

Infrastructure Facility at Government Schools in Odisha

Priyanka Seth¹, Monika Seth²

¹Research Scholar, Sambalpur University, Jyoti Vihar, Odisha, India

²Student, Berhampur University, Bhanja Bihar, Odisha, India

ABSTRACT

School infrastructure is a key factor in providing quality education and promoting students' overall development. This study examines the availability and adequacy of infrastructure facilities in government schools of Odisha. The research focuses on essential facilities such as classrooms, drinking water, sanitation, electricity, libraries, laboratories, playgrounds, and digital learning resources. Data were collected from selected government schools through surveys and observations. The findings indicate that although the Government of Odisha has made considerable efforts to improve school infrastructure, significant gaps remain, particularly in rural and remote areas. Inadequate maintenance, insufficient digital facilities, and limited access to learning resources continue to affect the teaching-learning process. The study highlights the importance of well-developed infrastructure in enhancing student attendance, academic achievement, and school effectiveness. It concludes that sustained investment, regular monitoring, and efficient implementation of educational policies are necessary to ensure equitable and quality education for all students in Odisha.

KEYWORDS: Infrastructure, Elementary School, OSEPA, RAMP.

INTRODUCTION

Through the world changes day by day the relevant of education in human society is growing more and more. A Chinese Philosopher named Confucius says a true acceptable line about the importance of achieving education is that "If you are planning for a year, sow rice; If you are planning for a decade, plant trees; but you are planning for a lifetime, then educate people" which will not only change one generation but for the fruitful future. In India approximately, 80 per cent of elementary school are run by the different states' governments. As per the statistics of school education 2011-12 data between 1950-51 and 2011-12, there is a considerable increase of 3.4 times in primary and 34.9 times in an upper primary level. By analysing the necessitate of universalization of primary education in the state, it seems an improvement in primary level or upper primary level of elementary education in the govt-owned schools mainly in pastoral and undeveloped regions. Now the days govt. has tried to achieve the 100% enrolment and reduced the drop out ratio in tribal areas and backwards district by opening new primary schools. Kalahandi, Balangir and Koraput of Odisha which has a low enrolment rate of students with backward ness in the

education sector. The govt. of Odisha has taken some step to open new primary school within that areas by focusing that a minimum of 25 children (6-14 years age) should provide school with in 1 km of distance from their homes where many natural problems like, forest occupied areas, long river, hilly areas poor transportation facility etc.

In accordance with the 2011 census among the 30 districts in the state, literacy rate of Khordha district (among all category) is highest at 86.88% and Nawarangpur district has the lowest at 46.43% District like Jagatsinghpur, Purl, Kendrapad, Bhadrak, Cuttack, Nayagarh are in good performance category in term of literacy whereas Rayagada, Koraput, Nuapada, Malkangiri, and Kalahandi are under the less performing district. Under the male literacy rate Jagatsinhapur (92.38%) has highest and Nawarangpur (57.31%) has the lowest among all district where as in female literacy rate Khordha (81.61%) has the maximum and Nawarangpur (35.23%) has the minimum literacy rate in the state. Apart from this, the category wise literacy rate among SC and ST show that the Purl district (74.62%) of the state has the highest literacy among the ST category and

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Malkangiri district (35.23%) has the lowest literacy. Similarly, among the SC category Jagatsingpur district (78.33%) has the highest literacy rate and Ganjam district (51.03%) has the lowest in term of category division rate and Ganjam district.

