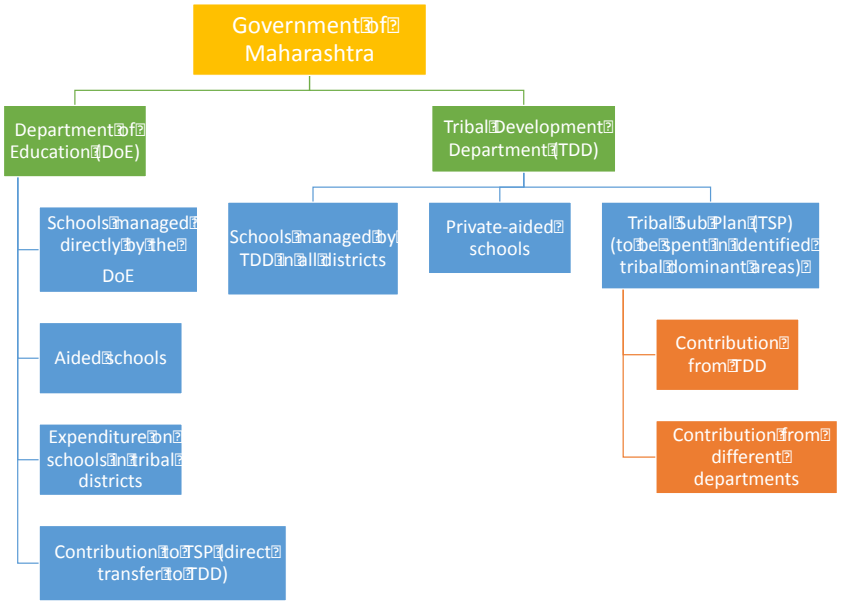
2. School education in tribal areas: An analysis of structure, schemes, budgets and expenditures in Maharashtra

2.1 Administrative structure for delivery of education in tribal areas

The administrative structure for delivery of school education remains largely the same in every Indian state with tribal populations where the DoE and the TDD play vital roles. Both departments run their own schools and also support private-aided schools in a major way through aid. Private-aided schools are viewed distinctly from private schools, which are generally profit-making and are largely outside the purview of this study. These two departments then function with budgets and expenditures best understood through analyses of budgets and expenditures.

Diagram 2.1 shows the administrative structure of the service delivery for school education in tribal areas in Maharashtra. It is clear from the diagram that in addition to their own budgets, these two departments also contribute to the TSP. The TDD acts as the managing department of the TSP, which receives funds from all other contributing departments, including the DoE. The following sections on the budgets help us understand these mechanism better.

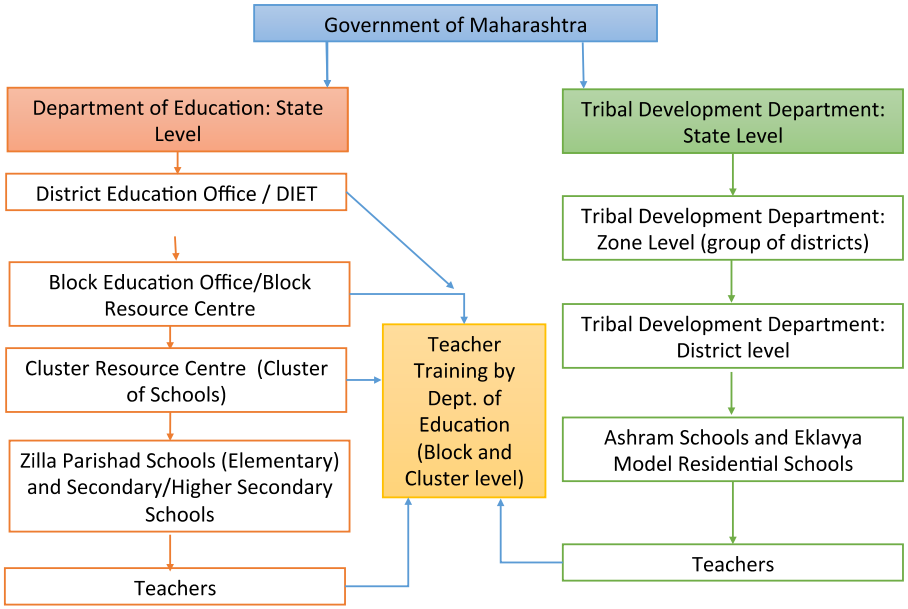
Figure 2.1: Administrative structure of school education delivery in tribal areas in Maharashtra



The two departments function almost in isolation of each other. The only thing that unites them is training, as teachers working with the TDD attend in-service teacher training organised by the DoE (Figure 2.2). This linkage has been enabled by the centrally sponsored Sarva Shiksha Abhiyan (SSA) and its predecessor the District Primary Education Programme (DPEP) which established Block Resource Centres (BRCs) primarily to trainall teachers in the block, and Cluster Resource Centres (CRCs) for academic monitoring of schools. At

times, the District Institute for Education and Training (DIET) organises some special trainings on tribal education but this is rare. Our fieldworkshowed that while teachers from TDD-managed schools attend SSA trainings, CRC coordinators usually do not undertake any academic monitoring of these schools. This shows poor coordination between the two departments. The TDD has organised some trainings of teachers in selected districts but this is not a regular.With respect to the TDD, there is no designated official for education at each level. The Project Officer overlooks education aspects, with assistance from ashram school/Eklavya school Principals.

Figure 2.2: DoE and TDD: Structures and formal Linkages



2.2 Major schemes for education of tribal children

There are specific schemes that various departments, especially the TDD, have for promotion of education of tribal children. Some schemes are also aimed at the promotion of education in tribal-concentrated areas in general. Some of these schemes have their origin in policies adopted at an all-India level and, therefore, have a similarity across the country while others are state government initiatives. In general, these schemes in Maharashtra can be categorised into four kinds: (i) residential schools in the form of ashram schools or modified forms, (ii) hostels for tribal students studying in various schools, (iii) vocational or other forms of training of tribal children and (iv) scholarships/other form of support/transfers assisting in the promotion of schooling.

i. Ashram schools

These are residential schools started specifically for tribal children. Ashram schools were started soon after independence and have their roots in the pre-independencephase. There were two strands within ashram schools that existed in pre-independent India. One was motivated by the thoughts of political thinkers and social reformers like Gandhi, Tagore and Vinoba Bhave. These were civil society organisation-initiated, residential schools for dalit and tribal children. These, however, were few and dispersed across different regions and

states of India. Another kind of school were those started largely by religious organisation-backed NGOs with a purpose of 'refining' and integrating tribals into the Hindu fold, or in some cases, by Christian missionaries to bring them into the fold of Christianity. The Ministry of Social and Tribal Welfare,[11] GoI, started the system of ashram schools not only for tribal children but also for dalit children (known as Harijan Vidyalayas) in many states as early as the 1960s.[12]

Maharashtra also has its own schemes of funding ashram schools, usually known as ashramshalas. The Government of Maharashtra (GoM) has invested in both establishing its own ashram schools and ashram school complexes and schemes that provide grants-in-aid to non-governmental organisations for the establishment and running ashram schools. Recently, it has also started a scheme for junior colleges attached to ashram schools, which provides infrastructural support to higher classes after the completion of secondary education. At present, there are 123 junior colleges attached to secondary schools. The state has also introduced another scheme of model schools for ST students, on the lines of Navodaya Vidyalaya, a central government-funded scheme of residential schools for children in rural areas, where admissions are based on screening through an especially conducted entrance examination. Two such schools exclusively meant for tribal students, where admissions are guided by 'merit', have been established.

ii. Hostels for tribal students

Government hostels run by the TDD have been started at division/tehsil/district levels in order to attract tribal students to pursue higher studies. Maharashtra has nearly 500 such hostels where more than 50,000 tribal students reside (about 40% girls), and seatsare allocated based on merit.

iii. Scholarship/allowance-related schemes (TDD)

Three schemes can be classified under this head:

(a) Travel and maintenance allowances provided for physically challenged ST students studying between classes VIII and XII (Rs 100 per month travel allowance and Rs 500 per month maintenance) and for students attached to professional courses in private unaided colleges (Rs 100 per month limited to 10 months per student).
(b) Golden Jubilee pre-matric scholarship for state tribal students which aims to reduce drop-out rates at the primary level. Introduced in 2010-11 for tribal students studying in private schools, this schemeprovides for Rs. 1,000 for students studying in primary classes (I-IV), Rs.1,500 for students in upper primary classes(V-VII) and Rs. 2000 for students in secondary classes(VIII-X).
(c) Cash awards are provided to encourage meritorious tribal students in classes X and XII.The first three students (three girls andthree boys) at the state lavel are awarded Rs.35000/-, Rs.25,000/- and Rs.15,000/- respectively in classesX andXII. Besides this, Rs.1,000/- per month is also given to these students. The Divisional Education Board also has provision for some cash awards.

iv. Vocational training in tribal areas

In TSP areas, emphasis has been placed on vocationalisation of education at the X-XII stage and development of facilities in the secondary school certificate (SSC) examination. In addition, in-service training programmesare conducted for teachers in private-aided and

[11] Later bifurcated into the Ministry of Tribal Affairs and the Ministry of Social Justice and Empowerment, GoI.
[12]CBPS, 2015.

ashram schools from time to time. Spread across eight locations in the state, these centres provide five to ten days of training in all subjects. Similarly, computer literacy training is provided to students of classes VIII-XII for 20 days spread over six months. In addition to the above, the state is also implementing literacy and adult education programmes in tribal areas.

The Ministry of Tribal Affairs (MTA), GoI, releases grants under Section 275 (1) of the Constitution based on the ST population percentage in a state in relation to the total tribal population in the country. States can take up activities for strengthening the infrastructure in sectors critical tohuman development, generation of community welfare assets, maintenance of schools, providing skilled teaching, including in tribal languages, nutritional support to the needy and other activities meant for tribal welfare. It is used to raise the level of administration of Scheduled areas as compared to administration of other areas in that state, promoting tribal welfare

Funds under this provision are released against specific projects from 2000-01 onwards.Some education-related schemes on which this grant is spent include: (i) residential/hostel-related schemes, namely ashram schools, Eklavya model residential schools (EMRS) and Eklavya girls residential schools (EGRS) (ii) SSA and Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and (iii) scholarship and allowance-related schemes.

As mentioned earlier, the strategies remain largely limited to ashram-type residential schools, hostels, scholarships and allowances. The GoI also funds both kinds of ashram schools: government-run and aided ones to which it provides grants-in-aid. It has also started two new schemes EMRS and EGRS, modelled on Navodaya but meant only for tribal boys and girls. The GoM, with the assistance of the central government, under Article 275(1) of the Constitution, has established four English-medium Eklavya residential schools, affliated to the Central Board of Secondary Education (CBSE), located in four districts: Thane, Nashik, Amravati and Nagpur.The GoI has also introduced one special scheme to strengthen education among tribal girls in low literacy districts in 2008. This scheme gave preference to Naxal-affected areas as well as those inhabited by PVTGs. The GoI also has schemes that provide support for construction of hostels for tribal boys and girls whereas the expenditure on maintenance of the hostels is borne by the implementing agencies.The GoI also has several schemes of scholarships for tribal students,operational in all states with a high concentration of tribals, including Maharashtra.

Matric scholarship scheme (MS) for ST studentsfrom poor families studying in classes IX and Xwas instituted in 2012 to reduce incidence of drop outs, especially in the transition stage from elementary to secondary school and to improveparticipation rates so that students progress and pursue post-matric stages of education.The GoI provides 100 per cent funding assistance to state governments and union territories (UTs) for expenditure under this scheme. The provisions include a monthly scholarship (Rs 150 for day scholars and Rs 350 for boarders), books and ad-hoc grants (Rs 750 per annum for day scholars and Rs 1,000 per year for boarders). ST students with disabilities studying in private, unaided recognised schools receive additional scholarship amount (monthly allowancesbetween Rs. 160/- to Rs. 240/- per month, depending upon the degree of disability). The scholarship is conditional and takes family income as well as performance into account.

Post-Matric scholarship scheme (PMS)provides financial assistance to ST students enrolled in post-secondary classes to help them complete their education. Students receive scholarship amounts ranging from Rs 230 per month to Rs 1,200 per month, based on the course they are pursuing.

Upgradation of merit of ST students has been operating as a sub-scheme under the PMS. The objective of the scheme, started in 1987-88 by the Ministry of Human Resource Development (MHRD), is to provide facilities like remedial and special coaching for ST students from classes IX-XII for all-round development so they can compete with other students for admission to higher education courses and for senior administrative and technical occupations. A scholarship package of Rs.19,500 per student per year has been granted since 2008-09 primarily for coaching costs incurred. At least 30 per cent girls and 3 per cent disabled students have to be selected. States and UTs are provided with 100 per cent financial assistance for the implementation of the scheme (Annual Report, Ministry of Tribal Affairs GoI).

Top Class Education for ST students, introduced in 2007-08, encourages meritorious ST students to pursue studies at degree and postgraduate degree levels at institutions recognised by the MTA. It includes provisions for full tuition fee (with a ceiling of Rs 2 lakhs per student per annum for private institutions and Rs 3.72 lakhs per student per annum for commercial pilot training), living expenses of Rs 22,000 per month per student (subject to actuals), Rs 3,000 per annum per student for books and stationery and cost of computer upto Rs 45,000 as one time assistance. Eligible students should have a family income ceiling of Rs 4.50 lakh per annum (Annual Report 2014-15 Ministry of Tribal Affairs).The MTA provides the entire financial assistance for this scheme and funds are released directly to the institution concerned.

Rajiv Gandhi National Fellowship was introduced in the year 2005-06 and covers higher education, including research degrees. The average cost of fellowship is 2.16 lakh for Junior Research Fellow (JRF) and 2.40 lakh for Senior Research Fellow (SRF), the full funding of which is provided by the MTA. To be eligible for this scholarship, the ST candidate should have cleared the postgraduate examination with a minimum of 50 marks as per UGC norms (Annual Report, Ministry of Tribal Affairs, 2015-16).

The MTA, GoI, merged and subsumed a few existing schemes under an umbrella scheme to expand the scope and flexibility of interventions. The umbrella scheme subsumes the following schemes of the Education Division of the MTA (i) establishment and strengthening of ashram schools (ii) establishment and strengthening of hostels (iii) vocational training in tribal areas (iv) pre-matric scholarships (v) post-matric scholarships. Table 2.1 gives the break-up of the budget and expenditure on education-related schemes for the year 2014-15:

Table 2.1: Budget allocations and actual expenditure during 2014-15 (in Rs. crores)

Name of the scheme	Budget allocation (2014-2015)	Actual expenditure (as on 31st Dec 2014)
Scheme for construction of hostels for ST girls and boys	Rs 65.66	Rs 47.86
Scheme for the establishment of ashram schools in TSPareas	Rs 47.82	Rs 35.69
Post-matric scholarship	Rs. 645.40	Rs. 587.84
Upgradation of merit	Rs. 1.50	Funds not released
Top class education for ST students	Rs 12.74	Rs. 7.09
Pre-matric scholarship For needy STstudents studying In classes IX and X	Rs. 258.82	Rs. 193.06

Source: Annual Report 2014-2015, Tribal Welfare and Development, GoM.

The SSA (Sarva Shiksha Abhiyan) and RMSA(Rashtriya Madhyamik Shiksha Abhiyan) are flagship schemes of the GoI to achieve the universalisation of elementary and secondary education respectively. SSA led to the development of the RTE Act 2009 which also gave

special emphasis on the inclusion of ST communities in the education system. The RTE Act also gave importance to the participation of ST and other backward communities in school management committees. Under SSA, there is an innovative programme of community mobilisation by setting up working groups to monitor the progress of children enrolled in the schools. Under RMSA, intervention for ST communities includes engagement of community organisers with a focus on the schooling needs of children from specific households in tribal areas.

2.3 Budget allocations for tribal areas

The budget and expenditure analyses presented here are expected to provide an idea of the volume of public investment and the complexities of the governance structures and processes, as well as an understanding of the relative shares and roles of the two major administrative departments in this context. In Maharashtra, budget allocations for tribal areas can be grouped under four separate categories:

a. **Budget allocations by administrative departments in tribal areas:** These include any budget allocation allocated by all the administrative departments including DoE for tribal areas. This might not be meant for the specific development of tribal communities but the overall development of an entire block/district, in turn affecting the development of tribal communities. For instance, opening schools in remote areas in a difficult-terrain district tends to increase access for the entire population of that area, including tribal communities.

b. **Budget allocations by administrative departments through the TSP**: A GoI directive in 1975-76 constituted villages that had more than 50 per cent tribal population as Integrated Tribal Development Project (ITDP) areas, so that various plan schemes and services could be integrated at the block level as a TSP[13]. However, over time, it was observed that the block level project officer (of the TDD) did not have adequate powers of supervision and administrative control over the block level machinery of other departments. Till 1992-93, the Planning Department used to allocate plan outlays to different administrative departments, which, in turn, would design their own TSP, deciding upon the schemes and programmes that they wanted to prioritise.

   Since 1992, based on the recommendation of the Sukthankar Committee of the State Planning Board, the Planning Department informs the TDD of the ceiling for the formulation of the TSP and it is finalised by the TDD. The administrative departments (Education, Health, Agriculture, etc.) decide their contributions to the TSP and channelise their funds to the TSP by transferring them to the TDD which, in turn, decides on the final allocation. This amount is then transferred directly to the TDD for expenditure and utilisation.

Table 2.2: TSP as a percentage of total state plan (in Rs. crores)

Year	Total state plan outlay	Outlay provided for TSP	% of TSP out of total state plan outlay
2011-12	41,000.00	3,693.50	9.01
2012-13	45,000.00	4,005.00	8.9
2013-14	49,000.00	4,360.48	8.9

[13] Often, ITDP and TSP terminologies are used interchangeably.

Year	Total state plan outlay	Outlay provided for TSP	% of TSP out of total state plan outlay
2014-15	51,222.54	4,814.92	9.40

Source:https://tribal.maharashtra.gov.in/1087/Overview

c. **Budget allocations by the TDD**: These include the budget allocations by the TDD, over and above the TSP and includes expenditure on development of schools, hostels, scholarships, grants to ZPs, research and training, removal of regional imbalances etc. This budget allocation is meant for tribal communities within the TSP as well as outside TSP areas. The total responsibility of the TDD thus includes its own allocations for the entire state targeting expenditure on tribal population in and outside the TSP areas TSP allocations meant for designated/identified TSP areas, which have higher concentration of ST population. The Sukthankar Committee also recommended that ZPs should receive a larger percentage of the TSP outlays so as to direct the funds to the local schemes and specifically target tribal communities. Hence, district project coordinators develop a district plan based on directives from the state government taking the minimumand maximum percentages of allocation likely to be made towards welfare of the backward classes,across various sectors e.g. rural water supply, health, education, power development, etc.. This is adjusted later to real allocations.

d. **Special Grants under Article 275(I) of the Constitution**: States receive special grants under Article 275 (I) of the Indian Constitution for development-related schemes for the welfare of tribal communities. These grantsare in addition to the special central assistance (SCA) granted under TSP and released to state governments to strengthen the administration of tribal areas from 2000-01 onwards specific projects. Table 2.3 shows the amounts released under Section 275 (1) of the Constitution to the GoM.

Table 2.3: Amount in grants released under Section 275 (1) of the Constitution to GoM (in Rs. lakhs)

Year	Amount
2002-03	2,925
2003-04	2,672
2004-05	2,939
2005-06	3,459
2006-07	2,508
2007-08	3,610
2008-09	2,441
2009-10	2,000
2010-11	9,442
2011-12	10,805
2012-13	2,911
2013-14	12,489
2014-15	11,701
2015-16 (as on 31.12.2016)	10552.85

Source: Compiled from Annexure 6C, Annual Report 2015-16, and Annexure 6E,Annual Report 2016-17, MTA, GoI.

In the following sections, we have analysed the state and tribal district budgets for two relevant departments – DoE and TDD, along with TSP analysis and release of special grants under Section 275(I) of the Constitution. The attempt is to understand the patterns of

expenditure for both departments and analyse their approach and policy for the development of tribal areas.

2.3 State-level analysis of expenditure on education

A coherent budget review involves expenditure and budget analysis spanning multiple years so as to understand emerging patterns. The state-level expenditure analysis on education is based on budget documents for the period 2011-12 to 2015-16. While for the period 2011-2014, actual expenditure figures are available, for 2014-15 and 2015-16, revised estimates and budget estimates respectively have been used (Table 2.4).

State-level budget allocations and expenditures for the DoE indicate that around 53 per cent of budgeted expenditure is on elementary education. Within elementary education, about 90 per cent of the allocation is devolved as assistance to local bodies (e.g., ZP) for primary education. This has been consistent across the years with minor fluctuations. This could be due to the implementation of the RTE that mandated the setting-up of primary schools within one kilometre of any habitation and upper-primary schools within three kilometres of any habitation. During the period 2011-12 to 2013-14, other expenditures, consisting of the state share of Sarva Shiksha Abhiyan (SSA), grants-in-aid from Finance Commissions, supply of educational material to students, evaluation of all schemes and other grants-in-aid, showed a decrease while the period 2014-2016 showed an increase.

Table 2.4: DoE expenditure for the period 2011-16 (in Rs. thousands)

	2011-12Actual	**2012-13 Actual**	**2013-14 Actual**	**2014-15 Revised Estimates**	**2015-16 Budget Estimates**
Direction and administration	53,838	58,965	64,659	65,084	64,587
Assistance to non-governmentalprimary schools	57,832	61,183	66,001	66,094	78,980
Assistance to local bodies for Primary Education	128,427,062 ***(92.76)***	143,633,575 ***(93.97)***	159,257,395 ***(95.33)***	173,711,018 ***(92.08)***	181,891,215 ***(89.52)***
Inspection	1,471,553	1,551,424	1,760,452	1,835,469	1,991,575
Teacher training	638,164	584,502	670,560	711,870	791,923
Assistance to non-governmentalinstitutions	45,332	106,709	71,506	399,338	719,889
Other expenditure	7,751,692	6,857,711	5,172,241	11,860,000	17,650,035
Elementary education - Total	***138,445,473 (54.44)***	***152,854,069 (54.67)***	***167,062,814 (53.62)***	***188,648,873 (54.42)***	***203,188,204 (53.03)***
Direction and administration	18,418	22,722	26,242	30,853	30,787
Inspection	334,549	346,097	380,287	387,177	412,756
Scholarships	124,522	107,408	136,722	119,766	119,970
Government secondary schools	127,067	148,593	170,283	161,410	182,411
Assistance to non-governmentsecondary schools	107,642,971	118,929,379	133,116,234	143,180,867	162,347,108

and junior colleges					
Assistance to ZPs	5,139,024	5,416,710	6,310,304	6,545,392	7,134,762
Other expenditure	501,585	513,021	1,587,371	4,091,371	6,652,217
Secondary education – Total	***113,888,136***	***125,483,930***	***141,727,443***	***154,516,836***	***176,880,011***
Promotion of modern Indian languages and literatures	18	18	14	18	18
Sanskrit education	1,098	1,019	977	1,278	1,278
Language development - Total	***1,116***	***1,037***	***991***	***1,296***	***1,296***
General	***1,766,594***	***1,042,887***	***2,543,385***	***3,081,543***	***2,307,774***
DoE –Total (school education)	**254,295,546**	**279,573,830**	**311,530,174**	**346,615,495**	**383,142,902**

Figures in brackets are percentages; Source: Compiled using budget books for the different years, GoM (using BEAMS online portalhttps://beams.mahakosh.gov.in/Beams5/BudgetMVC/MISRPT/MIST1.jsp)

Allocations for other aspects within elementary education, such as teacher training, inspection, assistance to non-governmental primary schools, direction and administration and assistance to non-governmental institutions remained almost consistent across the time period analysed, with minor changes across the years. One reason could be the change in the accounting practices where the GoI's share for schemes such as SSA started getting reflected in respective state budgets since 2014-15. Till then the GoI's share used to go directly to state societies and only the state share was being reflected in state budgets.

The DoE also provides for special facilities to students belonging to SC and ST communitiesandother allowances for girls from weaker sections studying in primary and upper primary schools of the ZPs. These are also reflected in the transfers to local bodies.

While the elementary education budget is mostly given away as assistance to primary and upper primary schools managed by local bodies, more than 91 per cent of the secondary education budget is given as assistance to non-governmental secondary schools/junior colleges and only about 4 per cent is allocated as assistance to ZPs (Table 2.3). About 0.1 per cent of the total budget is allocated towards government-run secondary schools and another 0.1 per cent is meant for extending scholarships for secondary education. This is also reflected in the number of government-run secondary schools in the state. As per the Sstate report card 2015-16 (UDISE), of all the schools with secondary/higher secondary sections, only nine per cent were managed by the state government. This indicates heavy reliance of the state on private (aided and unaided) institutions for secondary education.

The state share for the RMSA is nested within other expenditure (OE) for secondary education but is a small percentage i.e. about 4 per cent of OE. Expenditure under OE has been consistently increasing, especially since 2014-15, perhaps because of the same reasons as mentioned for the SSA. The GoI's share for RMSA started getting reflected in the state budget since 2014-15; hence the increase. A small portion of the DoE expenditure is also directed towards language development.However, a major portion of this expenditure is allocated to Sanskrit education. Under Demand E3[14] of the state budget, the DoE has also allocated small amounts, across the year, for the production of books in tribal languages or dialects.

The DoE has also been contributing to the TSP for the development of tribal communities with respect to elementary and secondary education (Table 2.5). There have been fluctuations

[14] Includes expenditure for welfare of SCs, STs and OBCs.

in the DoE's contribution to the TSP in the period analysed. In 2011-12, their contribution was Rs. 2,525 lakh, which almost doubled in 2012-13 to Rs. 4,060 lakh. In 2013-14, this share decreased to Rs 3,548 lakh but increased marginally to Rs. 3,679 lakh in 2014-15. In 2015-16 budget estimates, this amount almost doubled to Rs. 6,999 lakh. Although this share has been fluctuating across the years, there is not much variation in the percentage of this contribution within the total TSP budget, as shown in the table below. This share is directed towards grants-in-aid for ordinary secondary schools, junior colleges and higher education, including University education.

Table 2.5: DoE contribution to TSP (in Rs. thousands)

	Actual expenditure for 2011-12	Actual expenditure for 2012-13	Actual expenditure for 2013-14	Budget estimates (revised) for 2014-15	Budget estimates for 2015-16
General education	2,52,594	4,06,096	3,54,842	3,67,975	6,99,989
Total TSP budget	2,18,02,491	2,70,04,586	3,01,91,786	4,29,50,328	4,81,21,034
General education in Total TSP Budget	1.16	1.50	1.18	0.86	1.45

Source: Calculated using budget documents for the different years, GoM (using BEAMS online portal https://beams.mahakosh.gov.in/Beams5/BudgetMVC/MISRPT/MIST1.jsp)

SSA is also involved with elementary education-related aspects and is largely responsible for enhancing the quality of education. Their budget used to be channelised through the SSA Society, which is a direct transfer from the GoI to the respective states. Based on the annual work plan and budget for SSA in Maharashtra (also known as Maharashtra Prathamik Shikshan Parishad) for 2012-13, it can be inferred that about 24 per cent of the total budget is allocated for school infrastructure, followed by teachers' salaries (14.72) and free textbooks (10.47). Provision of free uniforms to all girls and SC/ST/BPL boys constitute about 8.49 of the total SSA budget. Teacher training, meant for teachers from the DoE as well as the TDD, constitutes only five per cent of the total budget[15]. Less than 0.4 is allocated for innovative interventions meant for girls, SC, ST, minority and urban-deprived children. No other special allocation isplanned for SC/ST populations in the state. In the absence of the availability of audited budget statements for the SSA, it is difficult to estimate how much of this allocated budget was actually spent.

The TDD also spends substantial amounts on education with a special focus on the development and promotion of education among tribal communities. It offers wide range of schemes and incentives for enrolment and continuation of education (school as well as higher education). Out of its total budget for the state, the TDD has been spending between 15-20 per cent on education. Although the absolute expenditure on education has been increasing consistently for the period 2011-12 to 2015-16, the share of expenditure on education in the total TDD budget has decreased from 20 per cent in 2011-12 to 15.22 per cent in 2015-16 (Table 2.6). Expenditure allocations within each of the sub-categories has also been increasing during the period analysed. What this implies is that the total expenditure of the TDD has risen at a faster rate than the allocations for education by the Depatment of Education (DoE); the relative share of education has therefore declined.

The Department spends about 90 per cent of its education budget on building and maintaining ashram schools. Out of the entire budget allocated towards ashram schools, about 51 per cent is spent on those maintained by the government while the rest is spent as grants-in-aid to voluntary organisations for maintaining ashram schools in the state. Despite that, the quality of services and infrsatructure remains an issue in ashram schools. Almost all ashram schools visited during the primary survey reported that they utilised their classrooms as living spaces and did not have water filtration processes installed, lacked running water in the toilets, playground equipment and a properly maintained library with books on tribal languages and cultures. It could be a case of either inadequate funds or inefficient and ineffective use, or both. Subsequent analysis provides some insights.

[15]http://mpsp.maharashtra.gov.in/upload/Budget/Final_Budget_2012-13.pdf

Table 2.6: Expenditure on education by the TDD (in Rs. thousands)

	Actual expenditure for 2011-12	Actual expenditure for 2012-13	Actual expenditure for 2013-14	Budget estimates (revised) for 2014-15	Budget estimates for 2015-16
1. Hostels	486,708	523,223	533,894	635,993	680,123
2. Scholarships	52,768	55,844	42,118	76,296	53,484
3.Total for ashram schools	7,591,504	8,361,193	9,208,042	9,979,888	11,079,687
3a. Government-run ashram schools	*3,911,896*	*4,329,053*	*4,773,314*	*5,289,347*	*5,812,771*
3b. Assistance to voluntary organisation-run ashram schools	*3,679,608*	*4,032,140*	*4,434,728*	*4,690,541*	*5,266,916*
4. Grants to ZPs	14,367	16,252	13,981	16,801	16,801
5. Research and training	19,968	17,798	20,104	21,312	26,001
Total expenditure on education (1+2+3+4+5)	**8,165,315**	**8,974,310**	**9,818,139**	**10,730,290**	**11,856,096**
Total TDD budget	**40,053,021**	**44,015,144**	**52,601,355**	**69,847,339**	**77,922,656**
% on School Education by TDD	20.39	20.39	18.67	15.36	15.22

Source: Calculated and compiled using budget documents fordifferent years, GoM (using BEAMS online portal https://beams.mahakosh.gov.in/Beams5/BudgetMVC/MISRPT/MIST1.jsp)

Adequate availability of hostels and scholarships for pursuing higher education is also important. The TDD spends about five per cent of its total education expenditure on building and maintaining hostels (independent hostels - not attached to any school) but a much lesser amount (less than 1 per cent of its education budget) on different types of scholarships. Within the budget allocated for scholarships, about 95 per cent of the expenditure is incurred for payment of tuition and examination fees of tribal students. Apart from this, expenditure is also incurred on maintenance allowances given to students studying in sainik schools and tribal students staying in hostels attached to professional colleges. It appears that these scholarships are aimed at those pursuing higher education. Avery small percentage of the education budget of theTDD is directed towards research and training at the Tribal Research and Training Institute in Pune, which undertakes research and evaluation studies with respect to tribal communities in Maharashtra.The institute conducts in-service training programmes as well as special training programmes for tribal youth appearing for competitive examinations. However, it does not conduct any teacher training programmes.One of the reasons for a small percentage of budgetary allocation on teacher training could be that all teachers employed by the TDD undergo periodical training organised by the DoE and hence the TDD usually does not organise its own teacher training workshops.

Table 2.7 presents a comprehensive picture of public expenditure on school education by different departments. The state spends about 16-17.5 percent of its total outlay on school education. The share of DoE is understandably much higher as it covers the entire state including tribal-concentrated districts whereas the TDD focuses mainly on tribal areas and there too the main thrust has been on secondary schooling. The DoE spends about 96-97 percent of the total expenditure on education whereas the contribution of the TSP is less than one percent, the remaining three-four percent coming from the TDD.

Table 2.7: Public expenditure on school education in Maharashtra

	Amount in Rs. thousands					
	Total DoE Budget (A)	Total TDD Budget on Education (B)	General education component in TSP (C)	Total expenditure on education (D= A+B+C)	Total tate expenditure (E)	Per cent of education expenditure in total state sxpenditure (D as a per cent of E)
Actuals for 2011-12	254,295,546	8,165,315	252,594	262,713,455	1,492,283,700	17.60
Actuals for 2012-13	279,573,830	8,974,310	406,096	288954236	1,654,689,200	17.46
Actuals for 2013-14	311,530,174	9,818,139	354,842	321703155	1,879,821,500	17.11
Budget sstimates (Revised) for 2014-15	346,615,495	10,730,290	367,975	357713760	2,309,326,300	15.49
Budget sstimates for 2015-16	383,142,902	11,856,096	699,989	395698987	2,430,260,900	16.28

However, during our FGDs with teachers as well as in the primary survey, we found that teachers as well as Principals of ashram schools find these trainings very general and not specifically targeted towards addressing issues specific to tribal children or how to utilise rich tribal knowledge about environment in their classrooms.

2.4 Expenditure on education in tribal districts

Maharashtra has a system of developing district plans for each district. However, often, these district plans do not have much leeway to plan indpendently as these are guided by the state department-directed budgetary allocations under different budget heads. Unlike most other states, Maharashtra provides detailed department-wise and district-wise budget figures on an interactive portal at the level of the object head[16]. As an illustration, we have analysed the DoE and TDD expenditureson tribal districts for one single year.The analysis reveals that items of expenditure are such that year-wise differences are likely to be miniscule. It is important to add that these are unaudited actual expenditure figures as reported through the online portal[17] and may not fully match the final figures.

Table 2.8 shows that the ZP schools occupy about three fourth of the total allocations at elmentary levels by the DoE in tribal districts, with another nearly 14 percent going to other local bodies, which could be municipal bodies. The mid-day meal[18]occupies another five percent of the total elementary education expenditure. About 1.5 of the total goes to private primary schools and the establishment of Kendriya primary schools each. Table 2.9 shows

[16] The budget document follows the accounting code system where major and minor heads indicate departments and sub-departments while object heads indicate the details of the expenditure within a minor head. For instance, a major Head can be education, a minor head can be general education (i.e. within education) and object head can be teachers' salaries.

[17]Koshwahini, managed by Department of Finance, GoM.

[18] The portal does not separate elementary, secondary and other heads. We have undertaken the exercise of separating them, which may not strictly be as per government classifications. For instance, the school nutrition programme is viewed as a common expenditure but since the bulk is on elementary, we have included it there.

that at secondary level, as seen earlier at the state level, grants-in-aid occupy a bigger proportion (92 percent, if secondary schools and junior colleges are taken together), followed by ZP/other local bodies (a little over four percent). Some districtsspend a significant proportion of the remaining expenditure on either running government colleges or giving grants-in-aid to private degree colleges (Table 2.9). Some districts have spent on pre-primary schools while some have established a small number of residential schools; these are all clubbed under 'Others' in Table 2.10.

Table 2.8 District-wise, scheme-wise expenditure on elementary education (2015-16) in tribal districts, Maharashtra (in Rs. crores)

Districts	22020173 - A1- Purposive grant to ZP Sec 182 Of Maharastra ZPs and Panchayat Samitis Act,1961	22020208 - A3.B- Other local bodies	22023261 - 2202/01/103/(05)(04) Grantsto private primary schools	22023708 - Establishment of Kendriya primary schools	22023806 - School nutrition programmesother than Mumbai Mahanagar Palika area (C.S.S.)	22023815 - School nutrition programme other than Mumbai MahanagarPalika area (State Share)	Others	Grand Total	Share of districts (%)
Amravati	441.34	195.53	5.98	5.84	22.58	15.42	7.18	693.87	9.96
Chandrapur	409.27	14.97	3.36	8.30	18.18	11.11	7.16	472.35	6.78
Dhule	259.09	45.53	7.50	5.53	17.66	12.25	6.02	353.57	5.07
Gadchiroli	272.97	6.04	0.87	5.39	8.69	5.53	4.76	304.25	4.37
Gondia	277.47	14.69	1.69	3.89	10.04	6.81	3.77	318.35	4.57
Hingoli	214.08	15.15	3.82	3.56	11.61	7.98	1.90	258.11	3.70
Jalgaon	522.25	59.13	12.43	7.81	33.38	23.53	7.19	665.72	9.55
Nanded	530.71	113.35	16.05	8.82	32.43	21.62	9.83	732.83	10.52
Nandurbar	233.15	13.68	3.12	5.60	12.33	5.44	2.79	276.11	3.96
Nashik	687.34	197.09	12.84	14.74	45.01	30.12	15.82	1002.98	14.40
Raigad	450.68	16.16	2.89	12.91	16.41	10.87	6.50	516.42	7.41
Thane*	223.72	227.93	24.70	6.88	36.58	23.12	21.41	564.35	8.10
Wardha	202.35	14.19	1.61	5.05	8.30	5.83	4.61	241.95	3.47
Yavatmal	488.05	19.54	3.44	10.50	21.12	13.31	10.44	566.40	8.13
Total	**5212.48**	**952.98**	**100.28**	**104.83**	**294.33**	**192.94**	**109.39**	**6967.24**	100.0
Share of schemes (%)	**74.81**	**13.68**	**1.44**	**1.50**	**4.22**	**2.77**	**1.57**	**100.00**	

Source: Compiled and calculated using district-level data from the TDD using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; * includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

Table 2.9: District-wise, scheme-wise expenditure on secondary education (2015-16) in tribal districts, Maharashtra (in Rs. crores)

Districts	22020442 - G.I.A. to ordinary secondary schools	22020478 - G.I.A. to non-government junior colleges	22020531 - Purposive grants to ZPs for ex-govt. secondary schools	22020558 - G.I.A. to other local bodies for eecondary education	Others	Grand total	Share of districts (%)
Amravati	374.75	64.04	12.07	22.90	17.06	490.82	8.81
Chandrapur	282.26	42.89	5.24	12.10	8.54	351.02	6.30
Dhule	332.04	54.28	0.00	4.48	9.78	400.58	7.19
Gadchiroli	125.71	21.83	1.61	7.62	9.59	166.36	2.99
Gondia	164.28	27.45	0.00	28.80	9.72	230.25	4.13
Hingoli	81.26	13.03	12.87	0.00	10.15	117.32	2.11
Jalgaon	560.21	65.81	0.00	16.10	20.85	662.98	11.90
Nanded	320.05	94.14	50.29	3.53	22.85	490.87	8.81
Nandurbar	167.96	31.60	0.00	2.84	13.23	215.63	3.87
Nashik	656.15	92.78	0.70	5.91	18.94	774.48	13.90
Raigad	298.44	32.35	0.00	1.82	12.37	344.98	6.19
Thane*	598.62	99.50	1.36	4.62	36.83	740.93	13.30
Wardha	190.86	30.97	1.18	9.38	6.77	239.16	4.29
Yavatmal	264.47	39.29	8.54	17.59	16.76	346.66	6.22
Grand Total	**4417.06**	**709.96**	**93.85**	**137.70**	**213.45**	**5572.01**	100.00
Share of schemes(%)	**79.27**	**12.74**	**1.68**	**2.47**	**3.83**	**100.00**	

Source: Compiled and calculated using district-level data, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

Table 2.10: District-wise, scheme-wise expenditure common to both primary and secondary and other education (2015-16) in tribal districts, Maharashtra (in Rs. crores)

Districts	22020683 – IaGrants to Universities for general education	22020772 - Ia-government arts colleges	22020872 - Ia.1Grant to non-govt. arts, science, commerce, law and B.Ed colleges	22021091 - 001.1-Director Of Education	Others	Grand total	Share of districts (%)
Amravati	35.32	18.50	356.68	2.86	20.19	433.55	27.69
Chandrapur	0.00	0.00	0.00	0.89	5.46	6.35	0.41
Dhule	0.00	0.00	0.00	0.58	6.68	7.26	0.46
Gadchiroli	0.00	0.00	0.00	1.48	12.38	13.86	0.89
Gondia	0.00	0.00	0.00	0.98	2.22	3.20	0.20
Hingoli	0.00	0.00	0.00	0.41	4.03	4.45	0.28
Jalgaon	34.95	0.00	321.81	1.10	18.60	376.46	24.04
Nanded	26.34	0.00	325.37	1.23	11.14	364.09	23.25

Nandurbar	0.00	0.00	0.00	0.42	3.46	3.88	0.25
Nashik	0.00	0.00	0.00	2.98	7.95	10.93	0.70
Raigad	0.00	0.00	314.45	0.80	8.43	323.68	20.67
Thane	0.00	0.00	0.00	1.18	3.53	4.72	0.30
Wardha	0.00	0.00	0.00	0.59	4.64	5.23	0.33
Yavatmal	0.00	0.00	0.00	1.41	6.93	8.34	0.53
Grand Total	96.61	18.50	1318.31	16.93	115.64	1565.99	100.00
Share of schemes(%)	6.17	1.18	84.18	1.08	7.38	100.00	

Source: Compiled and calculated using District Level Data for Education Department, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

Salaries are the biggest component of these expenditures at all levels and in all these districts.At the elementary level, the proportion of salaries varied between 91 and 95 percent in all the tribal districts, except Thane (Table 2.11). This implies the availability of less funds for any other head. At the secondary level, the situation is worse, with salaries occupying 98 to 99 percent of the total state expenditure (2.12). Private managements are expected to spend on infrastructure but as later discussions revealed, that is not the practice in most cases. The story does not change for the remaining expenditures incurred on common (elementary and secondary) and other heads (Table 2.13).

