

School Infrastructure in Tribal Rural India

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Abstract

Proper infrastructure gives a positive atmosphere where students can develop their potential. Infrastructure in schools has the greatest impact on the students' cognitive, affective, and psychomotor development. In India, many attempts have been made for the development of the Indian Elementary Education system through different government policies and schemes. Still, in many parts of rural India, there is a lack of basic facilities such as safe drinking water, separate, functional toilets for both boys and girls, electricity, and smooth flooring. The Right of Children to Free and Compulsory Education Act (RTE Act 2009) emphasized the proper implementation of all indicators of school infrastructure, such as sufficient classrooms, teachers, safe and adequate drinking water, toilets, playgrounds, a kitchen for mid-day meal, boundary walls, electricity, and computers for the students' all-round development. In this paper, an attempt has been made to examine the current status of the available school infrastructure facilities of the rural elementary schools located in tribal areas of West Karbi Anglong district of Assam, in the light of the RTE Act 2009. A descriptive survey method was used in this study, and the data were collected from 20 government elementary schools of Rongkhang Educational Block, West Karbi Anglong district of Assam. From the study, it was found that proper implementations of the infrastructure facilities at the rural elementary schools are still not satisfactory; thus, the proper infrastructure development is essential for enhancing both the quality and quantity of elementary education.

Keywords: Education, Elementary Education, Infrastructure, Right of Children to Free and Compulsory Education Act (2009).

Introduction

Infrastructure plays an important role in promoting quality education and students' enrolments at the elementary level (1). A good and sufficient infrastructure can facilitate an environment which lead all-around development of the students. Increased educational facilities can lead to positive changes in the literacy scenario of the nation (2). Lack of infrastructure facilities can increase the low academic performance, absenteeism, low literacy rate, dropout, and low enrolment of girls' students, which decreases the quality of education. For a better tomorrow in any society, the development of infrastructure facilities in schools is of utmost importance for the society. Good infrastructure facilities also bring a positive impact on the teachers' performance. It develops interest, sincerity, and active performance of the teachers. Poor infrastructure facilities affect the performance of the teachers and their health (3). NEP 2020 (National Education Policy 2020) also gives importance to the integration of infrastructure and technology for achieving quality, equitable, and inclusive education in rural schools (4). According to the Constitution of India,

education is a fundamental right, and the state shall provide free and compulsory education to children aged from 6 to 14 years. The Right to Education Act (2009), which came into force on 1 April 2010, plays an important role in ensuring this. The RTE Act 2009 provides free and compulsory education to all children from 6 to 14 years (5). As a result, India's literacy rate has been constantly increasing from 64.8 % literacy rate in the 2001 census to 74.04% literacy rate in the 2011 census (1). Article 45 of the Indian Constitution also indicates free and compulsory education for all children until they complete the age of 14. It was a landmark step by the government to provide quality, equitable elementary education to all children in a formal school. In the state government of Assam, the RTE Act 2009 was implemented as the 'Assam Right of Children to Free and Compulsory Education Rules 2011', and was approved by the Assam State Cabinet on 6th July 2011 (6). After the implementation of the RTE Act 2009, the rate of student enrolment in government schools has increased over the years or government aided schools. But sometimes it

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Causes problems with existing infrastructure. Therefore, it only increases the literacy rate in quantity rather than the quality growth (2). In India, 90% of schools are run by the government, and most of them are in rural areas, which have no average criteria for quality education due to inadequate infrastructure (7).

East Karbi Anglong and West Karbi Anglong are two hilly districts of Assam with fewer educational institutions than those of other districts of Assam (8). In the West K. Anglong district of Assam, the literacy rate in rural tribal areas is lower than in the urban areas. The problems of education in the tribal rural areas are somewhat different from those in other places of Assam because of the lack of proper transportation facilities, poor power supply, religious challenges, etc. (9). Lack of infrastructure and restricted access are some of the problems of the education of the scheduled tribes (10). In the tribal rural areas of Karbi Anglong, many problems are faced by the students due to their parents' poverty, lack of awareness of the parents, language barrier, lack of inclusive curriculum, lack of transportation, lack of power supply, seasonal diseases, lack of teachers, lack of infrastructure in schools, etc. In many schools, there were not sufficient infrastructure facilities in Karbi Anglong District. There was a lack of pure drinking water facilities according to the total number of hill students. Schools were also not provided mid-day meals daily, provided only three or four days, an insufficient supply of free uniforms, etc. (8).

Despite the Right to Education Act (2009) being adopted sixteen years ago, most educational staff members and tribal community members are still mostly unaware of its proper implementation. Giving children between the ages of 6 and 14 free, compulsory education is the main objective of this law. In addition, it seeks to fulfill one of the Millennium Development Goals, "Universalization of Primary Education." In various tribal regions of India, there are still a significant number of school-age kids who are not enrolled in schools. High dropout rates and low retention rates are also prevalent in many tribal schools in the interior. In the tribal areas of West Karbi Anglong district of Assam, the situation in the elementary school system is similar. Although numerous studies have been conducted on elementary education in rural areas of India and Assam. Still, very few

comprehensive studies have focused on rural tribal elementary schools' infrastructure facilities and the RTE 2009 Act in the district of West Karbi Anglong of Assam. The study is therefore considered needed and justified.

This study is an attempt to know the status of the infrastructure facilities of the govt. elementary schools in the rural tribal areas of West Karbi Anglong District of Assam, India, under the RTE Act 2009. The findings may help policymakers, school administrations, Local authorities, and educational planners in developing solutions to different issues of elementary education and help them to increase the quality of elementary education.

Objectives of the Study

- a) To examine the situation of elementary education in rural tribal elementary schools in terms of available school infrastructure in the West Karbi Anglong District of Assam.
- b) To provide some suggestive measures to improve the rural tribal elementary schools in terms of available school infrastructure in the West Karbi Anglong District of Assam.

Methodology

The present study aims to examine the situation of available school infrastructure in elementary education in rural tribal areas of the West Karbi Anglong District of Assam (Latitude 25°33'N to 26°09'N and longitude 92°08'E to 93°04'E.); therefore, a descriptive survey method has been followed to carry out the study.

The research involves the collection of primary data through an interview schedule from the Head Masters/Mistresses and a questionnaire from the teachers. Informed consent was obtained from the school's Headmasters and Teachers before data collection, and confidentiality was maintained throughout the study.

The study is based on a multi-stage sampling method. Out of the 4 Educational Blocks (Amri, Chinthong, Rongkhang, and Socheng) in the West Karbi Anglong district, 1 block (Rongkhang Educational Block) has been selected purposively for the present study. The Rongkhang educational block has a total of 252 government schools under 30 clusters. Out of the 30 clusters, 10 have been randomly selected. 2 government schools (1LP+1UP) from each cluster have been selected randomly. All Head Masters/ Mistresses have been

included in the study. From each government school, 2 teachers have been selected conveniently. The collected data were organized, tabulated, and analyzed. Frequency counts and simple percentage

analyses have been used, and results have been presented in tables and graphs. The flowchart of this study is represented in Figure 1.

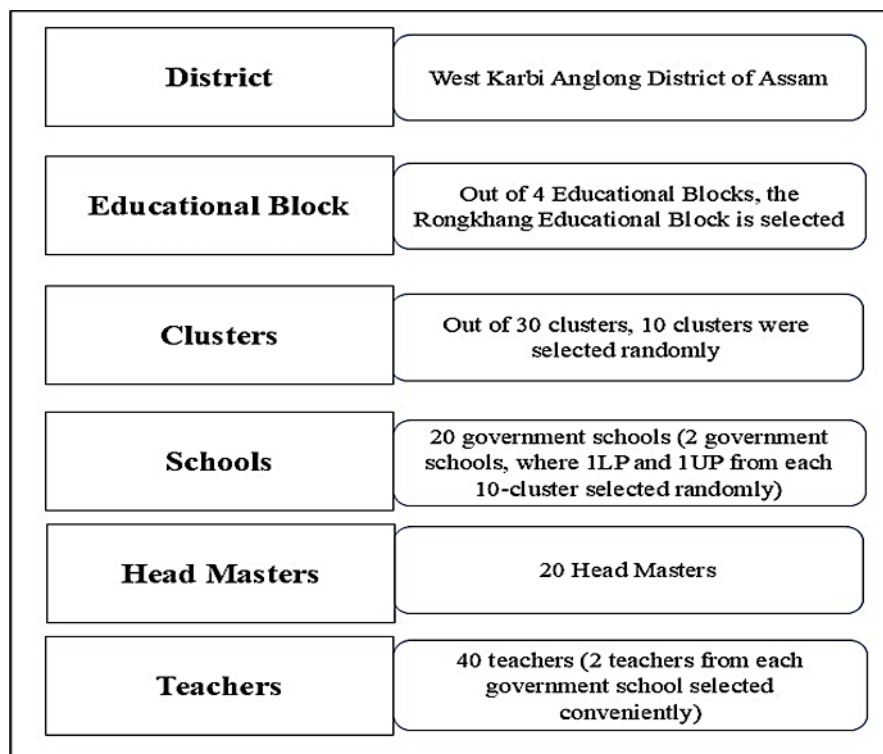


Figure 1: Flowchart of the Steps Involved in the Multi-stage Sampling

Results

Table 1: Responses of HMs (Head Masters/Mistresses) on the School's Infrastructure (N=20)

Items	Yes		No	
	Raw	%	Raw	%
Proper Classrooms	5	25	15	75
Separate functional toilets for both boys and girls with a water facility	11	55	9	45
Kitchen cum store room for mid-day meal	9	45	11	55
Safe drinking water	10	50	10	50
Playground	12	60	8	40
Sufficient teaching and learning equipment/ materials	5	25	15	75
Sufficient Games and sports equipment	11	55	9	45
Library	4	20	16	80
Library with updated resources and books	1	5	19	95
Electricity	20	100	0	0
Pictures, posters in school	16	80	4	20
Computer lab	2	10	18	90
Proper arrangement for securing the school building with a boundary wall	8	40	12	60
Approach road	14	70	6	30
Ramp in your School	17	85	3	15

Note: % = percentage.