REVIEW OF LITERATURE

Hota (2023): explored the linkage between economic development and spending on education for infrastructure development and quality of education. He has used the multiple regression analysis & finds public spending on infrastructure and education has a big impact on economic growth. **Mahananda & Dasari (2024):** identified the role of infrastructure development in promoting the expansion of primary education in Odisha while they applied growth variance parameter and trend analysis in infrastructure results. The findings narrated that, in Odisha, primary schools reportedly lack a boundary wall in over 39% of cases, an electrical connection in 80% of cases, a playground in 77% of cases, and many more. **Singh & Aneja (2017):** evaluate the trend and pattern of expenditure on education and progress of infrastructure related education in Odisha. District level data on expenditure and Gross District Domestic Product for a period of 14 years i.e., from 2002-03 to 2015-16. he studies uses ranking method in which rank of Odisha has been calculated for different infrastructure parameters. The findings of the study show that, the state is spending too less on elementary education than secondary and higher education, raising expenditure on education is insignificant in south division as many part of these districts still do not have primary or necessary facilities related education and the literacy rate of these districts are too low while compared with districts of north and central division, while comparing the rank of Odisha with other states of India the study found that except drinking water facility and number of govt& private schools, in all other parameters Odisha's rank is declining over the period. **Mohanty et.al (2016):** examines the spatial disparities in infrastructural facilities and human development across 30 districts of Odisha, and consequently, tries to find out the impact of infrastructure on human development in the state. panel data model has been used panel data model to examine the effects of composite infrastructure index and its individual components on human development and its three dimensions. **Nayak & Palita (2021):** identify the problems and issues of primary education in government and private primary schools in terms of physical infrastructure i.e. school gate, number of permanent buildings, number of classrooms, playground, number of playing instruments, drinking water facility, toilet facility, electricity and academic

infrastructure i.e. library facility, computer facility, number of teachers, number of teaching aids, separate office and common room, and students' educational performance. The data collected through the primary source were analysed by using SPSS. The study found that several problems and issues are affecting the quality of primary education in schools. While government schools have better physical infrastructural facilities but imparting very poor-quality education in terms of the performance of the students. On the other hand, the infrastructural facilities available in private schools are not comparatively better and running with very inadequate infrastructure more specifically, untrained teachers and high cost of education which forces the poor parents not to send their children to private schools. The type of school in which the child continues is associated with the status symbol of the parents. **Rout & Nayak (2017):** attempt to present the educational challenges and attainments among Scheduled tribes of district Koraput of Odisha. The present study was carried out in 28 villages of five Grampanchyats of district Koraput of Odisha namely Umuri, Deoghati, Lankaput, Kumaragandhana, Badasuku Grampanchyats. The data collected through the questionnaire methods and qualitative and quantitative methods are followed to analyses the data. **Bhunja et.al (2012):** broad mapped and analysed of existing infrastructures in the context of planning scheme in Paschim Medinipur district, and to delineate the development zones of educational infrastructure facilities. Moran's I statistics was used to estimate the spatial distribution of elementary infrastructure across the district. Moran's I statistics shows girl's toilet, electric and boundary wall facility within the district is clustered in pattern at primary level. At the upper primary level, only electric and computer facilities show the clustered distribution across the district. However, four different zones have been delineated, namely "very good", "good", "moderate" and "poor".

RESEARCH GAP

The present paper discovers about the status of primary education along with infrastructure facility in school of Odisha. There are some articles which shows the status of primary education and infrastructure facilities in school of Odisha, but no such study has discussed the details status of primary education in schools of Odisha. Because many schools don't meet various norms under the Right to Education Act like- no. of classrooms, toilets, gender-separate toilets, ramp facility & Boundary wall etc. There also issues around safety, hygiene, sanitation which directly influence attendance, retention, especially for girls (The Times of India). Hence the

gap occurred which find out the status of infrastructure at government schools in Odisha.

OBJECTIVES

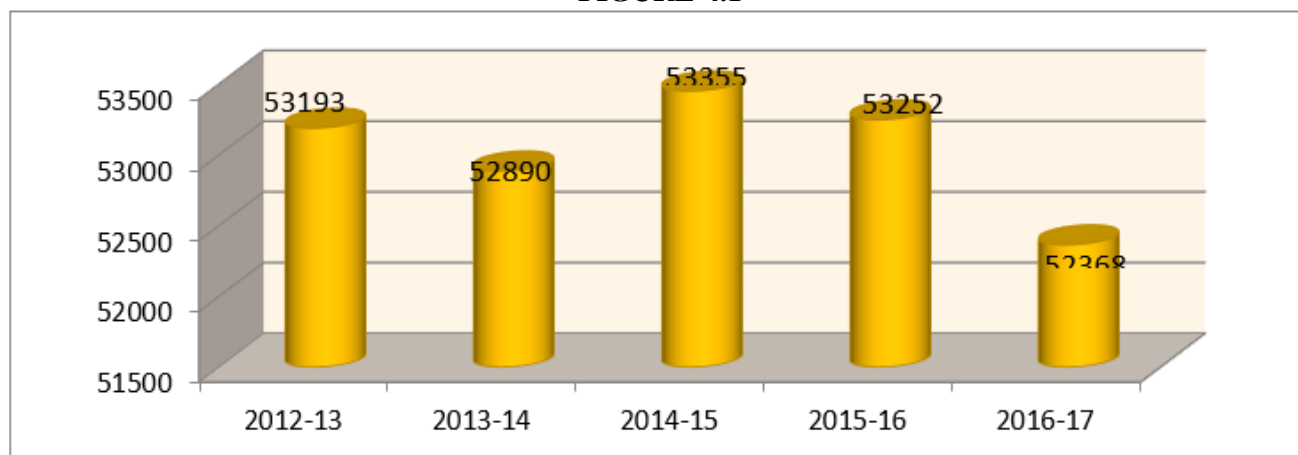
To find out the status of infrastructure at government schools in Odisha

STATUS OF CIVIL INFRASTRUCTURE IN GOVT. ELEMENTARY SCHOOLS (S&ME+ST&SC)

TABLE-4.1

YEAR	GOVT.SCHOOL
2012-13	53193
2013-14	52890
2014-15	53455
2015-16	53252
2016-17	52368

FIGURE-4.1



SOURCE: OSEPA

In the provided table and Figure 5.1, the annual count of government schools in the observed years is presented. In 2012-13, there were 53,193 government schools, which slightly decreased to 52,890 in 2013-14. However, a subsequent increase was observed in 2014-15, with the number of schools rising to 53,355. This upward trend was short-lived, as the count decreased to 53,252 in 2015-16 and further declined to 52,368 in 2016-17. The reduction in the number of government schools during 2016-17 can be attributed to two primary factors: the up gradation of elementary schools to secondary level institutions and the closure of schools with fewer than 10 enrolled students. Such shifts in school infrastructure reflect evolving educational policies and initiatives aimed at optimizing resources and improving the quality of education delivery. Understanding these dynamics is crucial for informing research on educational governance and resource allocation strategies.

NUMBER OF GOVT. ELEMENTARY SCHOOLS WITH TOILET FACILITY

TABLE-4.2

YEAR	NO. TOILET	
	BOYS	GIRLS
2012-13	12588	27516
2013-14	12364	7497
2014-15	9439	6267
2015-16	2927	946
2016-17	1339	367

SOURCE: OSEPA

The provided data outlines the availability of toilet facilities in government schools for boys and girls over the years. In 2012-13, there were 12,588 toilets for boys and 27,516 toilets for girls. This count slightly decreased in 2013-14, with 12,364 toilets for boys and a significant reduction to 7,497 toilets for girls. A notable decrease occurred in 2014-15, where the number of toilets for boys decreased to 9,439 and for girls to 6,267. Subsequent years saw further reductions, with only 2,927 toilets for boys and 946 for girls in 2015-16. The lowest count was recorded in 2016-17, with 1,339 toilets for boys and 369 for girls. The decline in toilet facilities during 2016-17 can be attributed to the closure of government elementary schools with fewer than 10 enrolled students. This

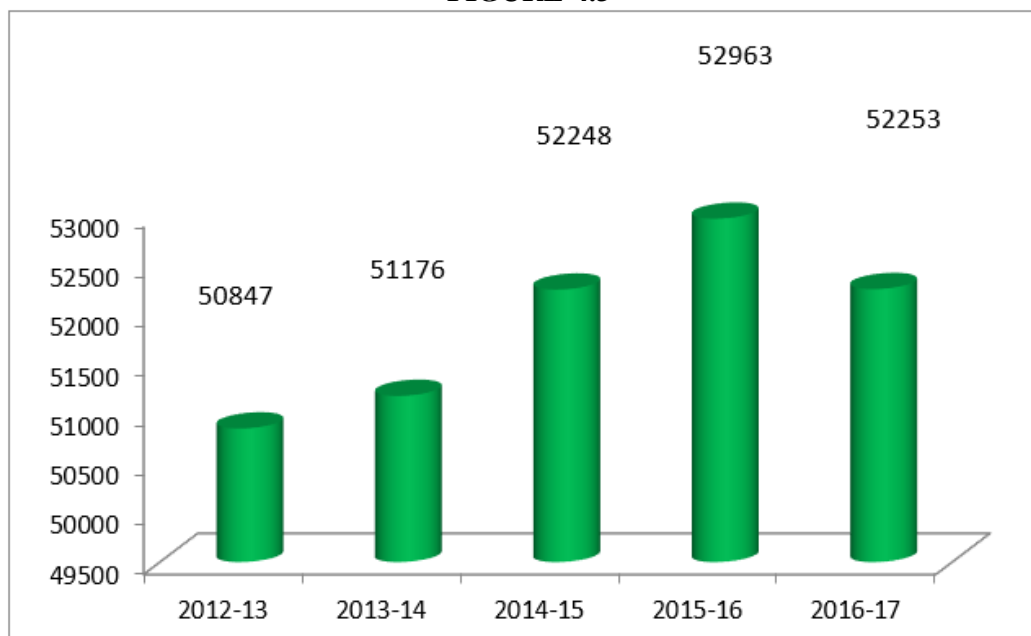
reduction highlights challenges in maintaining infrastructure and resources in smaller schools. Such findings underscore the importance of monitoring and addressing disparities in educational facilities to ensure equitable access and promote a conducive learning environment for all students.