Table 2.11: District-wise salary and non-salary expenditures of elementary education (2015-16) in tribal districts, Maharashtra (in Rs. crores)

Districts	Non-salary	Salary	Grand Total	Non-salary (%)	Salary (%)
Amravati	40.11	653.76	693.87	5.78	94.22
Chandrapur	29.97	442.37	472.35	6.35	93.65
Dhule	30.75	322.82	353.57	8.70	91.30
Gadchiroli	15.43	288.82	304.25	5.07	94.93
Gondia	19.77	298.58	318.35	6.21	93.79
Hingoli	20.35	237.76	258.11	7.88	92.12
Jalgaon	57.97	607.75	665.72	8.71	91.29
Nanded	56.13	676.70	732.83	7.66	92.34
Nandurbar	17.94	258.17	276.11	6.50	93.50
Nashik	79.84	923.14	1002.98	7.96	92.04
Raigad	30.25	486.16	516.42	5.86	94.14
Thane	77.60	486.75	564.35	13.75	86.25
Wardha	14.31	227.64	241.95	5.91	94.09
Yavatmal	37.79	528.61	566.40	6.67	93.33
Total	**528.21**	**6439.02**	**6967.24**	**7.58**	**92.42**

Source: Compiled and calculated using district level, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

Table 2.12: District-wise salary and non-salary expenditures of secondary education (2015-16) in tribal districts, Maharashtra (in Rs. crores)

Secondary	Non-salary	Salary	Grand Total	Non-salary (%)	Salary(%)
Amravati	5.70	485.11	490.82	1.16	98.84
Chandrapur	3.99	347.04	351.02	1.14	98.86
Dhule	3.51	397.07	400.58	0.88	99.12
Gadchiroli	3.23	163.13	166.36	1.94	98.06
Gondia	2.20	228.05	230.25	0.96	99.04
Hingoli	4.09	113.23	117.32	3.49	96.51
Jalgaon	8.55	654.43	662.98	1.29	98.71
Nanded	4.86	486.00	490.87	0.99	99.01
Nandurbar	2.16	213.46	215.63	1.00	99.00
Nashik	8.89	765.58	774.48	1.15	98.85
Raigad	4.19	340.79	344.98	1.21	98.79
Thane	14.79	726.13	740.93	2.00	98.00
Wardha	2.71	236.44	239.16	1.13	98.87
Yavatmal	4.69	341.96	346.66	1.35	98.65
Total	**73.57**	**5498.45**	**5572.01**	**1.32**	**98.68**

Source: Compiled and calculated using District Level, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

Table 2.13: District-wise salary and non-salary expenditures common to both elementary and secondary and other education(2015-16) in tribal districts, Maharashtra (in Rs. crores)

District	Non-salary	Salary	Grand Total	Non-salary (%)	Salary (%)
Amravati	5.35	428.19	433.55	1.23	98.77
Chandrapur	1.39	4.96	6.35	21.95	78.05
Dhule	0.78	6.48	7.26	10.68	89.32
Gadchiroli	7.02	6.84	13.86	50.63	49.37
Gondia	0.54	2.66	3.20	16.83	83.17
Hingoli	1.62	2.83	4.45	36.39	63.61
Jalgaon	9.43	367.03	376.46	2.50	97.50
Nanded	5.27	358.82	364.09	1.45	98.55
Nandurbar	0.77	3.11	3.88	19.91	80.09
Nashik	4.21	6.71	10.93	38.56	61.44
Raigad	1.21	322.47	323.68	0.37	99.63
Thane	1.06	3.66	4.72	22.48	77.52
Wardha	1.09	4.14	5.23	20.83	79.17
Yavatmal	2.74	5.60	8.34	32.85	67.15
Total	**42.49**	**1523.51**	**1565.99**	**2.71**	**97.29**

Source: Compiled and calculated using district level, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane. *common plus= primary+secondary+University education

Table 2.14: District-wise education expenditure and their shares (2015-16) in tribal

districts, Maharashtra (Rs. in crores)

Expenditure	Non-salary	Salary	Total	Share (%)
Elementary	528.21 (7.58)	6439.02 (92.42)	6967.24 (100)	49.39
Secondary	73.57 (1.32)	5498.45 (98.68)	5572.01 (100)	39.50
Common* and Others	42.49 (2.71)	1523.51 (97.29)	1565.99 (100)	11.10
Grand Total	644.27 (4.57)	13460.98 (95.43)	14105.24 (100)	100.00

Source: Calculated using above tables *(elementary and secondary)

Overall, about half of the DoE's expenditure is on elementary, about 40 percent on secondary, and remaining on either common or other heads in tribal districts as a whole. Salaries occupy about 95 percent and non-salaries only five percent of the total district-level expenses of the DoE (Table 2.14).These salaries include salaries of all personnel and not of teachers alone which, of course, is bound to be the biggest element.

In the TDD, meant for STs, SCs and OBCs, the district-wise expenditure can be trifurcated in expenditure meant for STs, for both STs and SCs and for non-STs (Table 2.15). The proportion for STs probably varies mainly on the basis of population variation among districts, which is as high as nearly 64 percent in Nandurbar and 60 percent in Garhchiroli, and as low as nine percent in Wardha. The proportion of components meant for both SCs and STs is small – less than one percent in all districts, except in Yavatmal. The share of non-STs is high, again perhaps indicating the proportion of non-ST populations in the respective districts (Table 2.15).

Table 2.15: District-wise ST, SC/ST and Non-ST expenditure 2015-16 in tribal districts, Maharashtra by the TDD (Rs. in crores)

District	Non- ST	SC/ST	ST	Grand total	Non-ST (%)	SC/ST (%)	ST (%)
Amravati	204.67	0.66	92.67	298.00	68.68	0.22	31.10
Chandrapur	116.28	0.00	93.90	210.19	55.32	0.00	44.68
Dhule	121.39	0.07	118.47	239.93	50.59	0.03	49.38
Gadchiroli	87.29	0.11	128.89	216.30	40.36	0.05	59.59
Gondia	61.85	0.00	72.70	134.55	45.97	0.00	54.03
Hingoli	49.81	0.02	46.66	96.49	51.62	0.02	48.35
Jalgaon	182.57	0.00	109.58	292.15	62.49	0.00	37.51
Nagpur	398.01	0.74	89.74	488.50	81.48	0.15	18.37
Nanded	164.89	0.00	129.60	294.49	55.99	0.00	44.01
Nandurbar	107.77	0.00	189.99	297.77	36.19	0.00	63.81
Nashik	553.89	0.68	557.30	1111.87	49.82	0.06	50.12
Raigad	104.14	0.00	44.08	148.22	70.26	0.00	29.74
Thane	239.11	0.00	79.13	318.24	75.14	0.00	24.86
Wardha	100.80	0.00	10.45	111.24	90.61	0.00	9.39
Yavatmal	141.44	7.91	150.21	299.55	47.22	2.64	50.14
Grand Total	**2633.92**	**10.19**	**1913.37**	**4557.47**	**57.79**	**0.22**	**41.98**

Source: Compiled and calculated using district-level, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

Table 2.16: District-wise salary and non-salary expenditures for ST welfare by the TDD

(2015-16) in tribal districts, Maharashtra (Rs. in crores)

District	Non-salary	Salary	Grand Total	Non-salary (%)	Salary (%)
Amravati	41.42	51.25	92.67	44.70	55.30
Chandrapur	34.86	59.04	93.90	37.13	62.87
Dhule	50.22	68.24	118.47	42.39	57.61
Gadchiroli	45.95	82.94	128.89	35.65	64.35
Gondia	29.32	43.38	72.70	40.33	59.67
Hingoli	20.97	25.69	46.66	44.94	55.06
Jalgaon	34.51	75.06	109.58	31.50	68.50
Nagpur	49.15	40.59	89.74	54.77	45.23
Nanded	43.77	85.83	129.60	33.77	66.23
Nandurbar	83.99	106.00	189.99	44.21	55.79
Nashik	394.13	163.18	557.30	70.72	29.28
Raigad	22.45	21.63	44.08	50.92	49.08
Thane	40.18	38.94	79.13	50.78	49.22
Wardha	3.95	6.50	10.45	37.79	62.21
Yavatmal	55.61	94.60	150.21	37.02	62.98
Grand Total	**950.48**	**962.88**	**1913.37**	**49.68**	**50.32**

Source: Compiled and calculated using district level, using Koshwahini (https://koshwahini.mahakosh.gov.in/kosh/kosh/) Unaudited Actual Expenditure; ***** includes Palghar, which was given the status of a separate district in August 2014. However, current budget data available is for the undivided Thane.

The distribution between salary and non-salary components is different from what we saw in DoE expenses; both occupy roughly half of the total, if we take all these districts as a whole (Table 2.16). The share of salaries is high in some districts (between 60 and 69 percent) while being close to average (45 to 60 percent) in some, and lower in one (29 percent in Nashik). The relatively higher proportion of the non-salary component is explained by the fact that almost 60-70 percent of the expenditure on STs is on ashram schools where the infrastructure as well as non-salary running costs are high because of theirresidential nature (Table 2. 17). The expenditure on ashram schools include both government-run and private-aided ones. The distribution between these two varies widely. Some districts also spend a high percentage on running hostels for tribal students (Table 2.17).

Table 2.17: District-wise, scheme-wise ST expenditure (2015-16) for ST welfare by TDD

Row Labels	1	2	3	4	5	6	7	8	9	10	11	Others	Grand Total	%
Amravati	6.95	1.55	16.01	20.75	3.82	3.31	0.00	6.25	5.65	0.00	4.01	24.36	92.67	4.84
Chandrapur	17.59	2.29	13.25	25.19	0.83	3.39	0.00	5.24	6.33	0.00	0.66	19.13	93.90	4.91
Dhule	12.63	5.36	21.20	42.53	1.50	3.34	0.00	6.38	0.00	0.00	2.14	23.37	118.47	6.19
Gadchiroli	5.32	5.49	36.58	38.86	6.78	0.00	0.00	16.75	0.00	0.00	0.00	19.12	128.89	6.74
Gondia	4.57	2.11	13.47	21.75	1.63	3.19	3.27	2.10	5.14	0.00	1.05	14.42	72.70	3.80
Hingoli	14.70	0.63	5.16	7.83	0.00	2.32	0.00	4.20	4.71	0.00	0.68	6.43	46.66	2.44
Jalgaon	31.15	2.12	14.86	36.97	3.18	4.69	0.00	4.00	0.00	0.00	0.13	12.48	109.58	5.73
Nagpur	6.39	2.10	6.62	19.01	0.39	11.35	0.00	12.75	8.20	0.00	2.24	20.70	89.74	4.69
Nanded	57.82	2.15	20.74	17.78	1.78	3.37	0.00	6.45	6.39	0.00	0.00	13.12	129.60	6.77
Nandurbar	3.47	6.05	60.56	52.93	8.07	0.51	0.00	25.73	0.00	0.00	8.35	24.32	189.99	9.93
Nashik	14.12	8.12	122.12	76.98	18.22	4.48	107.13	22.47	0.00	70.00	67.25	46.39	557.30	29.13
Raigad	0.00	1.46	7.19	7.33	1.58	2.57	0.00	2.91	0.00	0.00	2.66	18.38	44.08	2.30
Thane	2.76	1.48	14.48	8.45	14.30	3.55	0.00	15.94	0.00	0.00	2.40	15.77	79.13	4.14
Wardha	2.20	1.06	4.27	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	2.91	10.45	0.55
Yavatmal	37.96	3.42	24.52	32.98	1.39	7.71	0.00	9.85	5.63	0.00	1.22	25.53	150.21	7.85
Grand Total	217.64	45.38	381.03	409.35	63.48	53.78	110.40	141.03	42.06	70.00	92.78	286.44	1913.37	100.00
%	11.37	2.37	19.91	21.39	3.32	2.81	5.77	7.37	2.20	3.66	4.85	14.97	100.00	

1	22250753 - 277.I.1-A- Grants-in-aidto voluntary organisations for running ashram schools	7	22252424 - Central assistance under Article 275 (1) of the Constitution at India (state scheme)
2	22251072 - Government hostels for STstudents	8	22253627 - Improvement of Integrated Programme of Thakkarbappa tribal bastis
3	22251232 - Government ashram schools	9	2225C999 - Education to tribals in renowned residential English-medium Schools
4	22251268 - Grants-in-aid to voluntary organisations for running ashram schools	10	2225D271 - Housing scheme for tribal benefeciaries below poverty line
5	22251582 – Ashramschoolcomplexes	11	2225D734 – Ashram schoolcomplexes (state level)
6	22252112 - Grants-in-aid to voluntary organisations to open and maintain of basic ashramschools		

This discussion makes it clear that the focus of the schemes has primarily been on the provisioning (e.g., ashram schools) and, at most, on facilitating access to schools (hostels and scholarships) but not necessarily on enriching and impacting socio-cultural-language issues that emerge as a main reason of low schooling participation among tribal children, both in the review of literature and our primary data-based analysis. Also, the allocations on schemes such as hostels and scholarships/allowances remains low and, therefore, available only to a small percentage of those who may be needing it. The focus of recent schemes has been on providing support for tribal students in private unaided institutions at all levels and these need to be evaluated for their reach and efficacy.

The fact that salary occupies a very high percentage of DoE expenses reveals that it does not have much scopefor investment in other aspects unless the size of the investment itself increases. However, it may be worthwhile to see the effectiveness of the investment in terms of efficiency as well as the relevance of what it is being spent on. Subsequent analysis will help us understand this to some extent.

3. Educational status and access to school in tribal areas

The chapter presents a review of the educational status of tribal populations in India based on secondary data analysis with special reference to Maharashtra. Educational status covers two aspects: (i) literacy and completed levels of schooling, and (ii) Enrolment and attendance andaccess to schools has been explored in terms of distance and availability of government or government-supported schools in tribal areas. The chapter also discusses the reasons for low enrolment as emanating from the review of literature on tribal education in India in general and in Maharashtra in particular.

3.1 Educational status of tribal communities: Inter-state and intra-state comparisons

India has an elaborate and fairly established system of data collection and yet there remain inconsistencies. This section uses data mainly from four sources:

i. NSSO, conducted by the Ministry of Statistics and Programme Implementation (MOSPI). As is well known, NSSO is a large sample survey conducted periodically with varying foci such as education, employment, health, etc., and is considered a reliable household-based data source for state-level analysis in India. Different rounds of the NSS survey that have covered details on education such as attendance and education expenditure have been used to give a comprehensive picture of the state of education in India and the various states.
ii. IHDS,again a multi-topic survey, representative at the national level, conducted by the National Council of Applied Economic Research (NCAER) and the University of Maryland in the United States. So far, two rounds have been conducted in 2005 and 2011-12, and both have been used.
iii. The Census of India data conducted last in 2011 and
iv. UDISE data have also been used to provide more details regarding the educational status of tribal populations.

Unlike NSSO, IHDS and the Census, the UDISEdata is not based on household surveys; it is based on information provided by the school.

The analysis mainly focuses on states that have high concentrations of tribal population. While these different data sets present information on different indicators and for different years, and are not strictly comparable, together they can be used to understand certain patterns that emerge vis-à-vis the educational status of tribal populations.

a. Literacy and completed levels of schooling

The 71st round of the NSS survey defines a literate person as someone who can read, write and comprehend a simple passage in any language.[19] This definition of literacy is similar to the census definition of literacy and, therefore, these are comparable. Table 3.1 represents literacy rates (for ages seven and above) across different states with high tribal concentration

[19]NSSO, MOSPI (2015)

in India.[20]Among the states compared,[21] Maharashtra and Uttarakhand have the highest literacy rates, higher than even the national average. Maharashtra has the lowest gaps between male and female literacy rates, as also between urban and rural literacy rates (Figures 3.1a and 3.1b).

Table 3.1: Literacy rates (per cent) for persons (age 7 years and above)

States	Year	Rural			Urban			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Chhattisgarh	2007	78.2	57.4	68.1	92	79.8	86.1	80.5	61	71
	2009	81.9	62.8	72.5	95.1	82.4	88.9	84.3	66.4	75.5
	2014	80.3	60	70.4	91.6	76.2	84.3	82.7	63.1	73.1
Jharkhand	2007	73.5	46.2	60.5	89.5	76	83.3	76.4	51.4	64.6
	2009	72.5	49.5	61.6	87.6	74.2	81.3	75.4	54.3	65.4
	2014	77	55.2	66.4	89.5	77.5	83.7	79.6	59.9	70.3
Madhya Pradesh	2007	76.6	54.2	66	89.5	76.2	83.3	79.9	59.6	70.4
	2009	77.8	55.5	67.2	91.6	78.4	85.3	81.1	61	71.5
	2014	77.4	54.3	66.2	92.4	78.6	86	81.4	60.7	71.3
Maharashtra	2007	84.2	65.8	75.1	93.6	84.7	89.3	88.2	73.4	80.9
	2009	85.4	67.3	76.4	95.4	85.8	90.9	89.8	74.9	82.6
	2014	87.2	70.3	78.8	93.9	86	90.2	90.2	77	83.8
Odisha	2007	74.2	63.84	65.6	92.7	77.5	85.6	76.9	59.7	68.3
	2009	78.1	61.3	69.7	90.9	75.3	83.4	80	63.2	71.6
	2014	81.3	65.8	73.6	91.2	77.2	84.1	83.2	67.8	75.5
All-India	**2007**	**77**	**70.12**	**67**	**89.9**	**78.1**	**84.3**	**80.5**	**62.3**	**71.7**
	2009	**78.5**	**58.5**	**68.8**	**90.8**	**79.5**	**85.4**	**82**	**64.3**	**64.3**

Source: Compiled from NSSO Reports for 2007, 2009 and 2014

Figure 3.1a: Gaps in literacy between men and women (per 1000)

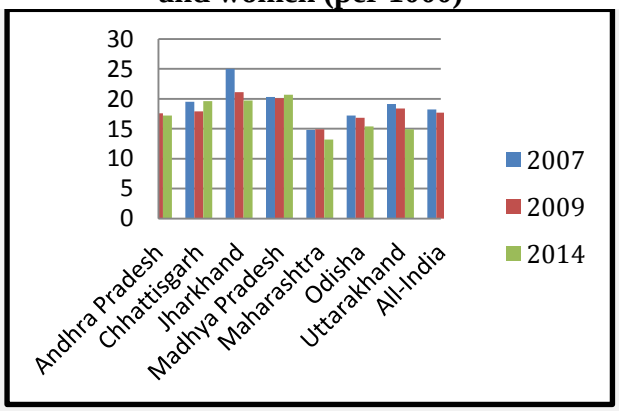
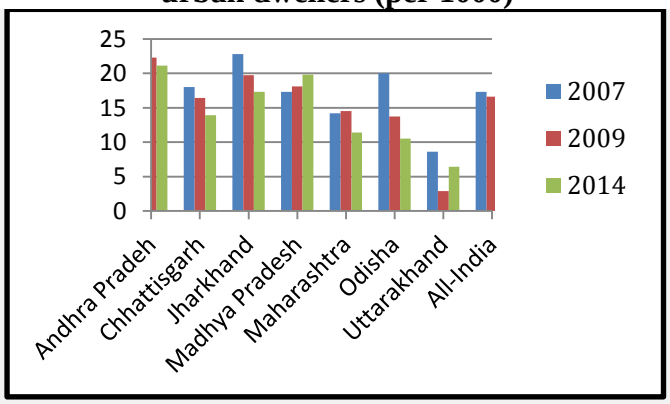


Figure 3.1b: Gaps in literacy between rural and urban dwellers (per 1000)



Source:Compiled from NSSO Reports for 2007, 2009 and 2014.

Although a little dated, the NSSO 1999-2000 is an important source to discuss the distribution of tribal populations across completed levels of schooling. Maharashtra fares better even with respect to educational status of tribal populations when compared to the all-India educational status for tribal populations (Table 3.2). A comparison of literacy levels for tribal populations in Maharashtra indicates that though only half of the rural tribal population was literate, this percentage was higher than the respective national average (42.2) in 1999-2000. Compared to this, about 80 per cent of the tribal populations was literate in urban areas

[20]States with more than 20 per cent of population as ST

[21] In order to ensure population parity between the states compared, smaller states from the North-eastern part of India is not being considered here.

of Maharashtra in 1999-2000 as against about an average of 30 percent for the country as a whole. This suggests that location in terms of rural or urban areas plays an important role.

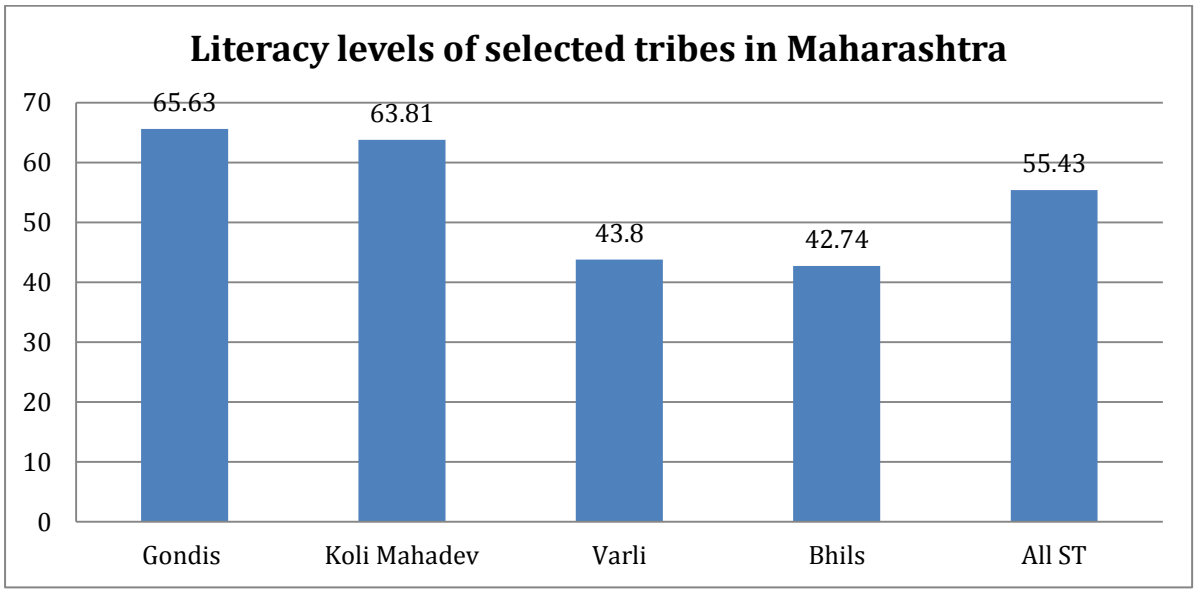
Table 3.2: Percentage distribution of persons above seven years by level of education, sex and location for STs in Maharashtra and All-India (1999-2000)

STpopulation	Not literate	Literate	Literate below primary	Primary	Middle	Secondary	Higher secondary	Graduate and above	All
Rural male									
Maharashtra	38.6	61.4	18.4	18.8	15.4	5.3	2.1	1.5	100
All-India	46.2	53.8	22.0	13.4	10.8	4.4	2.0	1.2	100
Rural female									
Maharashtra	62.0	38.0	13.6	12.2	9.5	2.1	0.4	0.1	100
All-India	69.9	30.1	13.9	7.8	5.6	1.8	0.7	0.2	100
Rural persons									
Maharashtra	50.1	49.9	16.0	15.6	12.5	3.7	1.3	0.8	100
All-India	57.8	42.2	18.1	10.6	8.3	3.2	1.4	0.7	100
Urban male									
Maharashtra	11.3	88.7	17.2	15.3	20.5	15.0	11.7	9.0	100
All-India	21.9	78.1	20.1	13.7	17.0	10.1	8.2	9.1	100
Urban female									
Maharashtra	31.2	68.8	10.6	15.6	24.0	7.6	6.3	4.7	100
All-India	38.8	61.2	17.6	12.7	13.5	7.8	4.9	4.7	100
Urban persons									
Maharashtra	20.6	79.4	14.1	15.5	22.1	11.5	9.1	7.0	100
All-India	30.0	70.0	18.9	13.3	15.3	9.0	6.6	7.0	100

Source: NSS 55th Round Report No 473 (55/1.0/11) Appendix Tables 3R and 3U, 1999-2000

Maharashtra's tribal population fares better than national average in terms of completed levels of schooling at all levels: primary, upper primary, secondary and higher secondary. This is true for both rural and urban areas. But the percentage of tribal population that has completed primary, secondary or higher secondary levels, though higher than All-India averages, are not very high (Table 3.2). In other words, though the status of education among tribal population in Maharashtra is better than All-India, this cannot be a matter of satisfaction, as the level remains low there as well. The proportions are small and almost similar for both Maharashtra and all-India when it comes to graduates and above.Only a small percentage of the tribal population has managed to attain a college degree, miniscule in rural areas. Further, rural-urban gaps are high in the state and suggestive of the need to focus more specifically on rural areas with respect to educational provisions and other factors that affect outcomes for rural tribal populations.

Figure 3.2: Literacy levels of selected tribes in Maharashtra



Source: Census of India, 2011

As noted earlier, averages do not tell the full story.Variations in literacy rates and educational attainments vary significantly among different tribes. For instance, Figure 3.2 presents the literacy levels of four numerically strong tribal groups in Maharashtra according to the 2011 Census. It can be seen that the literacy rates for Bhils and Warlis are much lower than those for Gondis and KoliMahadevs in Maharashtra. This signifies the need to understand the specific situations of various tribes and locations with respect to schooling rather than clubbing them together. However, this also requires a different research approach where specific tribal groups are studied and understood separately.

b. Enrolment and attendance in schools

From the NSSO and Census, we now move to UDISE data to discuss enrolments and, in addition to inter-state comparisons, we include intra-state comparisons here. The previous sub-section helped us in understanding how tribal areas and tribal populations in Maharashtra are placed vis-à-vis other states or all-India averages, as also in establishing the need for disaggregated analyses. In this sub-section, we focus on enrolment and attendance rates with a focus on tribal populations in Maharashtra.

It is a well-known fact that enrolment has gone up, especially at the primary level, almost in every state. Table 3.3 shows change in GERs for the primary and upper primary levels across states with high tribal concentrations. What it shows is that most states had a GER much higher than 100 in 2009-10 at the primary level, which became closer to 100 in 2014-15. This could be reflective of two facts: one, better compliance with RTE Act norms for age-appropriate enrolments, and two, better quality of statistics (since UDISE is a based on self-reported data from schools). The RTE Act came into force in April 2010 and emphasized age-specific enrolment. The table also shows that most of these states, inlcuding Maharashtra, have registered an improvement inGERs for the upper primary level. This is important as the movement from primary to upper primary is an important point which earlier had high drop-out rates.

Table 3.3: GERs for primary and upper primary for 2009-10 and 2014-15

States	GER Primary		GER Upper Primary	
	2009-10	2014-15	2009-10	2014-15
Andhra Pradesh	100.8	88.21	79.1	79.47
Telangana*	-	103.57	-	90.89
Chhattisgarh	124.7	103.08	88.3	101.23
Jharkhand	149.0	108.40	73.2	99.97
Madhya Pradesh	139.4	101.11	97.3	96.63
Maharashtra	104.2	98.95	88.9	98.82
Odisha	119.4	105.53	69.2	90.13
Uttarakhand	106.2	100.54	91.2	85.53
All-India	115.6	100.08	75.8	91.24

Source: UUDISE State and all-India report cards for 2009-10 and 2014-15; *Telengana is a new state carved out of Andhra Pradesh after 2009-10. Andhra Pradesh was bifurcated into Andhra Pradesh and Telangana.

As mentioned earlier, UDISE statistics is a compilation of self-reported data from schools. It would be interesting to compare it with household-based data. To measure the participation of a child in school, the NSS looks into attendance: whether a child is 'attending the school or not' forms the basis for estimating GARs and NARs. GAR is calculated for a particular level of education, by considering all persons in the relevant age-group for that level in the denominator, and all persons studying in that particular level in the numerator. NAR, on the other hand, is calculated by considering each education class/group the ratio of the number of persons in the relevant age group attending a particular class group to the total number of persons in the age group. NSS also calculates age-specific attendance ratio to estimate the proportion of persons in a particular agegroup currently attending educational institutions, irrespective of the level/class they attend. This measure helps in understanding whether there are persons in a particular agegroup not currently enrolled. However, this does not tell us anything about the regularity of students in attending school. These are attendance ratios for the unit as a whole and not for the tribal population alone asthe latter was not available from the source used for this purpose.[22]

A comparison of GARs in Table 3.4 with GERs in Table 3.3 reveal that GARs are generally lower than GERs everywhere. Although Maharashtra seems to be comparable to other states included here, the state reports a declining trend in the GARs for upper primary, secondary and higher secondary levels; this is cause for worry. The fact that the GAR for upper primary is lower than GER also needs to be noted. A perusal of Tables 3.4, 3.5 and 3.6 allow the following important observations to be made about Maharashtra:

i. The NARs are significantly lower than the GARs in Maharashtra at all levels, indicating that the presence of students outside the age-appropriate group for respective levels is still high. This also gets corroborated by low levels of age-specific ratios.

[22]Source: NSS Report titled "Key Indicators for Social Consumption in India: Education; NSS 71st Round; January - June 2014" and available at http://mospi.nic.in/sites/default/files/publication_reports/nss_71st_ki_education_30june15.pdf Details regarding attendance rates are available here only for the state as a whole, and not for various social categories.

ii. The attendance ratios are low at upper primary and higher levels; ample need for improvement exists.

iii. The schooling participation is declining drastically for the age group above 17 years; this is true for nearly all states inlcuded here.

Table 3.4: GARs: 2009, 2014

States	Primary		Upper primary		Secondary		Higher secondary	
	2009	2014	2009	2014	2009	2014	2009	2014
Andhra Pradesh	98	105	79	92	108	88	84	70
Chhattisgarh	113	102	92	87	89	88	72	60
Jharkhand	90	105	89	90	78	95	60	51
Madhya Pradesh	99	102	93	97	74	80	52	61
Maharashtra	94	100	96	92	125	101	80	67
Odisha	103	104	73	83	124	100	45	48
Uttarakhand	123	106	86	103	91	92	66	71
All-India	99	101	89	90	91	87	61	64

Source: NSS 71st Round Report NSS KI (71/25.2) Appendix A Table 5,2014and NSS 66th Round Report No. 551(66/10/6) Chapter 3 Statement 3.16.1, Rural +Urban Person2009-2010

Table 3.5: NARs: 2009, 2014

States	Primary		Upper primary		Secondary		Higher secondary	
	2009	2014	2009	2014	2009	2014	2009	2014
Andhra Pradesh	83	89	55	71	53	54	46	49
Chhattisgarh	84	85	57	58	45	55	32	35
Jharkhand	65	81	43	56	36	43	24	25
Madhya Pradesh	75	84	59	68	36	47	25	32
Maharashtra	81	88	66	71	64	62	45	46
Odisha	85	88	54	66	60	67	31	32
Uttarakhand	92	96	57	85	43	61	29	49
All-India	78	83	56	63	47	52	33	38

Source: NSS 71st Round Report NSS KI (71/25.2) Appendix A, Table 6, 2014 and NSS 66th Round Report No. 551(66/10/6) Chapter 3 Statement 3.17.1, Rural+Urban Person,2009-2010

Table 3.6: Age-specific attendance ratios, 2014

States	Agegroup			
	6-13	14-17	18-23	24-29
Andhra Pradesh	96	78	28	2
Chhattisgarh	87	79	29	3
Jharkhand	88	75	29	3
Madhya Pradesh	89	74	25	3
Maharashtra	94	80	34	4
Odisha	94	65	19	2
Uttarakhand	98	82	45	3
All-India	90	76	32	3

Source: NSS 71st Round Report NSS KI (71/25.2) Appendix A Table 7, 2014

Using UDISE statistics, we now move to intra-district analysis for the GER calculated for ST communities across the tribal districts as well as the state average in Maharashtra.To understand the status of education in tribal areas in Maharashtra, secondary data analysis has been undertaken for the districts identified by the GoI as Scheduled area. The 12 districts

with identified tribal populations are Thane (now divided into Thane and Palghar), Pune, Nashik, Dhule, Nandurbar, Jalgaon, Ahmednagar, Nanded, Amravati, Yavatmal, Gadchiroli and Chandrapur. As per 2011 Census, the total population in these districts was 41.21 lakhs (total population for Maharashtra was 112.37 lakhs). In these districts, the total population in the age-group 5-19 years (school going population) was 10.38 lakhs while the same population for the state was 27.11 lakhs[23].

An erratic pattern emerges from this analysis: some districts report an improvement while others a decline in the GERs at bothprimary and upper primary levels (Table 3.7). The ST population in the state as a whole has reported an improvement but this is obviously not true for all districts. There is a need to understand whether this is a real decline or improvement, a result of movement towards age-specific enrolment or just reflective of data collection errors. If we take NSSO data, as presented in the Tables 3.4 to 3.6 as more reliable, then the argument of age-specific enrolment does not hold much ground. Then, it has to be either reflective of a better or worse picture (depending upon if it shows improvement or decline) or an issue of data veracity.

Table 3.7: GERs for ST children inprimary and upper primary classes

Districts	2005-06		2013-14		Change in points between 2005-06 and 2013-14	
	GER for STs (primary)	GER for STs (upper primary)	GER for STs (primary)	GER for STs (upper primary)	Change in points for GER (primary)	Change in points for GER (upper primary)
Amravati	144	54	99	64	-31	10
Bhandara	133	79	91	62	-32	-17
Chandrapur	155	80	103	67	-33	-13
Dhule	85	43	101	63	19	19
Gadchiroli	123	55	96	54	-22	-1
Gondiya	132	68	89	63	-33	-5
Jalgaon	101	52	121	78	20	25
Nagpur	156	92	108	65	-31	-26
Nandurbar	81	35	87	50	7	15
Nashik	99	43	101	65	2	21
Thane	89	29	104	72	18	43
Yavatmal	141	58	98	64	-30	6
ST in Tribal Districts	104	47	101	64	-3	17
ST in Maharashtra	85	54	102	65	19	11
ST in India	94	44	112	66	19	22

Source: Calculated using UUDISE 2005-06 and 2013-14; Census 2011 and Average Annual Exponential Growth Rate given by Census 2011. Process of calculation explained in the text above.

Irrespective of the fact that there is need to better understand and explain district-level UDISE data on enrolment, what emerges clearly from the above analysis is that the participation of ST children is lower than desired, especially at the upper primary level in all the districts in Maharashtra. This is an important message in view of the fact that RTE has already been implemented for more than six years. Maharashtra emerges asbetter in comparison to other states with high tribal concentrations.