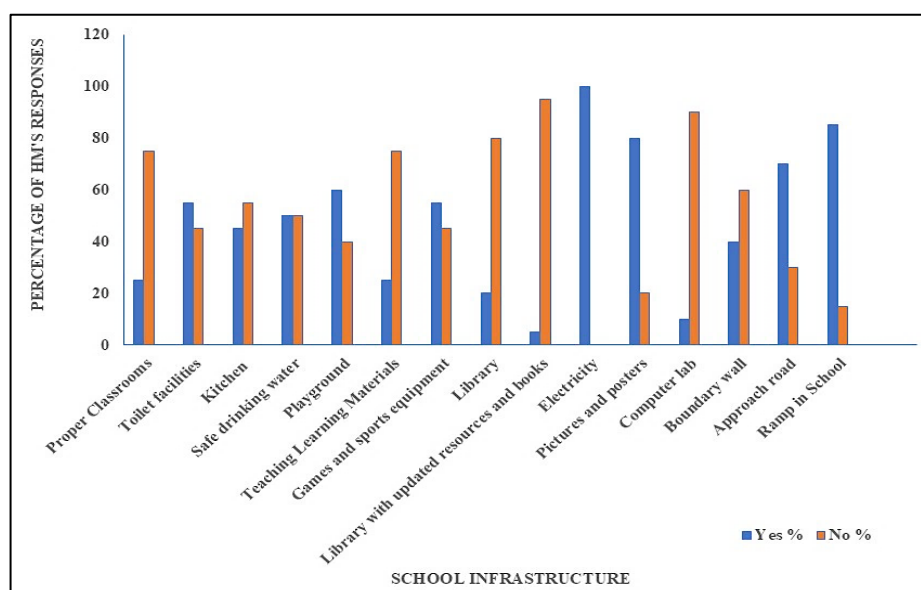


Figure 2: Graphical Representation of Responses of HMs on School Infrastructure (N=20)

Table 1 and Figure 2 represent the responses of Headmasters/Headmistresses from the sampled schools regarding the available school infrastructure in their schools. Proper classrooms are essential for the students and teachers. The table reveals that only 25% of schools have proper classrooms, and the other 75% of schools stated that they had no proper classrooms. During the researcher's observation, it was found that most schools had inappropriate and insufficient classrooms as per the Act. Instead of having one classroom per teacher, it was shown that two or three classes were joined together under one teacher, and there was no partition found between the classes. Along with this, the researchers also observed in many schools, especially in lower primary schools, that the classrooms remained dirty and children had to clean the classrooms themselves regularly in the morning. Most of the schools had no desk benches in the classrooms, and hence the students from the lower primary class sat on the floor, which was also dirty and in bad condition. Similarly, in one or two sampled schools, it was noticed that there was no separate office room for Headmasters/Headmistresses, and in one hall room, he/she sat and also taught all students from different grades. Therefore, 75% of sampled schools reported having no proper classroom for teaching. These statements are also supported by the findings of the previous studies (11-13). Their study found that only a few schools had separate classrooms for each class, and classroom cleanliness was also a major issue.

55% of HMs reported that separate toilets with water facilities for girls and boys are available in schools. Still, another 45% of HMs reported that their schools had common toilets but had no separate toilets with water facilities for boys and girls. During the observation in the schools, it was also noted that some schools had adequate toilets, but poor maintenance and insufficient water supply caused issues like locked doors and unpleasant Odors. Some of the previous studies agreed with the above statement that many schools lacked separate functional toilets for boys and girls (12-16).

45% of the HMs claimed to have an extra kitchen for cooking mid-day meals, while 55 % of schools had no kitchen facilities. Most schools did not have a designated kitchen or cooking facility, so they were using classrooms or open spaces for meal preparation. Among 55% of the HMs, some of them expressed that they made temporary arrangements for a kitchen in available spaces such as classrooms or open spaces. During data collection, it was noted that one primary school prepared meals for its students at a neighboring school.

It can also be interpreted from Table 1 and Figure 2 that only 50% of schools had the facility of safe drinking water during school time, and 50% of schools claimed that they had no facility for quality water during school time. Most of the schools had relied on hand pumps for drinking water, contaminated with high iron content, leading to potential health issues among the students. As a result, the drinking facilities did not adequately meet the needs of many children. Thus, the results

are supported by the findings, which show that few schools have poor-quality drinking water (13, 16-19). According to the RTE Act 2009, every school is required to have a playground for children (5). However, 60% of headmasters reported that their schools had playground facilities, but many of these were not usable, as they required renovation. The results of the above table show that only 25% of schools had sufficient teaching-learning equipment/materials. They had maps, charts, and science, maths TLMs (Teaching Learning Materials) and textbooks, but in contrast, a major portion of sampled schools (75%) had insufficient different types of TLMs. Most of the HMs believed schools lacked textbooks and notebooks for all their students. There was a shortage of free books for their students as the supply of these books was inadequate according to the total enrolments, and it was a major concern, especially for language subjects like the Karbi Subject. This result is supported by the study (20).

55% HMs mentioned that they had sufficient Games and sports equipment. During the observation, the researchers found that many of the play materials, like footballs, volleyballs, etc., were not in good condition, and the damaged play materials were not replaced or repaired, so the play materials were not adequate for playing.

The above Table 1 and Figure 2 show that there were only 20% of HMs who stated that they had a library for their students. However, the RTE Act 2009 clearly states that every school must have a library with books, magazines, and newspapers, including books for children (5). The researchers noticed during the field visits that there was no separate library room for books and study materials. These were kept only in the headmaster's/teachers' room in Elmira in the name of a library, which was hardly accessible to the students who hesitated to enter that room to read books. In this library context, 95% HMs

claimed that they had no library with updated resources. These findings are also supported by the studies that concluded that many schools had no separate library (13, 16, 18).

All the HMs from the sampled schools agreed that their schools had electricity connections. However, they also reported that irregular electricity supply was a significant issue. Frequent power outages, especially during the summer, make it challenging for students to focus and study in hot and uncomfortable classrooms.

80% of HMs claimed to have pictures or posters in schools. Only 10% of schools had a computer lab. During the observation, it was also found that a few schools that had computers were not in working condition, or there were no specially trained teachers for computer classes, or these computers were mainly used by the teachers for office purposes only, not for teaching the students. 40% of HMs mentioned that they had a proper arrangement for securing the school building with a boundary wall, and the other 60% expressed that they had no safety boundary wall.

According to the RTE Act 2009, children with special needs (CWSN) should have barrier-free access to education to finish their elementary education (5). It can be interpreted from the above table that ramps are available in 85% of the sample schools. Most HMs said they had approach road for students. Many schools had experienced problems due to inappropriate roads, and in hilly areas, there were no good transportation facilities for students to reach school regularly. A similar finding is supported by a previous study, which reported that there was no pucca road in most of the habitations. Students and teachers also had to avoid going to the schools in the rainy season because the roads became 'kichad' road (21). In this study, it was found that Many HMs expressed that most of their students came from the hillside of remote areas.

Table 2: Schools HMs (Headmasters/Mistresses) on the school's infrastructure (N=10), LP (Lower Primary)

Items	Yes		No	
	Raw	%	Raw	%
Proper Classrooms	1	10	9	90
Separate functional toilets for both boys and girls with a water facility	4	40	6	60
Kitchen cum store room for mid-day meal	3	30	7	70
Safe drinking water	7	70	3	30
Playground	5	50	5	50
Sufficient teaching and learning equipment/ materials	3	30	7	70
Sufficient Games and sports equipment	7	70	3	30

Library	1	10	9	90
Library with updated resources and books	1	10	9	90
Electricity	10	100	0	0
Pictures, posters in school	7	70	3	30
Computer lab	0	0	10	100
Proper arrangement for securing the school building with a boundary wall	1	10	9	90
Approach road	8	80	2	20
Ramp in your School	8	80	2	20

Note: % = percentage.

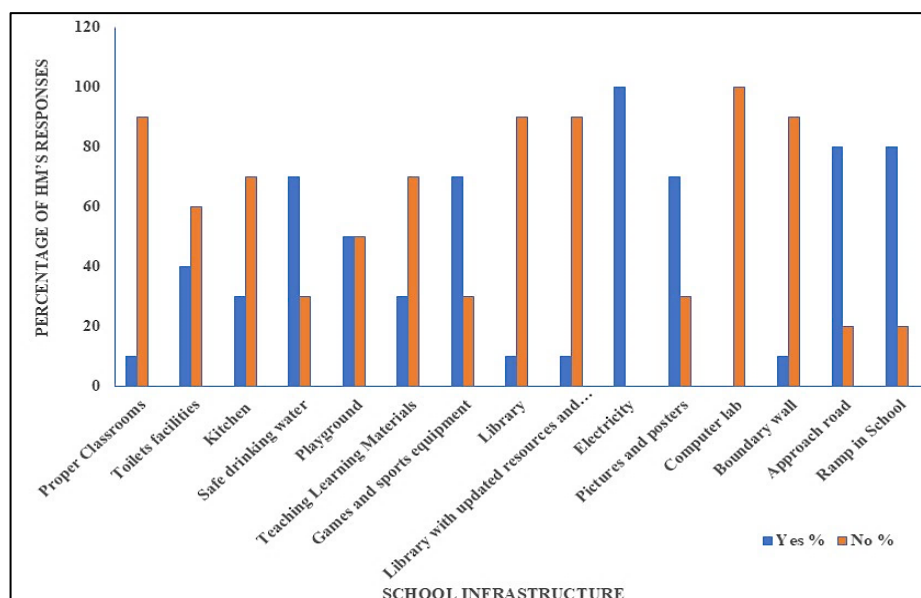


Figure 3: Graphical Representation of Responses of HMs on School Infrastructure (N=10), LP (Lower Primary)

The results of the above Table 2 and Figure 3 show that only a few of the HMs in the Lower Primary level stated that they had proper classroom facilities and a library with updated resources. In contrast, most HMs mentioned that they had no proper classrooms for their students, and there were no separate library facilities for their students. According to the RTE Act 2009, there is at least one classroom per class, but it has not been implemented in many tribal area schools of the West Karbi Anglong District of Assam. Similarly, in the Jorhat district of Assam, many schools have no separate classrooms for each class; they have only one hall room for all the classes (22). One of the sample Headmasters from a lower primary school revealed that due to the lack of proper classrooms, they had to use an NGO (Non-governmental organization) for teaching and learning purposes. Additional classrooms were required for the pucca and partly pucca buildings for the students' enrolments. Public authorities should revisit the main aims and goals for the universalization of elementary education (23). A previous study found that due to the lack of classrooms in the schools,

the school environment became unpleasant. Sometimes teachers failed to teach the students effectively because of the lack of classrooms; many classes were running at the same time (24). 40% of HMs opined that there were separate toilets for boys' and girls' students, but also said that these toilets were not in good condition. 40% of schools had good transportation facilities according to the HMs.

The RTE Act 2009 said that all elementary schools should have an extra kitchen for mid-day meals preparation, but in this study, only a minority of HMs agreed that they had a kitchen cum storeroom for mid-day meals. Due to the lack of a kitchen, most Headmasters indicated that they prepare mid-day meals for their students in a corner of a classroom or on the outer side of the school campus. During the observation, the researchers found that at many LP schools, different food items were given to the students as mid-day meals. Study found that the provision of a kitchen in the elementary schools in the West Karbi Anglong district of Assam is not satisfactory. 70% of HMs claimed to have safe drinking water, Sufficient

Games and sports equipment, and Pictures, posters in school. Half of the sampled LP schools' HMs mentioned that they had a school playground. All the lower primary sampled schools had electricity, but not all the schools had a computer lab. 80% of schools had an approach road and ramp in their

schools. From Table 2 and Figure 3 above, it is observed that out of 10 LP schools, only one school had a proper boundary wall, but according to the RTE Act 2009, all elementary schools should have boundary walls (5).

Table 3: Schools HMs (Headmasters/Mistresses) on the School's Infrastructure (N=10), UP (Upper Primary)

Items	Yes		No	
	Raw	%	Raw	%
Proper Classrooms	4	40	6	60
Separate functional toilets for both boys and girls with a water facility	7	70	3	30
Kitchen cum store room for mid-day meal	6	60	4	40
Safe drinking water	7	70	3	30
Playground	7	70	3	30
Sufficient teaching and learning equipment/ materials	2	20	8	80
Sufficient Games and sports equipment	4	40	6	60
Library	3	30	7	70
Library with updated resources and books	0	0	10	100
Electricity	10	100	0	0
Pictures, posters in school	9	90	1	10
Computer lab	2	20	8	80
Proper arrangement for securing the school building with a boundary wall	7	70	3	30
Approach road	6	60	4	40
Ramp in your School	9	90	1	10

Note: % = percentage.

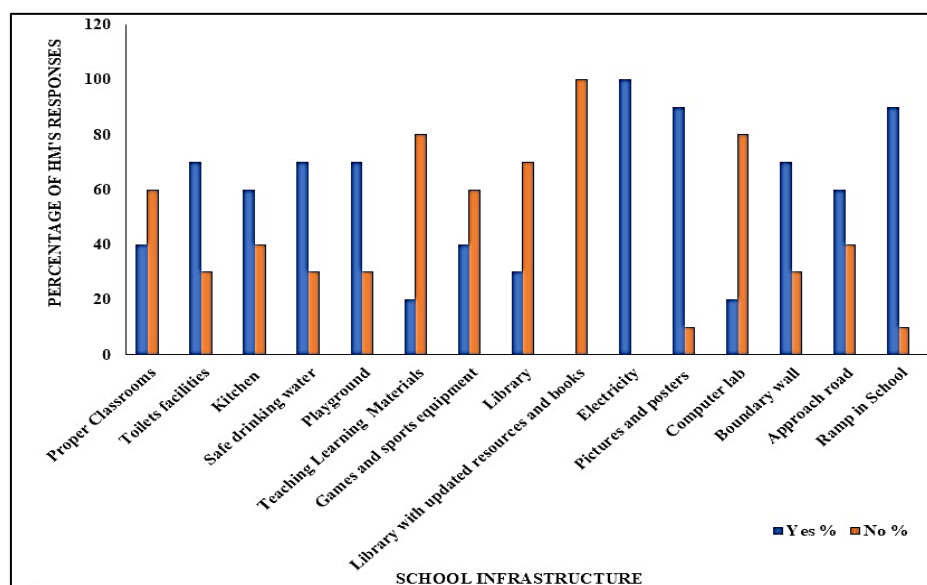


Figure 4: Graphical Representation of Responses of HMs on School Infrastructure (N=10), UP (Upper Primary)

The results of Table 3 and Figure 4 indicate that in upper primary schools, only a few of HMs reported that schools had proper classrooms, sufficient sports and games equipment. A previous study also supported that many upper primary schools in Assam had insufficient classrooms (24). Schools with sufficient classrooms are more successful in

creating a healthy school environment, increasing quality education, well-planned teaching, and the learning process. 70% of headmasters stated that they have separate functional toilets for both boys and girls, including water facilities, safe drinking water, a playground, and proper arrangements for securing the school building with a boundary wall.

Dropping out of school, especially female students from the primary schools, due to the lack of proper toilet facilities, has become a challenging problem in the education system of Karbi Anglong (25). Kitchen cum store room for mid-day meal, the approach road was available in 60% of UP sample schools, whereas only a few of UP sample schools had sufficient teaching and learning equipment/materials and a computer lab. Lack of computer lab also hinders the students' ability in Upper primary schools because students were highly interested in learning computer skills (26). The findings

revealed that basic facilities like the library and laboratory were not found in government elementary schools, which hinders the ability of the students to compete with other students of private schools (27). Most of the schools also had no library facilities, and only a few had updated library resources. Almost all schools had electricity facilities and had pictures, posters, and ramps. A significant proportion of elementary schools had no library facilities (26, 28). Under such insufficient infrastructure facilities, the quality of elementary education is affected very badly (20).

Table 4: Teachers' Feedback on School Infrastructure for Classroom Teaching (N=40)

Facilities	Yes		No	
	Raw	%	Raw	%
Projector	23	57.5	17	42.5
Smart Classroom	21	52.5	19	47.5
Computer Lab	6	15	34	85
Science Lab	3	7.5	37	92.5
Digital library	3	7.5	37	92.5
Proper blackboard	22	55	18	45
Sufficient Study materials	10	25	30	75
Proper desk-benches	27	67.5	13	32.5

Note: % = percentage.