NUMBER OF GOVT. ELEMENTARY SCHOOLS WITH DRINKING WATER FACILITY

TABLE-4.3

YEAR	ON. DRINKING WATER
2012-13	50847
2013-14	51176
2014-15	52248
2015-16	52963
2016-17	52253

FIGURE-4.3



SOURCE: OSEPA

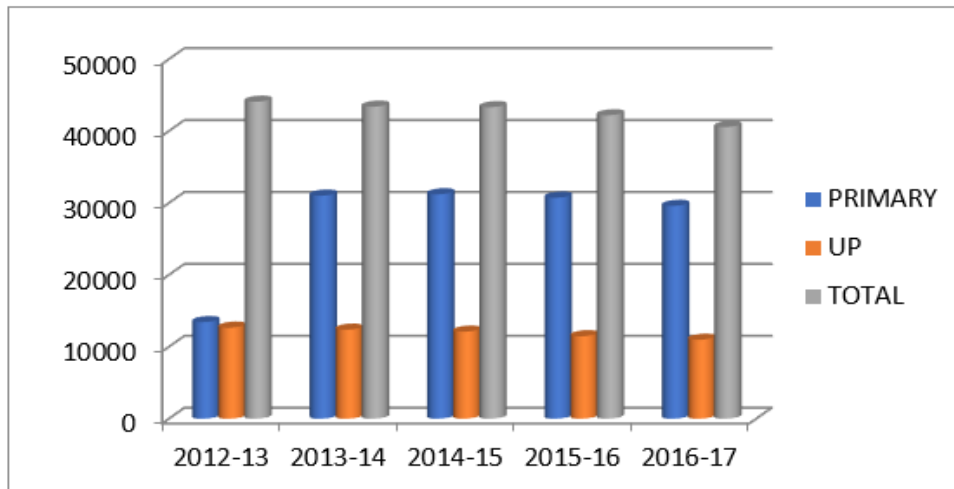
The table and Figure 5.3 illustrate the availability of drinking water facilities in government elementary schools over the observed years. In 2012-13, there were 50,847 schools with access to drinking water facilities, which increased slightly to 51,176 in 2013-14. This upward trend continued in 2014-15, with the number of schools providing drinking water rising to 52,248. However, in 2016-17, there was a slight decrease in the availability of drinking water facilities, with the count dropping to 52,253 schools. Despite this minor decline, the overall trend indicates a consistent effort to improve access to drinking water in government elementary schools over the years. These findings highlight the ongoing initiatives to ensure basic amenities in educational institutions, which are essential for creating a conducive learning environment and promoting the health and well-being of students. Further research could delve into the factors influencing the fluctuation in drinking water facility availability and the effectiveness of policies aimed at enhancing infrastructure in schools.

