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Assessment of the Primary Schools' Physical Environment in Hariwan Municipality, Sarlahi

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Abstract

The study assesses the physical environment of schools, highlighting their generally satisfactory but improvable state, emphasizing the pivotal role of school infrastructure in education, and the need for increased investment for an optimal learning environment. The aim of this study is to comprehensively assess the physical environment and infrastructure of schools in the context of Hariwan municipality, Nepal, encompassing aspects such as cleanliness, water and canteen facilities, toilet conditions, waste management, and playground safety. Method of this study is descriptive research design collecting data from 12 primary schools by using observation checklist to evaluate the physical environment. The study found that while the majority of schools in Hariwan municipality provide reasonably comfortable learning spaces, there is a strong case for increased investment in school infrastructure to ensure better physical conditions, including sanitation, water, canteen facilities, waste management, and playground safety, to enhance the overall educational experience and student well-being.

Keywords: drinking water, cleanliness, canteen and toilet facilities, waste management

Background of the Study

A physically healthy environment is fundamental, particularly within the context of educational institutions. Schools serve as the foundational spaces where our future leaders, thinkers, and innovators are nurtured. In this regard, ensuring a physically healthy school environment is of paramount importance. Cleanliness and hygiene are the bedrock of a healthy school environment. Proper sanitation facilities and clean drinking water are prerequisites as they not only prevent the spread of diseases but also provide a basic level of comfort and dignity for students and staff. Neglecting these aspects can lead to health issues and hamper the overall educational experience. Additionally, well-ventilated classrooms with ample natural light contribute to a conducive learning atmosphere. Good indoor air quality is crucial, as it can impact students' concentration and well-being. A poorly ventilated or inadequately lit environment discomfort and hinder the learning process. Access to nutritious meals and clean food preparation areas is essential. Proper nutrition is not just about physical health but also about cognitive development. Well-fed students are more likely to concentrate, participate actively in class, and ultimately succeed academically. Physical activity is an integral part of a healthy school environment. Adequate sports facilities and a culture of encouraging physical activity promote not only physical well-being but also mental and emotional health. Regular exercise reduces stress and improves concentration, enhancing overall student well-being (UNHCR, 2007).

Safety and security measures are pivotal in maintaining a physically healthy environment. Schools must be equipped to address safety concerns promptly. This includes having emergency response plans, well-maintained facilities, and secure infrastructure to ensure the well-being of students and staff. A physically healthy school environment is not a mere luxury but an essential foundation for effective learning and the overall well-being of students. It plays a critical role in promoting their success, fostering their development, and preparing them for the challenges and opportunities of the future. By prioritizing a physically healthy school environment, we invest in the health and potential of the next generation (The World Bank, 2009c).

Nepal, indeed, faces numerous challenges in its education system, and these challenges are often reflected in the school health environment. Government schools in Nepal are grappling with significant financial constraints, making it difficult to invest in the much-needed infrastructure development and maintenance. This financial shortfall hampers the overall quality of education and the health and well-being of students (Pal et al., 2021).

One of the most pressing issues in the school health environment of Nepal is the lack of proper infrastructure and facilities. Many government schools lack adequate classrooms, libraries, laboratories, and sports facilities. This not only hinders the overall educational experience but also impacts students' physical and mental health. Overcrowded classrooms and substandard facilities

lead to a stressful and uncomfortable learning environment. Furthermore, sanitation and hygiene in these schools are often inadequate. Access to clean drinking water and sanitary restroom facilities is a concern, which can lead to health issues among students. Poor sanitation can also contribute to the spread of diseases, affecting both students and teachers (Tripathi, 2020).

The school health environment in Nepal is marred by inadequate infrastructure, sanitation, and limited access to healthcare and health education. The government faces a daunting task of addressing these challenges to ensure that students have access to a safe and conducive learning environment, which is vital for their overall health and well-being. Efforts to improve both the educational and health aspects of Nepal's school system are critical in helping the country progress and ensure a brighter future for its youth (Government of Nepal, 2010).

A school should possess well-suited, secure infrastructure, providing a clean, safe, and nurturing environment for learners, characterized by child-friendliness, inclusivity, and equal access, and equipped with the necessary resources to support quality education (Kayumba et. al, 2009). Ensuring the well-being of children during their formative years is paramount, as their physical health profoundly impacts their ability to thrive in school and contributes significantly to their overall physical and mental development. Sarlahi district reports a less than favorable average literacy rate of 46 percent, and although Hariwan municipality shows a slight improvement with a literacy rate of 64.28 percent, it remains evident that investments in education are essential (Nepal statistics Office, 2021). These figures represent a troubling reality: a general lack of enthusiasm in furthering one's education. Compounding the problem is the fact that our schools, which are supposed to be child-friendly havens of learning, fall short in nurturing that spirit. To address this concerning situation, an extensive review of our schools' physical health is required. This type of study will highlight the crucial areas where the local government must focus its efforts and resources for significant change. It is the responsibility of local governments to reimagine the educational landscape, establishing a physically healthy, welcoming school environment that rekindles the spark of passion for learning among its residents. As a result, the primary goal of this study is to analyze the existing situation. So, the main purpose of this paper is to investigate the current state of physical infrastructure in primary schools located within Hariwan municipality, Nepal.

Materials and Methods

The research focuses on a comprehensive assessment of the educational landscape in Hariwan Municipality, Sarlahi region, by employing the census method to select 12 primary community schools. The total population size of these schools is specifically targeted for inclusion in the study. The census method ensures a thorough and exhaustive examination of all primary community schools within the municipality, providing a comprehensive understanding of the educational

environment. The descriptive research design of the post-positivism paradigm was applied in this study. A descriptive research design within the post-positivist paradigm seeks to systematically observe, describe, and explain the characteristics, attributes, or behaviors of a particular phenomenon without attempting to manipulate it (Thapaliya & Pathak, 2022). The data collection procedure involves the utilization of observation checklists, a systematic and structured approach to gather relevant information about the selected schools. This method aims to capture a holistic view of the schools' physical infrastructure, cleanliness, amenities, and overall environment, contributing to a detailed analysis of the educational scenario in Harion Municipality. The study was approved by the research management unit of Chaturbujeshwar Janata Multiple Campus, Harion, Sarlahi. The school provided informed permission. Data was input into SPSS version 20 and analyzed on descriptive basis.

Results

The finding of this result was categorized into three themes. Physical environment of classroom, drinking water and canteen facility and toilet facility and waste management are the themes. Finding of each theme is described properly.

Physical Environment of Classroom

The physical environment of a classroom plays a significant role in shaping the learning experience and the overall well-being of students. It encompasses various elements that contribute to a conducive and effective learning space. Following table shows the physical environment of 12 primary schools of Harion municipality.

Table 1

physical environment of classroom

Topic area	Much worse	Somewhat worse	Somewhat better	Better	Much better
School hygiene	-	-	16.66%	66.66%	16.66%
Student friendly desk & bench	-	-	16.66%	75%	-
Board Black/White	-	-	58.33%	33.33%	8.33%

Condition of window	-	8.33%	50%	41.66%	-
Condition of doors	-	-	25%	66.66%	8.33%
Availability of classrooms	-	-	25%	66.66%	8.33%
Electricity availability	-	-	16.66%	58.66%	25%
Availability of Fan	8.33%	-	8.33%	50%	33.33%
Availability of Electric light	8.33%	-	16.66%	66.66%	8.33%

The data from Table 1 reveals notable findings: 83.32 percent of schools demonstrate good cleanliness, and 75 percent boast student-friendly desks and benches. However, the condition of black/white boards is subpar, while the windows in classrooms are in a normal state. