International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Assessing Infrastructure Adequacy and RTE Compliance in Government Primary Schools a Secondary Data Analysis of Murshidabad District, West Bengal

Abdur Rob[1], Dr. Jaishree Shukla[2]

[1]Research Scholar, Department of Education, Dr. C.V. Raman University Kota, Bilaspur (C.G.)
[2]Associate Professor Department of Education, Dr. C.V. Raman University Kota, Bilaspur (C.G.)

Abstract:
The Right of Children to Free and Compulsory Education (RTE) Act, 2009 prescribes the minimum infrastructure requirements to ensure equity and quality in elementary education in India. This study evaluates the adequacy of infrastructure and RTE standards in government primary schools of Murshidabad district, West Bengal. This study is basically based on secondary data sources such as UDISE+ reports, district education statistics, and government documents. Focusing on public primary schools in Murshidabad, this research verifies if such requirements are met by extracting information from national databases, state files, and government documents.Instead of counting students per teacher only, it also examines clean water supply alongside restrooms, open space for play, classrooms, structures, and safety fences around campuses. Even though more buildings exist now than before, some features still fall short when tested against what the rule expects. Progress shows up clearly in construction numbers along with taps providing safe drinking water. Yet hidden weaknesses remain - spaces crowded beyond limit, staff stretched too thin, areas missing essential services despite surface-level gains. Not every block faces the same hurdles - some near rivers or with large minority populations fall further behind. Sanitation works poorly here, teachers aren't spread evenly, space for play areas feels tight, while internet access drags. On paper things may look fine; in practice they often fail to serve students well. Keeping equipment running depends on steady checks and focused support where it's needed most. Progress hinges less on new buildings than on how carefully existing rules get followed over time.

Keywords: RTE Act 2009, Infrastructure Adequacy, Primary Education, UDISE+, Murshidabad, Educational Equity, School Compliance

Introduction

One of the significant developments in the education policy of India is the "Right of Children to Free and Compulsory Education (RTE) Act, 2009," which accepts that "elementary education is a fundamental right." The act also mentions the "availability of classrooms," "infrastructure," "student-teacher ratio (PTR)," "availability of drinking water," "sanitary conditions," "boundary walls," "and educational

resources." Such efforts are made to overcome the inequalities that have long been associated with the Indian education system (Govinda & Bandyopadhyay, 2010; Tilak, 2010).

Infrastructure is known to be a basic component that shapes participation and learning outcomes. It has been found that basic infrastructure, such as functional classrooms, availability of safe drinking water, and functional toilets, has a major impact on participation, retention, and gender parity (Dreze & Kingdon, 2001; PROBE Team, 1999). There has been a recent analysis of large datasets such as UDISE+ and ASER, which has brought out the difference between the availability of infrastructure and its functionality (Pratham, 2022).

West Bengal's Murshidabad district has one claim to fame. Murshidabad district is one of the most crowded locations because of its high population density. Most people live in villages, and houses can be found extending over a wide area. A big share of residents belong to minority communities. Rivers twist through the region, shaping daily life. Social and economic strains run deep here. Schools have become easier to reach thanks to programs like SSA and Samagra Shiksha. The extent to which classrooms actually fulfill the requirements outlined in RTE regulations is still up for debate.

This paper will analyze how closely Murshidabad's government primary schools adhere to RTE infrastructure standards.

Objectives of the Study

- To assess the extent of compliance of government primary schools in Murshidabad district with infrastructure norms prescribed under the RTE Act, 2009.
- To examine block-level and spatial disparities in infrastructure adequacy and identify critical gaps affecting access, equity, and instructional quality.

Methodology

Research Design

The study adopts a descriptive and analytical research design based on secondary data.

Data Sources

Data were drawn from:

- Unified District Information System for Education Plus (UDISE+) reports (Ministry of Education, various years),
- District educational statistics and state education department publications,
- Government policy documents related to RTE implementation.