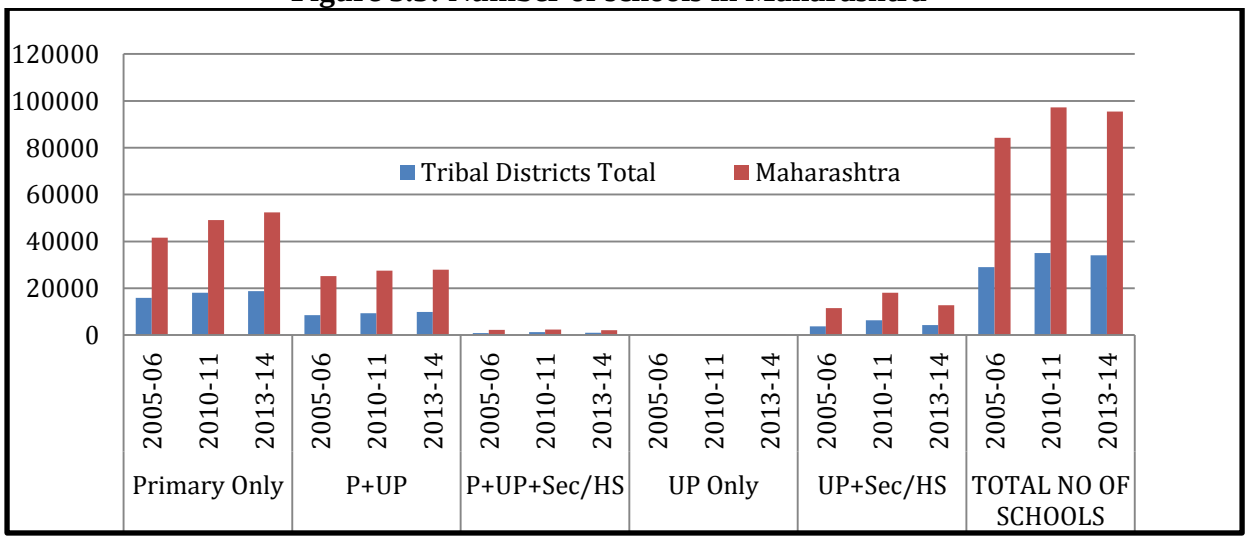
[23]Census 2011

3.2 Access to schools

In this section, with the help of secondary data analysis, we attempt to understand the issue of access in Maharashtra using two kinds of indicators: (i) distance in terms of availability of school within a particular range, and (ii) affordability in terms of access to 'free' or affordable school. Other aspects of access that include finer elements such as school infrastructure and school environment have been discussed at later stages.

Figure 3.3 shows that during the period 2005-06 to 2013-14, the number of schools in Maharashtra has increased by 13 per cent[24]. However, it is crucial to explore whether or not this increase in number of schools is also true for the areas with higher concentration of tribal populations. Even more important than the number of schools is whether or not an adequate number of school seats are available to children within the stipulated distance in tribal areas. Given that the data is mainly available on either the number of schools or the size of enrolment, it is not possible to estimate the number or adequacy of school seats in any area. Also, given that the RTE Act makes it mandatory that the state admit all children in the relevant age group between 6 and 14 years (elementary school age group), the issue of adequate seats becomes somewhat redundant. What is more important is distance, physical accessibility and affordability.

Figure 3.3: Number of schools in Maharashtra



Source: Calculated using UDISE data for 2005-06, 2010-11 and 2013-14

As per RTE Act, state governments need to ensure the availability of primary schools within one kilometre of any habitation and upper primary schools within three kilometres of any habitation. The RMSA[25] has also specified distance norms for secondary schools, which is within five kilometres of any habitation. While a large proportion of households have access to different levels of school asper these criteria in ruralMaharashtra, about four per cent of households have primary schools located beyond one kilometre, nearly 20 per cent of the households indicated that upper primary schools were more than two kilometres away while

[24]Calculated using District and State Report cards, UDISE, 2005-06 and 2013-14.
[25] This scheme was launched in March, 2009 to enhance access to secondary education and to improve its quality. The implementation of the scheme started from 2009-10 (http://mhrd.gov.in/rmsa).

about 15 of the households indicated that secondary schools were more than five kilometres away[26] (Table 3.8).

These norms play out differently in urban areas because of the use of transport and other factors that influence the choice of schools by parents. Nevertheless, about 10 percent of households have the closest primary school located at a distance of more than one kilometre. For about 16.5 per cent households, the closest upper primary school is located at a distance of more than two kilometres and for about 8.5 per cent households, the secondary school is located at a distance of more than five kilometres in urban Maharashtra.

Paying attention to distance norms becomes critical as this has a direct impact on access, especially for girls and children from disadvantaged communities for reasons related with safety as well as affordable transport. However, when different rounds of the NSS are compared, it is apparent that access has improved and distance from schools has reduced between 2007 and 2014. This could partly be due to the implementation of the RTE Act.

Table 3.8: Percentage of households by distance from school having primary, upper primary and secondary level classes for each state/UT rural and urban (2014)

	RURAL				URBAN			
	< 1 km	1 km – 2 km	2 km – 5 km	> 5 km	< 1 km	1 km – 2 km	2 km – 5 km	> 5 km
Primary								
Andhra Pradesh	97.8	2.0	0.2	0	96.2	3.8	0	0
Chhattisgarh	97.2	2.8	0	0	92.8	7.0	0.2	0
Jharkhand	95.9	3.3	0.8	0	95.5	2.6	1.9	0
Madhya Pradesh	98.9	1.1	0	0	95.1	4.9	0	0
Maharashtra	96.2	3.3	0.5	0	90.3	7.6	1.9	0.2
Odisha	94.1	4.8	1.1	0	95.3	4.7	0	0
Uttarakhand	81.7	14.5	3.7	0	91.8	7.8	0.4	0
All-India	94.1	4.9	0.9	0.1	92.5	6.5	0.8	0.1
Upper Primary								
Andhra Pradesh	68.1	13.8	13.5	4.7	87.1	9.2	2.9	0.8
Chhattisgarh	66.6	12.6	17.6	3.1	72.7	27.1	0.2	0
Jharkhand	51.4	24.8	19.2	4.6	62.7	31.8	5.5	0
Madhya Pradesh	71.6	15.5	11.5	1.4	87.7	10.3	2.1	0
Maharashtra	66.2	13.2	16.4	4.2	83.6	11.8	4.2	0.4
Odisha	69.7	18.6	9.5	2.2	86.3	13.6	0.1	0
Uttarakhand	54.6	24.9	19.4	1.2	74.2	25.4	0.4	0
All-India	66.5	19.0	12.1	2.4	82.9	13.1	3.7	0.2
Secondary								
Andhra Pradesh	51.3	14.4	19.2	15.1	83.9	11.1	4.1	8
Chhattisgarh	39.9	13.9	37.2	9.0	68.4	23.8	6.3	15
Jharkhand	21.0	27.6	31.6	19.8	51.3	26.7	20.3	17
Madhya Pradesh	34.1	13.1	30.1	22.7	75.6	17.0	7.3	1
Maharashtra	44.0	15.0	25.9	15.0	72.0	19.5	7.9	6
Odisha	27.3	26.8	33.4	12.4	48.0	36.9	15.1	0
Uttarakhand	31.0	29.1	26.6	13.4	60.9	32.1	6.6	4
All-India	36.7	23.6	27.5	12.2	72.7	18.7	8.0	7

Source:NSS 71st Round Report (71/25.2) Appendix Table 2 and 3, 2014

The IHDS dataset, although not as extensive as the NSS, also tries to capture the distance to school for households where at least one child is enrolled in school. This data also allows for

[26]NSS Rounds categorisation of distance from school is not consistent with the specifications in the RTE Act. Hence, the schools in the third category, between two and five kilometres, are assumed to beyond the specified limit in the RTE Act.

social category-wise analysis and is supposed to be representative of the state with respect to socialcategory-wise populations. As per this data (Table 3.9), it appears that ST households, with at least one child enrolled in school, have better access to schools than other communities. This means that within Maharashtra, ST populations are better placed as compared to other social/caste groups, if being closer to school is considered an advantage. However, this needs careful interpretation as the higher distance could also be indicative of enrolment in private schools accessed through transport rather than of lack of access to a school in the neighbourhood. There is a definite shift towards STs also attending educational institutions at a greater distance than before between 2005 and 2012, which could be indicative of either greater use of residential schools or accessing private schools. However, this is just a conjecture.

Table 3.9: Social group-wise percentage distribution as per distance from school for those currently enrolled at any level of school in Maharashtra for IHDS Round I in 2005 and Round II in 2012

Social Category	Distance from school for those currently enrolled in (at any level)															
	0-1 KM		2-3 KM		4-5 KM		6-10 KM		11-15 KM		16-20 KM		>20 KM		Total	
Rounds	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
ST	66.1	0.0	14.1	60.9	10.2	11.7	5.4	18.2	0.9	4.6	2.5	1.6	0.5	2.8	100	100
SC	75.5	0.02	13.3	48.4	4.7	13.4	2.1	16.4	3.3	9.3	0.3	4.7	0.7	7.5	100	100
OBC	75.4	0.02	12.9	54.4	3.1	12.4	5.7	18.6	1.6	6.3	0.6	2.8	0.5	5.3	100	100
Others	68.6	0.0	14.2	52.0	3.7	15.4	11.1	14.3	0.6	6.7	0.8	3.6	1.5	7.7	100	100
Total	71.8	0.02	19.9	52.7	3.3	13.8	5.9	16.3	1	6.9	0.3	3.4	1.4	6.6	100	100

Source: Calculated using IHDS Raw Data for Round I (2005) and Round II (2012)

Government-run schools, either through DoE/ZP or the TDD and aided schools are mostly free or at least supposed to be free with some elements of user fee payment at post-primary levels. As opposed to this, private unaided schools are fee-charging and, in most cases, profit-making schools. In that sense, an analysis of the distribution across these three types of schools, and changing patterns, if any, could add to our understanding of the contexts.

UDISEflash statistics provide the number of schools by management, which shows that the total number of government schools has declined from 68972 in 2010-11 to 67307 in 2013-14 in Maharashtra. The number of private aided schools has also declined from 18522 to 17495 whereas that of the private unaided schools has gone up from 9728 to 10637 during the same period. This in itself, however, does not tell us much about the implications for tribal populations or areas. The situation in tribal districts also appears to be similar: the number of government schools declined and private schools increased in this period, this being true of each single district as well (Table 3.10). At the district level, UDISE has not provided data separately for private-aided and unaided schools but the pattern is likely to be the same as the state as a whole, with the number of aided schools declining and that of unaided private schools rising. The share of government schools has declined in every tribal district and in the state as a whole between 2005-06 and 2013-14 (Table 3.11).

Table 3.10: Total number of schools in tribal districts for 2005-06, 2010-11 and 2013-14

	Total number of schools					
	2005-06		2010-11		2013-14	
	Govt	Private	Govt	Private	Govt	Private
Amravati	1716	541	1853	812	1792	759
Bhandara	823	325	860	388	836	373
Chandrapur	1629	458	1770	578	1683	556
Dhule	1116	494	1237	570	1178	743
Gadchiroli	1336	224	1692	312	1627	304
Gondiya	898	270	1182	374	1118	361
Jalgaon	1928	817	2052	935	1969	1066
Nagpur	1858	1218	1919	1507	1868	1691
Nandurbar	1277	294	1516	357	1506	506
Nashik	3102	830	3816	1263	3721	1169
Thane	3706	1521	4215	2717	4160	2180
Yavatmal	2096	542	2445	676	2263	682
All Tribal Districts	21485	7534	24557	10489	23721	10390
Maharashtra	60375	20299	68972	28253	67307	28130

Source: Calculated Using UDISE District and State Report Cards

Table 3.11: Percentage of schools for tribal districts for 2005-06, 2010-11 and 2013-14

	Percentage of Schools					
	2005-06		2010-11		2013-14	
	Govt	Private	Govt	Private	Govt	Private
Amravati	76.03	23.97	69.53	30.47	70.25	29.75
Bhandara	71.69	28.31	68.91	31.09	69.15	30.85
Chandrapur	78.05	21.95	75.38	24.62	75.17	24.83
Dhule	69.32	30.68	68.46	31.54	61.32	38.68
Gadchiroli	85.64	14.36	84.43	15.57	84.26	15.74
Gondiya	76.88	23.12	75.96	24.04	75.59	24.41
Jalgaon	70.24	29.76	68.70	31.30	64.88	35.12
Nagpur	60.40	39.60	56.01	43.99	52.49	47.51
Nandurbar	81.29	18.71	80.94	19.06	74.85	25.15
Nashik	78.89	21.11	75.13	24.87	76.09	23.91
Thane	70.90	29.10	60.80	39.20	65.62	34.38
Yavatmal	79.45	20.55	78.34	21.66	76.84	23.16
All Tribal Districts	74.04	25.96	70.07	29.93	69.54	30.46
Maharashtra	74.84	25.16	70.94	29.06	70.53	29.47

Source: Calculated Using UDISE District and State Report Cards

The declining share could be a result of rationalisation due to uneven numbers or also slackening demand in certain areas, especially urban and semi-urban parts where the choice for English-medium, private unaided schools has gone up. However, these are complex issues, and lack of access to free or affordable schooling may act as a hurdle for tribal children.

Table 3.12: Enrolment in government and private schools for 2005-06, 2010-11 and 2013-14

	Total enrolment in schools					
	2005-06		2010-11		2013-14	
	Govt	Private	Govt	Private	Govt	Private
Amravati	249,590	174,997	220,809	198,840	175,566	202,781
Bhandara	106,671	72,753	90,250	79,656	75,061	78,215
Chandrapur	185,977	143,507	163,522	140,361	126,868	149,681
Dhule	139,683	170,323	132,898	183,298	112,256	209,816
Gadchiroli	112,498	55,987	116,631	49,590	89,575	58,508
Gondiya	130,348	66,991	123,711	70,866	98,603	74,073
Jalgaon	335,876	300,205	302,824	342,841	247,629	394,741
Nagpur	234,157	430,933	190,916	439,946	145,305	467,964
Nandurbar	128,011	92,911	143,525	101,548	132,476	128,202
Nashik	444,253	392,959	434,129	479,174	394,087	520,536
Thane	450,174	512,986	484,295	1,053,617	447,299	1,114,083
Yavatmal	300,212	127,993	290,602	146,237	218,727	174,414
Total in Tribal Districts	2,817,450	2,542,545	2,694,112	3,285,974	2,263,452	3,573,014
Maharashtra	11,054,574	3,549,013	11,054,574	3,549,013	6,312,059	9,382,851

Source: Calculated using UDISEdistrict and state report cards

Table 3.13: Percentage of enrolment in government and private schools for 2005-06, 2010-11 and 2013-14

`	Percentage of total enrolment					
	2005-06		2010-11		2013-14	
	Govt	Private	Govt	Private	Govt	Private
Amravati	58.78	41.22	52.62	47.38	46.40	53.60
Bhandara	59.45	40.55	53.12	46.88	48.97	51.03
Chandrapur	56.44	43.56	53.81	46.19	45.88	54.12
Dhule	45.06	54.94	42.03	57.97	34.85	65.15
Gadchiroli	66.77	33.23	70.17	29.83	60.49	39.51
Gondiya	66.05	33.95	63.58	36.42	57.10	42.90
Jalgaon	52.80	47.20	46.90	53.10	38.55	61.45
Nagpur	35.21	64.79	30.26	69.74	23.69	76.31
Nandurbar	57.94	42.06	58.56	41.44	50.82	49.18
Nashik	53.06	46.94	47.53	52.47	43.09	56.91
Thane	46.74	53.26	31.49	68.51	28.65	71.35
Yavatmal	70.11	29.89	66.52	33.48	55.64	44.36
Total Enrolment of Tribal Districts	52.56	47.44	45.05	54.95	38.78	61.22
Maharashtra	75.70	24.30	75.70	24.30	40.22	59.78

Source: Calculated Using UDISE District and State Report Cards.

The share of enrolment in government schools has declined from nearly 53 % in 2005-06 to about 49 % in 2010-11 to only 39 % in 2013-14 in the tribal districts of Maharashtra (Tables 3.12 and 3.13). This is a cause of concern especially when seen in conjunction with declining trend in the GERs for STs in certain tribal districts in Maharashtra, as discussed earlier. Table 3.8 had shown that a number of districts including Amravati, Bhandara, Chandrapur, Garhchiroli, Gondia, Nagpur and Yavatmal had reported declining GERs for STs at either primary or upper primary or both levels. Although it may be difficult to establish a direct

relationship, it is important to be mindful of the fact that communities that are economically poor and without long traditions of formal education are also more vulnerable in terms of their school choices. Absence of a 'free' government school can suppress potential of future demand for schooling. The discussion on the reasons for low enrolment among tribal population in the following section reinforces this point adequately.

3.3 Reasons for low participation

A number of research studies on tribal education have attempted to understnd the reasons for low enrolment among tribal populations in India. Some of these are with special reference to Maharashtra.

a. Reasons for low enrolment and attendance

NSS also collects data on, and presents the reasons for, non-attendance of school. As explained earlier, this information is provided for the state as whole and not for specicifc social groups. However, the perusal of the data still gives some pointers for groups that have low enrolment in particular statesand STs are one among those in Maharashtra. Across the states compared, supplementing household income (indicating paid labour) and attending domestic chores (indicating unpaid labour) are the two prominent reasons for non-attendance. In Maharashtra, a very small percentage of households do not consider education necessary but a large number of households expect children to supplement household income. Maharashtra also has the least citation of "school too far" as a reason for non-attendance despite lower percentages of stating that the school is within a one/three/five kilometre radius. This could indicate that accessibility may not be a reason even if the distances exist and other reasons like supplementing household income and domestic responsibilities play more prominentroles in keeping chilren away from school.

Table 3.14: Reasons for non-attendance 2009-10

	School too far	Has to supplement household income	Education not considered necessary	Has to attend to domestic chores	Others	All
Andhra Pradesh	2.2	38.5	11.2	20.1	28.1	100
Chhattisgarh	5.3	24.5	10.9	26.9	32.2	100
Jharkhand	6.6	28.9	21.4	19.9	23.1	100
Madhya	4.2	32.9	16.5	27.3	19.2	100
Maharashtra	1.8	42.6	9.9	23.6	21.9	100
Odisha	3.9	25.4	13.0	21.2	36.5	100
Uttarakhand	1.6	28.6	20.7	29.2	19.9	100
All-India	2.8	32.2	14.4	22.9	27.6	100

Source: NSS 66th Round Report No. 551(66/10/6) Chapter 3 Statement 3.18.1Rural+Urban person, 2009-2010

A number of research studies examining the issue of education among ST children have identified these reasons as being important. For instance, Nambissan (2000) has pointed out that poverty and the practice of children's work have continued to be major deterrents to the enrolment of tribal children in schools (Nambissan 2000).Kurane (2008) has similarly noted that even when tribal populations have shown a larger growth in literacy rates (of 11.86 per cent between 2001 and 2011 (Ministry of Tribal Affairs, 2013) compared to the general population (which has shown a growth of 8.15 for the same period), poor socio-economic conditions, requiring children to work, has played a major role in contributing to non-attendance and drop-out of tribal children (Mane 2010a).

Mane (2010a) also pointed to migration as a crucial challenge for retaining tribal children within education, as the high incidence of poverty and landlessness among tribal communities, combined with the lack of skills and assets contribute to a situation of constant movement and shift. Jha and Jhingran (2005)also identified that the incidence of family migration for piece-rate wage-work, where wages are paid on the basis of volume of work and not on working hours, was the highest among ST families among all disadvantaged groups.

Mane (2010a) has also noted that gender discrepancies tend to be high, with boys more likely to be educated compared to girls, due to social and economic factors such as a desire to shelter girls from the outside world or, more frequently, requiring girls to participate in agricultural activities (Mane 2010a). This is also reiterated by the secondary data analysis which shows that the likelihood of school and college completion for ST males is greater compared to that for ST females. Mutatkar (2004) too points out that female labour is highly valued among tribal societies due to their labour-intensive economy and that is why grooms are expected to pay a 'bride-price' as compensation to the bride's family at the time of marriage.

In the context of poverty and economic reasons to explain low schooling particiaption among the ST population, it becomes topical to examine private expenditure patterns in education. Tables3.15 and 3.16 provide data on the average expenditure incurred by households across different states at various levels of education for two time periods. Household expenditure appears to be the highest in Maharashtra across all levels of education for both 2007 and 2014. During this time period, average education expenditure also seems to have multiplied three times for primary education, 2.6 times for upper primary, and more than doubled for secondary and higher secondary education in Maharashtra. One trend that needs to be analysed in relation to this is to see if this increase in household expenditure on education per child is related to enrolment in private schools. This is critical to examine, especially in the light of our earlier observations which show that the number of government schools in tribal districts of Maharashtra have decreased in recent past while enrolments in private schools have increased for the same period.

Table 3.15: Average expenditure (Rs) by households per student pursuing school education during the current academic session

	Primary		Upper primary		Secondary		Higher secondary	
	2007	2014	2007	2014	2007	2014	2007	2014
Andhra Pradesh	1,643	5,044	2,046	4,960	4,194	8,509	7,973	14,691
Chhattisgarh	684	2,093	878	2,213	2,180	3,089	4,526	6,445
Jharkhand	774	3,003	1,507	4,062	3,655	5,673	5,664	9,481
Madhya Pradesh	797	3,297	1,446	3,341	3,435	5,928	7,031	10,199
Maharashtra	1,696	6,448	2,400	6,446	4,157	10,279	6,813	17,212
Odisha	794	2,714	1,506	2,742	3,561	5,285	6,176	13,180
Uttarakhand	1,922	3,740	2,781	5,166	4,745	6,381	4,242	8,950
All-India	1,413	4,610	2,088	5,386	4,351	7,459	7,360	12,619

Source: NSS Report 71st Round NSS KI (71/25.2) 2014 Appendix Table 14, 2014 and NSS Report 64th Round NSS No 532Appendix A Table 28 2007-08

Table 3.16: Distribution of average education expenditure (Rs) per student in the age-group 5-29 years, pursuing any education by item of expenditure in 2007

	Tuition fee	Exam and other fees	Books and stationery	Uniform	Transport	Private coaching	Other expenses
Andhra Pradesh	1,919	270	610	237	319	92	74
Chhattisgarh	232	217	298	254	100	61	84
Jharkhand	435	187	488	199	139	255	29
Madhya Pradesh	502	416	375	188	153	152	90
Maharashtra	1,586	459	663	299	350	691	145
Orissa	559	544	469	236	86	504	85
Uttarakhand	1,142	427	773	429	262	260	54
All-India	1,034	459	586	268	240	354	118

Source: NSS Report 2007 NSS Report 64th Round NSS No 532, Appendix A, Table 32, 2007-08

It is also important to understand the nature of household expenditure on education in Maharashtra. The NSS also gives the average education-based household expenditure per student in the age-group 5-29 years based on different items of expenditure. This (Table 3.16) indicates that compared to all-India household expenditure on education, households in Maharashtra spend a larger percentage on tuition fees (38% as against 34% for all-India)and private coaching (16.5% as against 11.6% for all-India). A number of scholarship schemes exist but the definitions that guide eligibility and process of identification of eligible candidates for these scholarships remain unclear from the schemes' descriptions. Jha and Jhingran (2005)in their household survey-based national study had pointed out that only about 8 percent received scholarships, 50 percent received textbooks, 7.7 percent received exercise books – all these denoting receiving these at least once during the previous two years; and only 16 percent ever recived a uniform (Jha and Jhingran, 2005).The feedback from a more recent household-level datasetrevealsa similar pattern: in Maharashtra, a very small percentage (8.82 per cent) of ST population received scholarships (IHDS 2012).

Distance is identified as an important external constraint and it appears that the population and distance norms formed by the government have not been beneficial to tribal concentrations due to their sparse populations and scattered habitations (Sujatha 2004; Desai and Kulkarni 2008; Mane 2010a). Communication and transport in these locations are major hurdles affecting educational outcomes (Mane 2010a). This particularly poses a challenge during the monsoons when roads become unusableand schools remain indefinitely closed (Desai and Kulkarni 2008). Further, both Sujatha (2004) and Mane (2010a) argue that for young children, a distance of more than half a kilometre becomes a significant challenge due to the difficult terrain.In this context, despite the secondary data analysis showing that over 90 percent of ST households are located within a one kilometre radius from school, the spatial organisation of a tribal village (with few houses comprising hamlets and multiple hamlets distributed over large distances comprising a village) can become a significant impediment because of which children may not access the available provisions (Jha and Jhingran 2005).

Provision for residential schools has been an important policy initiative for breaking the isolation and improving the educational status of tribal children across the country, including Maharashtra. The ashram school meant almost exclusively for tribal children continues to be one of the most important institutions inthe promotion of schooling in tribal areas. However, the functioning of the ashram schools has been questioned on several grounds. A Public Interest Litigation (PIL) in Maharashtra (Nambiar 2013) had noted that posts of staff meant to

ensure good health for students in ashram schools remained unfilled even 15 years after the posts were created. Similar observations were made by one Government of India evaluation team for ashram schools(GoI, 2013-2014). The death of 793 tribal students over the last decade in Maharashtra alone was attributed to negligence by staff in the ashram schools. A Parliamentary Standing Committee report of 2014 (GoI 2013-14) has taken special note of this where snake bites, scorpion bites, fever and minor illnesses have been cited as main reasons for these deaths in the state. The committee observed sub-standard food and inferior quality personal products were being provided to students in some schools.

One of the much demanded/recommended provisions for tribal education has been the use of tribal language, at least during the early years of schooling. It has been recommended that tribal languages should form the primary medium of instruction for the child, as a means to gain knowledge of tribal culture, ethnicity, literature and arts, as well as to allow for the acquisition of the state/mainstream educational language later. It has been argued that gradual introduction of the state language can enhance the tribal child's linguistic capital as well as educational outcomes in relation to mainstream education (Bagai and Nundy 2009).

Language emerges as a major issue in the context of the schooling of tribal children. Tribal groups in India have their own languages that are not necessarily the same as the main language of the state in which they live. The literature shows that in many cases enforcement of the state language as the main medium of instruction acts as a constraint and often leads to a sense of alienation among tribal children (Nanjunda 2008; Apte and Lama 2008; Desai and Kulkarni 2008).Further, this sense of alienation may also be fostered by the high rate of appointed teachers fromnon-tribal communities, ill at ease in tribal environments (Singh 1996).The Parliamentary Standing Committee 2014 had also recommended that tribal teachers from the community should be recruited while special training should be imparted to non-tribal teachers to help them relate to tribal language, culture and behavioural patterns. However, as the analysis based on our fieldwork reveals, not much has been done in this regard.

Kakkoth (2012) recommends that educational planning demands a 'cultural-ecological approach' with localised decision-making that ensures community participation so that the contentboosts cultural norms rather than belittles them. Veerbhadranaika.P et al. (2012) second this as they find that there is total lack of innovative pedagogy in ashram schools that would help in retaining the positive ethos of the tribal culture and simultaneously create space for the tribal children to be able to relate to the larger world.

Sujatha(n.d.)refers to school-related problems such as inadequate infrastructure and teaching-learning materials, and non-incorporation of tribal contexts in curricular content which puts tribal children at a disadvantage.These include questions of pedagogy and affects enrolment and retention of tribal children. Nambissan(2013) has pointed out that despite provisions in the NCF and other documents that state the need to incorporate tribal culture into curriculum,schools continue to transact a centrally-prescribed, mainstream curriculum (Nambissan 2000).

Others have pointed out that modern education, which is expensive and unconnected to the lives of tribal populations, is perceived as not preparing tribal children for work in the villages, and is less valued by tribal communities (Singh 1996). With both little effort to contextualise school curricula to suit the needs of tribal populations as well as the high costs of education, it is important undertake substantial measures to change this situation.

With respect to socio-economic and cultural constraints, Sujatha (n.d.)notes that poverty and poor economic conditions, differences in social customs and cultural ethos, gap between

home and school, have all been factors for poor outcomes and drop-out rates among tribal children. Retention of tribal children within education has been affected by factors ranging from seasonal migration of families andneed for childlabour to supplement income or to look after siblings and help with domestic chores, to illness, superstition, puberty and insecure environments for girls within schools, mismanagement of ashram schools, unhealthy atmosphere, and fear of harassment by teachers (IIE, 2004).

Sujatha (n.d.) categorises factors like being first generation learners without the adequate cultural resources to participate in education or supportive home environments to reinforce school learning as psychological barriers.Other studies have also shown that a lack of appropriate educational atmosphere at home (as reported by teachers), parents' unfavourable attitudes towards education and lack of motivation have led to poor performances in exams by tribal students (Bawane 2012). Further, Nambissan (2000) has drawn attention how the strict distinction between curricula and community knowledges has "... adversely affect[ed] the sense of self and identity of children, their motivation in school, as well as the very process of learning". Mainstream curriculum tends to portray negative images of tribal life and culture, instituting a sense of inferiorityamong tribal students.

The literature suggests that a combination of factors which include socio-economic constraints faced by tribal communities coupled with the issues of language, culture and reach have been the prime reasons for low schooling participation among tribal children. When juxtaposed with analysis of schemes and budgets, it appears that there has been a mismatch between what the constraints are and the responses. While it is important to invest in making provisions for schools, and the government has been doing that, it is not clear if the issues of learning among tribal students has reeived enough attention.

4. School infrastructure in tribal Maharashtra

This chapter discusses the status of school infrastructure in tribal areas of Maharashtra with special reference to the three sample districts: Amaravati, Thane and Yavatmal. We have used both UDISE data and the primnary survey data for this analysis. The school survey included facility checklists for both residential and non-residential schools. This included infrastructure details based on the requirements listed in the RTE Act, along with their maintenance status. For instance, questions about school building (type of building, ramp, compound wall, separate room for Head Teacher/Principal), playground (type of playground and equipment, time allocated for playground activities), classroom (seating arrangements, ventilation and presence of additional teaching-learning materials), toilets (separate toilets for boys and girls, cleanliness and running water), drinking water (source, cleanliness), electricity, laboratories for different subjects (presence, maintenance and use), library (presence, quantum and use of books) and mid-day meals (what is cooked and how it is cooked), were all taken into account. The residential school checklist had residential-school specific questions to be asked to the Principal. These questions covered advantages and disadvantages of a residential school, challenges that students face in the residential set-up, arrangements regarding parental visits, support provided to the Principal for managing a residential set-up, and challenges they face. The tool also documented the daily routine of the students to understand how much time is devoted to studies, co-curricular, sports and other activities.

4.1. Status of school infrastructure

The RTE Act was conceived to ensure an inclusive education system with quality education by creating mandatory norms for basic school infrastructure, teacher-pupil ratio, teachers' qualifications and puttingin place mechanisms for academic and administrative monitoring, while also emphasizing the concept of neighbourhood schools. Table 4.1 gives an overview of the basic infrastructure facilities present in schools in Maharashtra. This indicates that most infrastructure facilities mandated by RTE (playground, toilets, drinking water, boundary wall) seem to be present in almost all schools across the state. However, it is also critical to understand that these are state-level averages and need to be further disaggregted into district-wise and school management-wise analyses.

Table 4.1 Percentage of schools with facilities in Maharashtra (all managements) for 2015-16

Facility	Present in % of all schools in Maharashtra
Drinking Water	99.95
Boys' Toilets	99.18
Girls' Toilets	99.38
Handwash Facility near Girls'Toilets	84.17
Boundary Wall	81.88
Presence of Ramps (where required)	93.04
Library	96.03
Electricity	93.80
Computer	56.91
Playground	87.18

Medical check-ups conducted	93.27

Source: Table 2.1 to Table 2.15, Analytical Report 2015-16, UDISE

Table 4.2 gives a infrastructure analysis for tribal districts in Maharashtra. This table highlights that there are differences with respect to each facility among the districts which contributes to an overall average percentage for all tribal districts and the state. Almost all schools in these districts are approachable by all-weather roads. However, within the districts, Nandurbar has the least percentage of schools approachable by all-weather roads. Similarly, about 99.72 per cent of schools in Palghar have playground facilities while other districts like Gadchiroli have playground facilities in less than 70 per cent of its schools. It also becomes important to understand how these facilities are spread across different school managements. Such an analysis, conducted below, helps one understand whether there are specific gaps that need to be addressed by the respective service providers.

Table 4.2: Percentage of facilities in different tribal districts in Maharashtra (2014-15)

Districts	All-weather roads	Playground	Boundary wall	Girls' toilets	Boys' toilets	Drinking water	Electricity	Computers	Ramp (where needed)	Total
Nandurbar	91.09	85.58	92.56	97.42	97.47	100	58.20	36.03	51.27	100
Dhule	98.32	96.80	93.76	96.69	95.96	100	87.57	70.51	47.80	100
Jalgaon	99.74	93.36	83.72	96.37	95.40	100	86.50	43.67	70.12	100
Amravati	99.27	79.23	87.72	97.45	95.95	100	87.80	39.03	57.92	100
Nagpur	99.04	92.16	85.38	99.56	98.29	100	96.53	55.16	54.50	100
Bhandara	99.35	96.34	89.93	98.38	98.62	99.19	97.56	44.60	49.55	100
Gondiya	99.27	84.90	84.90	99.20	98.47	100	87.56	38.46	51.70	100
Gadchiroli	88.64	66.43	79.34	98.55	98.55	100	65.19	37.14	27.17	100
Chandrapur	99.04	71.58	86.71	97.85	98.42	98.73	91.45	41.45	50.31	100
Yavatmal	98.40	96.70	88.62	98.60	98.10	100	92.94	37.68	45.61	100
Nashik	97.80	77.41	62.94	97.65	97.21	100	88.43	43.00	48.54	100
Thane	97.74	95.54	82.65	99.25	98.61	100	88.58	68.52	62.92	100
Palghar	97.02	99.72	99.19	99.72	99.37	100	86.54	39.82	78.93	100
Total (tribal districts)	97.53	87.47	84.10	98.23	97.67	99.89	86.72	46.52	54.76	100
Maharasthra	97.33	87.47	82.09	97.77	97.53	99.61	86.46	54.27	58.12	100

Source: Calculated using UDISEraw data for 2014-15

The overall UDISE data for Maharashtra is available for 2015-16 (latest year). However, district-wise data in the form of raw data is only available for 2014-15. Further segregated data into different school management types is only available for 2013-14. Hence, data from different years have been used in the analysis.[27] An overview of infrastructure criteria fulfilment for different school managements across the state is given in Table 4.3.

Table 4.3: School management-wise per cent of schools with RTE norms present as a per cent of total schools in tribal districts in 2013-14

Norms	Central govt	Dept of Education	Local body	Madrasa (recognised)	Private-aided*	Private	TDD	Unrecognised
All-weather building	81.25	83.33	76.80	100	85.99	82.80	83.16	87.12
Separate classroom for each teacher	26.56	33.33	58.05	92.86	17.91	37.31	41.12	63.09
HM room	81.25	56.67	54.47	85.71	82.29	79.46	72.84	80.69
Separate toilet for boys	51.49	54.55	52.14	50.00	52.37	51.57	51.87	51.16
Separate toilet for girls	81.25	83.33	76.64	85.71	85.73	82.53	82.70	85.84
Safe drinking water	81.25	83.33	76.64	85.71	85.73	82.53	82.70	85.84
Separate kitchen	79.69	56.67	72.65	92.86	73.25	81.90	80.73	85.84
Playground	79.69	66.67	63.12	57.14	82.72	77.43	74.66	72.10
Boundary wall	76.56	63.33	61.41	85.71	74.93	73.36	69.50	76.39
Library	78.13	50.00	75.84	71.43	83.05	75.12	72.69	54.94
All infrastructural criteriapresent	10.94	13.33	28.76	0.00	8.02	16.71	16.84	14.59

Source: Compiled from UDISE Raw Data 2013-14; *Private Aided covers schools funded by Education as well as other Departments (Social Welfare, TDD). Since this data is from UDISE, further bifurcation of private aided is not available.

a. All-weather proof school building: The analysis of UDISE data for 2014-15 shows that in tribal districts of Maharashtra, the construction of all-weather buildings for all schools is yet to be achieved. About 20 to 24 percent of schools in all managements including those run by different Departments, private-aided, and private unaided did not have a separate school building, the situation being the worst for local body schools.

The findings from the infrastructure analysis for sample schools covered through our primary survey do not fully match with these, perhaps indicating that the situation has improved over these three years. The survey in sample schools indicated that:

- all schools surveyed, across three districts and across all school management types (i.e.,local body, private-aided and ashram schools), had a separate school building
- all schools had a pucca building, except one school managed by a local body in Yavatmal which had a semi-pucca building.

[27] Since TDD runs only Ashramshalas and a few Eklavya schools, which are also similar to Ashram schools, the refernce in Table 4.3 for TDD is for those.

b. Classrooms: The secondary data analysis using UDISE data showed that in tribal districts of Maharashtra, 58 per cent of local body schools, 41 per cent of TDD schools and only 17.91 per cent of private-aided schools had a one classroom per teacher.

The school survey provided additional data on the status of classrooms where we found that 18 per cent of the private-aided schools and 19 per cent of local body schools in the sample did not have adequately ventilated classrooms. Among the ashram schools surveyed, 54.5 per cent of the schools used the classroom as living space for the students. Hence, these schools did not have any furniture and students sat on the floor.

c. Separate room for Head Master (HM): The UDISE data for tribal districts shows that majority of private-aided schools as well as those managed by TDD (i.e. > 70 per cent under each management category) have a separate room for the HM. A vast number of local body schools do not have a separate room for the HM. This could also be because majority of the schools managed by local bodies are predominantly elementary (and mostly primary-only) schools with very low enrolment, leading to no sanction of a separate HM post.

Our sample schools also showed that all private-aided schools, except one, had a separate HM room while 29 per cent of local body and 16 per cent of ashram schools surveyed did not have a separate room for the HM/Principal.

d. Separate toilets for boys and girls: Presence of toilets, especially separate toilets for girls and boys and students and teachers, are mandated by the RTE Act. The UDISEdata analysis for tribal districts showed that although most schools under each school management category (local body, private-aided and TDD) have separate toilets for girls, only half of them have separate toilets for boys.

The survey data showed that:

- all schools (i.e., local body, private-aided and ashram) had toilets for students and a majority of schools had two toilets.
- all ashram schools had separate toilets for girls and boys and almost 86 per cent of schools managed by local bodies had the same. A slightly lesser percentage of private-aided schools (73 per cent) had separate toilets for boys and girls.
- Only a small proportion of local body schools (15 per cent) had separate toilets for teachers and students; this percentage was much higher for private-aided schools (54 per cent).
- In Thane, all schools had separate toilets for teachers. However, a large majority of schools in Amravati (85 per cent) and Yavatmal (73 per cent) did not have separate toilets for teachers.
- With respect to cleanliness in toilets, Thane performed the worst, with 83 percent of schools in Thane lacking well-maintained and clean toilets. Amravati and Yavatmal performed relatively better on cleanliness with 54 per cent and 36 per cent of toilets respectively in the two districts found badly maintained and unclean. Analysing this by school management type, it was observed that 75 per cent of the local body schools did not have clean and well-maintained toilets. Half the local body schools surveyed also did not have running water in the toilets.
- Only 12 per cent of all ZP-run schools surveyed had special toilet facilities for those with special needs. None of the private-aided schools had special toilet facilities for those with special needs.

e. Safe and adequate drinking water facility: Availability of clean and safe drinking water is another mandatory provision under the RTE Act. UDISE data showed that a high percentage of schools in tribal districts had this facility, with the lowest percentage being 76.64 per cent for local body schools.