NUMBER GOVT. ELEMENTARY SCHOOL HAVING ELECTRICITY

TABLE-4.4

YEAR	NO. OF ELECTRICITY		
	PRY	UP	TOTAL
2012-13	13426	12650	44076
2013-14	31012	12374	43386
2014-15	31210	12098	43308
2015-16	30718	11466	42184
2016-17	29589	10969	40558

SOURCE: OSEPA



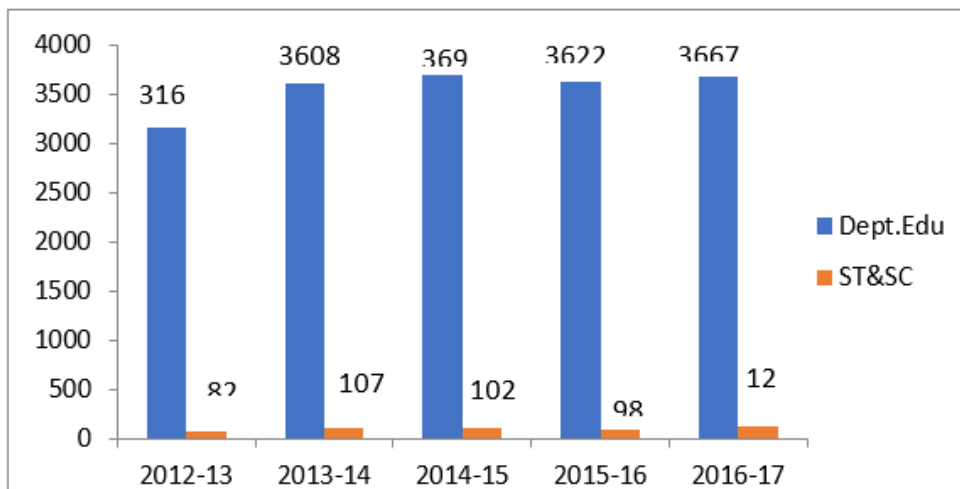
Over the span of five years from 2012-13 to 2016-17, the availability of electricity in government elementary schools exhibited a fluctuating pattern. In 2012-13, out of a total of 44,076 schools, 13,426 primary schools and 12,650 upper primary schools were equipped with electricity. However, by 2013-14, the total number of electrified schools decreased to 43,386, with 31,012 primary schools and 12,374 upper primary schools having access to electricity. This trend continued in the subsequent year, with 43,308 schools being electrified, comprising 31,210 primary schools and 12,098 upper primary schools. In 2015-16, out of 42,184 total schools, 30,718 primary schools and 11,466 upper primary schools had electricity facilities. By 2016-17, the number further reduced to 40,558 schools, with 29,589 primary schools and 10,969 upper primary schools having access to electricity. These variations highlight the dynamic nature of infrastructure development in government elementary schools, calling for strategic interventions to ensure consistent and equitable access to electricity across all levels of education.

NUMBER OF GOVT. SCHOOL HAVING COMPUTER

TABLE-4.5

YEAR	HAVING COMPUTER		
	DEPT.EDN.	ST/SC	TOTAL
2012-13	3165	82	3247
2013-14	3608	107	3715
2014-15	3695	102	3797
2015-16	3622	98	3720
2016-17	3667	120	3787

FIGURE-4.5



SOURCE: OSEPA

The data provided illustrates the availability of computers in government schools over a five-year period from 2012-13 to 2016-17. In 2012-13, the Department of Education had 3,165 computers, while the ST/SC department had 82. By 2013-14, the total number of computers increased to 3,608 for the Department of

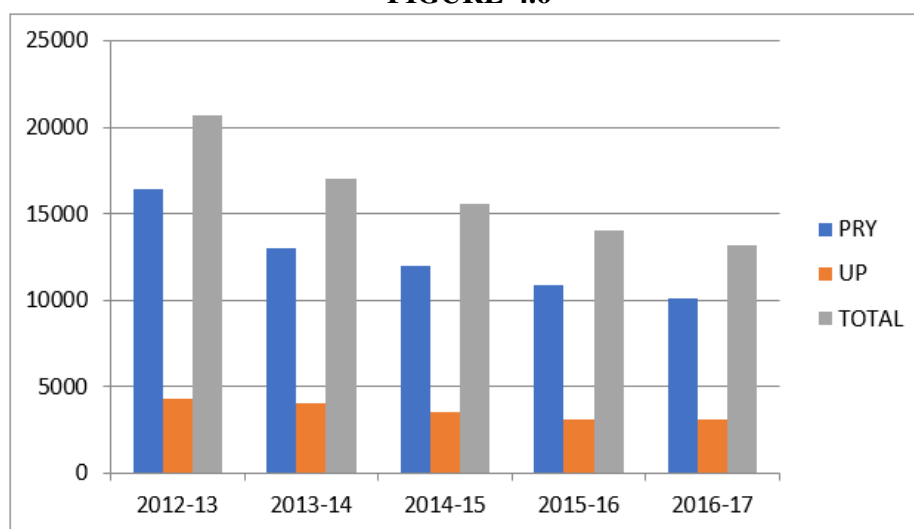
Education and 107 for the ST/SC department. The following year, in 2014-15, the total number of computers reached 3,797 across both departments. However, in 2015-16, a slight decrease was observed, with a total of 3,720 computers, of which 3,622 were in the Department of Education and 98 were in the ST/SC department. Nonetheless, in 2016-17, there was an increase in the total number of computers to 3,787, with 3,667 in the Department of Education and 120 in the ST/SC department. These fluctuations highlight the dynamic nature of computer availability in government schools, suggesting variations in resource allocation and utilization over the years.