Key Variables

The analysis focused on the following RTE-mandated infrastructure indicators:

- Availability and condition of school buildings
- Student–Classroom Ratio (SCR)
- Pupil–Teacher Ratio (PTR)
- Drinking water facilities
- Separate toilets for boys and girls (availability vs. functionality)
- Boundary walls

- Playground facilities
- Electricity and ICT access

Analytical Approach

Descriptive statistics were used to evaluate compliance percentages. Comparative block-level analysis was conducted to identify disparities. Particular attention was given to the distinction between infrastructure "availability" and "functional adequacy," a concern raised in prior educational assessments (Pratham, 2022).

Findings and Discussion

1. School Buildings and Classroom Adequacy

Most primary schools in Murshidabad sit inside sturdy, weatherproof structures - this signals clear growth in basic facilities. Yet up close, some of these buildings show wear, needing fixes or modern touches. Even though numbers say each teacher has their own room, packed neighborhoods still squeeze kids into tight spaces. Other parts of India have seen this too: neat totals masking real gaps on the ground. According to the 2009 RTE Act, every school building there should be permanent, able to stand any weather, and hold at least one full classroom per teacher. Of government primary schools in the district, more than 98 percent sit inside permanent buildings - yet many face issues tied to old age and rooms needing heavy fixes, despite what building type suggests (Ministry of Education, 2023). Ramps now exist in close to 90 percent of such schools after recent upgrades; however, their real-world value for children who rely on mobility support tends to fall short when slopes prove too steep or railings go missing (National Institute of Educational Planning and Administration [NIEPA], 2022).

The Student-Classroom Ratio (SCR) is a very important parameter of quality education, and the RTE Act has mandated a maximum SCR of 30:1. Although the district average in Murshidabad is somewhat in line, a deeper secondary level analysis has indicated that there are enormous geographical variations in terms of density, where blocks like Samserganj, Suti-I, and Farakka are reporting SCRs of over 40:1 (Department of School Education & Literacy, 2023). This is a direct reflection of "multi-grade teaching" where children of different age groups are being taught in the same class. Hence, the first issue in Murshidabad is not that buildings are available but that there is a disconnect between the available capacity and the density of enrollment in a particular geographic pocket of the district.

2. Drinking Water and Sanitation

The provision of drinking water facilities has been made nearly universal, in line with the trends under SSA and Samagra Shiksha. However, their functionality has been uneven, especially in rural and flood-prone regions. The provision of separate toilets for boys and girls has been improved considerably; however, their functional use is lower than their reported availability. This discrepancy in provision and functionality is in line with the previous findings that the quality of infrastructure affects gender parity in education (Dreze & Kingdon, 2001). In line with the RTE Act (2009), every primary school is required to provide safe and adequate drinking water facilities and separate functional toilets for boys and girls. Recent figures available through UDISE+ 2021-

22 indicate that although West Bengal has made rapid progress in attaining near-universal coverage in the availability of such facilities, functional adequacy in Murshidabad is still affected by water quality and maintenanceIn particular, the district is facing a major problem of arsenic and iron content in the

groundwater, for which the district needs to set up special filtration systems to ensure that the requirement of "safe drinking water" is met as per the RTE Act (Das et al., 2021). Furthermore, though the Performance Grading Index 2.0 has shown that the district has a high percentage of schools that have access to drinking water, the depletion of the water table in the summer season in some of the rural blocks of Murshidabad has resulted in the non-functional state of the school facilities, which in turn impacts the health of the students (Ministry of Education, 2023).

The provision of separate toilets for girls is an important indicator of the RTE, which seeks to promote privacy, dignity, and retention levels, especially among adolescent girls. Though the level of provision of separate toilets is quite high at the district level, the secondary analysis indicates that there is a "gap in the understanding of the difference between 'availability' and 'functionality.' According to reports from NIEPA (2022) and studies conducted in Murshidabad, a large number of toilets are without access to water and drainage systems, causing unhygienic conditions that act as a deterrent to use (Chakraborty & Ray, 2024). Moreover, the absence of proper cleaning and maintenance, which is sometimes a result of the absence of support staff in government primary schools, leads to the deterioration of even newly built sanitation units. The deficiency in "functional sanitation" continues to be a challenge in achieving complete RTE compliance (Department of School Education & Literacy, 2023).