The survey in sample schools also showed that all schoolsprovided drinking water (except one school managed by a local body), and this was sourced through a tap in 63 per cent of TDD schools, 55 per cent of private-aided and 34 per cent of local body schools. Borewells/wells were the source of water in about 24 per cent of local body schools, 21 percent ashram schools and 18 per cent of private-aided schools. However, only 18 per cent of schools used filtration processes. In one school in Thane, a filtration plant was setup and maintained as a Corporate Social Responsibility (CSR) initiative.

f. Separate kitchen for mid-day meal (MDMs): The UDISE data analysis showed that local body schools in tribal districts ranked the lowest among the various school managements (private-aided and TDD) for ensuring separate kitchens for mid-day meals. One of the possible reasons for this could be smaller size of schools, which were also predominantly primary-only schools, perhaps not having ample space for separate kitchens.

From our primary survey data, it could be ascertained that while all schools were providing freshly cooked mid-day meals, 79 per cent of total schools surveyed (73 per cent of private-aided and 81 per cent of local body) did not have separate shed/kitchen for cooking meals. Other studies have reported instances of children not eating the mid-day meals, often due to social hierarchies existing in the community (e.g. cook from a lower caste). Our survey showed that all students were eating the mid-day meals served. A weekly menu was also displayed for 55 per cent of private-aided and 57 per cent of local body schools. All residential schools had a separate kitchen space, including those schools where hot, cooked meals were being provided externally through some philanthropic or public-private partnership means.

g. Boundary walls: Schools without a boundary wall can have security-related implications, especially for residential schools. According to the UDISE data, boundary walls are present in about 60 to 85 percent of schools for various management types (Table 4.3).

In our survey of non-residential schools, 54.5 had a well-built boundary wall, 30.3 had no boundary wall and 15.15 had a partially built boundary wall. In some of the residential schools surveyed, teachers informed us that locals often trespassed the school grounds as there were no proper boundary walls. Damaged boundary walls or barbed wire boundary walls are not considered RTE-compliant, and schools with such walls are not considered as having boundary walls.

h. Ramps:The primary survey showed that ramps (to aid access for students with disabilities) were present in 70 per cent of the schools covered in the survey (almost all local body schools had ramps while lesser percentage of private-aided schools had ramps; very few ashram schools had ramps). However, among the schools that had ramps, in 19 per cent of local body schools, 20 per cent of ashram schools and 9 per cent of private-aided schools, the ramps were not functional. Ramps were also not necessarily present for all floors in schools where any ramp was present.For instance, more than 60 per cent of private-aided schools did not have ramps on all floors. Out of the 18 schools managed by local bodies that had ramps, only eight of them had ramps for all floors. UDISE does not provide data for functionality or condition of ramps.

i. Library: The RTE Act mandates the presence of a library in all schools to facilitate learning. According to the UDISE data, about 75 percent of local body and private-aided, 83 percent of private unaided and 72 percent of TDD schools had a library.

Our sample survey analysis indicates that

- 85 per cent of all schools had a library (91 per cent of private-aided, 94 per cent of TDD schools and 86 per cent of local body), in some form or the other. In some schools, separate library rooms were present, while others had books in shelves in the office room. The number of books ranged approximately from 30 to 3,500 books. There was only one private aided school in Yavatmal with more than 5,000 books.
- records of the issuing of books to students were present in majority of the schools with a library.
- while all libraries had books in Marathi, books in tribal languages and on tribal culture were not present in the majority of schools. Close to 71 per cent of local body and 37 per cent of private-aided schools did not have any book in tribal languages and on tribal culture.
- the library is not really integrated as a part of the weekly routine for primary, upper primary and secondary classes in schools across the different school managements.

j. Playground: The RTE Act gives special emphasis on the presence of sports equipment and playgrounds for the overall development of students. According to the UDISE data, private-aided schools (82.72) had the highest percentage of playgrounds, followed by TDD schools (74.66) and local body schools (63.12).

From our sample school analysis, we found that

- all private-aided schools had playgrounds while 86 per cent of the local body schools had playgrounds. Among those schools that had playgrounds, one-third of the local body schools and two-thirds of the private-aided schools did not have any playground equipment like swings and slides.
- One-third of non-residential schools did not have any sports equipment. This proportion was the highest inlocal body schools (48 per cent). However, in all schools surveyed, playground time/sports time was included within the weekly routine.

It is clear from the above analysis that not many schools have fulfilled all the infrastructure-related norms outlined in the RTE Act. UDISE data shows that complete RTE Act compliance is highest by schools managed by local bodies (28.76 per cent), followed by TDD (16.84 per cent). Less than 10 per cent of private-aided schools are completely RTE-compliant.

Based on our primary survey, all schools surveyed fulfilled at least five requirements. All had a separate school building and more than 80 per cent had ramps, separate toilets for girls and boys, a playground and a separate room for the Head Master. A total of 15 schools in the sample (Table 4.4)had all the basic infrastructure requirements as per RTE Act requirements, this number being the highest for TDD schools. About one third of the schools, across all three districts, scored a total of 10, indicating non-fulfilment of only one criterion. All private-aided schools surveyed scored at least eight and ashram schools scored at least nine (except one school that scored seven), indicating better infrastructure as compared to local body schools, which scored only six.

Table 4.4: Number of schools with scores based on RTE Act-based infrastructure requirements

School management type	Scorebased on RTE Act-based infrastructure requirements						Total no. of schools
	6	7	8	9	10	11	
TDD	0	1	0	4	7	7	**19**
Private-aided	0	0	4	2	5	4	**15**
Local body	2	2	4	4	6	4	**22**
Total no. of schools	**2**	**3**	**8**	**10**	**18**	**15**	**56**

Note: Based on the presence of these basic requirements as per the RTE Act, schools surveyed were given scores. For the presence of a no/partial/complete compound wall, schools were scored on a range of 0 to 2 respectively. For all other provisions, a maximum score of 1 was given if the provision was present and 0 if it wasn't. The highest possible score is 11.

Among the three sample districts, the highest percentage of schools met all infrastructure criteria is in Yavatmal (33 per cent), followed by Amravati (24 per cent) and Thane (17 per cent). However, about 58 per cent schools in Thane scored between seven and nine on our infrastructure index, as compared to 38 per cent schools in Yavatmal and 32 per cent schools in Amravati.

k. Electricity: Although availability of electricity is not a mandatory provision under the RTE Act, the facility becomes important for the use of technology-assisted teaching-learning methods. All schools surveyed, across all school managements, reported availability of electricity with an average of five hours or more during a day.

l. Laboratories for students: "Putting theory into practice" is a critical dimension of learning and understanding concepts, especially for science subjects. Often, this is introduced in the secondary classes, wherein laboratory time is allocated to experiment and understand theories learnt in class. We attempted to examine whether schools made efforts to link theory to practice by having adequate laboratory facilities through our primary survey. Across the secondary sections surveyed, only 1 out of 8 local body schools, 11 out of 17 ashram schools and nine out of 10 private-aided schools had laboratories for secondary classes[28]. In Amravati, these numbers were better (62 per cent) as compared to Thane (50 per cent) and Yavatmal (50 per cent). Among the schools that had laboratories, there were no separate laboratories for different subjects. None of the local body schools had separate laboratories for different subjects. However, all laboratories had equipment in working condition.

m. Computers: Computer labs were also present in very few schools (higher percentage in private-aided schools), especially in the primary and upper primary sections. Access to computer labs, as a part of the weekly routine, was practiced in most secondary schools with computer labs.

4.2 Infrastructural status of ashram schools

The UDISE school-level survey collects data on residential schools but does not include this in any of their state or national reports. Maharashtra has the highest number of government-aided ashram schools for children from dalit and tribal communities in the country. In most tribal districts, each block has three to four ashram schools for tribal students. Almost all of these are managed or funded by the state department. TDD schools discussed above in Maharashtra refer to ashram schools and a few Eklavya schools run by the department and hence in this section, the analysis focuses on the data collected from the primary survey.

[28] This does not includeschools with no secondary sections.

These schools have some specific guidelines with respect to the provision of infrastructure facilities. Rule 2.4(4) Annexure 31 of the Ashramshala Samhita specifies that classroom space per student should be at least eight square feet (excluding the veranda), with wall of at least 12 feet in height (10 feet from the plinth). The residential area should be at least 24 square feet to a maximum of 40 square feet for each student. There needs to be adequate number of toilets and bathrooms for the students. Resource materials (tables, benches, chairs, board etc), textbooks and reference books along with teaching-learning aids and books for students and teachers in the library are mandatory. Stationery for residential students is also mandatory.

However, the survey revealed that there is a wide variation in the presence of the specified facilities/materials in the schools. The district-level findings, emanating from the survey, are discussed below under following categories:

a. Living Space: All co-educational residential schools had separate living arrangements for boys and girls; 50 per cent of the schools had separate buildings for them within the same compound while the rest had separate rooms within the same building. The housing areaswere fenced with a wire/hedge/wall in 64 per cent of the schools. Some other relevant findings are:

- In more than half the schools, housing space was also utilised as a classroom. The prevalence of this practice was the highest in Thane (80 per cent), followed by Yavatmal (60 per cent) and Amravati (17 per cent).
- As per the Ashram Shala Samhiti[29], living spaces need to be, at least between 25 to 40 square feet in size. In our observations, we found that 73 per cent of living spaces were more than 40 square feet in size.
- 32 per cent of schools had single beds for students while in the rest, children shared beds. Mattresses were provided with bedsheets in 28 per cent of the schools while *chattais* (wire cots) with sheets were provided in 19 per cent of the schools.
- Separate allocated storage space for students to keep their personal belongings (shelf/cupboard) was available in 69 per cent of the schools.

b. Toilets and bathing arrangements: A number of studies and national evaluations of residential schools, especially for girls, indicatesafety and security concerns around using toilets located outside/away from the living spaces, especially in the night. We tried to capture these in our observations:

i. About 68 per cent of schools had toilets and bathing areas outside the living spaces. This was reported to be the highest in Thane (83 per cent), followed by Amravati (67 per cent) and Yavatmal (60 per cent).

ii. The location of the toilets and bathrooms was such that students had to either cross unlit areas or areas inhabited by staff (including male staff) in all the residential schools surveyed. This poses a serious security issue, especially for girls.

c. Food and health-related aspects: A pre-decided weekly menu is mandatorily to be displayed in the schools. Less than half (i.e., nearly 44 per cent) schools displayed the menu,that is about 56 per cent of the surveyed residential schools did not have the menu displayed. While about 37 percent schools served four meals a day, another 46 per cent

[29]Guidelines for Setting up Ashram ShalaSamhitis

served only three meals a day, and the remaining 17 percent served less than three meals a day.

Regular health check-ups, first-aid kits and necessary medicines are mandatoryin residential schools. About 95 per cent of the schools reported that they had a medical kit but only 23 per cent of them showed it to the survey team. Weekly check-ups areto be conducted but not a single school reported conducting them. About 55 per cent of the schools reported that they conduct health check-ups of students twice a year.

d. Provision of non-food transfers:Provisions for providing stationery, textbooks, uniforms, shoes and hygiene products like toothpaste, soap, etc. to students on a regular basis is mandatory inashram schools. The schools reported that these are provided to the students periodically. Theyalso reported that two sets of uniforms were given to all students on an annual basis. Textbooks were also given annually to all students. The schools also reported that they regularly distribute products of daily utility and personal hygiene (soap, shampoo, hair oil etc.), along with bedding, blanket and stationery to the students. The FDGs with students in ashram schools corroborated this.

e. Teaching and non-teaching staff residing in the schools: Teachers and non-teaching staff often residewithin the school premises in residential settings.This could be conducive for after-school remedial teaching/coaching (reported by 87 per cent of the schools), security and safety of the students. Presence of female saff is especially considered essential for the safety of girls.

Forty per cent of the schools surveyed reported that no female teachers reside in the school. This is a serious issue that needs to be addressed. Thisteen per cent of schools did not have any male teachers residing on the premises. This was also because of non-availability of teachers' quarters in most cases. In our survey, only half the schools had separate teachers' quarters, this percentage being the highest in Amravati (67 per cent), followed by Yavatmal (60 per cent) and Thane (16 per cent).

Almost all schools reported having full-time, male cooks or kitchen assistants as well as security guards. But only 40 per cent of schools had fulltime ayah/helper/cleaner, and these were were primarily men.

The residential schools in these three districts, seemed to be functioning with inadequate infrastructural facilities. Classrooms also functioned as living spaces in many cases; bathrooms had no running water; and there were very few staff members residing in the school. Health and security-related aspects were also matters of concern as most of these schools did not have proper compound walls, had unlit areas to be crossed for accessing toilets in the nights and irregular health check-ups.

5. Teachers and school management

5.1 Teacher management in Maharashtra[30]

Teachers in Maharashtra are recruited under various categories, by different departments, like the DoE, Social Welfare Department (SWD) and TDD, on different tenures (permanent and contractual), for different durations (full-time/part-time) and based on different expertises (general, special, resource persons). However, these categorisations are not evident in the rules framed for teacher management in the state. Teacher-related management policies are primarily guided by the RTE Act 2009, Maharashtra Employees of Private Schools Act, 1977 (MEPS), and the Bombay Primary Education Act (BPEA), rules made under these Acts, the Secondary School Code and government resolutions passed from time to time.

a. Eligibility: As per the state rules, basic eligibility criteria for elementary school teachers are Class 12 plusDiploma in Education (D.Ed) followed by clearing the Teacher Eligibility Test (TET). For secondary school teachers, minimum eligibility is graduation in a relevant degree plus a Bachelors of Education (B.Ed) and for senior secondary teachers, post-graduation in a relevant degree along with a B.Ed is mandatory. These eligibility criteria are common for teachers appointed acrossthe departments. However, if SWD/TDD are unable to find qualified teachers, they recruit Class 12 pass candidates.

b. Recruitment: For recruitment of teachers, the state follows the national norms of conducting the Teachers Eligibility Test (TET) along with a Common Entrance Test (CET). All vacancies for the DoE are calculated at the school level, decided and advertised by the Block Education Officer (BEO) and Education Officers (EO), and the recruitments are undertaken at the district level. Vacancy calculation is based on staff schedule, absorption of excess teachers and vacant positions inschools. Tests are conducted by Maharashtra State Council of Examinations (MSCE) on behalf of district committees, on requests sent by the state. The recruitment process takes about six months to a year; the process is usually initiated during April-June. All recruitments are based on merit, which is a combination of performance in the written test and educational/professional qualifications. No interviews are conducted. Since 2000-01, all teachers recruited are considered temporary for the first three years of recruitment. After this probationary period, most teachers are given the status of permanent teachers.

The recruitment of teachers by SWD/TDD is undertaken at the school level. TDD follows the MEPS Act, 1977 for recruiting teachers in their schools.The TET conducted by the DoE is used by the DD and SWD as well for the identification of eligible candidates. The Assistant Tribal Commissioner (ATC) is the appointing authority for teachers in TDD schools. For TDD-aided schools (ashram schools), the NGO/society that manages the school is responsible for appointment of teachers. Daily wage teachers are also recruited when thenumber of vacancies is large or persistient in schools. The recruitment process by TDD inlcudes written tests on different topics, followed by interviews. A merit list is announced based on the tests and interviews. Final selection is done by the Maharashtra Selection Board. The TDD has initated a process of devloping separate guidelines for ashramschools to guide teacher selection and other aspects of ashram schools, which gives an opportunity to take specific needs into account.

[30]This section is entirely based on Mahendale, et al (2015) unless otherwise mentioned

For private schools, recruitment is conducted at the school society level, which manages the school, based on norms specified by the DoE.

c. Deployment and Redeployment: Only permanent teachers, recruited by the DoE, can apply for transfers in Maharashtra. Seniority acts as a main criterion for transferring teachers. Provision of transfers when a spouse is transferred, mutual transfers and special consideration for disabled teachers/those with disabled children is also given when transfers are undertaken. Transfers are only undertaken when there is dire need for the same. The transfer process has been conducted online since 2010-11. A list of vacant posts and its details are put online. Teachers can apply to the block office for a transfer on their own too. The transfer list is put online in the order of the seniority of the teachers transferred. Transfer of teachers is also initiated when complaints are registered against that teacher as well as due to political influence and interference.

For TDD schools, the ATC is the responsible authority for sanctioning transfers. Transfers are usually done after the completion of at least three or five years of service. Inter-region transfers are allowed if there are vacancies at the destination or demand from both sides, while priority is given to senior teachers.

For private school managements, teachers can only be transferred within schools managed by the same society for administrative purposes, promotion or on request of the teachers.

d. Entitlements and Duties: Salary, paid leave (casual, earned), maternity leave, medical leave for certain kinds of illnesses, travel allowance, pension are some of the financial benefits extended to teachers in the state. Different departments have different salary structures and numbers of paid leaves. For the DoE, probationary teachers (i.e. those within their first three years of service) receive a consolidated salary of Rs 6,500 per month. After their status becomes permanent, they are paid as per the Sixth Pay Commission scale. Permnanent teachers recruited by TDD are also paid the Sixth Pay Commission scale. Additional allowance is also given to teachers recruited by TDD if the school is in a very remote area. For daily wage teachers recruited by TDD (to counter existing vacancies in the schools), wages range from Rs. 15 per hour to Rs 60 per day,depending upon the nature of employment of the daily wage teacher.

Casual leave of 12 days is available for TDD teachers along with other special leaves (if wife/teacher is undergoing operationforfamily planning, maternity leave, medical leave). As per the Secondary School Code, teachers recruited by the DoE get 15 days of causal leave along with compensatory offs, medical leave, general leave, maternity leave and earned leave.

All teachers, irrespective of the department they belong, are bound by the RTE Act and Maharashtra State Rules for RTE as well as the Secondary School Code outlined by the state. These include:

1) prepare lesson plan, plan teaching work and teach for 17 to 19 hours a week
2) prepare attendance register for the class, collect fees where necessary and assist class teacher wherever required

3) prepare students for various competitions, sports events, check notebooks and answer sheets, prepare results and submit them to the HM for approval
4) check student homework
5) attend off period, if ordered by the HM
6) work in library, if required
7) plan and execute various exhibitions, manuscript magazines, and
8) do any other work as ordered by the HM, Assistant HM and Supervisor.

A full-time teacher is expected to be present in the school for 30 hours in a week, excluding the recess time. Teaching hours are 17 to 19 hours per week, depending upon class strength.

The TDD has developed an ashram school code for its teachers which lists out duties that they are expected to perform. The ATC monitors these through the Project Officer (PO) and HMs. The HM also writes an annual Confidential Report (CR) of teachers and comments on their overall behaviour in the context of the ashram school code.

e. Performance Appraisal: Performance appraisal is based on the academic plan drawn by the teachers and their end-of-the-year report based on this plan as well as the CR written by the HM. Promotion is usually granted to the upper grade after 12 years of service (including three years of probationary period).

TDD schools also follow a similar procedure. CRs are approved by the POs and teachers considered for annual increments and additional encouragement allowances.

f. Professional Growth: There is provision for teachers to apply for courses for additional qualifications. Travel grants/scholarships/fellowships are offered to teachers to attend courses organised outside the Department, if permitted by the competent authority. In-service training is also conducted by the MSCERT under the guidance of the DoE. Different types of training like subject training, new curricula, age-appropriate teaching are conducted. However, the department usually does not decide the content of these trainings and collaborations are undertaken with voluntary organisations bringing external expertise. State-level trainings are residential in nature while district/block level trainings are non-residential. The TDD also has eight training centres where HMs and POs decide the training needs and number of teachers. They organise training programmes but the coverage remains low. However,TDD teachers attend in-service trainings organised by the DoE.

5.1.1 Issues and Challenges

Mehandale et al (2015) identified the following major challenges in this respect:

1. In TDD schools, about 20% seats for teachers were vacant as of January 2015. This percentage would be higher if RTE Act norms for PTR were taken into account. These vacancies are often filled temporarily by employing daily wage teachers which affects quality of teaching and learning, as well as the morale of teachers.

2. Specialised training programmes for teachers undertaken by the TDD are missing; theseareneeded to address specific challenges and needs faced by teachers in TDD schools.

3. Except for members of teachers' unions, teachers, across all departments, are hardly aware of their service conditions, duties, rights and benefits.

4. There are also issues of multiple authorities issuing orders and implementing programmes in the schools. For example: different departments, for example RDD and School Education Department (SED), or different officials, CEO or EO of a district andCommissioner of Education try to implement separate programmes in the same school, all aiming at quality improvement.

5.2 Managing schools in tribal areas: Notes from the field

Managing schools in tribal areas requires understanding of the socio-cultural contexts of tribal communities. In order to understand the socio-demographic and professional background of school managers in tribal areas, as well as their understanding of the issues and hurdles faced by the tribal students, we interviewed the heads of schools. Though the nomenclature varied from Head Master (HM), Principal, Head Teacher (HT) to In-charge, they are all referred to as school heads.

This schoolhead interviews collected general details about the school, enrolment across two years, social, educational background and experience of teaching staff (including the Principal), challenges they face managing a school in a tribal area, their experiences and opinions on the education of tribal children, trainings attended, admission process, fees charged and non-food transfers to students (textbooks, uniforms, scholarships, shoes etc.), issues faced by teachers, social background of students, reasons for dropping-out, grievance redressal mechanisms, community involvement and participation.The analysis based on these interviews is presented in this section.

a. Socio-demographic Profile: Out of the 54 schoolheads interviewed from the threetypes of schools, 29 were employed as Principals, 17 as Head Masters and 8 as School In-charge. This nomenclature is reflective of the level of school (primary, secondary, composite etc.) as well as the nature of position, i.e, whether the position is permanent or temporary. About 81 per cent of school heads were male. Half of the school heads were in the age group of 51-60 years, indicating that most of them have had long experience of working with their respecive systems. Only two schools (one managed by a local body and another by the TDD) had heads less than 30 years of age. Unlike the teachers teaching in these schools, 70 per cent of the school heads belonged to the ST category, which is a positive sign, as this could help shaping a school culture in a way more sensitive to the needs of tribal children.

b. Educational and professional profile: About 80 per cent of school heads had at least a graduate degree while 27 per cent of these had a postgraduate degree as well. However, four school heads in ashram schools and one school head in a private-aided school had the highest educational qualification as only the tenth pass. These are likely to be soon retired and must have been hired a while ago when the required qualifictions were low. All school heads had at least a Diploma in Education (D.Ed) while about 65 per cent of them had a B.Ed degree. More than 60 per cent of the school heads had more than 20 years of teaching experience but only nine per cent had held the position in that particular school for more than 20 years. Close to 70 per cent of the school heads had been in the position in that particular school for less than 10 years. Almost all school heads indicated that they share teaching responsibilities in addition to administrative, monitoring and supervision responsibilities. Only two school heads did not have teaching responsibilities in the school. They also provide immediate academic support to the teachers in the school as well as maintain different records for the schools.

c. Challenges specific to tribal areas: Eighty per cent of school heads felt that there are specific challenges in managing a school in tribal area, these being different from the challenges that one could face in non-tribal areas. One-third of them felt that these special challenges were due to having more students with uneducated parents who showed less interest in education.

Another challenge cited by a large number of the school heads was the children's unfamiliarity with Marathi (the official medium of instruction). Two-thirds of the school heads had worked with students from different tribal groups but none of them had received any special training for managing schools in tribal areas. It is likely that since most of the trainings are given by the DoE, with a focus on the classroom interactions and teaching in an average classroom, the specific challenges of teaching a classroom with students from multiple tribal groups and languages, or managing a school in tribal areas, do not find specific focus there.

d. Teacher-related[31]: Another major challenge, as understood through the interviews, was dependence upon contract and clock-hour teachers in some of the schools in these areas. All schools reported some vacancies against sanctioned teacher-positions leading to appointment of contract or clock-hour teachers, or vacant positions. This could have implications on classroom transactions and impact learning levels.

Among the schools included in the survey in the three sample districts, local body schools had the lowest teacher-pupil ratio (TPR), lower than 30, taking the number of teachers currently placed there and the total enrolment in the school into account. The ashram Schools reported the highest TPR in Amravati and Yavatmal, while private-aided schools had the highest TPR in Thane.

Table 5.1: Teacher-pupil ratio in surveyed schools

District	Private-aided	TDD	Local body
Amravati	32	37	26
Thane	57	52	29
Yavatmal	23	40	23

Source: Calculated from primary data collected

Except for four schools (two managed by local bodie and two managed by the TDD), all schools had formal fora for interactions with teachers. The most common issue raised by the teachers in these forarelated to student absenteeism/irregularity. About half the schools surveyed had undertaken efforts, by way of discussions with the Cluster Resource Persons (largely local body schools), to sensitise teachers with respect to special needs oftribal students. Two-thirds of the schools indicated that Principals and/or cluster resource persons often observed classrooms to evaluate teachers' performances. However, it was also indicaed that these are rarely used to give formal feedback to teachers on their performances.

e. Student-related: More than half the school heads, including 57 per cent from the ashram Schools, reported that students speak Marathi at home. This meant that children in about half the schools surveyed did not speak Marathi at home. The focusgroup discussions conducted with teachers in selected schools in the three districts further reinforced this point. Teachers in Yavatmal, a district that shares a border with Andhra Pradesh, reported that Telugu is a common home language for many children in areas. Similarly, in Amravati that shares its border with Madhya Pradesh, Hindi was reported to be a more commonly spoken language

[31] Detailed analysis of teacher-related data collected is given in the next section.

than Marathi for a large proportion of households. In addition, many families from specific tribes use their own languages, neither Marathi or Hindi or Telugu – the prevalent mainstream languages – and therefore make the task of teachers more difficult.

Teachers, especially those teaching at primary school, reported that they had to make additional efforts to ensure that students shift to talking in Marathi. As our primary learning levels assessment, presented later, also shows, language learning for students continues to be an issue even at grade five level. It is necessary to explore the issue of school language and children's learning more deeply, examining whether factors such as enrolment of students from urban/semi-urban areas, or even second/third generation learners whose parents have shifted from using tribal languages at home to speaking in Marathi, determine which students do well and which students struggle with the school language.

About 50 per cent of the schools felt that their students were regular; the percentage of ashram schools reporting this was the highest.This is understandable as these were residential schools. Irregularity among both girls and boys, as indicated by school heads, was largely due to various festivals. However, for girls, housework was identified as the second highest reason for irregularity.This was true for schools across all three management types. For boys in local body and private-aided schools, head teachers indicated thatpoverty leading to seasonal migration for work outside their own villages and districts led to irregularity. Close to 40 per cent of the school heads reported that students dropping outofschool without completing the level was common. Reasons for dropping out were similar to those for irregularity: girls dropped out due to housework and boys dropped out due to lack of financial resources and migration for work.

A large percentage of the schools reported that they had a formal forum for interactions with students where students raised issues related to infrastructure, health and educational status.

f. Student assessment-related: Almost 90 per cent of school heads reported that students were assessed through periodic tests and end-of-year assessment. The concept of continuous and comprehensive evaluation (CCE) seems to have been converted into multiple assessment tests spread across the year instead of a child-specific assessment of the learning achieved by the child during the course of one year.

g. School and community: Except for one ashram school, all schools reported having a formal forum for interactions with the community in the form of school management committees and/or parent teacher associations. Some critical issues raised by the community related to attendance of students and teachers, cleanliness of the schools, and students' learning and performance. Almost all the schools indicated that such interactions help in managing the schools as it enhanced student interest and motivation in education and extended support for infrastructure development. Suggestions and complaints regarding mid-day meals and teaching were also received from the communityforums. Half the schools indicated that they have incorporated suggestions received such as the need to build a hostel, shift the mid-day meal from being cooked in school to being procured from ISKCON, and extra classes for students who lag in the class.

h. Perceptions about tribal students: Most school heads felt that there is definitely a difference in teaching tribal students as compared to non-tribal students. Even among tribal students, they felt that some tribes are more advanced than others. Those with greater exposure to the outside world and mainstream languagesare easier to teach. This meant the levels of effort required to work with children coming from different tribal groups varied. Teaching English was also indicated as a problem area. Other challenges include migration and an inherent

difference in the cultural, economic and social environment of the tribal students and that of the dominant school culture. School heads also felt that provision of hostels, better facilities, extension of schemes/scholarships till class 10 and providing transportation for non-residential schools would improve participation of tribal students in the schools. They also expressed that books in tribal languages, sensitising parents about formal education and incorporating the tribal-festival calendar in the school calendar would ensure that students become regularduring the schoolsession. However, they also felt that these students need more exposure to Marathi.

i. Daily routine of students: The table gives a broad sense of the daily routine during weekdays and weekends for students studying in ashram schools in Maharashtra, based on information collected during school surveys. It can be observed that their routine is very similar for all days, except for the time period 11am to 5pm, when they are in school on weekdays and have free time during weekends. There are designated slots to ensure that students spend considerable time on personal cleanliness on a daily basis. Mid-morning time is utilised for self-study, which could be for preparing for classes or completing homework assigned the previous day. Lunch, in all schools, is served before 11am on all days while snacks are served during recess break in the afternoon around 2:30pm. The daily routine also ensures that there is free time for playing everyday, seen asa critical component for the overall growth and development of the students. However, most residential schools visited did not have playground, equipment and playtime consisted of games that did not require equipment (running, catching each other etc.) in the open ground. Evenings were spent studying and completing homework assigned during school hours.

Table 5.2: Weekday/weekend routine for ashram schools

Time Slot	Weekday	Weekend
Early morning (6am to 8am)	Personal cleanliness-related activities after waking up	Personal cleanliness-related activities after waking up
Mid-morning (8am to 11am)	Breakfast, self-study and lunch	Breakfast, self-study and lunch
Noon and afternoon (11am to 5pm)	Assembly and school (with small break in between two sessions, usually around 2:30 pm for snacks)	Free time
Early evening (5 pm to 7 pm)	Playtime and dinner	Play time and dinner
Evening (7 pm to 10 pm)	Prayers and self-study	Prayers and self-study
Night (10 pm to 6 am)	Sleeping time	Sleeping time

Source: Compiled from primary data collected.

It is critical to note that all time slots assigned for study, outside school hours, are self-regulated and not overseen by any teaching faculty. The warden merely ensures that students are studying during this time. This could be either due to shortage of teachers or non-residential teaching staff, who leave after school hours. This time could be utilised in a much more efficient manner for direct learning and remedial teaching, if necessary. An innovative approach to integrate non-academic and academic learning is missing. On weekends, free time from 11 am to 5 pm, might be utilised creatively for field visits, non-academic classes like karate, music, dance, drawing, etc. and other means of empowering students beyond textbooks. The routine clearly highlights an excessive dependence on textbook learning. This also has implications on the learning levels and empowerment of students studying in ashram schools.

5.3 Teacher profiles in tribal Maharashtra

Table 5.3describes the socio-demographic characteristics of the teachers across three districts and school management types, collected through the field survey.

Table 5.3: Number of teachers whose details were collected

	Amravati		Thane		Yavatmal		Total Teachers	
	Male	Female	Male	Female	Male	Female	Male	Female
Ashram schools	37	8	43	35	50	18	130	61
Private aided	64	26	10	28	97	26	171	80
Local body	31	24	6	20	29	27	66	71
Totalteachers	132	53	59	83	176	71	367	207

Source: Calcuated from primary data collected

a. Sex: There were a total of 370 male teachers and 203 female teachers teaching in these sample schools. In ashram schools, across three districts, more than half the teachers were males (Amravati: 84per cent; Thane: 55per cent; Yavatmal: 73per cent). This could be due to an absence of a sex-wise reservation policy in the state. Similar trends were present for private-aided and local body schools in Amravati and Yavatmal. However, these two school management-types had lesser percentage of male teachers in Thane. Proximity to a major urban congregation and availability of transport facilities play a role in making more women choose the teaching profession in Thane.

b. Age: One third of the teachers in these schools belonged to the age-group 30-39 years and another one third belonged to the age group 40-49 years. About 23 per cent of teachers were in the range of 50-59 years of age. Ashram schools have the highest percentage of teachers in the age-group 30-39 years, followed by local body schools. More than 40 per cent of teachers in local body schools were in the age group 40-49 years.

c. Social category: Out of the 576 teachers, 213 (36%) belonged to the Other Backward Classes (OBC) category. About 16per cent of these teachers belonged to SC communities whereas only 11.6per cent of teachers belonged to ST communities. For appointments made by the TDD, it is mandatory that all teachers appointed in the Scheduled areas belong to the ST category (Mahendele et al, 2015), which is practiced. This is also in contradiction to the recommendations by several committees on tribal education.In our sample, only 8.4per cent of teachers in ashram Schools across the three districts belonged to ST communities.

d. Home language: The language issue becomes more complex if teachers do not speak or at least follow the languages that children speak at home.This is a particularly important issue at the primary level. Early reading abilities are crucial for learning all subjects both then and later. About 97per cent of teachers covered by the sample spoke Marathi at home. In our sample schools, only eight out of 576 teachers spoke any tribal languages at home. Even among the ST teachers, 90per cent of them spoke Marathi at home. Only five teachers indicated that they speak the tribal language Korku and one teacher indicated that he speaks another tribal language, Dhodia, at home.

e. Educational and professional qualifications: Despite the commonality of the eligibility criteria, each Department undertakes its own recruitment process. For TDD, the Assistant Tribal Commissioner of the region is responsible for the recruitment process of the government-run ashram schools. In case of private-aided ashram schools, the NGO/society undertakes the process (Mahendele et al, 2015).

Among all the teachers in the sample schools, about 23 per cent had a postgraduate degree with additional teaching professional qualification and about 51 per cent had graduation plus one of the teaching professional qualification, and another 14 per cent had ClassXIIand a teaching diploma. This means about 84 percent of teachers were professionally qualified. There were about 10per cent of teachers whose education qualification was Class X pass along with a professional diploma (D.Ed.). These teachers belonged to the upper age-group of 50-59 years and hence could have been recruited at a time when relaxations were extended for teacher recruitment to fill the high number of vacancies. Local body schools had the least proportion of trained teachers in position.

In Amravati, 43per cent of teachers in ashram schools had a postgraduate degree as compared to 24.66 per cent of teachers in private-aided schools and 11.11 per cent of teachers in local body schools that had a postgraduate degree. In Yavatmal too, the highest percentage of teachers in ashram schools had a postgraduate degree. For Thane, majority of teachers across all three management types had a graduate degree. In Amravati, teachers who had at least a graduate degree also had a D.Ed or B.Ed. This constituted about 78per cent of the teachers in Amravati. In Thane, this pool of teachers (who had at least graduation and a professional degree) constituted about 72per cent of total teachers in the district. In Yavatmal, this pool comprised 74per cent of teachers in the district.

Table 5.4: Percentage distribution of teachers in sample schools by educational and professional qualifications

Educational and professional qualifications	Ashram (TDD)				Private-aided				Local body				Total
	A	T	Y	Total	A	T	Y	Total	A	T	Y	Total	
Class 10 + D.Ed/B.Ed/M.Ed/Others	0	15.4	8.8	9.5	16.4	7.9	3.2	8.1	15	6.4	14	12.7	9.7
Class 12 + D.Ed/B.Ed/M.Ed/Others	18.9	15.4	14.7	15.8	5.5	2.6	19.5	12.4	9.4	25.8	16	15.6	14.3
Graduate + D.Ed /equivalent	11.4	7.7	10.3	9.5	8.2	44.7	8.1	14.1	50.9	32.3	42.0	43.0	19.5
Graduate + B.Ed / equivalent	27.3	39.7	23.5	31.0	35.6	23.7	47.9	40.2	11.3	12.9	18	14.2	30.8
Graduate + Other professional	0.00	2.6	1.5	1.6	8.2	2.6	0.8	3.4	1.9	0.0	0.0	0.7	2.1
Post graduate (PG)	0.00	1.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
PG + D.Ed	0.00	2.6	4.4	2.6	1.4	7.9	3.2	3.4	7.5	16.1	0.00	6.7	3.9
PG + B.Ed	38.6	14.1	32.3	26.3	19.9	10.5	14.6	15.4	3.7	6.4	10.0	6.7	17.0
PG + M.Ed/Others	4.5	0	1.5	1.6	5.5	0	2.4	2.9	0	0	0	0	1.8
Below Class 10 / Others	0	1.28	2.9	1.6	0	0	0	0	0	0	0	0	0.5

Note: A: Amravati, T: Thane; Y: Yavatmal

Table 5.4 indicates that the majority of the teachers, across the three school managements and districts, were graduates. About one third of the teachers in local body schools in Amravati and Yavatmal were graduates with a professional teaching diploma/degree as compared to 61per cent of teachers in local body schools in Thane. Again, proximity to a metropiltan city

and access to transport play a role in ensuring the greater availability of trained teachers in Thane.

f. Teaching experience: More than 44 per cent of teachers, across three districts, had more than 15 years of teaching experience. In ashram and private-aided schools, this constituted about one-third of their teachers whereas in local body schools, 63per cent of the teachers belonged to this pool. Inashram schools, teachers in Thane had more teaching experience than those in Amravati and Yavatmal. For private-aided schools, more than half the teachers in Amravati had more than 15 years of teaching experience as compared to lower percentages of teachers in the other two districts. For teachers in local body schools, Yavatmal had the highest percentage of teachers with more than 15 years of teaching experience.

Half the teachers in the sample schools had less than five years of teaching experience in the school surveyed while another 25per cent had worked in that school for six to ten years. Only in private-aided schools, 37per cent of teachers had more than 15 years of experience in that school. This could be a result of the frequent practice of transfers within ashram schools and local body schools as opposed to almost notransfers in private aided schools. If such transfers are voluntary, then they contribute to the job satisfaction of the teacher. However, if these are imposed on them, then it could lead to dissatisfaction (as one might be living away from family) which could translate into adverse relationships in and outside the classroom with implications for children's learning.

In the ashram schools surveyed, most teachers teaching primary schools are assigned to teach all subjects. We also found that for upper primary, secondary and senior secondary teachers, subjects within the same stream (e,g, Humanities or Sciences) were often clubbed together meaning one teacher tuaght that stream across levels. A number of teachers reported that they teach at least two of the social science subjects i.e. History, Economics, Political Science orGeography. From the primary data collected, it was also evident that language teaching (Marathi, English and Hindi) are also often assigned to teachers teaching social science subjects. However, a small number of teachers also reported teaching social science, science and/or language subjects together, especially in upper primary and secondary/senior secondary classes. This indicates a mismatch between their qualifications and what subjects they are assigned. It could mean that a teacher with a degree in the Humanities is assigned to teach Science/Mathematics or vice versa.

In privae-aided schools, it was common to find social science teachers also teaching Physical Training (PT) and Personality Development (PD) classes. Very few teachers reported teaching only Marathi while others taught Marathi with another language (Hindi, Sanskrit, English) and/or social science subjects to upper primary and secondary classes. Like the ashram Schools, primary school teachers in private-aided schools are also expected to teach all subjects.

In our survey, only elementary schools managed by local bodies were surveyed. About 60 per cent of teachers said they taught all subjects. However, certain individual teachers reported teaching social science with languages and/or science subjects to upper primary classes as well. Although the numbers for such mismatches, across all three school management types, are small in the primary data collected, it does indicate a phenomenon which could be a possible reason for difference in learning levels across different school managements and a larger issue of assigning teachers to teach subjects in which they are not trained.

6. Curricular processes and practices

As the review of literature has shown, strengthening educational outcomes for all children in general, and improving schooling and educational experiences for tribal students in particular, requires attention to the planning of classroom transactions and pedagogical experiences. Learning occurs within a social context and is sensitive to several factors. This includes factors such as how knowledge is represented; taking into account social, cultural and linguistic differences among learners; degree of autonomy and control applied within the learning environment; as well as differences that emerge in curricular and pedagogical practices, depending on whether learning is viewed as a process or an outcome.

While the NCF, 2005 lays down certain directions for this, stressing the importance of a child-friendly approach to education, school curricula in Maharashtra are also guided by an SCF, developed in 2012. Maharashtra has been one of the few states to undertake this initiative of developing a separate curricular framework for the state (Darak 2011). The exercise has been jointly undertaken in collaboration betweenseveralinstitutions (though the names of members on the drafting committee has not been made public), including the SSC Board, State Council of Education Research and Training (SCERT) and Bal Bharati (the state board for textbook publication) (Darak 2011). Among the specific recommendations made for curricular and pedagogic restructuring in the SCF are directions to include more geography-specific instruction (that is by orienting learning to the specific geographies of students); inclusion of global languages; making classroom learning more attractive through the use of audio-visual aids, as well as experiential through inclusion of industrial visits. Teacher development practices have also been reconceptualised through an emphasis on andrological training (online instruction) and web and teleconferencing opportunities (Rao 2010).

The inclusion of these directions makes the SCF progressive in its orientation, other progressive features of the NCF have also been drawn into it. However, a group of civil society organisations and educational experts, during meetings organised by the SSC and SCERT,have claimed that the SCF fails to articulate any plans for the implementation of such practices (Darak 2017). Critical aspects ignored in the discussion of the framework include the importance of critical thinking and discussion of hegemonic structures and social conflicts (Darak 2011). Further, Darak states that the SCF has not done much to address the politicisation of historytext-book writing practices. Prior to SCF 2012, History, Geography and General Science were taught as separate subjects from Class III onwards. SCF 2012 provided directions for the subjects to be integrated into one subject up to Class VI, after which they have been divided into Geography and General Science as one subject, and History to be taught separately (Darak 2017). Arguing that this is an artificial division, Darak has also pointed at how such moves have sought to preserve the politically-coloured history that is being taught to children in state since the 1970s (Darak 2017; Darak n.d).

Finally, another critique of these curricular revisions has also to do with the practices of assessment and student performances. While CCE has been adopted till class VIII, it has been noted that classroom teaching-learning practices revert to preparing students for conventional forms of testing for board exams in higher classes, as well as prepare students for the Pragat Shaishanik Maharastra (PSM) exams,[32] in order that children perform well in these exams.

[32] The GoM introduced a resolution on 22 June, 2015 to raise educational standards across the state. It sought to improve educational standards by doing away with the punitive approach of penalising teachers for poor

Thus, activity-based and child-friendly approaches introduced through the SCF are trumped by more practical concerns about student performances in competitive exams (Darak 2017).

It is within this context that an analysis of classroom transactions and curricular and pedagogical approaches becomes central to understanding and explaining the status of education and the educational outcomes observed in tribal districts of Maharashtra. Below, we present the results obtained from the administration of our classroom observations tool to examine curricular approaches in three tribal districts of Maharashtra.

6.1 Curricular transactions tool

The observations tried to gauge certain key processes and influential aspects of classroom transactions like multi-grade teaching, activity learning, conducive classroom environments for student participation, enquiry-based approaches, experimental learning, peer learning and technology-assisted learning. Behaviours that hamper holistic learning like teacher-dominated classrooms and rote learning were also observed.

For this purpose, a classroom observation tool was developed based on the recommendations for structuring curricula and classroom transactions obtained from the review of literature, and from the NCF 2005, and SCF 2012 for Maharashtra.

The tool consisted of 34 items divided into five sections, based on the major issues and challenges for learning that have been identified for tribal children. Each item on the checklist was rated on a likert scale from 1-4, where:

1 = never (behaviour never observed during the observation time)
2 = rarely (behaviour observed between 1-40 percent of the observation time)
3 = sometimes (behaviour observed between 40-60 percent of the observation time)
4 = always (behaviour observed between 60-100 percent of the observation time)

The rating was proportioned as an observation of the frequency of occurrence of the behaviour during the total observation time (instead of categories like 'Agree', 'Disagree', etc). This was done as expressing the observations as proportion of time would provide an easier way to arrive at inter-rater agreeability, taking into consideration the total time spent in classrooms and the proportion of time spent on each activity (rather than expressing it as subjective opinions of agreement and disagreement).

In addition, a 'not applicable' (NA) option had also been provided so that the rater could indicate if there was no opportunity available to observe the particular activity/behaviour, and to prevent a conflation with the 'never' category, which could be used when the opportunity to observe behaviour was available but was not used by the teacher/not practised within the classroom. When the NA option was used, a clear justification was also noted by the observer. Finally, each section also had a one item 'lie-score' which was to be negatively scored (scored in reverse). These lie-score items covered practices detrimental to classroom learning thatought to be discontinued. However, it needs to be kept in mind that teachers were aware of these observations and hence could have modified their behaviour throughout the duration of the observation. [33]

student outcomes, while also undertaking a massive assessment exercise in 2015-16 for classes 1-8 to understand areas of difficulty for students (Samata, 2017).

[33] A lie-score is a technical construct in checklist construction to check if the checklist has been mechanically filled/data has been fudged, etc. So a lie score item actually asks a question which will be in some ways opposite

6. 2 Results: Theme-wise analysis

Table 6.1: Distribution of classrooms rated on the classroom observation tool by district and school management type

	TDD				Private-aided				Local body				Total
Classes Observed	2	5	9	Total	2	5	9	Total	2	5	9	Total	
Amravati	-	-	1	1	-	1	3	4	2	3	-	5	10
Thane	2	3	2	7	1	2	1	4	1	1	-	2	13
Yavatmal	-	1	2	3	-	-	5	5	3	2	-	5	13
Total	**2**	**4**	**5**	**11**	**1**	**3**	**9**	**13**	**6**	**6**	**-**	**12**	**36**

Source: Calculated using primary data collected

The observations were made across 36 classrooms, of which nine were class II classrooms, 13 were class V classrooms, and 14 were class IX classrooms. Further, of the 36 observations made, 10 observations were made in Amravati, and 13 each in Thane and Yavatmal. Eleven observations were made in schools managed by The TDD (school management type 1); 13 in private-aided schools (school management type (2); and 12 in local body schools (school management type 3).

a. Overall performance on the classroom observation checklist: The classroom observation checklist (COC), as observed earlier, had a total of 34 items, divided into five sections, namely classroom environment, pedagogic practices, use of textbooks, language and identity.

Table 6.2: Description of COC

Category	Description
Classroom environment	measures whether a conducive, non-punitive environment is created within the classroom, with adequate resources for teaching-learning
Pedagogic practices	measures the approach adopted in teaching, examining whether practices such as activity-based learning, experiential learning, peer learning, etc are encouraged
Use of textbooks	examines whether textbooks become the prime source of classroom learning or whether teachers make efforts to go beyond the textbook to encourage learning
Language	identifies measures taken to support tribal children by making provisions to support school language acquisition
Identity	identifies measures that support tribal children's identities and backgrounds within the classroom.

The highest possible score that could be obtained on the COC was 111, while the least score that could be obtained was 9. The mean score obtained across all observations was 43.9(SD = 16.2), with 19 classrooms scoring above the mean and 17 scoring below the mean. The mean score (which lies even below the halfway mark of the total possible scores) suggests

of other questions on the checklist. If both the lie score item and the other questions are filled similarly, then it suggests that the data from that checklist may not be accurate.

that much can be done to improve curricular and pedagogic practices within these schools in order to benefit tribal students.

The lowest score that has been obtained across the 36 classrooms observed is 19 (obtained for a class V classroom in a school under the Tribal Welfare department , in Yavatmal), while the highest score obtained has been 86 (obtained for a Class IX classroom, in a local body school, in Amravati).

An item-wise analysis was also undertaken to understand the differences between classrooms that lie outside +/- 1 SD from the mean (i.e., between a score range of 27.7-60.1). There are five classrooms below the lower range and six classrooms above the upper range. The number of classrooms lying within the range is 25. Among the classrooms that fell below 1SD of the mean, four were from Yavatmal district while one was from Amravathi. Further, more number of classrooms from private-aided schools (three, of which two belonged to Yavatmal) were seen to fall below 1SD from the mean, while only one classroom each from schools managed by the TDD (in Yavatmal) and by a local body (also in Yavatmal) performed poorly on the COC.

On the other hand, among the classrooms that lie above 1 SD from the mean, three were in Amravati, two in Yavatmal and one in Thane. Three classrooms from schools managed by local bodies (one each from the three districts sampled) performed above 1 SD from the mean. Two classrooms from private aided schools in Amravati performed above 1 SD from mean on the COC, and one classroom from a school managed by the TDD in Yavatmal performed above 1 SD from mean.

An item-wise comparison of the classrooms that fell below and above 1 SD from the mean, showed that there were significant differences between the classrooms. For example, the analysis showed that more than 80 percent of the classrooms lying 1 SD below the mean performed poorly on most items in all the sub-sections of the COC (i.e., with respect to classroom environment, pedagogic practices, use of textbooks, language-related practices, and supporting identity-related issues). All classrooms never or rarely engaged students actively within the classroom, never went beyond the textbook to include other relevant information while teaching children, never linked textbook knowledge to local knowledge and practices, or encouraged multilingualism within the classroom.

Interestingly however, it appears that it is only the items on classroom environment that differentiate classrooms below and within 1SD from the mean. On other areas such as areas use of textbooks, language, and identity, more than 70 percent of the classrooms within the range also perform poorly on most items in these sub-sections. The differences between these classrooms on each sub-section of the COC are further discussed below.

One significant observation is that all schools, below, within and above 1 SD from the mean performed poorly on the section on pedagogic practices, with more than 50 percent of the observations for most items showing that they never or rarely used practices that aid learning (more details given below). This indicates that training for teachers in pedagogy needs greater attention and may be central to improving results. Another observation was that across all three school types**,** majority of the classrooms showed a lack of the use of bridge material,[34] a critical factor for ensuring good quality education for tribal children. Further, it also appears

[34] Bridge material usually refers to learning material that compresses several years of school learning and curriculum into a concise, short-term programme to be used with out-of-school children in order to prepare them to enter age-appropriate classes within regular schools.

that more than 60 percent of classrooms across the three groups lack adequate teaching-learning material, and additional resources such as newspapers and audio-visual material, all of which can contribute to strengthen learning and the language capacities of tribal children.

b. Performance on individual sub-sections of the COC: In the following section, we present the results on each sub-section of the questionnaire.

i. Classroom environment: In assessing whether there was a conducive learning environment in the classroom, we looked at aspects such as availability of teaching-learningmaterial, effective management of multi-grade teaching, activeengagement of children in the classroom, with room for them to express their ideas and thoughts in a non-discriminatory and a non-punitive, learning environment. The least possible score that could be obtained under this section was four, and the highest possible score was 31. The mean score obtained across the classrooms in this section was 16.5 (SD = 5.9), thus indicating that there was much scope for improvement. The lowest score obtained for this section is seven (in a class V classroom, in a school under the Tribal WelfareDepartment in Thane), and the highest score is 28 (obtained by a class II classroom, in a school under a local body in Amravati). The median score is 16.

Looking at individual items, we found that teaching-learning materials were absent or rare in about 72 per cent classrooms, and similarly teachers were seen to discriminate among childrenin about 72 per cent of the classrooms. However, absence of teaching-learning material did not seem to affect the 'active engagement' of students, as classroom observations showed that in three-fourths of the classrooms, all children were actively engaged. In about 58 per cent of the classrooms, teachers were seen to build an environment for participation and discussion, and in about 53 per cent of the classrooms, teachers supported thoughts and ideas initiated by the students.

ii. Pedagogic practices: A second sub-section of the checklist attempted to evaluate the approaches to, and processes of, learning utilised within the classroom. For this, we examined efforts made by teachers to go beyond the textbook, apply enquiry-based and experiential learning approaches, drawing children's local knowledge into the classroom. Further, we also examined efforts made at encouraging practices such as peer learning, technology-assisted learning and multiple ways of exploring a topic.

The least possible score that could be obtained under this section was six and the highest possible score was 39. The mean score obtained across the classrooms in this section was 16.2 (SD = 6.3), once again suggesting that there is much room for improving pedagogic approaches and practices. The lowest score obtained in this section was five(by a class II classroom, in a school under a local body in Yavatmal), and the highest score is 34 (obtained by a class IX classroom, in a private-aided school in Amravati). The median score is 14.5, which means that approximately half the classrooms observed have a score above and below this mark.

c. Use of text-books: Items in this section were included in order to ascertain whether teachers go beyond the textbook in linking school knowledge to everyday experiences of children, using bridge material and other resources. The possible range of scores for this section was between 0 and 15. The mean score based on observations across 36 classrooms for this sub-section was 3.4 (SD = 2.9). The median score is three and 80 per cent of the classrooms have received a score of four or less. The lowest score obtained in this section

was -1 (by a class IX classroom in a private-aided school in Amravati), and the highest score obtained was 15 (also by a Class IX classroom, in a private-aided school in Amravati).

Looking at the scores obtained by the classrooms on individual items in this section, it can be seen that most classrooms have done poorly on all items in this section. In more than 90per centof the classrooms, bridge material (such as dictionaries, translated books, etc.) was absent or rarely used; and so were other learning materials such as pictures, charts, models etc. In more than 60 per cent of the classrooms observed, teachers failed to link textbook knowledge to local knowledge, customs and practices, or to the everyday lives of the children and classroom transactions appeared to be textbook-driven. These findings perhaps provide further insights regarding the findings of the previous section on pedagogic practices: even though teachers discourage rote learning practices, teaching-learning practices themselves continue to remain textbook-focused. This is perhaps because teachers do not have adequate training to undertake alternative pedagogic practices within the classroom.

d. Language: The section on language was particularly introduced keeping in mind that one of the main reasons tribal children face discrimination, which contributes to their poor learning outcomes, is their lack of familiarity with the state language or the medium of instruction at school. This is, in fact, especially true in the primary classes and has a direct impact on the learning and comprehension of other subjects and higher levels. Lack of familiarity with the school language during earlier grades can lead to poor concept formation, which can further affect learning outcomes even in later grades due to a poor foundation in the subjects. Attempts were made to understand whether language acquisition and comprehension as well as subject-comprehension were fostered through the practice of multilingualism within the classroom, local/tribal languages were accepted within the classroomand tribal resources used to enhance language acquisition.

The least possible score in the language section was one and the highest possible score was 19. The mean and median scores for all classrooms in this sub-section was 6 (SD = 3.2), which is well below the highest possible score. Eightyper cent of the scores also lie between four and seven. The lowest score obtained in this section was 1(by a class V classroom, in a school under a local body in Amravati), and the highest score obtained was 16 (also in Amravati, by a class IX classroom, in a private-aided school).

The findings in this section of the COC need to be interpreted in light of the findings on our teacher survey presented earlier. With a small proportion of teachers actually belonging to tribal communities (11 percent approximately), and 90 percent of this group, and 97 percent of all teachers, reporting their home language to be Marathi, a lack of fluency and comfort with tribal languages (despite being aware of them or being familiar with the languages) prevents the incorporation of the child's language within the classroom, and restricts multilingualism. This is perhaps reiterated by the finding that only six teachers in all used any tribal dialect at home. This suggests a need to pay attention, particularly at the primary level, to the composition of teachers and a greater need for teachers who come from local tribal communities, and are not just familiar with the languages but have experience in using them.

e. Identity: With respect to the last sub-section, an attempt was made to see if tribal culture and identity were respected and supported within the classroom. As literature shows, tribal children have often faced discrimination within the classroom, with their people and culture being identified within textbooks and classroom transactions as 'backward' and ‘inferior’. The COC attempted to identify whether these practices still remain within classrooms today.

There were three items within this section and the lowest possible score in this section was minus 2, and the highest score was seven. Before discussing the results in this section further, it is important to note that data for seven classrooms (i.e., 19.4 per cent of the total classrooms observed), could not be analysed as there was no opportunity to observe practices within the classroom that were supportive of tribal culture and identity.

For the remaining 29 classrooms, the mean score obtained for this section was 1.8 (SD = 2.0). The median score was one, and there appears to be a large variation across the classrooms, with respect to their performance on this sub-section. The lowest score obtained was minus 1 (by a class IX classroom in, a private-aided school in Amravati), and the highest obtained was seven, which was also the highest possible score obtainable in this section. The highest score was obtained by two classrooms, both of which were class V classrooms in Thane, one each belonging to schools of theTDD and a local body. While an item-wise analysis for this section is difficult to undertake (due to the fewer number of observations that were possible, and fewer items in the section), based on the classrooms that were observed, it appears that in more than 70 per cent of the classrooms, teachers failed to be respectful of tribal cultures and did not provide a conducive environment for children to retain their tribal identities within the classroom. However, classroom observations suggested that majority of the teachers did refrain from communicating a negative image of tribal cultures and peoples.

Overall, what this indicates that it may perhaps not be sufficient to just refrain from engaging in behaviours that communicate negative images of tribal peoples and cultures but also important to act positively, creating an environment in which tribal children can retain their identities and cultures within the classroom. This may require efforts at allowing for children to bring in their everyday experiences, tribal cultural practices, dress, customs, food, languages, etc., into the school.

6. 3 Results: district-wise analysis

Undertaking a district-wise analysis, we found that Amravati has the highest total mean score on the COC (with 51.1) and also greater variation (SD = 18.9), despite having the least number of classrooms that were covered in the survey. Five schools in Amravati have scores that lie above the mean and five have scores below the mean. While the observations in Amravati show that classrooms generally performed well with respect to classroom environment (with sixof nine items in this section scored as sometimes or always), they appear to be performing poorly with respect to use of textbooks, with rater observations showing that bridge material and other learning resources, and linkages between tribal children's knowledge and everyday experience are almost completely absent.[35] A majority of the observations in Amravati (9 of 10) have shown that teachers sometimes or always actively engage students in the classroom, and arefamiliar with local tribal dialects (seven of nine classrooms). But Amravati seems to fare badly in terms of additional classroom material such as newspapers and audio-visual support. All 10 observations made in classrooms of Amravati suggest that this is completely absent, with all classrooms having received a score of one (which indicates that this was never observed).

Among the districts, Yavatmal has the lowest total mean score on the COC (mean =34.8; SD = 15.1). Of the 13 observations made in Yavatmal, nine observations lie below the district

[35] The section on Identity could not be analysed for Amravati as a large number of responses were marked as 'NA' (indicating lack of opportunity to observe these items).

mean, while four lie above the mean. Item-wise analysis seems to suggest that classrooms are doing poorly in most areas: for example for six of nine items on classroom environment, more than half the classrooms have a score of one ('never') or two ('rarely'). Similarly,more than half the classrooms observed have scored poorly on all items except one (i.e., encouragement of rote learning) under the pedagogic practices sub-section. More than half the classrooms have also scored 'never' or 'rarely' with respect to all items that were given under 'use of textbooks'. Further, they have scored poorly on seven of ten items under language, and two of three items under identity. Use of technology-assisted learning and use of tribal resources (such as songs and stories) are absent in all classrooms, and in all but one classroom, teachers failed to use different kinds of learning material such as pictures, charts and models. On the other hand, Yavatmal scored positively on a few items, such as teachers refraining from communicating a poor or backward image of tribal children(seen in all but one classroom), teachers actively engaging students in the classroom, discouraging rote learning, and showing familiarity with local tribal languages. This is perhaps an indicator of the teachers' efforts at creating an inclusive environment, though pedagogic knowledge and practice may need to be strengthened, along with attention to improving teaching-learning resources within these classrooms.

The third district Thane has a mean score of 47.5 on the COC (SD = 11). Thane has also the least variation among the 13 classrooms observed. Seven classrooms have a score below the mean, while six have a score above the mean. Based on the observations across 13 classrooms, it appears that Thane performs positively with respect to having a conducive classroomenvironment (with six of ten items in this sections having been scored as 'sometimes' or 'always' observed). For example, with the exception of two classrooms, in all classrooms in Thane, teachers were observed to engage students actively within the classroom. Further, in all classrooms observed in Thane, teachers were seen to be familiar with local tribal languages and refrained from communicating a negative image of tribal peoples and cultures. In a majority of the classrooms (12 of 13), teachers also discouraged rote learning. On the other hand, Thane appears to be performing poorly on other areas such as'use of textbooks'(with classrooms having been observed to be doing poorly on all items under this section). It has also scored poorlyon areas such as language (with four of six items scored as 'never' or 'rarely' across all the classrooms), and pedagogic practices (with eight of 11 items scored as 'never' or 'rarely' across classrooms observed). Use of bridge material and other learning resources such as charts, models etc. were rarely present. Further, in all classrooms in Thane, it was observed that technology-assisted learning was never practiced and similarly there was an absence of the incorporation of tribal resources (such as songs and stories) in teaching-learning.

Putting the data for the three districts together, it appears that across the districts, while there is an effort made by teachers to provide an inclusive learning environment by showing familiarity and respect for language and culture, an absence of adequate and relevant kinds of teaching-learning materials (e.g., bridge material, collection of tribal stories, songs, art etc), and familiarity or capacity to undertake facilitative teaching practices restrict learning outcomes for tribal children. Teacher training and empowerment and development of adequate resources for schools are important to address this.

6.4 Results: schoolmanagement-wise analysis

An analysis of the classrooms by school management (SM) type showed that schools under the local body had performed comparatively better, with a mean score of 48.1 (SD = 16.5), than schools under the TDD (mean = 42.8; SD = 12.5), and private-aided schools (mean = 41.1; SD = 18.9). A majority of the classrooms in local body schools appear to be

performing well with respect to providing a conducive classroom environment(with most schools having received a rating of 'sometimes' or 'always' on five of nine items given under classroom environment). It was observed that in classrooms in local body schools, teachers actively engaged children and that these classrooms were not teacher-dominated. Teachers were also able to manage multi-grade teachingwell. Further, it was also observed that in all classrooms in local body schools, teachers refrained from communicating a negative image of tribal people and culture.[36] However, local body schools appear to perform less well with respect to pedagogic practices (8 or 11 items under this have been scored as 'never' or 'rarely' for most classrooms); and use of textbooks (four of five items for most classrooms have been scored as 'never' or 'rarely). All classrooms in local body schools had no additional classroom resources such as newspapers, audio-visual material and other tools used to aid language acquisition. In all classrooms, it was also observed that teachers never or rarely use bridge material such as dictionaries or translated books and also fail to draw on tribal material.

Private-aided schools have the lowest overall mean score of the three school types. Observations across 13 classrooms of private-aided schools show that all items under 'use of textbooks', and 'language', and a majority of the items under pedagogic practices (9 of 11) have been scored as 'never' or 'rarely' observed. In all but one classroom, technology-assisted learning and use of learning resources such as charts, posters and models is never practiced. In 12 of 13 classrooms, use of bridge material was never or rarely used; and in all nine classrooms (for which observations were possible), teachers were never or rarely respectful of tribal cultures and knowledges and children were never allowed to retain their tribal ways of being inside the classroom. The latter point signifies that contextualisation of classrooms based on tribal cultures was rarely undertaken. For example, discussions with teachers regularly brought up the point that tribal people have very different concepts of time and also led a 'free' life with minimal rules. However, within the regular classroom, children are immediately expected to conform to the rigid rules of scheduling, seating, bodily postures (e.g., sitting upright and being attentive for long periods of time in the classroom). This, as teachers pointed out, often was in contradiction with the personal, liberal approaches adopted by parents at home and often led to children running away. More liberal norms of acclimatising students to school culture and planning classroom transactions in ways that made them feel comfortable and at home were missing. On the other hand, private-aided schools appeared to perform relatively better on classroom environment with at least six of nine items scored as sometimes or always for at least 50per cent of the classrooms. In eight of 13 classrooms observed, it was seen that children were actively engaged in the classroom, and rote learning was discouraged. It was also seen that in a majority of the classrooms (11 of 13) teachers were never seen to communicate a negative image of tribal peoples or cultures.

Finally, coming to schools under the TDD, we found that classrooms in these schools performed poorly with respect to pedagogic practices (with a majority of the classrooms having received a rating of 'never' or 'rarely' on nine of 11 items). Similarly, a majority of the classrooms also scored poorly with respect to 'use of textbooks' (with four of five items in this section marked as ‘never’ or ‘rarely’), and language (five of six items scored as ‘never’ or ‘rarely’). All 11 classrooms observed in TDD schools never used technology to assist learning, and did not draw on tribal resources to build children's linguistic capacities. All 11 classrooms were seen to never or rarely use bridge material or other learning resources such as charts and posters to support learning and also never or rarely encouraged multilingualism within the classroom. On the other hand, schools under the TDD seemed to perform better in

[36] This analysis is based on nine classrooms in which this behaviour could be observed. In the remaining three classrooms, there was no opportunity to observe this behaviour.

terms of classroom environment with only two of nine items across the 11 classrooms scored as 'never' or 'rarely'; and in relation to supporting tribal identity, with one of three items marked as 'never' or 'rarely'. In all classrooms, teachers refrained from communicating a negative image of tribal peoples and cultures; and in 10 of 11 classrooms, teachers were 'never' or'rarely' unfamiliar with tribal languages/dialects.

Overall, with respect to classroom transactions, it appears that most schools perform poorly on using facilitative pedagogic practices and in their ability to move beyond textbook knowledge. This finding is consistent with other literature that states that classrooms are textbook- dominated in the Indian context, which could be a result of a lack of adequate pedagogic-content knowledge among teachers. Moving beyond the textbook requires empowering teachers critically with knowledge of different forms of pedagogy and how they can support learning, especially when applied so that pedagogy matches the content to be learnt. Further, such an understanding of applying appropriate and complementary pedagogic strategies also requires that teachers, particularly in tribal areas, are sensitised to local cultural practices and knowledges that may have alternative forms of meaning-making. Finally, a critical element that was seen to be missing in most classrooms was the availability of adequate teaching-learning material that can allow teachers to go beyond textbooks. Along with libraries, this is one area in which schools must be strengthened if learning outcomes themselves must be strengthened.

7. Understanding learning and learning levels: approach and tools

7.1 Conceptions of learning

Having laid out the context of the social conditions and educational statuses of tribal populations in India, and Maharashtra in particular, in this chapter we present more details of the present study. The chapter presents an account of the methodology and approach we undertook for the study, remaining sensitive to the challenges and constraints in educational practices in these contexts. The study attempted to assess the status of education in tribal districts in Maharashtra with the specific objectives of reviewing both enabling policies, programmes and mechanisms to improve outcomes for tribal children as well as to provide a snapshot of the actual performances of students across three classes (one each from primary, upper primary and secondary).

In addition to undertaking an extensive review of literature and secondary data and policy analysis, the latter objective also required us to undertake a sound and nuanced approach to designing tools to test students' learning levels and understanding the outcomes of the schooling process for children in tribal areas. Tools designed to measure learning are critically linked to theories of learning and conceptions of assessment brought into classroom transactions, which in turn are linked to dominant ideas and expectations from education held by communities (Itin 1999). Education represents the "transactive process between an educator and student… [that may] include larger institutional forces (e.g., the educational system)" that modify and shape individual processes of change (i.e., learning) that take place within learners in specific ways (Itin 1999).

This also implies that school learning is imbued with specific rationales, goals and objectives towards which students are sought to be prepared, which has historically led to contestations over the meaning of, and goals for, education and questions over "what is worth teaching"(Apple 1990; Apple 2004; Jain 2015; Kinchelow 2008; Kumar 1983; Kumar 2004; Young 1971). For example, the dominant model of formal education has mainly viewed learning in terms of preparing students for adulthood and future socio-economic roles. Here, learning has been seen as acquiring the relevant skills and knowledge to maximise one's individual potential and to contribute to economic progress and development (Becker 1993; Brown and Lauder 2001; NCERT 2006a; Peters 2001). Thus, the NCERThas also noted that a means-end approach to learning has rendered it an isolated, perfunctory activity not connected in any organic manner to children's everyday lives (NCERT 2006).

This has certain important implications with respect to the outcomes of education. For this treatment of learning as an isolated activity, farremoved from children's life-worlds and social contexts, as with the dominant model of learning and education, has been found to disadvantage learners in multiple ways. School knowledge, which has been organised through textbooks and other means such as pedagogy and classroom transactions, perpetuates certain canonical ideas about learning, and how it must be measured, thus becoming what Heredia terms as "instruments of alienation", especially for marginal communities such as SCs and STs (Heredia 1995).Further, Heredia also points out that this "...institutionalises the distribution of knowledge and skills so as to perpetuate the relative class status of different groups in society". In addition, it has also been found to institute 'shallow' forms of learning

in which there is an acquisition of principles from teachers and other instructorswithout a deeper consideration of its meaning, thus leading to poor control by the learner over knowledge (Entwistle 1992;Gipps 2003; White 1992).

Alternative constructivist, experiential and critical pedagogies of learning view school learning as a part of a broader, more expansive conception of learning that takes place across multiple contexts of schools, streets, families and neighbourhoods or within communities of practice, within which learning is viewed as a process of 'enculturation', meaning-making, or "initiation into communities in pursuit of worthwhile knowledge"(Alexander2005; Brown, Collins, and Duguid 1989; Freire 2005; Kincheloe 2008; Lave and Wenger 1991; Levinson and Holland 1996). In such approaches, learners are understood as "...competent participants in and producers of situations which include, as a central dimension, 'learning'" (Livingston and Sawchuck2000).

Learning is seen as a process in which "…students and teachers jointly engage in knowledge construction and in which teachers progressively turn over metacognitive functions to the students, so that students are taught how to learn, [and this] can result in learning being an intentional process"(Gipps 2003). Consequently 'learning outcomes' or failure to attain the desired outcomes are seen not just as individual learner deficits but contextualised within a broader frame of situated practices.

The present study was planned keeping these deeper considerations about the nature of knowledge and education in mind. This has also meant that our approach to assessing what children know had to be sensitively designed. In the following sections, we first discuss the approach and analytical framework for assessment adopted by us and then follow it up with a detailed discussion of our methodology.

7.2 Approaches to assessment

Assessments are formal tools that help understand changes in the learner in relation to what is being taught. They also help us understand how teachers transfer knowledge at the ground level, make sense of how relevant or helpful textbooks and curriculum are and also assist policymakers in taking corrective actions in order to ensure enhanced learning at the grassroots level.

Assessments are of several kinds and used to understand a variety of outcomes. Some assessments are employed particularly to comprehend where a child is in terms of specific skills - e.g., such as in maths, comprehension or language. Other forms of assessment present the larger picture by targeting the global effects of learning. Instructional assessments may be used to modify the way teachers teach, predictive assessmentsmay be deployed to understand the likelihood that students may achieve a pre-determined goal, diagnostic assessments may be used to determine students' academic, cognitive or behavioural strengths or weaknesses, while evaluative assessments determine outcomes of particular curriculums, programmes or policies (Caffrey 2009).

Assessments also vary based on the method of evaluation adopted. For example, formative assessments take place throughout the learning process. The main objective of the formative assessment is to provide ongoing feedback to students and amend teaching practices, if necessary, concurrently with the learning process. It not only helps students assess their own strengths and weaknesses but also aids instructors in understanding where their students are falling behind[37]. On the other hand, summative assessments help us understand what students

[37]Carnegie Mellon University*https://www.cmu.edu/teaching/assessment/basics/formative-summative.html*

can or cannot do. Grades are generally given to students which determine learning outcomes and whether students are ready for the next set of academic challenges[38]. Some examples of summative assessments include standardised tests, end-semester tests, annual examinations, unit tests etc. While summative assessments are used world-wide, it is important to understand that they do not solely indicate a child's progress. Some criticisms of these types of assessments generally have to do with the fact that students memorise rather than understand. Another issue has been that these kinds of assessments lack a robust feedback mechanism and measure only students' ability to manage examinations.[39]

Whateverthe form of assessment adopted, it is important to remember that they are essentially linked to the nature of the curriculum used and the objectives that this sets. Currently, the dominant approach within education has been one of approaching learning from an outcome-oriented perspective, considered important to meet certain economic and developmental ends, which gives precedence to performance in examinations. With curriculum thus structured according to certain pre-specified ends, and knowledge to be transacted through the education system broken down into small units and bits of information that can be recalled and tested, assessment within the dominant mode of schooling "… consists of checking whether the information has been received" (Gipps 2003; McKernan 2007).

This is despite the emphasis placed within the NCF 2005 on holistic and meaningful learning. The position paper by the apex educational planning body of the country – NCERT (2006) - on the 'Aims of Education' describes education as an avenue for children to broaden their horizons, nurture their skills and help them connect what they learn inside the classroom to their world outside it. Keeping this in mind, assessments are supposed to supplement learning as a way of receiving feedback. Unfortunately, despite these well-intentioned aims, at the ground level, assessments within regular classrooms are still being increasingly viewed as a pass or fail mechanism. This diminishes learning in children, increases fear and often leads to large-scale absenteeism. The CCE emphasised by the NCF 2005 and mandated by the recently passed legislation –the RTE Act 2009 provides a critical avenue to solve these issues with the current nature of the education system. Continuous assessment is required because growth and development in children are in fact continuous, while it must be comprehensive because it measures various abilities, aptitudes and attitudes, both scholastic and co-scholastic[40].

While within our study, it was not possible to adopt the more holistic approach of CCE in assessing children's learning due to the limited duration of the study, a special effort was made both to design a set of tools as well as an analytic framework that moved beyond a view of children's performance as 'pass' or 'fail'. This is described in more detail in the following section.

7.3 Tools and framework for assessment adopted within the study

At various levels (i.e., national, state and district), there have been several efforts at assessing the status of learning outcomes of children in the country. Two popular national-level assessment surveys are the Annual Status of Education Report (ASER) survey, undertaken by Pratham, and the National Achievement Survey (NAS), undertaken by the Department of School Education and Literacy, MHRD. The two surveys in question vary widely in their objectives and methodologies.

[38]Arizona Western College *https://www.azwestern.edu/learning_services/instruction/assessment/resources/downloads/formative20and_summative_assessment.pdf*

[39]Feargal Murphy, UCD Dublin *http://www.ucd.ie/t4cms/UCDTLM0030.pdf*

[40] CBSE *http://www.cbse.nic.in/cce/cce-manual/chapter_1.pdf*

The ASER is a household survey and targets all children, irrespective of whether they are enrolled in a government school, a private school or not enrolled in a school at all. The objective of the surveys run by ASER is to generate district, state, and national level estimates of children's schooling status for all children aged 3-16, and estimates of basic ability in reading and arithmetic for all children aged 5-16[41].

The NAS is a school-based survey and targets only government school children. The aim of the NAS is to obtain an overall picture of what students in specific classes know and can do and to use these findings to identify gaps and diagnose areas that need improvement[42]. Another difference between the two is the fact that ASER focuses on basic maths and language skills, while NAS prioritises comprehension, which many claim to be an important skill for a young child.

According to the findings of NAS (Cycle 3, conducted in 2014), conducted for classes III and V, the average score (across the states covered) for language, mathematics, and environmental science (only for class V) hover around the mid-point of the total possible score for each subject-assessment. The results for classes III and V also showed that across the three subjects there were no gender-based differences in performance and, similarly, no differences in performance across the three subjects between urban and rural students. However, there were differences based on social category for class V, with 'General' category students outperforming SC/ST students across the three subjects. Class VIII assessments showed some gender-based differences, as well as differences based on social category and location. While there were no gender-wise differences noted for maths, science and social science, girls were seen to outperform boys in reading comprehension. Similarly, while rural students were seen to outperform urban students in science and maths, urban students scored better in reading comprehension; however, students from SC/ST/OBC backgrounds score lower than students from the 'General' category across all subjects.

In comparison with these results, the results of the ASER survey (2014) has shown that about half the number of children surveyed in class V and approximately three-fourths of the sample surveyed in class III could not read a class II-level text. Similarly, it showed that only a quarter of the children surveyed could solve problems with grade-appropriate mathematical operations (e.g., two digit subtraction in Class III and division in Class V).

With respect to state-level findings, NAS scores for Maharashtra for classes III and V were found to be above the national averagein concepts related to language and mathematics, while state scores for class VIII were found to be roughly equal to the national average in social sciences and mathematics. The NAS report also showed that social groups such as SCs, STs, OBCs in Maharashtra scored higher than the national average (and almost on par with other groups within the state). ASER, on the other hand, reported that students in Maharashtra belonging to classes V and VII had achievement levels significantly lower than the national average[43].

While the snapshots of learning and education provided by the two surveys are valuable and have also been designed to take into account certain external factors that affect students' performance (e.g., school infrastructure, teacher quality, teaching-learning material, home environment, etc), certain limitations that have been pointed out with respect to both efforts.

[41] Annual Status of Education Report (ASER) and National Achievement Surveys (NAS): A Comparison *http://img.asercentre.org/docs/Publications/ASER20Reports/ASER202014/aserandnas-acomparison.pdf*

[42] National Achievement Survey (Cycle 3): Achievement Highlights (2014) *http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/Main-Report-NAS-Class-3-Final.pdf*

[43]More information on ASER *http://www.asercentre.org/Keywords/p/218.html here*.More information on NAS available at *http://mhrd.gov.in/nas.*

For example, the main criticism of the NAS has been that only students who would have attended school on the day of the evaluation would be assessed and not the poorer students who are at greater risk of absenteeism and drop-out.[44] Another limitation of the NAS is that it is conducted within the formal and disciplinary environment of the school that does not offer a completely child-friendly and conducive environment, whichaffects performance. On the other hand, the ASER survey has been critiqued for its narrow attempts at measuring learning, only seeking to identify whether children perform grade-appropriately, rather than seeking to assess conceptual understanding and cognitive development in children.

Despite this narrow focus, ASER surveys have, in fact, been influential in bringing about many state-level policy changes, with states striving to improve learning outcomes based on Pratham's survey results. Furthermore, results of Pratham's surveys have often been referenced in Five Year Plans, mid- term appraisals, Planning Commission documents and economic survey documents of the Ministry of Finance[45]. On the other hand, despite being comprehensive and methodologically sound, the NAS is not very well-known and utilised within the public domain. This is perhaps an indicator of how then the education system in the country is actually geared, despite the progressive directions for education laid down in the NCF, 2005. Learning outcomes have, in fact, become the "factor" in devising education policies. What is needed instead is a shift in orientation which seeks to strengthen education systems holistically. These include empowering teachers, ensuring community participation, designing interesting curricula for children and making sure that going to school does not become a burden for children.