NUMBER OF GOVT. ELEMENTARY SCHOOLS WITH RAMP FACILITY

TABLE-4.6

YEAR	NO. RAMP		
	PRY	UP	TOTAL
2012-13	16385	4267	20652
2013-14	12977	4083	17060
2014-15	11974	3564	15538
2015-16	10908	3088	13996
2016-17	10069	3069	13138

FIGURE-4.6



SOURCE: OSEPA

The data from Table 5.6 and Figure 5.6 illustrates the availability of ramps for handicapped students in schools across a three-year period. In 2012-13, there were a total of 20,652 ramps reported, predominantly distributed with 16,385 in primary schools and 4,267 in upper primary schools. However, by 2013-14, there was a notable decline in the total number of ramps, decreasing to 17,060, with 12,977 in primary schools and 4,083 in upper primary schools. This trend continued in 2014-15, with the total number of ramps further diminishing to 15,538, comprising 11,974 in primary schools and 3,564 in upper primary schools. Concurrently, the number of schools equipped with ramps also declined to 13,996, with primary schools accounting for 10,908 and upper primary schools for 3,088. These observations highlight a concerning pattern of decreasing accessibility infrastructure for handicapped students over the years, signalling the urgent need for enhanced measures to ensure inclusivity and support within the educational framework for students with disabilities.

GOVT. ELEMENTARY SCHOOL HAVING FURNITURE FOR THE STUDENT

TABLE-4.7

YEAR	HAVING FURNITURE FOR	
	ALL	SOME
2012-13	1497	11824
2013-14	2523	15294
2014-15	1182	10816
2015-16	1168	10757
2016-17	1161	10856

SOURCE: OSEPA

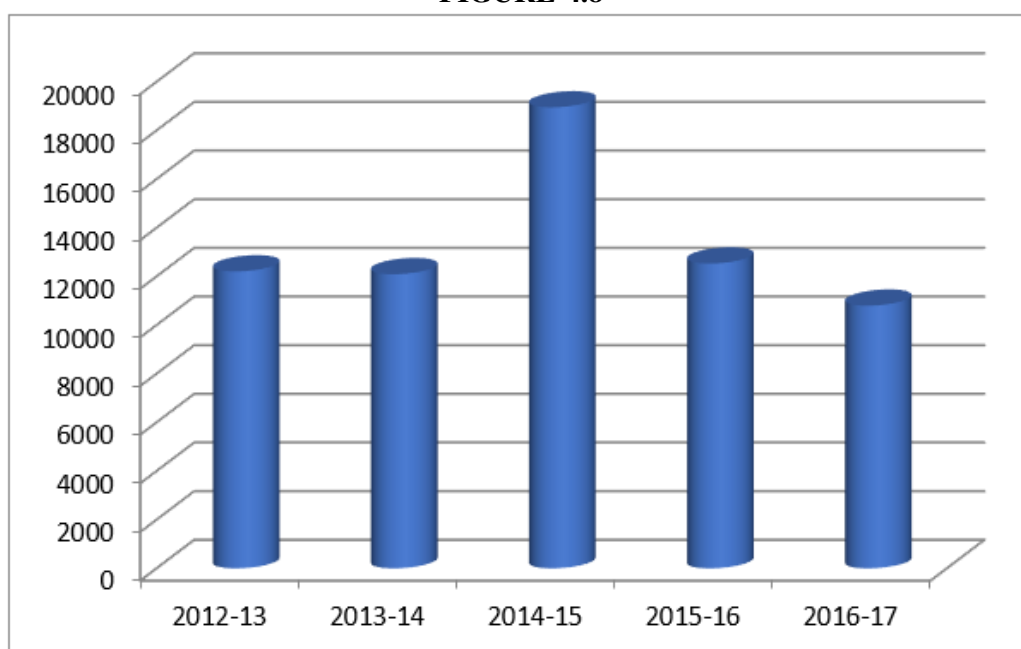
Over the span of three years, from 2012-13 to 2016-17, there were notable shifts in the provision of furniture in schools. In 2012-13, 14,497 schools boasted furniture for all students, while 11,824 schools had furniture accessible only to some. However, by 2014-15, there was a decrease in schools with furniture for all students, dwindling to 11,182, with 10,816 schools having furniture for some. This trend persisted in 2016-17, where 11,161 schools furnished all students, while 10,856 schools had furniture available for only some. These fluctuations underscore the challenges in maintaining consistent access to essential resources like furniture across schools, potentially impacting the equitable learning environment for all students.