3. Pupil–Teacher Ratio and Teacher Distribution

At the district level average, PTR is more or less in line with the RTE norm of 30:1. But at the block level, there is a gross imbalance in the deployment of teachers, leading to a situation of over-crowded classes in the far-off rural and riverine blocks. The imbalance in teacher deployment has been identified as one of the structural issues of the Indian education system, which has been there for a while (Govinda & Bandyopadhyay, 2010). The "Pupil Teacher Ratio" is one of the basic parameters of the RTE for assessing the quality of education, which recommends maintaining the PTR at 30:1 for primary education institutions. According to the recent data available on UDISE+ (2021-22), although the state's average for West Bengal is roughly on par with the recommended PTR, there are serious internal gaps within the district of Murshidabad, where some of the high-density blocks of the district record PTRs above the norm even at the national level (Ministry of Education, 2023). Although there has been some positive effect of the deployment of Para-teachers and rationalization of staff, there is an imbalance in teacher allocation, where while the urban and semi-urban areas tend to maintain a favorable PTR, there is a severe shortage of teachers in some of the far-off blocks such as Samserganj and Suti, which are dominated by minority communities (National Institute of Educational Planning and Administration [NIEPA], 2022). This "distributional inequity" tends to compel schools to adopt a multi-grade teaching approach, whereby a teacher is required to handle multiple grade levels simultaneously, thus impairing the "instructional quality" and "equity" that the RTE Act (2009) aims to promote. Therefore, the major issue in Murshidabad is not just the overall number of teachers but the effective utilization of the human resource base to align with the enrollment of students at the local school level (Department of School Education & Literacy, 2023).

4. Playground and Boundary Wall Deficits

The least level of compliance is found in the case of playground and boundary wall facilities. The land constraints in the densely populated rural areas make it less feasible to comply with the land-intensive norms. The lack of secure boundaries is a concern for child safety, which is an underlying aspect of quality schooling as per the RTE. The availability of a playground and a secure boundary wall is a vital RTE-

mandated parameter that ensures the child's right to play and safety at the school. As per the UDISE+ (2021-22) national report, although the availability of playground facilities in the government schools of West Bengal is around 52%, the Murshidabad district shows a slightly lower average in some rural blocks because of the extreme land constraints and high population density (Ministry of Education, 2023). Most primary schools in Murshidabad, especially those set up in the densely populated minority-dominated areas such as Suti and Samserganj, are normally located on a small plot of land that does not provide enough space for a playground, thereby going against the RTE requirement of "play material, games, and sports equipment" and even the possibility of physical education and overall development of children (National Institute of Educational Planning and Administration [NIEPA], 2022).

Alongside the deficiency of playgrounds, the question of the availability of boundary walls is also pertinent, as it is a crucial aspect of securing the school premises and safeguarding the children from potential dangers. The most recent statistics available from the Department of School Education & Literacy (2023) show that, although more than 75% of schools have perimeter fencing, a large number of government primary schools in Murshidabad lack "pucca" boundary walls. This absence of such facilities, in turn, leads to encroachment in the area, where stray animals or unauthorized persons gain entry into the school premises, compromising the "safe and secure" environment that is a prerequisite for learning, as mandated under the law. Moreover, in the presence of walls, the Performance Grading Index (PGI) 2.0 reveals that there is always a gap in maintenance, with a number of facilities in need of immediate repair to avert collapse during the monsoon season (Ministry of Education, 2023).