Learning from these two approaches to assessment, as well in keeping their limitations in mind, and additionally drawing from literature and secondary data analysis which helped us identify significant challenges for ST participation in education, we customised tools and frameworks for assessment for the study. While we have perhaps not been able to overcome all limitations (e.g., testing children in the home/non-disciplinary environmentsin the school), we made attempts to conduct the assessments in a relaxed and informal environment. For example, our strategies included:

a. conducting assessments for a whole class (rather than randomly sampling students from a class, in order to avoid transferring a sense of exclusion or discrimination in any child);

b. adopting a relaxed approach to the time limit even when the tools were designed (as is the case with most school tests) for a specific duration, based on the number and complexity of questions posed). These time limits were understood more as guidelines rather than absolute limits and field investigators were instructed to be permissive in allowing for +/- 10-15 minutes, in order to facilitate children's performances. Based on our field testing of tools, which showed that children approximately took about one hour and 15 minutes for the test (though it was designed for one hour 30 minutes) and tended to get preoccupied with the first activity (i.e., description of a picture given) and spent a lot of time on that, field investigators were also instructed to periodically remind children of the time and the need to move on to further items in a friendly manner.

c. most importantly, field investigators were sensitised to the rationale of the assessment and were thus told to avoid mentioning the term 'test', if possible, while introducing the assessment to the children to ease the child into the assessment. It was explained to them that

[44]Rukmini S, The Hindu *http://www.thehindu.com/opinion/blogs/blog-datadelve/article5648721.ece*
[45] The Centre for Global Education Monitoring *https://www.acer.edu.au/files/AssessGEMs_ASER.pdf*

the rationale of the assessment was to understand the child's abilities rather than to assess the child's failures, as is the expectation with conventional tests

d. finally, it was decided not to provide marks for each item on the paper itself, since this would make it look like a test.

The assessments themselves were developed to understand what children knew and understood and at what grade level they were able to perform. Assessments for each grade were planned keeping in mind the state syllabus as well as the concepts and skills expected to have been developed at each grade level. In order to understand whether there were gaps between conceptual knowledge attained and the ability to perform at grade level, according to the state syllabus, assessments for each grade included a mixture of portions from an earlier grade (which in some ways forms the base skill for a concept to be understood at the next grade level), and from portions of the current grade. Questions were also designed to be culturally sensitive after discussions with field partners and experts working intribal areas in Maharashtra.

Subject-wise too, attempts were made to keep with the guidelines given in the NCERT position papers on subject-learning. For example, the NCERT position paper on mathematics argues that mathematics must allow children to visualise what they are learning and make it more enjoyable while arriving at logical conclusions. Learning at primary school levels must ensure students learn numbers, number operations, fractions and decimals through fun activities, games and puzzles. Students at upper primary level must have a conceptual understanding of arithmetic, algebra, space, shapes and ability to analyse basic data. For one to assess these students at various stages, students must be challenged with emphasis on comprehension rather than memory. It states that evaluating students on their conceptual understanding would help one understand where they stand, rather than assessing their computational ability, though the current practices of evaluation continue to favour memorisation of various formulae rather than understanding what they mean (NCERT 2006).

With respect to science, the position paper on science states that at early stages, children must be able to connect with the real world joyfully as well as arousing an element of curiosity. At upper primary levels, it is important children learn and connect through experiments and models through which they can further explore the environment around them. Secondary levels must build on what children learn in the primary stages. Making more advanced models and designing more complex experiments would certainly help students connect theoretical concepts to practical uses (NCERT 2006). Thus, assessments need to be designed to examine children's abilities to apply scientific knowledge.

Finally, with respect to language, it is argued that learning languages is to equip children with basic literacy skills, the ability to read and write and understand. In general, schools promote memorisation of the alphabet, select texts, nouns and verbs. Instead, the goals of language learning, according to NCERT, must focus on a child’s ability to understand what he/she hears, ability to read with comprehension, ability to express, ability to write coherently, ability to be creative. It has also been noted that assessing language skills can be a particularly difficult task, primarily because children take long to acquire these skills.

Guided also by these directions provided for subject-learning by the NCERT, further details for the class-wise assessments designed are given below.

7.3.1 Class II

For class II, the assessment tool was designed to be administered orally, (though the state board syllabus and class-level learning outcomes require them to be able to undertake written

assessments).This is an internationally accepted practice as it is considered that children at this age may not be able to read (with comprehension) on their own. It was also acknowledged that children coming from tribal communities may not be able to understand 'standard' Marathi so the field investigators were instructed to explain each question, if required, in such a way that every child would understand what was being asked. The syllabi prescribed by the MSCERT and the textbooks of Maharashtra State Bureau of Textbook Production and Curriculum Research (MSBTPCR) were used while designing the tool. The questions were based on class-appropriate learning levels expected from children in ClassI and the middle of Class II. Considering that the assessment was conducted individually for each child, a time of 15 minutes was allotted. Many questions in the mathematics section were accompanied with appropriate illustrations.

a. Language: In this section, the student's ability to describe a picture or an object from familiar context in their own words, read simple words and sentences without consonants and read simple sentences in a familiar context was assessed. Language curriculum marks listening carefully and making meaning of what one is listening to as an important competency. A few questions gave an opportunity to assess this ability along with reasoning based on the listening activity. Verbs and change in gender for verbs, singular/plural words and ability to connect scattered letters to form a word was assessed through other questions.

b. Mathematics: Names of shapes, counting below 10, concepts of left and right, number line and movement on number line and comparison of heights/weights/thickness was assessed. Questions related to addition related to two-digit numbers (without carry), counting using knowledge of units and tens, higher order ability in knowing numbers with place values and subtraction in reverse were also asked. Time, in terms of calendar days, is an important concept at the Class II level. This was assessed through a listening and comprehending activity.

7.3.2 Class V

For class V, the tool was administered as a written assessment. Except for the first question in the Marathi language section, all were multiple choice questions (MCQs). The syllabi prescribed by the MSCERTand MSBTPCR textbooks were used while designing the tool. The questions were based on expectations from children in Class IV and middle of Class V. A total of 90 minutes were allotted for completion of the tool and the field investigators were instructed to grant 10-15 minutes extra if required by any student. Some of the questions in Mathematics and EVS were accompanied with appropriate illustrations.

a. Language: The student's ability to describe a scene in a picture from a familiar context in their own words, to read and comprehend unfamiliar paragraphs/news, to use grammatically correctlanguage, to read and comprehend poetry of Class IV level and understand the personification in the poem was considered.

b. Environment Studies: Students’ ability to relate their lived experiences to curricular content and to apply school knowledge in domestic situations was assessed through different questions. Concepts like flotation, density, condensation, directions and their relative positioning, geographical nomenclature and phenomena like sunrise based on location, food chain and water purification were also gauged. The ability of the student to explain their regular personal experiences and understand if students consider the supply of fresh air as necessary in the process of burning was explored.

c. Mathematics: Numerals and place value, addition of four digit numbers (with carry forward), converting word problems into mathematical expression and undertaking different mathematical operations (subtraction with borrow, multiplication of three digit numbers, division of two digit numbers), measuring length, understanding five-digit numbers with place value, identification of even numbers, angles and their measures and meaning of fractions along with their addition was covered in this section. Questions where students had to perform multiple mathematical operations to get an answer were also asked.

7.3.3 Class IX

For class IX, the tool was designed as a written assessment. Except for the first question in the Marathi Language section where students had the scope for creative and imaginative writing, all were MCQs. Syllabi and textbooks prescribed by the MSBSHSE were used while designing the tool. The questions were based on expectations from children in class VIII and the middle of class IX. The Mathematics section had four questions checking basic operational skills. Students were given 90 minutes to complete the tool and the field researchers were instructed to grant 10-15 minutes extra if demanded by any student. Some of the questions in the Mathematics and Science sections were accompanied with appropriate illustrations.

a. Language: Student's abilities to develop a given situation in the form of a story, creatively writing10-12 sentences in Marathi, to read and comprehend unfamiliar paragraphs/news, etc., poem-comprehension, use colloquial idioms and prepositions in appropriate manner and construct meaningful Marathi words by combining terminal and initial vowels of two words were tested.

b. General Science: Questions exploring concepts like natural satellite of Earth and natural adaption also indicated students' observation and experience of their environment. Application-based questions gauged understanding of concepts like air pressure, magnetism, reflection, electric current, metals and non-metals, density and relative densities, sublimation and poultry industry based on their lived experiences.

c. Mathematics: Six-digit numbers and mathematical operations related to them was assessed in a few questions. The unitary method of estimation, ability to remember and apply a formula, square roots, the meanings of irrational numbers, the properties of different shapes, the calculation of percentage and understanding of tabulated data were explored through this section.

Further, in understanding the need to pay attention to the learning context, which influences learning outcomes significantly, we also undertook a survey of certain other factors such as school infrastructure, teacher training and experiences and curricular processes in order to provide a comprehensive account of learning. Below, we also describe these other tools used in the study.

Having described the approach and tools used in the study, we now present the sampling plan and processes of school selection.

Estimates

Weighted estimates of learning outcomes were obtained by weighing the learning outcomes of each child in a particular school. The weights employed are probability weights that varied

across block, school management typeand class within a school. These weights allowed us to arrive at an estimate of learning outcomes at both the block and district levels.

Regression estimates

To estimate the effects of district, school management type, gender, social category, school and teacher infrastructure and school infrastructure on overall as well as subject-specific learning outcomes across the three subjects, a regression model was specified. A logit model was considered.The Maharashtra Education Department in our consultations indicated that they were interested in knowing the number of children who score more than 60 of the total marks, a binary indicator based on 60 of the marks as the cut-off criterion was created. In addition, a binary indicator for more than 40 of the marks was also created and the corresponding logit models were estimated for each class[46].

The logit model is a binary choice model. This model was employed since it does not make the assumption that the scores of the students are normally distributed. Moreover, we were interested in modelling certain specific events such as getting 60 or passing the exam. The variables we controlled at the student level are gender (male or female), age and social category(Others, SC and ST). At the school level, we controlled for infrastructure, pupil-to-teacher ratio and school management type. Finally, we also included district dummies in the model.[47] The infrastructure index is based on compliance with RTE norms. All RTE norms are given equal weightage. Controlling for age, certain outliers were dropped. The age-ranges considered were the following: class 2 (greater than five and less than 20), class V (nine and above) and class IX (14 and above).

The results of the model based on each class are further elaborated in Chapter 8 that analyses the learning outcomes. Based on this rigorous methodology adopted to understand the status of education in tribal districts in Maharashtra, we now present the results from our school survey first and then share the findings from our learning assessments in the following chapter. A total of 906 students were assessed from class II, 967 from class V and 910 from class IX. Of the total students in class II, 304 students were from Amravati, 339 from Thane and 262 from Yavatmal, and were drawn from across 12 ashram schools, 7 private-aided schools and 22 local body schools.

[46] The PPS strategy is a self-weighting strategy and therefore regression weights are not used when the entire sampling strategy used is PPS. However, since our sample was stratified according to school management type, weights were perhaps necessary. However, there appears to be no uniform consensus about weights (Gelman,2007) http://projecteuclid.org/download/pdfview_1/euclid.ss/1190905511. Therefore, no weights were used.

[47] Dummies refer to indicative variables for the district that help in comparison of effects for one district with another.

8. Learning Levels in Tribal Maharashtra

Despite more than half a century of interventions to improve the educational status of tribal populations undertaken by the GoI, tribal populations continue to lag behind even other social groups, including SCs. Several policy measures have been instituted to improve learning outcomes for tribal children, including provisions such as special residential schools with meals, uniforms, and other materials such as textbooks, scholarships, reservation of seats in state educational institutionsand employment agencies. However, while all of these appear to address issues of access to education faced by tribal populations, a number of critical issues remain unaddressed. They have failed to address issues to do with teachers and teaching: these include the issue of the curricula and content of schooling and its relevance to tribal ways of life; the issue is also linked to high teacher vacancy, lack of suitable academic training and monitoring, which has to be different for tribal areas.

While much literature, scholarly work, and even the guiding curricular framework for the country - the NCF, 2005 - has pointed to the need for school knowledge to be connected to everyday lives and environments of children (especially for marginalised groups such as tribal children), little effort seems to have been made in this direction. This was evident even from the current study and fieldwork undertaken by CBPS across certain tribal districts of Maharashtra, which has shown that support resources and structures identified for learning, such as bridge material, tribal dictionaries, appointment of teachers from tribal communities/ knowing tribal languages were all largely absent. This lack of curricular and pedagogical aids that attempt to address the disconnects between mainstream curriculum and tribal ways of life have been an important contributing factor to the high failure in year-end assessments as well as the high proportion of drop-outs of tribal children by class V.

Having reviewed the status of infrastructural and material provisions in the previous chapter, to understand the status of education in tribal districts in Maharashtra, in this chapter we seek to review the outcomes of school learning against the context of limited support provided for learning. The chapter is organised in the following manner: we first discuss the overall results (across the three subjects analysed - language, environmental science/general science and mathematics) for the three classes (II, V and IX) surveyed on the learning outcomes survey. This will be followed by an analysis of performance of the three classes on each of the individual subjects, highlighting significant trends or differences in performance. As stated earlier, the learning assessments survey primarily sought to identify the skills/sub-skills that students had been able to acquire across subjects and for specific concepts, rather than analysing items on which they had 'passed' or 'failed'. The analysis will then help identify areas that need to be strengthened in order to improve learning levels.

8.1 Overall performance on the learning assessment survey

A total of 2783 students across the three classes and three districts attempted the learning assessment survey conducted by CBPS. Table 1 and 2 show the distribution of students by class, district and school management type. While the district-wise distribution of the number of students selected for the assessments is somewhat similar (i.e., 32.8 per cent in Amravati, 35.2 per cent in Thane and 31.9 per cent in Yavatmal), with respect to students assessed by school management type, a greater number of students from ashram Schools (38.2 per cent) and private-aided schools (i.e., 34.7 per cent) were assessed compared to local body schools (27.1 per cent). The proportion of students from local body schools is the least due to the very few numbers of secondary level local body schools in the areas surveyed.

Thus, none of the secondary schools managed by local bodies got selected in our sampling strategy, because of which no student in Class IX from local body schools could be assessed.

Table 8.1: District-wise distribution of students assessed on the learning outcomes survey

District	Class II		Class V		Class IX		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Amravati	305	33.6	304	31.4	305	33.5	914	32.8
Thane	339	37.4	339	35.1	303	33.3	981	35.2
Yavatmal	262	28.9	324	33.5	302	33.2	888	31.9
Total	**906**	**100**	**967**	**100**	**910**	**100**	**2,783**	**100**

Source: Calculated using primary data collected

Table 8.2: School management-wise distribution of students assessed on the learning outcomes survey

School management	Class II		Class V		Class IX		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Ashram	205	22.6	294	30.4	564	62.0	1063	38.2
Private- aided	192	21.2	429	44.4	346	38.0	967	34.7
Local body	509	56.3	244	25.2	-	-	753	27.1
Total	**906**	**100**	**967**	**100**	**910**	**100**	**2,783**	**100**

Source: Calculated using primary data collected

A total of 906 students were assessed from class II, 967 from class V, and 910 from class IX. Of the total students in class II, 304 students were from Amravati, 339 from Thane and 262 from Yavatmal, and were drawn from across 12 ashram schools, 7 private-aided schools and 22 local body schools.

With respect to class V, 304 students were covered from Amravati, 339 from Thane and 324 from Yavatmal. Students were administered a written test. Except for the first question in the Marathi Language section, all questions were MCQs.The syllabiwere prescribed by the MSCERT and MSBTPCR were used while designing the tool. The questions were based on expectations from children in class IV and middle of class V. The paper was meant to take 90 minutesbut field investigators were instructed to grant 10-15 minutes extra if required by any student. Some of the questions in Mathematics and EVS were accompanied with appropriate illustrations.

With respect to class IX, 305 students in Amravati, 302 students in Yavatmal and 303 students in Thane were covered, from across 14 ashram Schools and 10 private-aided Schools. (Students of class IX were given a written test, similar to the one set for class V), based mainly on the syllabus of prescribed by MSCERT for class VIII.[48]

Table 8.3 presents the overall results obtained on the learning assessment test by students in the three grades.

[48] Note: We were able to cover only the class VIII syllabus for Mathematics for class IX students as new arithmetic concepts were not introduced till after November. Since for all classes we had decided to limit the test to items selected from the syllabus of the earlier grade, and same class syllabus up to mid-term (since our assessmentsurvey was to be administered during the latter half of the year), we did not select any item for class IX from the same class syllabus.

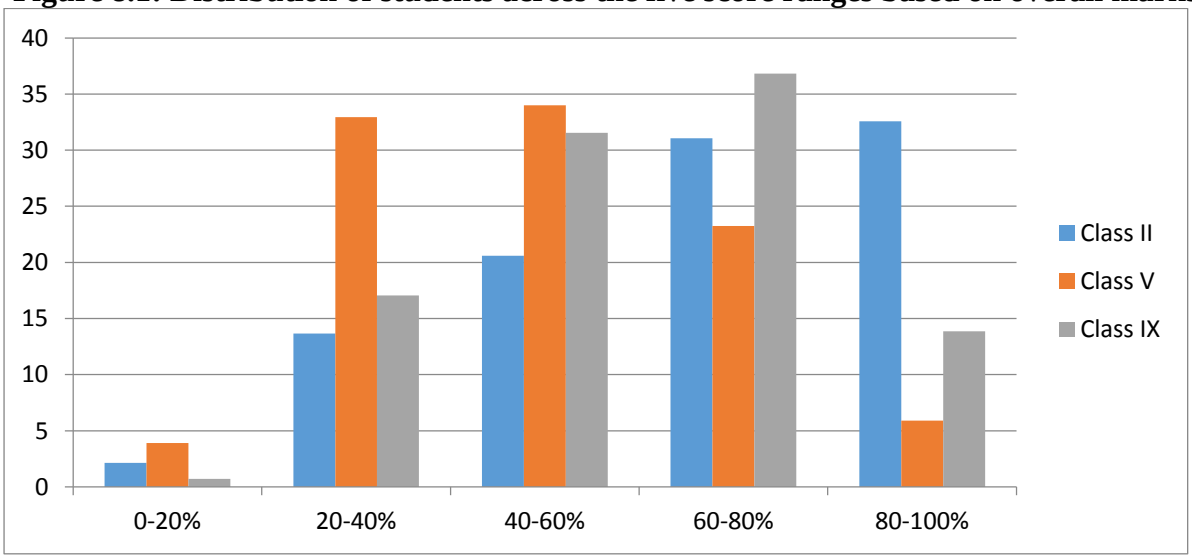
Table 8.3: Overall performance of students across the three grades49

Class	Weighted mean percentage	Proportion of students scoring above 40	Proportion of students scoring above 60
Class II	65.83	84.49	64.03
Class V	54.78	63.16	29.16
Class IX	60.02	82.22	50.67.9

Source: Calculated using primary data collected

From the table, it can be seen that the mean percentages for classes II, V and IX respectively are 65.8, 54.78 and 60.02. For all three classes, on an average, students were able to score at least 50 per cent of the marks.

Figure 8.1: Distribution of students across the five score ranges based on overall marks



Source: Calculated using primary data collected

An analysis of the distribution of scores for each grade shows that while less than 50 per cent of the students from class V have been able to score 60 per cent or above (i.e., only 29.16), 64.03 per cent of students in class II and 50.67 per cent of students in class IX have been able to score 60 per cent or above. The highest proportion of students in class V have scored between 40-60 per cent (i.e., 34 per cent of the total students who attempted the test). If 40 per cent is considered a passing score, then a huge proportion of students (over 80 per cent) from class II and class IXpassed. However, for class V students, this proportion was down to 63.16 per cent. This is a significant decrease especially since over four out five students from classesII and V managed to score above the "passing" score.

Attachment IIprovides the distribution of students across score quintiles for every grade and every subject. This shows that in general, ST students have performed worse than others. They are largely concentrated around the middle as against SCs or Others who report wider distribution across the score. The non-ST/SC category, i.e, the Others perform better than these two.

A regression analysis was further undertaken in order to identify variables that significantly impacted students' overall performances on the learning assessment. The following table

[49] Total possible score for classes II, V and IX were 48, 74, and 60 respectively.

represents the regression results, identifying the factors that influence the probability of students scoring 40 per cent and 60 per cent in all three levels. The variables controlled for in the regression model were gender, age, social category, district, school management type, pupil-to-teacher ratio and infrastructure.

With respect to overall performance on the test, it appears that social category is the only variable that significantly impacts results at all levels (i.e., both at all three levels, as well as with respect to getting pass percentages and 60 per cent or more of the total marks). The regression results show that ST students have a lower likelihood of scoring 40 percent marks or 60 percent marks overall. Significant variations in performance between students belonging to the Others category and SC category can be seen only for class II, which seems to suggest that while SC students may catch up with students from the Others category in higher grades, the same is not true for students from ST category.

This suggests that the special provisions and efforts made in improving educational outcomes for ST students are inadequate. Most interventions (such as special schools for tribal students or scholarships) work towards improving access to schooling for ST students. However, as noted earlier, and as seen from our survey, curricular and pedagogic changes and supports for learning seem to be largely lacking. Addressing the lack of adequate bridge material and other teaching-learning material, a sensitive language policy that supports tribal students' acquisition of school language, special training for teachers in pedagogic knowledge and sensitisation towards special challenges that may arise for tribal children whose knowledge systems may be organised very differently from school knowledgemay all go a long way in improving ST student performance.

With respect to the other variables such as district, the regression shows that students from Thane performs better than students from Amravati across all three grades, both in terms of obtaining pass percentages (40 per cent) as well as in obtaining 60 per cent or more marks,this despite Thane meeting with fewer infrastructural criteria compared to the other two districts, as well as having less qualified teachers compared to the other districts in their private-aided and local body schools. It is important to examine what other factors could be contributing to the better performance in Thane through further study. One likely reason might be closeness to the state capital and an important metropolitan city (Mumbai), which makes the socio-economic characteristics of students and parents from Thane different compared to that of students and parents from the other two districts. Another factor could be the availability of a greater number of educational interventions through state, non-state and CSR initiatives for Thane district due to its proximity to Mumbai.Yavatmal, which is seen to have the best infrastructure index in our survey, performs better than Amravati in classes V and IX.

Table 8.4: Regression model showing variables that affect the overall performance for each class

	Class II		Class V		Class IX	
	60	**40**	**60**	**40**	**60**	**40**
Gender	-0.05545 (0.721)	-0.29422 0.174	0.213133 0.145	-0.0016 0.992	0.229617 0.155	0.002265 0.991
Age	-0.07819 0.528	-0.11961 0.486	0.18741 0.097	0.164145 0.225	-0.18162 0.081	0.1333 0.313
Caste: Reference category Others						
SC	-0.68723 0.029	-1.38928 0.013	0.172906 0.580	-0.34797 0.341	0.688608 0.189	0
ST	-1.10208 0.000	-1.95363 0.000	-0.74437 0.000	-1.0101 0.000	-0.82489 0.002	-1.04069 0.028
District: Reference category Amravati						
Thane	1.367193 (0.000)	1.660419 0.000	3.10695 0.000	4.311221 0.000	3.877981 (0.000)	3.930593 0.000
Yavatmal	0.253522 (0.204)	0.199161 0.446	0.630706 0.001	1.236308 0.000	1.480446 (0.000)	1.452466 0.000
School management type : Reference category Tribal						
Private-aided	-0.14099 (0.592)	-0.28353 0.457	1.243257 0.000	1.530759 0.000	1.533614 (0.000)	0.710954 0.003
Local body	0.009974 (0.970)	-0.3144 0.398	-0.52642 0.080	0.067005 0.829		
Pupil-to-teacher ratio	-0.00913 (0.194)	-0.0128 0.229	-0.04288 0.000	-0.03967 0.000	-0.02384 (0.000)	-0.01643 0.036
Infrastructure	-0.17894 (0.025)	-0.14101 0.233	0.397825 0.000	0.200718 0.025	0.398139 (0.000)	0.042685 0.615

Source: Calculated using primary data collected; P values are represented in parantheses

School management type appears to influence results only in classes V and IX, with students from private-aided schools having a higher likelihood of achieving pass percentages and 60 per cent or more marks, when compared to students from ashram and local body schools. However, students from ashram schools have a higher likelihood of obtaining 60 per cent or more of the total marks in class V compared to students from local body schools.

It is important to analyse whether there are specific characteristics of private-aided schools that increase the likelihood of students from these schools scoring pass percentages or 60 per cent or more marks. The school infrastructure index, as calculated from UDISE data, and presented in Chapter 4, suggests that infrastructure may not be a significant factor, with both local body schools as well as TDD schools performing much better than private-aided schools. The regression results (in Table 8.4 above) also show that infrastructure has a greater impact on getting more than 60 per cent of the total marks than on pass percentages, except for class V, where infrastructure has a significant impact both on passing as well as getting 60 per cent of the marks.

An analysis of pupil-teacher ratios (PTRs) shows that PTRs made a significant difference in classes V and IX, where students from schools with lower PTRs showed greater likelihood of having scored pass percentages or 60 per cent and more. It is perhaps important to examine whether private-aided schools had a lower PTR compared to ashram and local body schools to understand whether this contributed to the difference in performance by school types. An analysis of PTR by school type actually showed that local body schools had the lowest PTR (mean PTR of 27), compared to higher PTRs in private-aided schools (mean PTR = 44) and ashram schools (mean PTR = 51). However, in interpreting this we need to keep in mind that class IX in local body schools has not been covered in our study, which could be the reason

for the low PTR. Compared to ashram schools,private-aided schools seem to be doing better in terms of PTR, which perhaps also explains the better results overall compared to ashram schools.

Another factor could also be the socio-demographic composition of students in the different school types, with students from private-aided schools coming from families which have significant social, cultural and material resources that can aid children's educational outcomes.

Other variables such as gender and age were seen not to have a significant effect on predicting performance across the three grades.

Having discussed the overall performance of students on the assessment, in the following sections we undertake a more in-depth analysis of students' performance on each of the three areas assessed - language, mathematics and general science/environmental science. Items across the three papers were divided into those that were drawn from a grade below and those that have been drawn from the same grade. The following section presents a more in-depth analysis of each set of results, examining also the performance by children on individual items.

8.2 Subject-wise analysis

8.2.1 Language

The position paper of the National Focus Group on Teaching Indian Languages (NCERT, 2006) states:

> Language is not only a rule-governed system of communication but also a phenomenon that to a great extent structures our thought and defines our social relationships in terms of both power and equality... It is indeed a pity that educational planners and language policy makers are not able to capitalise on this innate potential of the child. In a country like India, most children arrive in schools with multilingual competence and begin to drop out of the school system because, in addition to several other reasons, the language of the school fails to relate to the languages of their homes and neighbourhoods.

What this suggests that within classrooms, language learning is perhaps treated as the task of acquiring certain rules for communication rather than as a process of socialisation into specific systems of thought and action. To address this scenario, the NCF 2005 has further stated the need for using multilingualism as a resource within classroom teaching as a way to make students comfortable with the specific language subject taught at schools.

This recommendation gains even more significance in relation to our study which sought to understand the status of education within tribal districts of Maharashtra. As the literature review discussed earliershowed, linguistic barriers faced by children due to unfamiliarity with school/state language or lack of fluency and reinforcement at home leads to alienation and subsequently high drop-out rates for children from tribal communities (Desai & Kulkarni, 2008; Sujatha, n.d.). To address this, policy recommendations/interventions in the form of appointing teachers from tribal communities, use of bridge material and tribal resources within classrooms, etc. have been made. However, as our own survey has shown, only 11 of teachers across the schools surveyed belonged to tribal communities and this proportion was even lower for ashram schools (i.e., only 8.4).

While lack of teachers with adequate knowledge of tribal languages and culture is one part of the problem, our fieldwork revealed another important issue for learning - that is, the presence of several languages within the single state of Maharashtra. As fieldwork showed, while the school language and medium of instruction was Marathi, children from blocks and districts bordering Telangana and Madhya Pradesh were in fact more comfortable with Telugu and Hindi respectively, than Marathi or other local tribal languages. All these factors further contribute to the difficulty, not just for teaching-learning, but also for developing resource materials such as bridge workbooks and dictionaries, which have been suggested as important aids to improve children's learning outcomes (but were absent in most schools surveyed in our study). It is within this context that we review the outcomes of the language assessment survey administered to students of classes II, V nad IX to understand the status of language-learning in Maharashtra.

Table 8.5: Performance of students on the language sub-section across the three grades50

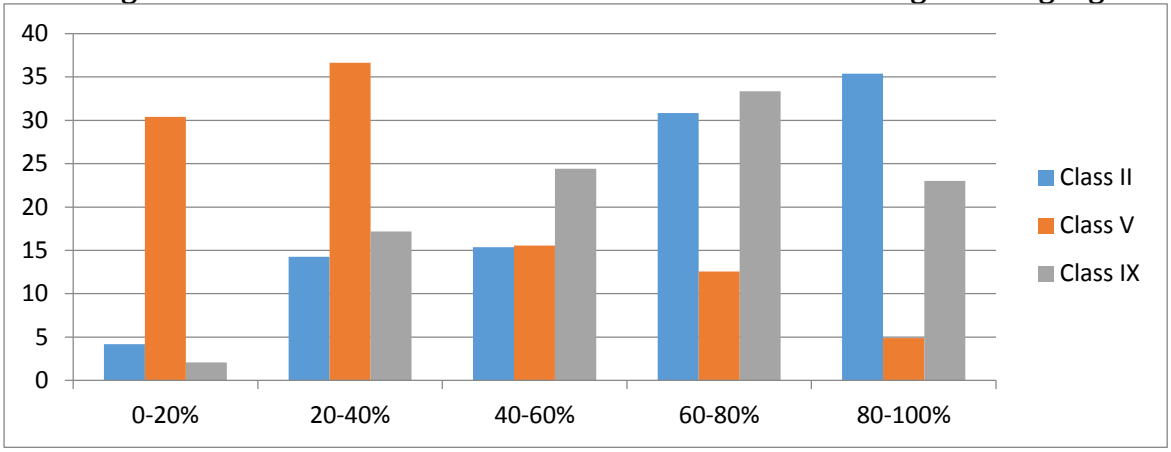
Class	Weighted Mean Percentage	Proportion of students scoring above 40	Proportion of students scoring 60 and above
Class II	66.0	81.88	66.84
Class V	40	46.46	22.07
Class IX	64.35	60.73	56.33

Source: Calculated using primary data collected

Table 8.5 shows the mean (weighted) percentages obtained by all three grades across the three districts. The mean (weighted) percentages obtained for classes II, V and IX are 66 per cent, 40 per cent and 64.35 per cent respectively. Thus, while students assessed in classes II and IX have been able to obtain more than 60 per cent of the score in language, the percentage for class V is much lower at 40 per cent. Table 5 also shows that while more than 50 per cent of the students assessed in classes II and IX have scored 60 per cent or above in language, the proportion of students in class V who have been able to score similarly is lower again for classV (with only 22.07 per cent students scoring 60 per cent or above in language) . The largest majority of students (i.e., 68.1 per cent of those assessed) in class V scored between 20-40 per cent in language. When looking at the ‘passing’ score of 40 per cent, Table 8.5 shows us that less than 50 per cent of the students from class V managed this score. Approximately, 60 per cent of class IX students get 40 percent or above while over 80 per cent of the students from class II could score 40 per cent of the maximum marks allotted.

[50] The total scores possible in the language sections were 28, 26, and 20 for grades 2, 5, and 9 respectively.

Figure 8.2: Distribution of students across the five score ranges in language



Source: Calculated using primary data collected.

The reasons for such a trend needs to be further carefully explored as this data contradicts the assumption that language support (such as use of multilingualism, use of teaching aids, etc) is mainly required for early classes (i.e. classes I and II), while linguistic knowledge and abilities are thought to stabilise and children are thought to be comfortable with the school and state language by class V. A possible reason for the better performance in class II compared to class V could be due to the nature of assessments used. While oral assessments were used for Class II, written assessments, which require several additional skills (such as phonetic, orthographic, and reading comprehension skills) was used for class V. The latter were administered a written assessment keeping in line with the expectations for students of this class to have written language competencies. Further, language skills seem to improve again by Class IX. This, we hypothesise, could be because of two reasons: first, with a large number of students dropping out by class V (close to 30 percent [Reddy and Sinha, 2010]), it is possible that those who remain within the schooling system and continue are those who perhaps already enjoy certain advantages, such as better learning abilities, more supportive home environments and so on. On the other hand, comfort with school/state language may also take several years to develop, especially skills related to written language with knowledge of formal (as opposed to colloquial/spoken) linguistic structures. This could also perhaps explain the better performance in class IX.

A further level of analysis was conducted to ascertain what factors could be influential on language outcomes at each level. The following table represents the regression results for across the three classes for obtaining both 40 per cent as well as getting 60 per cent in the mathematics examination. The regression model controlled for the following variables: gender, age, social category, district, school management type, pupil-to-teacher ratio and infrastructure

Table 8.6: Regression model showing variables that affect the performance for each class on language

	class II		**class V**		**class IX**	
	60	**40**	**60**	**40**	**60**	**40**
Gender	-0.22652 (0.160)	-0.24486 (0.247)	-0.03344 (0.828)	-0.11198 (0.456)	-0.08751 (0.603)	0.068431 (0.754)
Age	0.013691 (0.11)	-0.06707 (0.694)	0.24748 (0.036)	0.411802 (0.001)	0.001417 (0.990)	0.050167 (0.715)
Caste: Reference category Others						

SC	-0.8028 (0.018)	-1.30787 0.014	-0.4232 (0.217)	-0.15598 0.632	0.459241 0.380	0.989797 0.249
ST	-1.29124 (0.000)	-1.94499 (0.000)	-0.65229 (0.001)	-0.96133 (0.000)	-0.62824 (0.023)	0.276034 (0.521)
District: Reference category Amravati						
Thane	1.770873 (0.000)	1.841155 (0.000)	2.494541 (0.000)	3.695026 (0.000)	4.244175 (0.000)	3.591248 (0.000)
Yavatmal	0.449405 (0.000)	0.377398 (0.139)	0.758383 (0.000)	0.848116 (0.000)	1.404921 (0.000)	2.139881 (0.000)
School management type: Reference category Private-aided schools						
Tribal	-0.0519 (0.000)	-0.49567 (0.183)	1.435456 (0.000)	1.876849 (0.000)	1.197875 (0.000)	0.568929 (0.025)
Local body	0.290638 (-0.19)	-0.29423 (0.427)	-0.05159 (-0.16)	0.358048 (0.224)		
Pupil-to- teacher ratio	-0.01729 (0.014)	-0.00926 (0.405)	-0.0296 (0.000)	-0.03744 (0.000)	-0.02967 (0.0000	-0.01027 (0.216)
Infrastructure	-0.15193 (0.070)	-0.16853 (0.151)	0.259687 (0.004)	0.324897 (0.000)	0.234007 (0.001)	0.070549 (0.422)

Source: Calculated using primary data collected; P values are represented in parentheses

The variables that appear to significantly impact results across the grades are social category and district. With respect to social category, ST students are less likely to get more than or at least 60 or even 40 per cent of the marks. The pattern with respect to Others and SC students generally does not appear to be significant except in class II where SC students are less likely to get pass marks or more than 60 per cent, when compared to students from the Others category. What this suggests is that while SC students are perhaps able to catch up with other students with respect to language learning in higher grades, when compared to entry-level, the same is not true for ST students.

With respect to district, students from Thane and Yavatmal are more likely to get at least or more than both 40 per cent and 60 per cent when compared to students in Amravati. This is despite Thane having relatively poor infrastructure and lower teacher qualifications compared to the other two districts as seen from our survey.

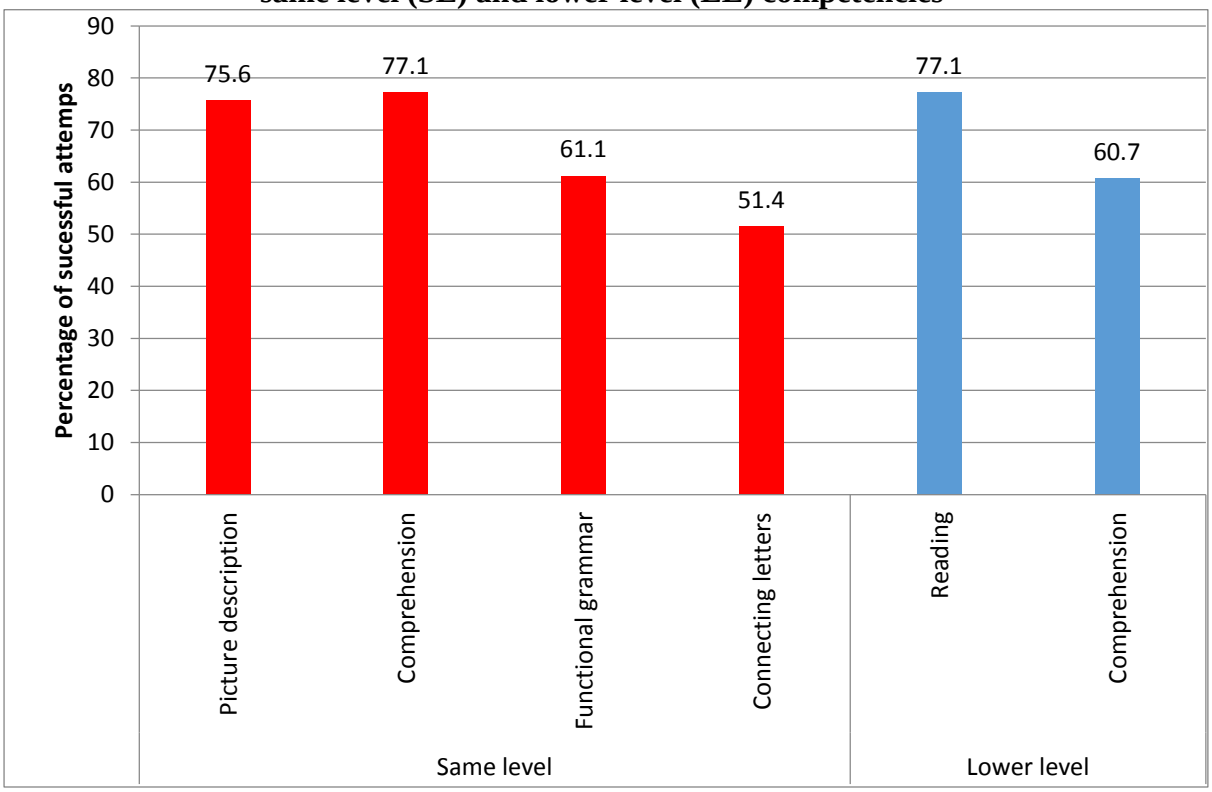
Coming to school management type, it was observed from the regression model that ashram schools perform worse than private-aided schools on both indicators - that is with respect to the likelihood of students achieving pass percentages, or 60 percent or more marks, for classes V and IX. Ashram schools appear to perform similarly to local body schools on both indicators for class V.

The regression also showed that infrastructure had a significant impact on educational outcomes in language in the higher classes.

With respect to other variables, age does not appear to have significant impact on language outcomes, except in class V where older students are more likely to perform better. Pupil-teacher ratio appears to affect outcomes only for class v, with schools with lower PTR being more likely to get pass marks or more than 60 per cent. In class IX, schools with a lower PTR are likely to get more than 60 per cent marks.

A further item-wise analysis was undertaken to understand children's language competencies or the lack of them. As discussed earlier, the items used to assess students on class II language abilities drew from competencies taught in the earlier grade as well as competencies taught in class II, up to mid-term. Figure 3 shows the proportion of students who have mastered the various lower grade and same grade competencies identified for language.

Figure 8.3: Item-wise analysis showing proportion of students in class II who achieved same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected.

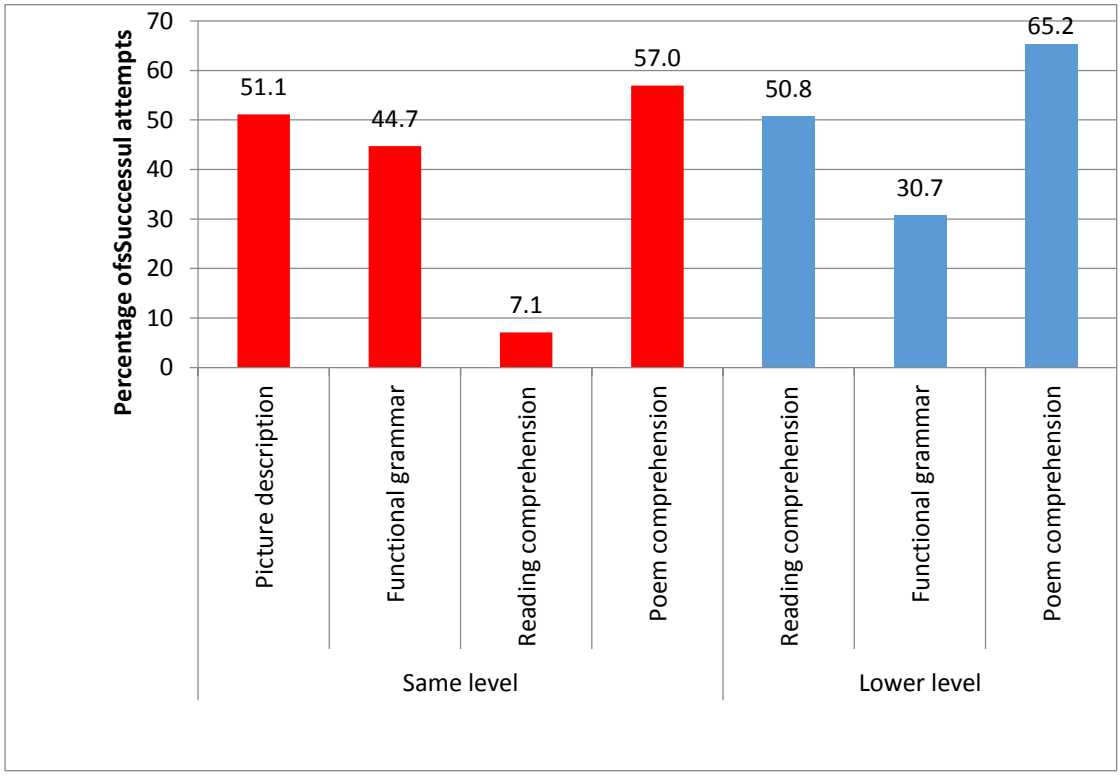
Of the two lower class competencies identified, it was seen that class II students on the whole performed better on one of the competencies - that is, with respect to reading (which was successfully completed by the group 77.14 per cent of the times), compared to listening comprehension, which was successfully completed only 60.65per cent of the times.[51]With respect to the same level competencies, students successfully completed tasks more than 60 of the times, in picture description 75.62 per cent, functional grammar 61.07 per cent and listening comprehension 66.63 per cent. Based on the proportion of successful attempts for each competency for the group as a whole, it also appears that students have performed slightly better in same level listening comprehension activities compared to lower level listening comprehension activities.

Students were however less successful in completing tasks related to one of the same level competency items - that is on 'connecting letters'. This required students to connect scattered letters and make familiar words using the given context. Class II students were successful only 51.41 per cent of the time in completing this task, suggesting perhaps that word recognition across scattered, non-meaningful letter grids is a higher order reading skill that students had not fully developed, as this requires fluency with recognising how linguistic patterns and phonemes combine in specific languages. Such a skill requires abilities to understand linguistic/phonemic patterns that set the rules for how different letters/sounds

[51] Note: For individual competencies, the proportion of successful attempts was calculated by averaging all instances where individual children scored full points on each of the questions that tested that particular competency for the group as a whole. Thus, the analysis presented above does not present an additive account of the number of marks that children scored on a particular competency (i.e., it does not present the total marks score on each competency by adding the partial and full points scored on that competency by each child).

combine to make meaningful words (e.g. generally consonants do not follow each other, with the exception of a few that can be combined like/s/+/r/ or /s/+/t/). The outcomes on this specific competency perhaps suggests that language-learning within in the classroom focuses on learning to read through familiarity with words/structure of sentences rather than by learning the sub-components involved in language learning.

Figure 8.4: Item-wise analysis showing proportion of students in class V who achieved same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected

Figure 8.4 shows the number of attempts at which class V students have been successful in relation to each competency identified at this level for language. Three competencies were tested at a lower level - reading comprehension, functional grammar and poem comprehension. Students of class V as a whole have been successful in questions related to reading comprehension only 50.76 per cent of the times. The number of successful attempts is even lower when it comes to functional grammar, with students having attained full scores on functional grammar questions only 30.70 per cent of the times. Poem comprehension seems to be the only lower level skill on which students have had slightly better outcomes, with students having been able to answer these questions completely 65.17 per cent of the times. However, this could be because students were tested on poems to which they had already been exposed.

While students have had more successful attempts on at least two of three lower level competencies, they have had less than 50 per cent successful attempts on all three competencies tested at the same level (i.e., in picture description, functional grammar and reading comprehension). In picture description, class Vstudents as a whole have been able to

successfully attempt the given questions only 51.14 per cent of the times, which is much lower than the proportion of successful attempts class II students have had (which is 78.7). One reason for this huge difference in performance could be that the class V test was written while the class II test was oral.

Similarly, when the successful attempts at reading comprehension are observed, a huge difference is noticeable between performance on questions that tested for same level reading comprehension versus questions that tested for lower level reading comprehension. While class V students have been able to attempt same level reading comprehension questions successfully only 7.06 per cent of the times, they have been able to attempt lower level reading comprehension items successfully 50.76 per cent of the times. Though questions assessing same level reading comprehension abilities and lower level reading abilities were set on the same passage (i.e. a newspaper report), the lower level questions assessed students ability to arrive at the meaning/identify information that was directly given (e.g. meaning of the title, find other information given directly in the passage). The same level question required knowledge of tenses as well as the structure of newspaper reporting (i.e., an understanding that while information in the newspaper may be given in present tense, the information itself is for the previous day, based on the dateline given). This seems to suggest that while students in class V are largely able to interpret direct texts, interpretative skills, particularly taking into account time (i.e., knowledge of tenses) is still an ability that students are not fully comfortable with.

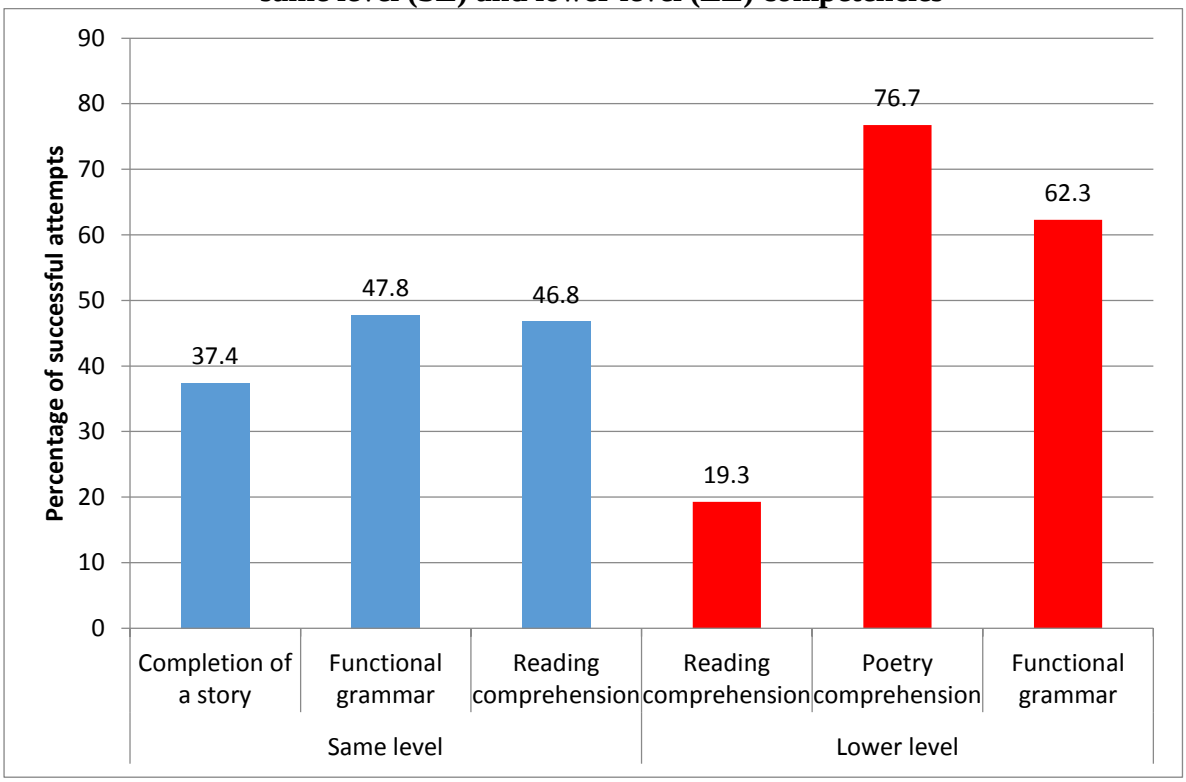
Similarly, students in class II have had more successful attempts in listening comprehension when compared with students in class V who were assessed on reading comprehension. While overall, class II students have been successful in attempting questions on listening comprehension about 60per cent of the times, class V students have been successful in attempting questions on reading comprehension only about 30 per cent of the times.[52] Again, this huge difference in performance perhaps indicates the differential rate of acquisition of oral versus written language skills. This has critical implications for policy as this suggests that against the conventional understanding that students acquire school/state language within the first two or three years of schooling, different aspects of linguistic competence (e.g., oral comprehension, spoken language skills, reading comprehension, writing skills etc.) may all develop at different rates and may require different support structures for development. These considerations need to be taken into account especially for children who belong to tribal communities.

With these childrencoming from very different cultural backgrounds in which experience with written culturemay be minimally afforded at home, acquisition of written culture, emphasized by school may not be reinforced and supported at home. Class IX overall seem to have performed better on items testing for lower level competencies compared to items testing for same level competencies, with the exception of reading comprehension. In reading comprehension, students have performed better on the same level questions (having attempted the questions 46.77 per cent of the times successfully) when compared to the lower level questions (that they have managed to successfully attempt only 19.27 per cent of the times). The same level question tested for ability to understand the global meaning of the passage and arrive at an appropriate title which would capture its essence, while the lower level question required imputing time of event based on the structure of the passage and use of tense. The better performance on the same level question compared to the lower level

[52] The proportion of successful attempts reported here is an average of the number of successful attempts that Class II and Class V had on items testing lower level and same level comprehension competencies.

question perhaps indicates that even class IX students are perhaps more comfortable with tasks that require understaning direct meaning than decoding tense and time that require implicit understanding of sentence and passage structures which can be classified as higher order linguistic skills.

Figure 8.5: Item-wise analysis showing proportion of students in class IX who achieved same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected

With respect to the other items that have tested for lower level language competencies, students have performed relatively well, with students having successfully attempted poem comprehension 76.74 per cent of the times and functional grammar 62.28 per cent of the times. The high performance on poem comprehension is again perhaps related to the familiarity with the poem given. However, on items testing for same levelknowledge of functional grammar, class IX students as a whole have been successful only 47.75 per cent of the times, perhaps indicating that children's knowledge of grade-appropriate grammar has not yet fully developed.

Students have also performed poorly on the story completion competency, which is also a same level competency. Overall, class IX students have been able to handle the story completion task only 37.36per cent of the times. This is perhaps indicative of the few opportunities given to students through formal schooling to undertake independent thinking and creative writing tasks.

8.2.2 Mathematics

Mathematics plays a central role within an individual's life and is critically linked to everyday functioning and transactions. During childhood, it is a critical component to ensure healthy cognitive development by promoting logical thinking. The NFG on the teaching of mathematics has emphasized this fact and has called for the subject to be taught in an

enjoyable manner, while ensuring the subject is activity oriented. The paper also emphasizes that the role of mathematics is not just limited to solving problems but also ensuring children have the right attitude to solving problems, both of which are essential to not just personal development but also for ensuring a healthy workforce for the future.

Learning achievements in the state of Maharashtra for mathematics have been mixed and not very encouraging. The NAS for class III in 2014 showed that students from the state were above the national average in mathematics, overall, with the exception ofthe concepts of addition, multiplication (in which they scored slightly lower than the national average)andsubtraction (in which they scored similar to the national average). This could perhaps also be an indication as to why class V and class VIII scored less than the national average in the same subject. It goes without saying that there is room for improvement.

Table 8.7: Performance of students on the mathematics sub-section across the three grades53

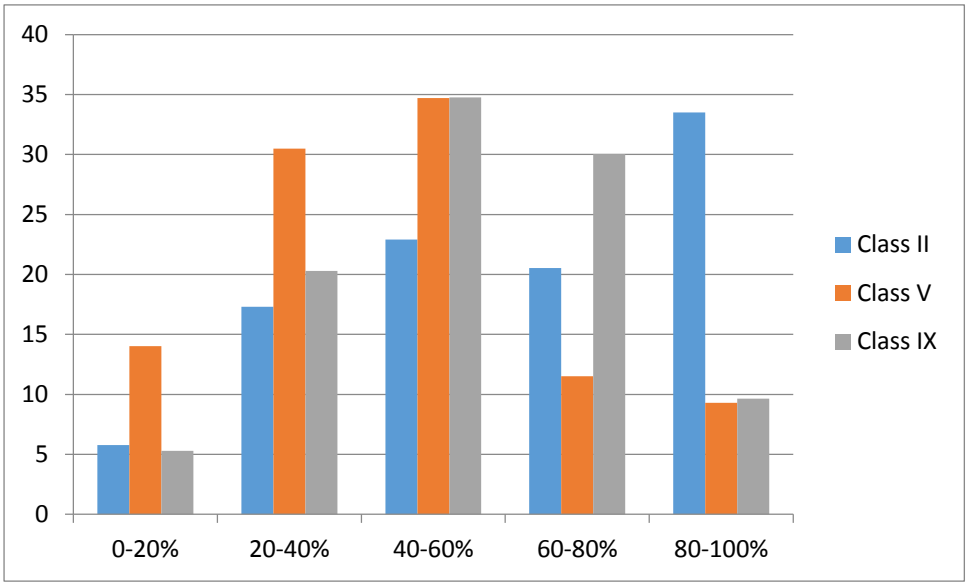
Class	Mean percentage (Weighted)	Proportion of students scoring above 40	Proportion of students scoring 60 and above
class II	65.45	77.01	53.95
class V	55.69	62.30	28.31
class IX	56.2	74.42	39.62

Source: Calculated using primary data collected.

Table 8.7 shows the mean percentage obtained by all three grades across the three districts in Mathematics. The mean (weighted) percentages obtained for classes II, V and IX are 65.45, 55.69 and 56.2 respectively. It is important to note here that the mean percentage is the highest for class II students at 65.45 per cent. This is higher than the (weighted) mean percentage for students of the other two classes where mean scores were approximately 55 per cent of the maximum score. Further, over 50 per cent of class II students managed to score above 60 per cent marks in the subject. The proportions of students from other two classes, V and IX, are much lower at 28.31 per cent and 39.62 per cent respectively.

[53] The total possible scores on the mathematics section for Classes II, V and IX are 20, 26, and 20 respectively.

Figure 8.6: Distribution of students across the five score ranges in Mathematics



Source: Calculated using primary data collected

While approximately 56 per cent of students in class IX were able to score more than 60 per cent of the marks on language, only 40 per cent were able to score over 60 percent marks in mathematics, indicating that students have greater difficulties with mathematics than language. The proportion of class II who have scored above 60 percent in mathematics has also gone done when compared with language (for which 66 per cent students were able to score above 60 per cent). The proportion of class V students able to score over 60 percent in mathematics is approximately similar to language with 28 per cent and 22 per cent scoring above 60 per cent respectively. Further, looking at the proportion of students who scored above 40 per cent, we find that the proportion was the highest among class II students at 77.01 per cent..This was slightly higher than class IX students where 74.42 per cent of the students managed to score above the 40 per cent mark. Class V students constituted the least at 62.30 per cent.This trend is also interesting to note as it appears that students do better in mathematics in class V compared to language.

In order to ascertain what factors contributed to the performance in Mathematics, we ran regression models at each grade level controlling for the following factors: gender, age, social category, district, school management type, pupil-to-teacher ratio and infrastructure. The following table represents the regression results across the three classes. The outcomes considered are the probabilities of obtaining 40 per cent and 60 per cent of the total score in mathematics.

Results of the regression showed that the variables that had significant impact on the results at all levels were social category and district. Social category appeared to affect outcomes in ll the classes. Specifically, ST students were less likely to get more than or at least 40 percent or 60 or more percent of the marks across all three classes. The pattern with respect to Others and SC students varied: in class II, students belonging to the Others category are more likely to pass or get more than 60 when compared to SC students from our sample. In class V, there is no significant difference. In class IX, SC students are more likely to get 60 per cent or more when compared to other students. This seems to suggest that SC students catch up with

the performance of students from the Others category through classes V and IX in mathematics.

However, for passing in class IX, the differences among the three categories are not significant at the five per cent level, suggesting that outcomes become homogenous by this level.It needs to be ascertained whether this is due to performance by all groups declining at this level, or because of significant improvements in performance by tribal students in class IX.

In terms of district, it appears that students from Thane are more likely to get at least or more than both 40 per cent and 60 per cent of the marks when compared to students in Amravati, in Mathematics, across all three classes. Students from Yavatmal are more likely to get both 40 per cent and 60 per cent and above in higher classes (V and IX) compared to Amravati. Overall, thus, Amravati performs the poorest among the three districts with respect to Mathematics.

Coming to other factors, gender did not have a significant impact on the likelihood of either passing or getting at least 60 per cent of the marks in mathematics, with the exception of class IX, where male students were more likely to get pass marks when compared to female students.

Table 8.8: Regression model showing variables that affect the performance for each class in Mathematics

	Class II		**Class V**		**Class IX**	
	60	**40**	**60**	**40**	**60**	**40**
Gender	-.0188894 (-0.897)	0.293284 (0.167)	.338307 (0.017)	0.141806 (0.383)	0.265886 (0.082)	0.417557 (0.021)
Age	.0978569 (0.413)	-0.20441 (0.235)	-.0185694 (0.865)	-0.16369 (0.199)	-0.18537 (0.058)	0.121077 (0.283)
Caste: Reference category Others						
SC	-.9403979 (-0.001)	-1.25191 (0.008)	.1663863 (0.591)	-0.38172 (0.263)	1.215617 (0.018)	1.45788 (0.176)
ST	-.8750637 (0.000)	-1.49552 (0.000)	-.3613599 (0.051)	-0.74257 (0.001)	-0.66008 (0.009)	-0.71002 (0.062)
District: Reference category Amravati						
Thane	2.486496 (0.003)	1.048379 (0.013)	2.68619 (0.000)	3.541314 (0.000)	2.486496 (0.000)	1.608769 (0.000)
Yavatmal	0.885302 (0.622)	0.09828 (0.706)	.5865599 (0.002)	0.830837 (0.000)	0.885302 (0.000)	0.80085 (0.001)
School management type: Reference category Tribal						
Private-aided	.1102712 (0.656)	-0.07318 (0.861)	.9231214 (0.000)	0.826733 (0.003)	1.340459 (0.00)	0.972106 (0.000)
Local body	-.0333325 (0.894)	-0.8033 (0.039)	-.6802193 (0.002)	-0.38767 (0.194)		
Pupil-to-teacher ratio	-.0028598 (0.672)	-0.0045 (0.692)	-.0406935 (0.000)	-0.03933 (0.000)	-0.00939 (000)	-0.00103 (0.862)
Infrastructure	-.1776829 (0.015)	-0.07154 (0.514)	-.0406935 (0.000)	0.289278 (0.001)	0.384755 (0.000)	0.172288 (0.025)

Source: Calculated using primary data collected.

P values are represented in parentheses. Coefficients are considered to be significant if pvalue<0.05

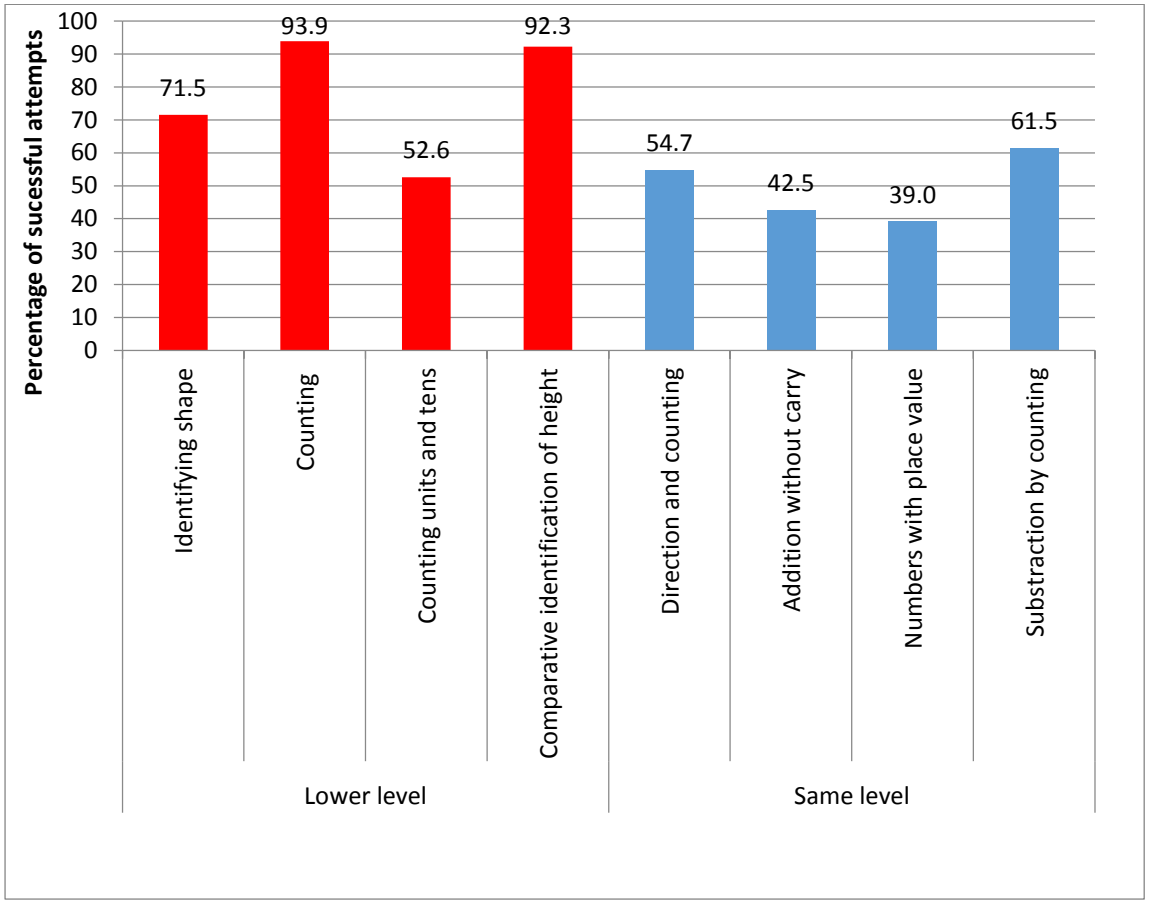
With respect to school management type, again students from private-aided schools had a higher likelihood of scoring pass percentages or 60 per cent or more marks compared to students from ashram schools. Students from ashram schools had a greater likelihood of

obtaining 60 per cent or more marks compared to local body schools only for class V. Pupil-teacher ratio has a significant impact on both passing as well as getting 60 per cent or more marks at grade 5 level. Schools with lower PTRs are more likely to get pass marks or more than 60 per cent. In class IX, schools with a lower PTR are likely to get more than 60 per cent.However, PTR does not have a significant impact on the likelihood of getting at least 40 per cent marks. This implies that though PTR may not play a very important role in gaining minimum learning outcomes, it becomes important for raising the average levels of learning outcomes to a higher level.

Infrastructure and learning levels linkages are not so straighforwad: Infrastructure appears to have contradictory effects at the class II level, with a higher infrastructure score being negatively correlated with getting more than 60 per cent marks at that stage. However, in classes V and IX, infrastructure has a positive impact on passing.

The differences in overall results observed have been further complemented by an item-wise analysis to ascertain how students perform on individual competencies at each grade level.

Figure 8.7: Item-wise analysis showing proportion of successful attempts by students in Class II for same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected.

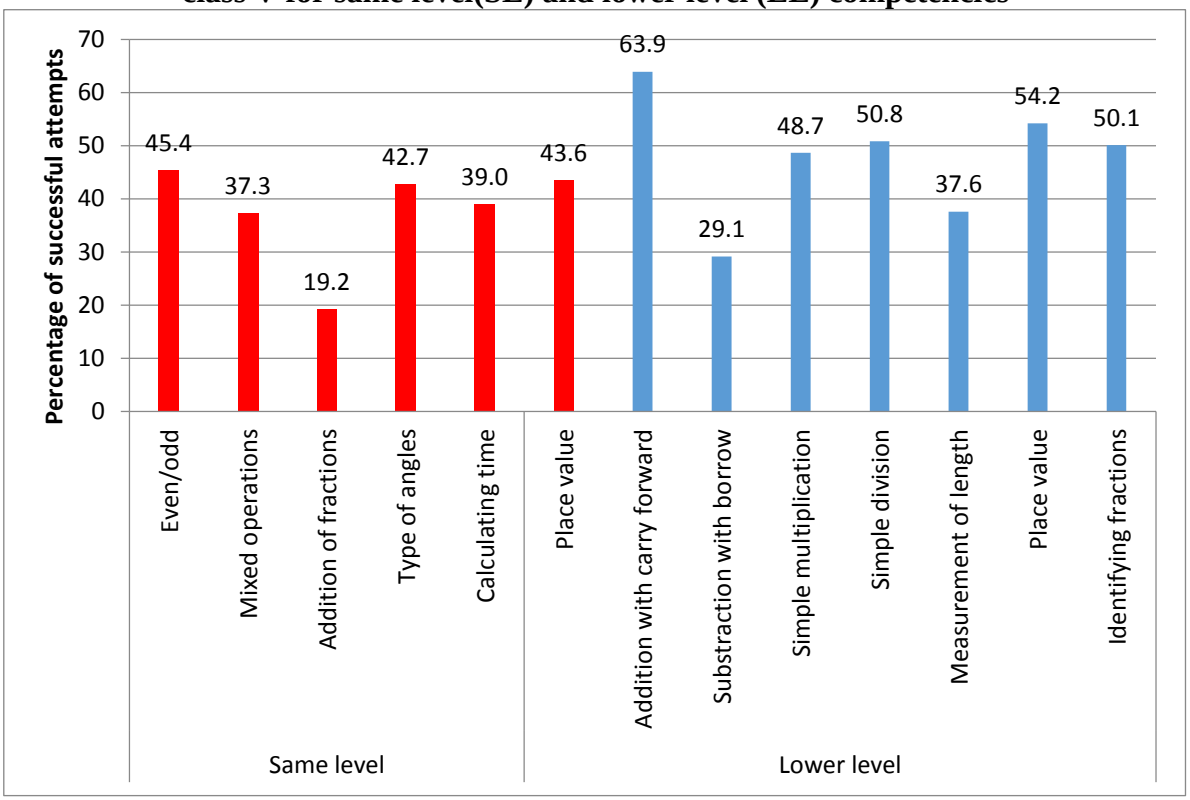
For class II students, nine individual competencies were identified and were further divided into lower grade questions or questions of the same grade level. Among the lower grade competencies tested, students performed very well as a group in counting and identification of height. However, the number of successful attempts was down to 52.6 per cent when assessing students who knew counting of units and tens. Again, the reasons for this need to be explored. One probable explanation could be that counting in units and tens requires a conceptual understanding of how the number system is organised (i.e., along the base 10 principal for the decimal system). On the other hand, simple counting could also be learnt perhaps as a nominal function rather than understanding its conceptual features.

For competencies of the same grade, the numbers of successful attempts were slightly lower. At 61.5 per cent, subtraction by counting was the competency that was most successfully answered by the students. Least successful attempts were made by students when it came to answering questions on numbers with place value (39 per cent) and addition without carry over (42.5 per cent). Again, these results perhaps suggest that for the former competency,a conceptual understanding of the decimal system was still not in place. With respect to the latter competency, it is perhaps surprising that students have been more successful with subtraction compared to addition without carry over, since subtraction is a later competency introduced as it requires ability with backward counting. However, the results as seen here may have been because the item on subtraction was supported with visual aids (while the item on addition was not), suggesting that early grade mathematics needs an explicit activity-based or practical/experiential approach to learning.

As expected, students have had a higher proportion of successful attempts with questions testing lower grade competencies (77.58 per cent of all questions) when compared with questions testing higher grade competencies (which were attempted all together successfully (49.4 per cent of the times).

For class V students, a total of 13 competencies were tested, of which eight were deemed to be questions from a lower level while five were of the same level. Again, students were more successful with lower grade questions, which were successfully attempted 47.25 per cent of the times. Class V students managed to attempt same grade questions successfully 36.74 per cent of the times. This is due to the fact that students were able to attempt a vast majority of attempts on addition correctly. However, very few questions (29.13 per cent) on subtraction were answered correctly. Approximately half the number of attempts in the other competencies like place values, simple division and identification of fractions were successful. Class V students also did not perform very well on level-appropriate questions. None of the competencies assessed seemed to be attempted successfully at least 50 per cent of the times by the group as a whole.

Figure 8.8: Item-wise analysis showing proportion of successful attempts by students in class V for same level(SL) and lower level (LL) competencies

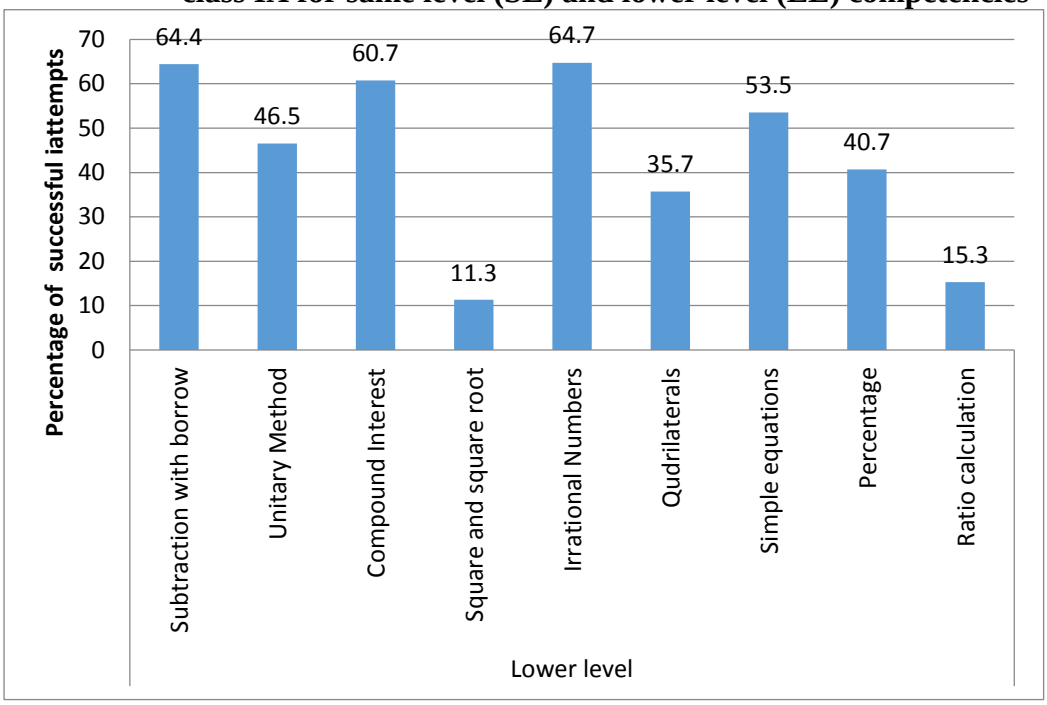


Source: Calculated using primary data collected

Even though all questions asked to class IX students were of a lower level, their performance in mathematics still shows much room for improvement. They were able to answer questions related to square roots only 11.30 per cent of the times and questions on ratio 15.32 per cent of the times. This figure increased to35.66 per cent of the times for quadrilaterals. Most questions answered correctly came from competencies like subtraction with borrow (64.4 per cent), compound interest60.70 percent and simple equations 53.54 percent and irrational numbers 64.73 per cent.Again, this could perhaps be due to the long years of training with basic operations such as addition, subtraction, multiplication and division and the ease with applying formulae in solving problems as opposed to developing conceptual understandings required for questions on ratio and proportions.

When seen in conjunction with social group-wise scores, the fact that ST students have performed relatively poorly, this being true for the SCs too in relation to the Others, makes it clear that ST students are even more challenged when it comes to conceptual questions as against formula-based questions. Given that their life situations are more challenging with less eduated parents and less stable family livelihoods, the teaching of such concepts have to be different for them, involving skills different from those imparted in routinisedtraining programmes for teachers and supervisors/academic mentors in tribal areas.

Figure 8.9: Item-wise analysis showing proportion of successful attempts by students in class IX for same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected

8.2.3. General Science / Environmental science

The position paper of the NFG on the teaching of science emphasizes that science education must enable a learner to apply the principles of the subject to his or her environment. Further, it must enable learners to relate to their environment, both globally and locally and enable greater work force participation while imbibing "the values of honesty, integrity, cooperation, concern for life and preservation of environment."

In order to achieve these aims of science, the position paper called for a science curriculum that takes into account many factors including pedagogical practices, simplification of content, enabling learning on a global and a local scale as well as promotion of ethical objectives. How much of these curricular practices are followed isdebatable, especially after seeing performances of students in the subject. The latest survey round of the NAS reported class V students from Maharashtra as performing below the national average in the subject. Further, it also showed that amongst class VIII students, ST students had the lowest performance amongst all the social categories examined. Tribal students from Maharashtra were also seen to be below the national ST average for science.

Table 8.9: Performance of students in Science across the two levels[54]

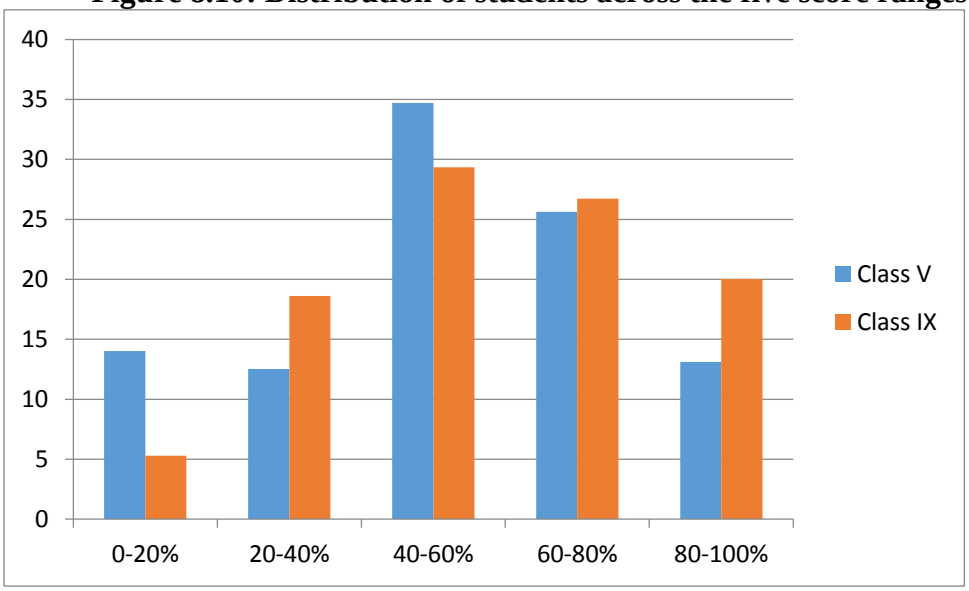
Class	Mean Percentage (weighted)	Proportion of students scoring above 40	Proportion of students scoring 60 and above
Class V	56.81	77.15	47.54
Class IX	59.45	76.10	46.74

Source: Calculated using primary data collected

[54] Total possible scores for classes V and IXare 26 and 20 respectively.

Table 8.9 shows the mean (weighted) percentages obtained by students of classes V and IX across the three districts in sciences. The mean (weighted) percentages obtained for these classes are 56.81 per cent and 59.45 per cent respectively. For both the classes, the mean percentages are above 50 per cent of the maximum possible score. Both grades had a small majority of students who scored higher than 60 percent of the maximum marks in the subject. However, more than three out of four students from bothclasses managed to score above 40 per cent. Inclass V, 47.54 per cent of the students scored higher than 60 per cent, while for class IX students, this proportion was 46.74 per cent. For majority of classes V and IX students, science subjects are challenging.

Figure 8.10: Distribution of students across the five score ranges in Science



Source: Calculated using primary data collected.