NUMBER OF GOVT.ELEMENTARY SCHOOL HAVING KITCHEN SHED

TABLE-4.8

YEAR	NO. KITCHEN SHED
2012-13	12206
2013-14	12093
2014-15	18950
2015-16	12531
2016-17	10799

FIGURE-4.8



SOURCE: OSEPA

Over the specified timeframe, there's been a noticeable fluctuation in the number of kitchen sheds. A distinct rise was evident in 2014-15, succeeded by a subsequent decrease in 2016-17. Comparing the data from 2012-13, where 12,206 kitchen sheds were recorded, to 2016-17, which reported 10,799, highlights a clear downward trajectory in kitchen shed availability. This trend suggests a potential challenge or reevaluation in the allocation of resources toward infrastructure development in this particular context.

NUMBER OF GOVT. ELEMENTARY SCHOOL HAVING BUILDING

TABLE-4.9

YEAR	NO. OF BUILDING
2012-13	354
2013-14	267
2014-15	373
2015-16	376
2016-17	342

SOURCE: OSEPA

The table above illustrates the count of government elementary schools with buildings over a five-year period. In 2012-13, there were 354 buildings reported. However, in 2013-14, this number decreased to 267, indicating a decline. Subsequently, there was an increase in the number of buildings in 2014-15, followed by a further rise in

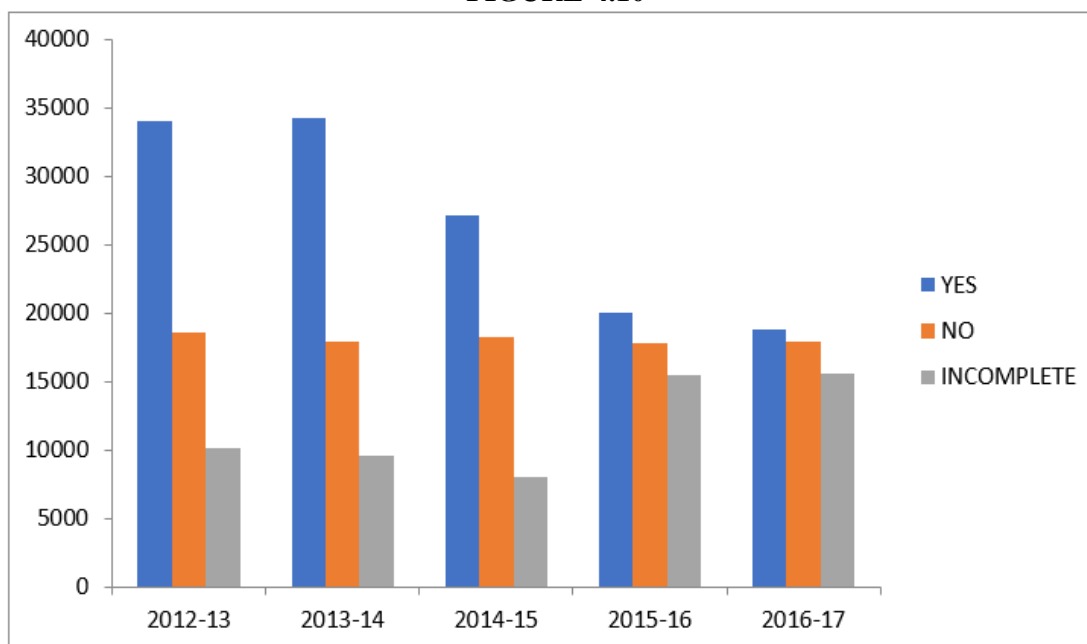
2015-16, reaching 376 buildings. However, in 2016-17, the count decreased to 342 buildings compared to the previous year. These fluctuations depict varying trends in infrastructure development, highlighting shifts in construction and maintenance efforts within the government elementary school sector over the specified period.