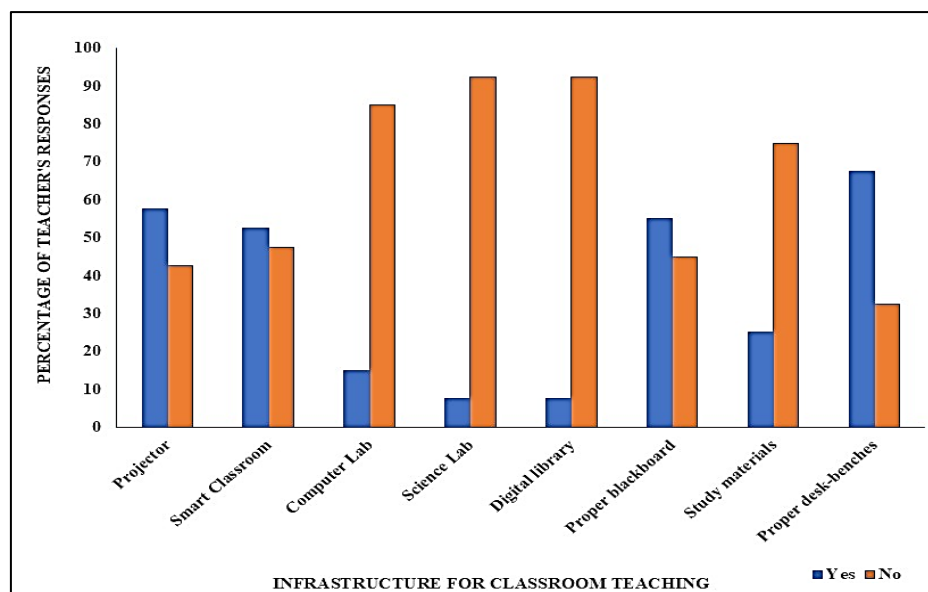


Figure 5: Graphical Representation of Responses of Teachers on Infrastructure for Classroom Teaching (N=40)

From Table 4 and Figure 5, it is clear that only 57.5% of teachers said that their schools are equipped with projectors. 52.5% of school teachers had responded that their schools had a smart classroom. Most of the lower primary school teachers mentioned they had no projector or smart classroom. Only 15% of them claimed that they had a computer lab, but also expressed that, due to the

lack of trained teachers or the lack of computer teachers, the computer lab was not used. Another factor found in one study was that due to the lack of electricity in many schools, the computers, smart classes, and televisions could not be used even if they were available (29). Lack of teachers was also a problem in their schools. The non-

availability of quality teachers was a major challenge for quality education (30).

The majority (92.5%) of teachers stated that they had no Science Lab or digital library. Additionally, 55% of teachers mentioned that they had a proper blackboard, and 67.5% of them claimed proper desk benches in the school. 32.5% of teachers expressed concern that the inadequate supply of desk benches forced many students to sit on the classroom floor. This was particularly challenging for younger students in lower grades, as they

require more support and comfort to engage effectively in their learning. Sitting on the floor can hinder their ability to focus and participate actively in lessons, ultimately impacting their educational experience and development. After the implementation of the RTE Act 2009, infrastructure facilities in schools have improved, but in the era of ICT (Information and Communication Technology), the development of computer and internet facilities still needs great attention (31).

Table 5: Teachers' Feedback on School Infrastructure for Classroom Teaching at the Lower Primary Level (N=20)

Facilities	Yes		No	
	Raw	%	Raw	%
Projector	6	30	14	70
Smart Classroom	6	30	14	70
Computer Lab	0	0	20	100
Science Lab	0	0	20	100
Digital library	0	0	20	100
Proper blackboard	8	40	12	60
Sufficient Study materials	3	15	17	85
Proper desk-benches	9	45	11	55

Note: % = percentage.

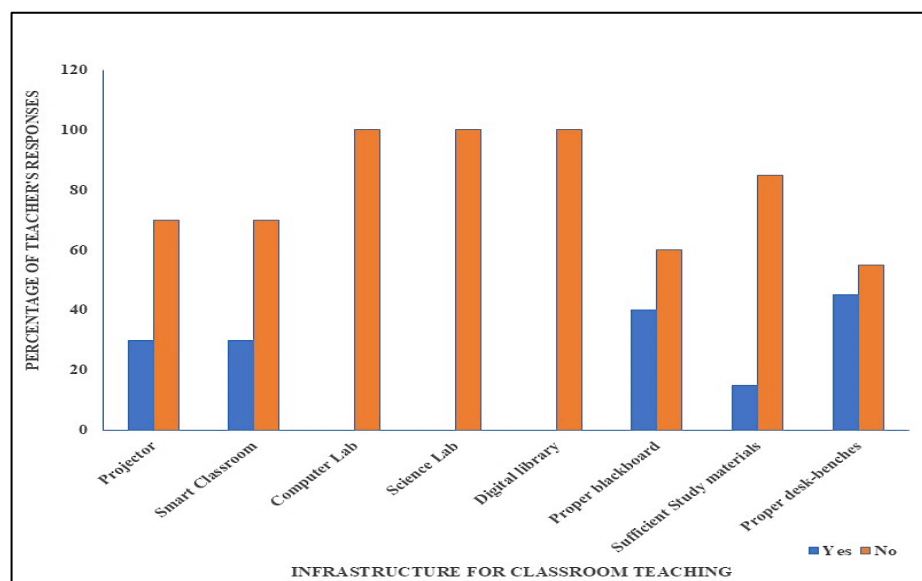


Figure 6: Graphical Representation of Responses of Teachers on Infrastructure for Classroom Teaching at the Lower Primary Level (N=20)