It is, however, interesting to note that the mean percentage obtained in science by class V students is highest compared to the other two subjects (i.e., 40 per cent in language and 55.69 per cent in mathematics). In class V, language seems to be the most challenging of subjects, going against the conventional understanding that students by that level have mastered the official school language. In class IX, students perform better in Science compared to Mathematics (having obtained a mean percentage of 56.2 per cent in the latter) but score the highest in language with a mean percentage of 64.3 per cent. This seems to suggest that linguistic abilities in the state/school language perhaps are recovered by class IX, while conceptual difficulties in Science and Mathematics become larger challenges.

A regression was undertaken to examine what factors might affect results in science for the two classes. The following table represents the regression estimates across the three classes for obtaining both 40 and 60 per cent in the science paper. The factors controlled for were gender, age, social category, district, school management type, pupil-to-teacher ratio and infrastructure.

Table 8.10: Regression model showing variables that affect the performance for each class in Science

	class V		class IX	
	60	**40**	**60**	**40**
Gender	0.228897 (0.118)	-0.00089 0.996	0.320121 0.032	0.080622 0.661
Age	0.371123 (0.002)	0.135938 0.329	0.043822 0.646	-0.00342 0.976
Caste: Reference category Others				
SC	0.030629 (0.922)	-0.0871 0.826	0.50519 0.272	1.641837 0.125
ST	-0.98634 (0.000)	-0.6938 0.004	-0.65209 0.008	-0.71853 0.039
District: Reference category Amravati				
Thane	2.729632 (0.000)	3.432586 0.000	2.453596 0.000	2.737347 0.000
Yavatmal	0.591745 (0.001)	1.138714 0.000	0.734579 0.000	0.812632 0.000
School management type: Reference category Tribal				
Private-aided	1.050291 (0.000)	1.191383 0.000	0.785736 0.000	0.574622 0.011
Local body	-0.62547 (0.030)	0.076944 0.811		
Pupil-to-teacher ratio	-0.02967 (0.000)	-0.03477 0.000	-0.01253 0.006	-0.01213 0.054
Infrastructure	0.077199 (0.32)	0.000641 0.995	0.255113 (0.000)	0.129996 0.085

Source: Calculated using primary data collected; P values are represented in parentheses.

Similar to the results for language and mathematics, the variables that significantly impact all outcomes for science are social category and district, with ST students less likely to obtain 40 per cent or 60 percent of the marks compared to the other two categories. Among districts, students from Thane and Yavatmal again have a greater likelihood of obtaining 40 per cent or 60 per cent of the marks compared to students from Amravati.

In class IX, PTR also appears to have a significant impact on outcomes, with a lower PTR increasing the probability of achieving pass percentages as well as 60 per cent or more marks.

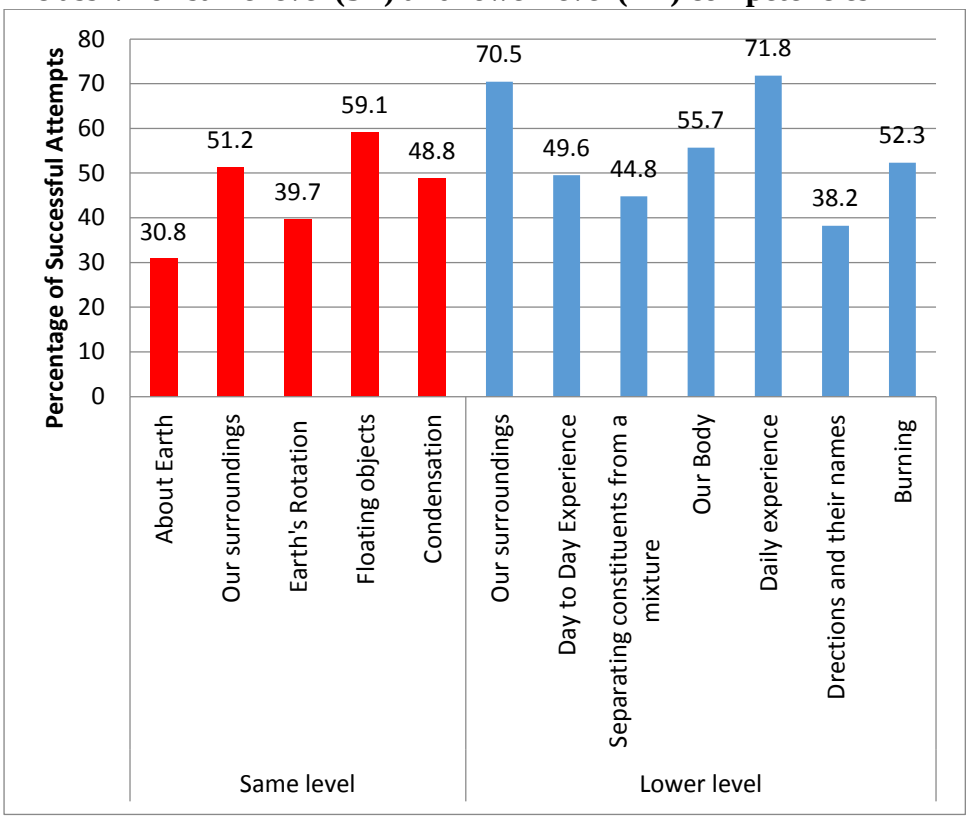
Analysis based on school management type again appears to show that students from ashram schools have a lesser likelihood of getting 40 per cent or 60 per cent of the marks compared to private-aided schools, but perform similarly to local body schools only with respect to pass percentages.

Results based on other variables also appear to show similar trends as observed for the other two subjects. Like with Mathematics, gender appears to have a significant impact only with respect to obtaining 60 percent or more marks in class IXin science, suggesting perhaps the need to pay more attention to whether gender stereotypes of mathematics and science being ‘male’ (i.e. subjects in which boys perform better or more suited to for boys and the vocations that they aspire to) have an effect on girls' performances. Women teachers in general were fewer in number except in Thane, and considering that a good proportion of teachers also taught subjects that they were not necessarily trained in, it is difficult to ascertain what causes differnces in learning outcomes. However, going by literature, gender stereotypical processes could be one of the reasons.

Age, as with language, seems to influence outcomes for class V, with older children performing better in the science test. Together, this perhaps indicates the need to explore whether before children develop fluency with school language, older students with slightly higher cognitive abilities are able to pick up instruction in language and science better.

Infrastructure also appears to impact outcomes in science significantly for higher grades, as is the case for language and mathematics.

Figure 8.11: Item-wise analysis showing proportion of successful attempts by students in class V for same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected

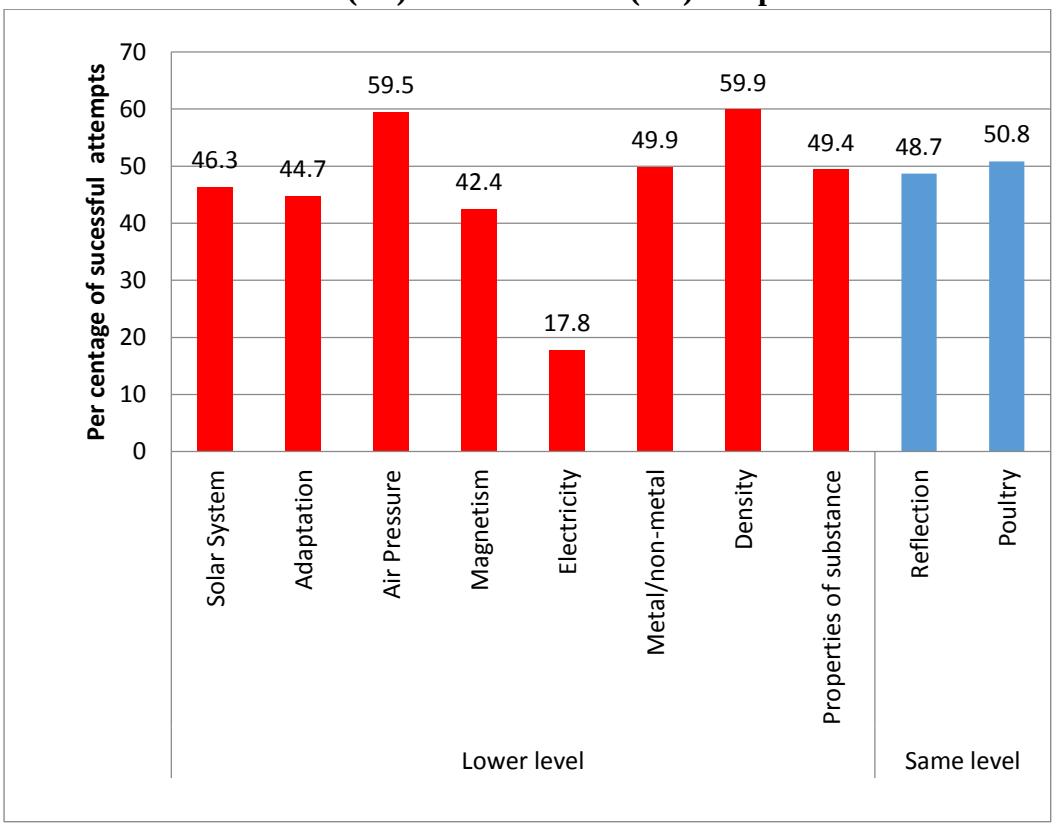
For class V students, 13 competencies were identified and were further divided into lower level questions or questions of the same level. Among the lower grade competencies tested, students performed very well as a group on most of the questions, which were related to their everyday activities, experiences or their surroundings. For example, these questions tested students familiarity or knowledge of concepts such as reproduction, dissolution, flotation, combustionetc. but with the use of illustrations available in the everyday environment (e.g., comparison of substances such as sand, sugar, and salt to identify which of these substances are water-soluble; identifying which living being reproduces through an egg between a dog, mouse, rooster and cat etc).

However, the number of successful attempts was down to 44.81 per cent when assessing students on how to separate mixtures, 38.24 per cent for directions. This could be because the

questions were perhaps less related to real world/everyday applications with which children are familiar (e.g., separation of black pepper from salt; use of directions such as 'north' and 'south'in everyday contexts, where 'left' and 'right' are more often used etc). The difference in performance between the two sets of questions perhaps indicates that while children in class V are able to answer simple identification questions (e.g., identifying substances that dissolve), they have difficulties with conceptual reasoning (e.g., relating the concept of pressure to the empirical phenomena of heart beats).

Overall, for lower level concepts, the percentage of successful attempts stood at 54.70per cent for the group as a whole. For same level concepts, this percentage was lower at 45.9 per cent. Again, even for the same level questions, students performed better in questions relating to their surroundings. Other competencies which students performed at a similar level were condensation and water purification. Very few successful attempts (30.89 per cent) were made when it came to questions on the earth. The questions on condensation and purification were drawn from everyday experiences (i.e., the result of ice-cubes kept in a stainless steel tumbler exposed to air; and purification of water using alum), while the questions on earth tested the abstract concept of the equator.

Figure 8.12: Item-wise analysis showing proportion of successful attempts by students in class IX for same level (SL) and lower level (LL) competencies



Source: Calculated using primary data collected.

A total of 10 competencies were tested for class IX students of which eight were deemed lower level questions while twowere of the same level.Fair number of sucessful answerd were obatined when looking at questions related to air pressure (59.5 percent), compared to adaptation(44.7 per cent), and magnetism (42.4 per cent). These results appear slightly contradictory to results observed in class V, in which students answered questions related to

everyday experiences better compared to questions that tested for scientific principles or conceptual reasoning. They were more successful in answering the question on density which required them to identify which object was denser between air, water and ice compared to the question on adaptation which required them to explain why different birds have different beaks. Still, as with class V, a possible explanation could be that students have difficulty in explaining scientific principles behind everyday phenomena even in class IX, which calls for the need to examine the pedagogic strategies applied in teaching science.

Students were least successful at questions on electricity (17.82 per cent) which again tested an abstract principle of the properties of electricity. Overall, for lower level competencies, the number of successful attempts averaged at 46.10per cent. For same level questions, this averagewas similar at 46.63 per cent. This may be due to the fact that only two competencies were tested which were questions of reflection and poultry but the questions related to both these competencies tested for knowledge that was perhaps not within the everyday realm of the child (e.g., the concept of broiler chicken; the distance from which an image is formed when kept 10 cms away from a plane mirror).

8.4 Summary of findings on the learning assessments

1. Comparing the performance of the three levels of students, it was found that class II students were most successful with respect to the grade-appropriate test administered, while class V were least successful with respect to the grade appropriate test administered to them. A significantly greater proportion of students from class IX were able to successfully attempt the grade-appropriate test given to them when compared with students of class V.

A probable reason for this difference could be the nature of the tests administered, with classII students given an oral test, while classes V and IX a written test. The poor performance in class V could perhaps be linked to the lack of fully developed linguistic abilities in the school language even at that level (which perhaps stabilises and improves by class IX). This assumption is perhaps corroborated by the findings that class V students perform the poorest in language, while students in the other two grades perform the best in language. Thissuggests that students may be orally competent in school language by class II, have still not acquired written language proficiently by class V but this considerably improves by class IX. An item-wise analysis of the language sub-section also shows that classes V and IX students were both better at reading comprehension tasks at lower levels than their current ones, suggesting that the ability to read and decode text in order to perform on the assessment at class V level may not have been adequate.[55]

2. Across grades, students showed greater difficulty with mathematics than language (as seen by the lower proportion of students from each grade that were able to score 60 per cent or above). However, interestingly only for class V, a higher proportion of students scored 60 per cent or more in mathematics compared to language, though class V students performed poorest in mathematics compared to the other two classes.

3. Students in classes V and IX also appear to perform better in science, compared to mathematics, with class V students having performed the best in science compared to the other subjects. With respect to the item-wise analysis for science, it was seen that students were better able to answer questions that were related to their everyday experiences. Abstract scientific principles or conceptual reasoning abilities based on these experiences had still not developed for students from classes V and IX.

[55] Note: As stated earlier, keeping in mind school and developmental expectations, class II students were administered an oral test, while students of classes V and IX were administered written tests.

4. Variables that appeared to significantly impact learning outcomes at all levels (i.e., by grades, as well as with respect to obtaining pass percentages or 60 per cent or more marks), were caste and district. ST students were less likely to obtain pass percentages or 60 per cent or more marks, across the three grades, in all three subjects as well as with respect to the overall marks, compared to the other categories.

Further, students from SC category were seen to be likely to catch up with students from the Others category in higher grades with respect to language, mathematics and science. SC students were also more likely than Others to score 60 per cent or more marks in mathematics. These findings have significant implications as it suggests that despite proactive policies, ST students continue to be the least successful within the education system. This indicates the need for some shifts in the policy approach, discussed in the next chapter.

With respect to district, students from Thane were more likely to perform better than students from the other two districts in the individual subjects as well as overall assessment, across the three grades. This despite the poor infrastructure outcomes noted for Thane, and lower teacher qualifications reported for local body and private-aided schools in Thane. Thus, it is important to examine whether other factors such as socio-demographic composition of students and parents in schools in Thane, proximity to the state capital and a prominent metropolitan city, and the increased likelihood of having special educational interventions due to this, could have contributed to this significant difference in performance. Students from Amravati appeared to have the lowest performance across the three subjects. Students from classes V and IX in Yavatmal perform better than those in Amravati in language, science and mathematics.

5. Students in private-aided schools were generally seen to have better outcomes with respect to the individual subjects as well as overall performance. Students in ashram schools performed similarlytothose in local body schools at some levels - for example, with respect to overall performance in classes V and IX or with respect to having a higher proportion of students getting 60 per cent of the marks or more overall, with respect to class V. It is important to examine what factors in particular may be contributing to the better performance of private-aided schools, which perform poorly compared to the other two types of school on infrastructure. PTR in higher grades appear to have a positive impact on performance and it is important to examine whether this could be a factor that improves the likelihood of students in private-aided schools achieving better results. Other factors that need to be explored are teacher qualifications and experiences in private-aided schools compared to the other two types of school.

The presence of graduate teachers with B.Ed degrees was much higher in private-aided schools as compared to other two managements where the there was a bigger presence of graduate teaches with diplomas (D.Eds.). However, it would not be correct to infer that B.Ed rather D.Ed enables teachers more and therefore learning levels are relatively higher. Another feature that emerged was that private-aided schools were managed by smaller management units, and therefore, had a closer monitoring system as compared to the other two.Whether or not that makes a difference needs to be examined further.

6. Another factor that seemed to impact learning outcomes was infrastructure at the higher classes (V and IX). This perhaps suggests that in earlier grades, school culture plays a bigger role than infrastructure, in supporting and helping students to acclimatise to the routines and mandates of schooling. The fact that the issues of language and culture were raised by teachers in all the focus grou discussions also points in this direction.

7. The data also draws attention to the need to be cautious about gender stereotypes that may be operational within schooling transactions and routines, with gender playing a significant role in determining outcomes for mathematics and science in class IX. Regression analysis showed that males are more likely to obtain 60 per cent or more marks in mathematics and science in class IX, while it appears that there is no significant difference between males and females obtaining pass percentages and 60 per cent or more marks in class V. This suggests a need to examine whether girls are socialised or internalise expectations (by teachers or significant others) that girls are relatively weaker in mathematics and science compared to boys.

9. Conclusions and recommendations

In the past few decades, since the 1990s, the Indian education system has seen both a dramatic expansion in size, as well as an increasing diversity in its composition. However, this expansion has remained selective and low enrolments and learning levels have continued to plague the system, with the greatest impact of these trends being felt among disadvantages communities and marginalised populations (Veerabhadranaika et al., 2012). Tribal populations are among those that have continued to suffer the impacts of lop-sided policy making that, on the one hand, encouraged selective expansion, particularly through the legitimisation of private capital and interests in education in the recent years, and, on the other, de-linked questions of expansion and access from quality (Velaskar, 2010). Tribal populations, as evident from several studies, as well as from national level surveys, continue to have the lowest enrolments and retention rates, as well as learning outcomes, when compared with all other socio-demographic groups.

The present study shows that the trend may not be very different for the state of Maharashtra, although in several ways the state performs better than the rest of the country. For example, Maharashtra appears to have made considerable progress with respect to issues such as literacy, with literacy levels for the state as a whole, as well as for tribal populations of the state being higher than the respective national averages, as noted in NSS data. Maharashtra also appears to have lower urban-rural gaps and gender gaps in literacy compared to all-India averages.

However, internal comparisons for the state show a picture of continuing educational inequalities, with tribal populations faring poorly compared to other groups. Further, gaps in literacy between urban and rural tribal populations, and tribal males and females remain high, even though this is comparatively lower than the same differences for tribal populations at an all-India level. Locational factors appear to make a significant impact on literacy for tribal populations in Maharashtra, with location - urban and rural - playing a greater role in determining literacy outcomes compared to even gender. Overall, the data on literacy seems to show that while Maharashtra as a state may have made much progress compared to other states of India, it still has serious challenges pertaining to its own internal variations in educational outcomes.

These contradictions between Maharashtra's relatively high performance on external comparisons but the continued presence of internal variations in performance, could perhaps be seen in relation to the policies and provisions internal to the state. For example, as noted with respect to the financial allocations and planning, Maharashtra has a practice of developing district plans, and state-level recommendations have increased the funds allocated to ZPs. However, it has also been noted that district (and therefore ZP) plans are largely guided by state-level policies, which may not necessarily be sensitive to the needs of tribal populations. Considering that education is a concurrent subject where both union and state governments have a right to design policies and intervene, national policies, priorities and directives also influence state and district plans significantly.This again may not always be reflective of district-specific needs and priorities. Also, even while largely following national and state policies, a number of flexibilities can be built in to respond to district-level needs, which does not seem to be necessarily the case in Maharashtra.

Coming to other factors, educational outcomes for tribal populations in the state must also be seen in relation to provisions such as availability of schools, hostels and scholarships. With

regards the former (i.e., provision of schools), findings from secondary data analysis show that while there has been an overall increase in the number of schools in Maharashtra between 2005-06 and 2010-11, the number of primary schools, and composite schools (with classes up to grades 10/12) have declined post-RTE Act implementation, in 2013-14. Further, an additional observation that emerged is that government schools in tribal districts have declined between 2010-11 and 2013-14, while the number of private schools has remained the same. Both these trends have significant implications, as government schools, as much literature has shown, have become the last resort for children from marginalised communities such as tribal populations (De, Noronha and Samson, 2002-03). Further, availability of composite schools has also been shown to have better impact on retention, and, together, the decline in government schools and primary and composite schools may have significant implications for enrolment and retention in the years to come.

Again, the closing down of government schools also needs to be seen in the light of the increasing trend within education towards privatisation and public-private partnerships (PPPs) as the most efficient and economic models of schooling (Tooley, Dixon & Gomathi, 2007). Arguments have also been made that parents invest in private schooling once they cross the critical threshold of income, which is an indicator of their interest in and desire for private schooling (Tilak, 2003). Such arguments have been put forth in justifying the reduction of government schools, in addition to pointing to the decline in enrolments in government school as reasons for the reduction, rather than questioning the quality of these schools which become an important factor in the choices made by even marginalised households in educating their children (Tilak, 2003). However, as Tilak (2003) points out, such investments made by parents from marginalised communities come at a higher cost when compared to other families, and this can be even more critical in states such as Maharashtra which, according to our secondary data analysis, has one of the highest household-level expenditures at all levels of education. Our secondary data analysis shows that expenditure on tuition fees for Maharashtra is the second highest, and significantly higher than many other states with large tribal populations. High out-of-pocket expenditures on education have been identified as one of the critical factors for non-enrolment and drop-out for children from marginalised communities (Tilak, 1996).

Further, this also needs to be seen in relation to the observations made on educational expenditures within the state, where almost 96-98 per cent of the DoE's expenditure within tribal districts of Maharashtra is towards salaries. As analysed in Chapter 3, the TDD spends more on non-salaries and though a large number of schemes exist in the name of the eduction of tribal children, these are largely limited to expenditure on school infrastructure, hostels and incentives such as various forms of scholarships and fees but their coverage is low. Also, Maharashtra currently has a policy of sponsoring a small number of tribal students to private, un-aided English schools (a policy that has not so far been publically reviewed) and GoI also has a scheme where few students are supported in their higher education in private institutions. This, together with earlier observations which show that the state had one of the the highest out-of-pocket expenditure for schooling, points towards a potential risk for socio-economically weaker populations such as tribal students staying outofschool or droppingout. It raises questions on policy choices being made from the perspective of the larger goal: whether incentivising private education in tribal areas for a few using public money or reforming the public ssytem where a large proportion of tribal children are going is more desirable.

As noted earlier, access to schooling is just one part of the problem that affects the educational outcomes of marginalised communities such as that of tribal students. The other

part of the problem emerges in relation to the quality of schooling and the nature of schooling available to tribal students. As discussed above, with government schools becoming the last resort for children of marginalised communities (De et al., 2002-03), the quality of education on offer for populations such as tribal communities is often poor. As our own survey of quality-related variables, ranging from infrastructure to teacher attitudes and training, and curricular and pedagogical inputs, showed, there is much improvement needed with regards to each of these areas. For example, taking infrastructure into account, an analysis of UDISE data has shown that only eight per cent of private-aided schools (as a proportion of all schools) in tribal districts of Maharashtra comply with RTE Act norms. This proportion is slightly higher for TDD schools (16.84 per cent), and local body schools (28.76 per cent).Overall, the data suggests that many schools from each of these categories have yet to meet the quality criteria of the RTE Act. Further, in the light of the discussion presented above, regarding the rationalisation of government schools, and greater state investments in private schools which are perhaps the only option left for many students following rationalisation, the poorest record of compliance by private-aided schools with respect to infrastructure needs to be taken seriously and immediately addressed.

Other factors such as teacher and teaching quality also require attention. As our data shows, only 12 per cent of the teachers across the schools surveyed in three tribal districts of Maharashtra belonged to tribal communities and this proportion further dropped to eight per cent in ashram schools. A policy recommendation that has been repeatedly made is to increase the number of teachers from tribal backgrounds in schools in tribal districts, and especially in ashram schools as they have a better understanding of the cultural contexts and challenges for the tribal child. Further, the posting of non-local teachers, coupled with poor infrastructural facilities within ashram schools, as our survey shows,leads to dissatisfaction and demoralisation of teachers and often results in a situation where they do not reside within the school itself. The number of vacancies is high in ashrram schools, which translates itself into high teaching loadsand adds to teacher demotivation. This further defeats the purpose of residential schooling for tribal populations which has been conceived as a way to provide the tribal child a nurturing environment beyond school hours and provide greater interactions and exposure in order to bring them on par with other students.

Further, while lack of teachers from tribal communities forms one part of the problem that affects quality schooling, attitudes towards the tribal child, irrespective of the social background of the teacher, play a significant role in determining their continuation within school, as well as learning outcomes. As our survey shows, despite the lack of teachers from tribal communities, 70 per cent of the school heads belonged to tribal communities and yet felt that a major challenge in ensuring educational outcomes of tribal communities was to do with uneducated parents who were less interested in education. Such a simplistic understanding indicates that there is a failure to understand the structural contexts of these children's and parents' lives, and their socio-cultural set-ups and rather places the blame on the individuals themselves for their poor schooling outcomes. This isnot surprising perhaps because our survey also shows that while two-thirds of the heads had worked with tribal children, none had actually received special training with respect to teaching/managing tribal populations. Similarly, special training for teachers with respect to tribal populations also seemed to be absent and even teachers within ashram schools reported receiving no special training and were largely given generic, in-service training, through the DoE. Adding these findings to data that shows that only two to four per cent of the common expenditure of the DoE is channelised towards teacher training and data that shows that all the schools surveyed had teacher vacancies, it must be noted that the lack of sensitive and competent teachers is a

critical factor, perhaps even more important than the lack of tribal teachers, that affects both student retention and student learning outcomes.

These findings were further complemented and reinforced by a cursory survey of classroom environments and pedagogic practices across some of the schools sampled across districts, grades and school management types. It was observed that teachers had poor pedagogic knowledge and training that did not help them go beyond the textbook in undertaking child-friendly, experiential learning. Along with this, it was also noted that there was poor support for multilingualism within the classroom and poor teaching-learning materials and bridge resources critical for ensuring that tribal children's learning is at par with other children and for making him/her comfortable with school learning and culture.

These poor indicators of quality were perhaps what got reflected in the outcomes of the learning assessments survey conducted for tribal districts of Maharashtra. Findings from the survey show that assessment results varied significantly by social category, with tribal students performing the poorest. The survey also shows that while SC students start behind students from the Others category in the lowest grade assessed (i.e. Class II), they were likely to catch up with students from the Others category in higher grades with respect to language, mathematics and science. However, this was not true for tribal students. In this respect, it becomes important to probe and understand what helps SC students in overcoming their early disadvantages, and what the barriers are which prevent tribal children from attaining similar shifts.A definite disconnect between home and school languages and lack of any concrete strategy to address that in schools could be one important barrier that tribal children face much more than others.

Further, the results also varied by district, with Thane performing comparatively better, which could perhaps be the result of additional investments and interventions (by state and non-state actors) within schools in Thane, due to its proximity to Mumbai. But these results could also be the outcome of greater familiarity among students (especially tribal) within schools in Thane with the school language, Marathi. For as our learning assessments survey as well as teacher survey and focus group discussions show, students struggle considerably with the school language even up to Class V. During discussions with teachers, it emerged that tribal students are comfortable with other languages such as Telugu and Hindi (based on the proximity of the district to these neighbouring states) but reading and writing in Marathi remains a challenge, even when students pick up spoken language skills.

The findings on the learning outcomes survey, taken along with the observations on quality indicators, call attention to the need to undertake certain specific actions with regards to developing supportive school structures for tribal students. This includes the need to develop a sensitive school culture which supports tribal identities and languages; use of appropriate teaching-learning material such as bridge material, dictionaries, etc. to aid learning; greater training for school management and teachers in handling tribal students; as well as remedial support as required for tribal students to catch up with other students. Further, existing provisions that have been made to support tribal students, such as residential schooling facilities, must be further strengthened and made more effective by ensuring that the vision with which such facilities were introduced (i.e., to provide a supportive and nurturing environment for the overall development of the tribal child) is fulfilled. This requires that both budgetary and infrastructural issues be managed appropriately. With regard to the former, it is important that attention be paid to local needs and requirements while planning budgets, as well as to other important issues such as training. With regard to the latter, teacher and student retention is critically related to adequate infrastructural facilities,

especially in residential facilities, which were found to be quite poor as per our survey. Finally, at an administrative and policy level, educational outcomes are tied also to other factors related to provisioning (e.g., ensuring adequate number of free and quality government schools at proximal distances, ensuring that teacher vacancies are met, and school culture is made conducive to the tribal children's requirements). Such considerations require that at the policy level, the value of enhancing quality in government schools is realised and that the trends towards privatisation, allowance of uncapped expenditures towards private schooling, rationalisation of government schools and contractual appointment of teachers be strongly discouraged.

Recommendations drawn From the study

Based on the study conducted on the status of education in tribal districts in Maharashtra, covering aspects of literacy, infrastructure, teacher status, curricular practices, learning levels, and budgets and expenditures on education in Maharashtra, we conclude by drawing out some recommendations for the improvement of education for tribal students in Maharashtra. The recommendations based on this study are divided into the broad topics of provisioning and financial planning, pedagogy, expenditures and budgets and special considerations related to ashram schools.

I. Provisioning and financial planning to increase access

1. Ensuring the availability of government schools: The importance of having an adequate number of quality primary and composite schools cannot be stressed enough. Against the trend of the reduction in the number of government schools guided by the movement of students to private schools, there is a need to ensure that adequate importance, budgetary and other measures are available to support government schools.

2. Undertaking a review of Maharashtra's scheme supporting the enrolment of tribal students into private, English-medium, unaided schools: There is an urgent need to review this scheme and assess its impact in terms of learning outcomes for tribal populations, as public expenditure is being incurred on this without an evaluation of the quality of education provided and an assessment of whether it contributes to the improvement of educational status of tribal students.Private schools remainunder-studied.It is not known how tribal students are treated there and what their learning outcomes are. This study also did not cover private, unaided schools. Such an evaluation will provide an opportunity to understand these issues vis-à-vis the scheme and provide pointers for public policy.

3.Increasing access to schooling for rural tribal populations/undertaking spatio-geographical considerations for planning: Special attention needs to be paid to locational factors that affect educational outcomes, with rural tribal populations faring the worst in terms of educational outcomes. Particularly spatial considerations need to be taken into account as schools within short distances but in difficult geographical terrains (e.g., dense forests, hilly terrains, dispersed tribal settlements) may still not be adequate to ensure that children go to school. This recommendation is especially relevant for upper primary and secondary schools.

4. Addressing transportation-related provisions and costs: Along with concerns regarding distance of schooling and locational factors, another important issue to be addressed is the question of transportation. With Maharashtra having one of the highest out-of-pocket expenditures on transportation to school and discussions with teachers and

parents in select schools revealing that while public transport can be accessed free-of-cost by children studying in government schools, but not in private-aided schools, there is an urgent need to extend free transportation services to all school-going children. This will also address the issue of location and access, as it may not be feasible to provide upper primary and secondary schools in every location.

5. Better regulatory mechanisms to ensure access to entitlements and reduce out-of-pocket expenditure: As with the case for transportation, Maharashtra also has the highest costs for other education-related out-of-pocket expenditures, such as tuition fee, exam fee, books, private tuitions, etc. Ensuring equitable access requires that these various out-of-pocket expenditures be brought down, such that it does not disadvantage marginalised families. This calls for better regulatory mechanisms to ensure that children who are entitled receive all the benefits such as food, uniform, textbooks on time and in good condition in schools.

6. Planning for scholarships/hostels to increase efficiency and accessibility to schemes: A very small amount is spent towards scholarships in tribal districts by the DoE on tribal students. Along with this, discussions with parents showed that the process of availing scholarships is complicated and requires additional expenditures on producing multiple copies of the right identity proofs. There is a need to re-organise both, the budgets spent on scholarshipsas well as the process for availing these to make it more effective, especially in the light of high out-of-pocket expenditures on education seen for Maharashtra.

II. Strengthening pedagogy to improve learning levels and outcomes

7. The need for a language policy that addresses the needs of tribal students/going beyond linguistic parochialism within school learning: As the study shows, school language appears to be a significant barrier and challenge to improving learning levels of students within tribal districts in Maharashtra, even at higher levels. This necessitates putting into place a sensitive language policy that addresses the locational variations in languages with which students are familiar. A two-language formula that necessitates teaching up to the upper primary grades to be carried on in languages that majority students are most comfortable (i.e., either mother tongue or local language, and school/state language) is necessary and teachers must be adequately trained in this.

Further, it is also important that teachers are adequately trained in understanding the process of language acquisition, such that they can support the differences that emerge in relation to oral language learning and written language learning, between formal language use and informal language use.

8. Special need to pay attention to developing adequate learning resources for tribal students and contextualising textbooks to their needs: Across the schools visited, and through discussion with state education department and tribal department officials and teachers, we found that there are no special support systems available for tribal students, in terms of bridge material, tribal language dictionaries, other teaching-learning aids, poems/stories drawn from tribal cultures. Further, even the classrooms visited lacked adequate charts, posters, models, and other resources that can assist learning. Discussions with officials also revealed that mainstream, state board textbooks were being used even in tribal districts/tribal schools and there had been no effort to contextualise the material to

make it relevant to tribal populations/to reflect their knowledgesand cultures. The lack of sensitivity in representing knowledge in textbooks has been pointed out as a critical factor affecting the retention of tribal students and their interest in education. Thus, it is important to pay attention to developing special material that can support and retain interest among tribal students in education.

9. Capacity-building of teachers critical to address both pedagogical concerns as well in order to develop sensitivity towards tribal students: Most teachers in our study reported that no special training had been given to them to engage tribal students. Understanding the social backgrounds and the socio-economic challenges that these students face, the potential lack of academic support at home etc, it is important for teachers to develop sensitivity towards tribal students and take on mentoring roles. Teachers also need to be trained in order to develop a critical understanding of education that helps them critically evaluate textbooks and other teaching-learning material to be able to identify the ways in which school knowledge systematically disadvantages tribal and other marginalised populations and modify the materials.

In addition to this, teachers also need to be trained adequately in pedagogical content knowledge that can help them identify the appropriate pedagogical techniques for specific content to be taught. Our survey shows that teachersdiscouraged rote learning without knowing how to replace it with other forms of teaching-learning experiences.

All this requires that adequate budgets be allocated towards regular training and the need for departmental training programmes to collaborate and learn from the experiences of other innovative educational programmes implemented in the country (e.g., Nali Kali, Ekalavya and Udaan's learning programme).

iii. Special needs of ashram schools

10. Immediate attention to improving infrastructure in ashram schools: With just 17 per cent of tribal schools complying with RTE Act norms, there is an immediate need to pay attention to infrastructure in tribal, particularly ashram schools. Our survey also shows that critical features such as separate living and classroom spaces, boundary walls and security features such as adequate lighting on campus and location of toilets that do not require students to go through unlit/isolated spaces is not available. There is a need to immediately look into these concerns.

11. Immediate attention to other provisions related to health and nutrition: In the light of findings that have shown a large number of child deaths in ashram schools in Maharashtra due to negligence and vacancies in relation to health staff, poor quality of food and poor living conditions, there is an immediate need to put into place mechanisms to monitor health outcomes of students and build the health and nutrition infrastructures within these schools.

12. Addressing teacher vacancy and building teacher morale and training: Another critical issue with regards to improving learning outcomes within ashram schools is the need for adequate numbers of well-trained and sensitive teachers who can play the role of mentors. As our study shows, there were very few teachers belonging to tribal communities within these schools.Most had also not received training in handling or addressing the concerns of tribal students.

13. Addressing data management issues for ashram schools: As noted earlier, different kinds of ashram schools exist funded and managed by various agencies including government, private institutions and non-government organsiations. However, there is no single data source providing the details about the number of ashram schools existing in a state by management -government, aided, private, NGOs - and funding - state government, central government, private donors, philanthropists - and other details such as number of students, staff details and teacher details. UDISE perhaps collects this information but does not report it.

During interviews with teachers in tribal schools, we found that many had applied for appointments to tribal schools either as a last option or as a second alternative, preferring instead, to be working in local body schools. One prime reason for this was the poor quality of infrastructure and provisions within ashram schools for teachers, the lack of adequate residential facilities for teachers and their families and the lack of good educational opportunities for their own children. All of these factors also affect teacher motivation and morale for teaching. It is therefore importantto make teaching within ashram schools attractive. This requires not just good infrastructural provisions but perhaps also other attractive benefits such as appointment of couples (if both are teachers with appropriate qualifications) within the same school, strengthening the overall quality of schooling such that it becomes attractive for teachers to enrol their own children in these schools and other incentives such as opportunities for professional development.

IV. Inter-departmental coordination

14. Inter-departmental coordination committees at state and district levels

Given that both DoE and TDD are functioning with the same goal in the context of education in tribal areas, there is a need for much better and much deeper coordination at various levels. For instance, the issues of language and tribal culture impacts teaching-learning processes and learning ourcomes in both ZP and ashram schools and both departments need to address those. Establishment of coordination committees with a mandate to discuss common issues and find common solutions with divided responsibilities taking the relative advantages into account, can prove beneficial to both departments.

Teachers from both departments receive training together but teachers from TDD do not attent CRC meetings and CRC Resource Persons do not visit ashram schools. Similarly, TDD develops some teaching-learning resources that are not readily made available to ZP schools. This can be changed with joint coordination and planning.

15. Decentralised activity and budgetary planning and meeting local needs:
With local conditions, terrains, educational statuses of tribal students, infrastructure and other interventions and provisions varying from district to district, planning to improve educational outcomes for tribal populations need to be undertaken at the local level. While Maharashtra has a trend of drawing up district-level plans, expenditures on education are still determined by state-level guidelines, which may not cater to planning requirements for the district. Thus, there is a need for greater autonomy in terms of activity as well as financial planning at the district level.

There is a need for strengthening educational opportunities and provisions for tribal students, not just in terms of physical infrastructure or financial allocations, as has been the trend, but sensitively and more holistically, without de-linking or disaggregating planning and visioning across departments or between levels that tends to result in planning that is unidimensional. Holistic visions for improving the educational outcomes of tribal children did give rise to the provision of residential schools that have the potential of extended learning, especiallyif the lived experiences are perceived and planned as part of the curriculum. This has been the case with some programmes on girls' education where the residential setting is used for girls' empowerment in addition to schooling per se (CBPS, 2015). However, currently such an approach is missing in ashram schools. Further, the vision for ashram schools currently follows the same vision withwhich it was started more than half a century ago, whereas the demands of the society and economy and the realities and aspirations of tribal groups have undergone major shifts. It would be important that, in the present context, the TDD undertake revisioning exercises, engaging all possible stakeholders, including representatives from the DOE as well as tribal parents themselves to reconeptualise ashram schools and develop guidelines for all aspects of learning and living.

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