STATUS OF BOUNDARY WALL IN GOVT . ELEMENTARY SCHOOL

TABLE-4.10

YEAR	BOUNDARY WALL		
	YES	NO	IN-COMPLETE
2012-13	34051	18542	10121
2013-14	34274	17949	9628
2014-15	27134	18300	8021
2015-16	19991	17763	15498
2016-17	18807	17957	15604

FIGURE-4.10



SOURCE: OSEPA

The data presented in the table and figure illustrates the status of boundary walls in government elementary schools over a five-year period. In 2012-13, there were 34,051 completed boundary walls, with 10,121 remaining incomplete. This trend continued in 2013-14, with 34,274 completed walls and 9,628 incomplete. However, in 2014-15, there was a noticeable decrease in completed boundary walls, totalling 27,134, with 8,021 incomplete. The following year, 2015-16, saw a further decline in completed walls to 15,498, while incomplete walls increased to 19,991. By 2016-17, the number of completed boundary walls decreased to 18,807, while incomplete walls rose to 15,604. This consistent pattern of decreasing completed boundary walls over the years highlights a concerning trend in infrastructure development within government elementary schools, suggesting potential challenges in construction and maintenance efforts.

Mean for 6-11 Age Group Boys: This mean represents the average population of boys aged 6 to 11 across all districts.

Mean for 11-14 Age Group Girls: This mean represents the average population of girls aged 11 to 14 across all districts.

Mean for 6-14 Age Group Total: This mean represents the average total population (boys and girls combined) aged 6 to 14 across all districts. These mean values provide a summary measure of the population distribution within each age group and gender category across all districts in the table.

Standard Deviation for 6-11 Age Group Boys: The standard deviation of the population of boys aged 6 to 11 across all districts is approximately 36,381.

Standard Deviation for 11-14 Age Group Girls: The standard deviation of the population of girls aged 11 to 14 across all districts is approximately 33,467.

Standard Deviation for 6-14 Age Group Total: The standard deviation of the total population (boys and girls combined) aged 6 to 14 across all districts is approximately 69,928. These standard deviation values indicate the extent of variation or dispersion in the population distribution

within each specific age group and gender category across all districts included in the table.

Conclusion-

shifts in school infrastructure reflect evolving educational policies and initiatives aimed at optimizing resources and improving the quality of education delivery. Understanding these dynamics is crucial for informing research on educational governance and resource allocation strategies. The ongoing initiatives to ensure basic amenities in educational institutions, which are essential for creating a conducive learning environment and promoting the health and well-being of students. Further research could delve into the factors influencing the fluctuation in drinking water facility availability and the effectiveness of policies aimed at enhancing infrastructure in schools. In 2015-16, out of 42,184 total schools, 30,718 primary schools and 11,466 upper primary schools had electricity facilities. By 2016-17, the number further reduced to 40,558 schools, with 29,589 primary schools and 10,969 upper primary schools having access to electricity. These variations highlight the dynamic nature of infrastructure development in government elementary schools, calling for strategic interventions to ensure consistent and equitable access to electricity across all levels of education. there was a notable decline in the total number of ramps, decreasing to 17,060, with 12,977 in primary schools and 4,083 in upper primary schools. This trend continued in 2014-15, with the total number of ramps further diminishing to 15,538, comprising 11,974 in primary schools and 3,564 in upper primary schools. Concurrently, the number of schools equipped with ramps also declined to 13,996, with primary schools accounting for 10,908 and upper primary schools for 3,088. These observations highlight a concerning pattern of decreasing accessibility infrastructure for handicapped students over the years, signalling the urgent need for enhanced measures to ensure

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