5. Spatial and Socio-Demographic Disparities

Riverine “char” land is prone to seasonal unreachability due to floodings, which affects the norms of effective neighborhood schools. Minority-dense blocks reveal relatively poorer infrastructure factors than urban-contiguous blocks. Blocks with high minority concentrations reveal relatively weaker infrastructure factors than urban-contiguous blocks. Spatial and socio-demographic disparities in Murshidabad's primary education infrastructure are deeply entrenched in the geographical and demographic characteristics of the district. Recent research emphasizes the existence of a profound "East-West" divide; the eastern blocks, marked by a higher density of population and a substantial number of minority and marginalized groups, are beset by severe infrastructure shortages compared to the better-served western blocks (Basu et al., 2025). Analysis of UDISE+ 2021-22 data and regional composite Z-score analysis show that blocks like Samserganj, Suti-I, and Suti-II, which have some of the highest Muslim population densities in the state, are always at the bottom in terms of infrastructure adequacy, with the highest Student-Classroom Ratios and the lowest availability of functional sanitation (Chakraborty & Ray, 2024; Ministry of Education, 2023). The fact that this pattern of educational backwardness is geographically concentrated implies that the "universal" imperative of the RTE Act is frequently mediated by local socio-economic conditions, in which "marginalized" blocks face challenges of land availability and a legacy of under-investment.

In addition to these broad regional patterns, the socio-demographic characteristics of particular ‘pockets’ such as the border regions of the Domkal subdivision make infrastructure equity even more complex. These remote pockets face a ‘double disadvantage’ where remoteness is combined with a lack of basic infrastructure such as boundary walls and playgrounds, which has a direct effect on the security and retention of first-generation learners (Basu et al., 2025). Furthermore, notwithstanding the enhanced gender parity enrollment, the absence of functional and separate toilets for girls in high minority blocks

has been a major barrier to the continuation of girls' enrollment, which reveals a socio-demographic disparity in "quality" access (National Institute of Educational Planning and Administration [NIEPA], 2022). Accordingly, it is imperative that to attain RTE compliance in Murshidabad, it is critical to look beyond district-level growth and instead concentrate on a block-level strategy that takes into consideration the convergence of neglect and socio-demographic marginalization (Department of School Education & Literacy, 2023).

6. Digital Infrastructure Gap

The primary schools in Murshidabad are less advanced than other developed districts in terms of ICT-based infrastructure. The digital divide in elementary education was more apparent during the disruptions caused by the pandemic, emphasizing the importance of infrastructural upgradation (UNESCO, 2015). The shift from conventional teaching methods to digital education is a major challenge for government primary schools in Murshidabad, where a large "digital divide" exists. Although the UDISE+ report for 2024-25 shows that close to 90% of schools in West Bengal have been able to provide basic electrification, the utilization of this service as digital infrastructure is abysmal (EducationTimes, 2024). At the national level, the computer facility reach has increased to 64.7%, but at the state level, the state of West Bengal is at the lower end of the scale with only 25.06% of the schools having computer facilities (Ministry of Education, 2024). In the case of Murshidabad, this has resulted in an accentuation of the disparities in the rural and border-lying districts of Domkal, where the lack of accessibility of the information technology tools due to the geographical remoteness and socio-economic backwardness of the district has denied the students access to the information technology tools that have been promised under the National Education Policy (NEP) 2020.

The problem of the students of the state of West Bengal is further compounded by the absence of internet connectivity, which is the backbone of quality education in the modern era. At the state level, the state of West Bengal has one of the lowest percentages of internet connectivity in the schools of the country at merely 18.61%, which is substantially lower when it is narrowed down to the government primary schools of the backward districts of the state (EducationTimes, 2024; NIEPA, 2022). Even in schools where computers are present, secondary analysis by PARAKH (2024) reveals that the absence of internet literacy in teachers and the lack of technical support staff in schools makes these computers useless in the classroom (NCERT, 2025). This infrastructure gap leads to the creation of a “double disadvantage” for students in Murshidabad: they are denied access to engaging learning platforms such as DIKSHA, and are simultaneously being left out in an increasingly digitized landscape of education in the state as a whole (Ministry of Education, 2024; research reviews, 2025).