Table 5 and Figure 6 depict that all the lower primary teachers reported that their schools had no computer lab, science lab, or digital library. That means teachers were relying heavily on books, and teachers could not use new technology (29). Only a few teachers reported that they had a projector or a smart classroom. Only 40% of them reported having proper blackboard facilities in the classroom, while the other 60% reported that the

blackboard facilities were poor. During the observation, the researchers found that most schools had poor visibility of the blackboards. Due to the poor visibility and legibility, the students had problems reading. In some schools, parts of the blackboards were broken or peeling, the surface was uneven, or the chalk did not write clearly. Only 15% of lower primary teachers reported having sufficient study materials for their students. They

explained that, in many subjects, study materials such as textbooks were not available in line with students' enrolments. A small number of sampled teachers agreed that they had proper desk benches for students, but the majority said that, due to a lack of proper desk benches in their classes, their students had to sit on the floor with a mattress. During the field visit, the researchers observed

that 55% of the sampled schools had insufficient desks, making it difficult for students to read and write properly on the floor. Even the floor was uneven and also damaged. Similarly, a study found that the lack of proper desk benches leads students to sit hunched for hours, which leads them to bad posture, poor handwriting, and poor eyesight (29).

Table 6: Teachers' Feedback on School Infrastructure for Classroom Teaching at the Upper Primary Level. (N=20)

Facilities	Yes		No	
	Raw	%	Raw	%
Projector	17	85	3	15
Smart Classroom	15	75	5	25
Computer Lab	6	30	14	70
Science Lab	3	15	17	85
Digital library	3	15	17	85
Proper blackboard	14	70	6	30
Sufficient Study materials	7	35	13	65
Proper desk-benches	8	40	12	60

Note: % = percentage.

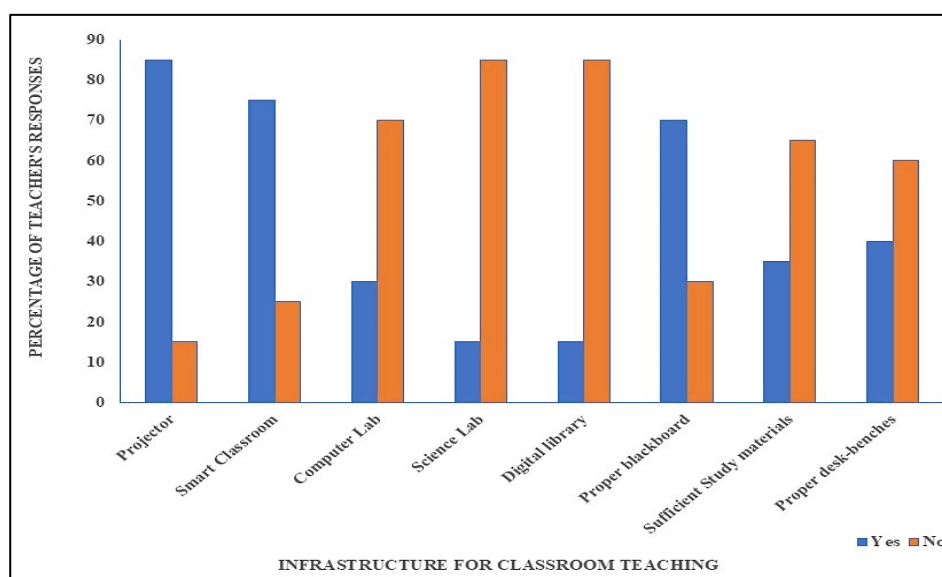


Figure 7: Graphical Representation of Responses of Teachers on Infrastructure for Classroom Teaching at the Upper Primary Level (N=20)

Table 6 and Figure 7 show the responses of the upper primary sample teachers regarding school infrastructure. It is a very good response to the availability of projectors and smart classrooms in schools. 85% of teachers reported having a projector, and 75% reported the availability of a smart classroom in their schools. But it is disappointing that only 30% of teachers reported having a computer lab, 15% reported having a Science Lab, and 15% reported having a Digital library. During the observation, the researchers found that differences in availability and

functionality in the infrastructure existed. Some of the teachers reported that their schools had a computer lab, but no teachers were trained in computer skills, so the lab was not working. This finding aligns with the findings of Jha KS (31). 70% of UP teachers reported having proper blackboards, but 65% reported insufficient study materials, and 60% reported lacking proper desk benches in schools.

Discussion

The RTE Act 2009 is a major initiative to work for the development of the country's elementary education. Proper implementation of this act has still not been successful in the rural areas of the country. Lack of sufficient infrastructure is one of the major factors in this matter. Findings of many studies depicted that inadequate availability of funds and a lack of basic infrastructure, like separate classrooms for every class, safe drinking water, and teaching-learning materials, were major challenges in the implementation of this Act (25, 32, 33). In contrast, in another study, there founded that basic infrastructure facilities were available in each classroom (34). In the present study, it was observed that in the tribal rural areas of West Karbi Anglong district of Assam, the infrastructure facilities in elementary schools were not satisfactory. Poor infrastructure, like very old and uninhabitable school buildings, small classrooms without furniture, drinking water, and electricity in Karbi Anglong, is a major reason for dropouts (25). According to the RTE Act 2009 provisions, there should be library facilities with newspapers, magazines, etc. (5). But the present study has found that the rate of having library facilities was very low. There were no sampled schools that had a computer lab.

For the rural tribal areas, proper training for teachers should be given for the development of the students. It led to inner improvements and also aware them about government's various policies for the development of the schools' infrastructure. More audio- visual aids should be used in the schools to encourage the students to learn actively and interestingly. Educational movies and videos should be shown to the students. Teachers should develop locally available materials as teaching aids for teaching students. Government funds should be utilized appropriately for the development of the schools. There should be given importance to whether the government is really neglecting to provide the funds or the funds that are given by the government are misused by any organizations (33). School surroundings, Toilet hygiene, and separate toilets for both boys and girls should be properly maintained for the students, so that they will not be absent due to the lack of proper toilet facilities. The green campus initiative should be implemented. Proper attention must be given to improve the school buildings and modernize the

various facilities like electricity, computer lab, libraries, TLMs, toilets, playground, etc. (35). Functional computer facilities, ICT in elementary education, should be provided by the schools for digital learning, which was initiated by Samagra Shiksha. Digital inclusion is important in rural areas to make rural children competent (36).

Proper transportation facilities should be provided, especially in the hilly areas, for both the students and teachers of Assam. According to the RTE Act 2009, for students from small hamlets where no schools exist within the limits of the neighbourhood specified, the state government or local authorities should make adequate arrangements, such as transportation facilities and residential facilities (5). There should be hostel facilities at schools to enable children to have access to education. Schools should be linked with innovations, child communications, sports, health, and nutrition (37). Schools should take initiatives to strengthen the electricity supplies so that teachers can use various digital tools for their students. Solar initiative should be implemented. Schools and SMC members should take the initiative to monitor the school's infrastructure facilities regularly. A phase-wise development programme should be initiated for the development of the schools (20). So that, facilities like mid-day meals, free uniform, free books, digital devices, i.e., smart boards, tablets should be accessible to the rural schools (37). Dangerous or damaged buildings should be destroyed and reconstructed. The schools and the local authorities should regularly monitor the condition of the buildings or classrooms (38). Local authorities, SMC members, Teachers, and parents all have to be aware of the problems of the schools. There should be a good relationship between them to discuss different academic and financial matters of the schools (22). All the facilities that are needed for the students should be maintained properly (39). The study suggested that the schools and local authorities should take initiatives to find out the local issues of the students as well as teachers, so that they can bring these problems to the SMCs and higher authorities for solving such important problems (21).

Conclusion

The study examines the status of the infrastructure facilities in tribal rural elementary schools of the Rongkhang Educational Block of West Karbi Anglong district of Assam in the context of the RTE Act 2009. Proper infrastructure facilities develop the quality of elementary education in the rural tribal areas. The findings of the study revealed that insufficient classrooms can affect the creation of a sound and healthy school environment for the teaching and learning process and academic outcomes. Fundamental infrastructure development in schools, such as classrooms, desks, drinking water, and libraries should be prioritized for the creation of more conducive learning. From the study, it can be said that for achieving the objective of the RTE Act 2009 properly, the collective work of different stakeholders is needed. For the quality of elementary education, the people from this region of West Karbi Anglong should themselves be aware of the infrastructure and educational facilities that are provided for the students. For attaining the SDGs goal of 'quality education' by 2030 in primary education, there should be needed to develop the infrastructure facilities in all elementary schools, especially in tribal rural areas of India. Proper classrooms, TLMs, sanitation facilities, etc. are important for achieving the 4th Goal of SDGs. The government should take more initiatives to focus on the removal of different obstacles that are faced by the tribal areas' elementary schools regarding their school facilities. Good Infrastructure facilities are key elements for the students' all-round development, hence schools, local authorities, or the government should give more focus on them. The present study is limited to 20 government elementary schools within a single educational block (Rongkhang Educational Block). Therefore, the findings of the study may not be generalized to all the elementary tribal schools of Assam and India. Further research may be extended on the scope by investigating large samples across different states or different districts, comparisons between different tribal and non-tribal rural areas' educational facilities under the RTE Act 2009, and the relationship between infrastructure and schools' enrolments/dropouts. Such studies help to gather an in-depth understanding of the role of infrastructure facilities in the improvement of the quality of elementary education.

Abbreviations

CWSN: Children with Special Needs, HMs: Head Masters/Mistresses, ICT: Information and Communication Technology, LP: Lower Primary, NEP 2020: National Education Policy 2020, NGO: Non-governmental organization, RTE Act 2009: Right of Children to Free and Compulsory Education Act (2009), TLMs: Teaching Learning Materials, UP: Upper Primary.

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Author Contributions

Nabanita Borah: Study Conduct, Conceptualization, Data Analysis, Manuscript Writing, Tarali Pathak: Supervision, Review, Editing.

Conflicts Of Interest

The authors declare no conflict of interest regarding the publication of this paper.

Data Availability

The Data that support the findings of the study are included within this article, and additional data are available from the corresponding author upon reasonable request.

Declaration of Artificial Intelligence (AI) Assistance

The authors used Grammarly (free version) for language editing. No AI tool was used for data analysis, interpretation, or the generation of research findings. All outputs were critically reviewed and verified by the authors, who assume full responsibility for the final manuscript.

Ethics Approval

Informed consent was obtained from the school's Headmasters and Teachers before data collection, and confidentiality was maintained throughout the study.

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