Conclusion

The Murshidabad district has made significant quantitative progress in the development of primary school infrastructure, especially in the construction of buildings and providing access to drinking water. The case study of Murshidabad’s primary education infrastructure indicates a scenario of high RTE compliance in terms of physical permanence but large gaps in terms of functional adequacy. Though the majority of schools have "pucca" buildings, there are large gaps in terms of geographical disparities, with densely populated blocks having congested classrooms and a lack of teachers. The critical gaps in safe drinking water, sanitation facilities, and play grounds, together with a very serious digital divide, are disproportionately experienced by marginalized socio-demographic regions. Finally, in order to achieve

a true educational equity in the district, there is a need to move away from the aggregate growth paradigm to a block-specific, quality-focused strategy.

The results highlight the importance of shifting the focus of policies from the creation of infrastructure to the maintenance and monitoring of infrastructure. Block-level planning, better teacher redistribution, and administrative support are essential to bridge the gaps in compliance. Unless these qualitative gaps are filled, mere compliance with RTE standards may not ensure better quality education.

References

1. Basu, S., Ammarul, M., Billa, A., Bhowmick, T., & Madhu, S. (2025). Educational facilities and utilization in primary schools of border area in Domkal subdivision at Murshidabad district, India. *Asian Journal of Education and Social Studies, 51*(5), 63–73.
2. Chakraborty, B., & Ray, S. (2024). Students' knowledge and attitude towards school hygiene: A micro study in Murshidabad district. *World Journal of Advanced Research and Reviews, 23*(01), 1161–1168.
3. Chakraborty, B., & Ray, S. (2024). Students' knowledge and attitude towards school hygiene: A micro study in Murshidabad district. *World Journal of Advanced Research and Reviews, 23*(01), 1161–1168.
4. Das, S., Chatterjee, A., & Gupta, S. (2021). Assessment of groundwater quality and human health risk in Murshidabad district, West Bengal. *Journal of Environmental Management*.
5. Department of School Education & Literacy. (2023). *Performance Grading Index (PGI) 2.0: District-level report 2021-22*. Ministry of Education, Government of India.
6. Dreze, J., & Kingdon, G. G. (2001). School participation in rural India. *Review of Development Economics, 5*(1), 1–24.
7. EducationTimes. (2024, May). *UDISE+ 2024-25: Universal school education a distant dream as over 40% schools still lack computers and internet*. Times of India.
8. Government of India. (2009). *The Right of Children to Free and Compulsory Education Act, 2009*. Ministry of Law and Justice.
9. Govinda, R., & Bandyopadhyay, M. (2010). Social exclusion and school participation in India: Expanding access with equity. *Create Pathways to Access Research Monograph No. 32*. University of Sussex.
10. Kingdon, G. G. (2007). The progress of school education in India. *Oxford Review of Economic Policy, 23*(2), 168–195.
11. Ministry of Education. (2023). *Unified District Information System for Education Plus (UDISE+) 2021-22 Flash Statistics*. Government of India. https://udiseplus.gov.in/
12. Ministry of Education. (2023). *Unified District Information System for Education Plus (UDISE+) 2021-22 Flash Statistics*. Government of India.
13. National Council of Educational Research and Training [NCERT]. (2025). *PARAKH Rashtriya Sarvekshan 2024: State Report for West Bengal*. PARAKH Division.
14. National Institute of Educational Planning and Administration [NIEPA]. (2022). *Analysis of school infrastructure in West Bengal: A district-wise perspective*. NIEPA Publications.
15. National Institute of Educational Planning and Administration [NIEPA]. (2022). *Analysis of school infrastructure in West Bengal: A district-wise perspective*. NIEPA Publications.

16. Pratham. (2022). *Annual Status of Education Report (ASER) 2022*. Pratham.
17. Right of Children to Free and Compulsory Education Act, 2009. (2009). *The Gazette of India*. Government of India.
18. Tilak, J. B. G. (2010). Right to education in India: A critical appraisal. *Economic and Political Weekly, 45*(49), 14–17.
19. UNESCO. (2015). *Education for all 2000–2015: Achievements and challenges*. UNESCO Publishing.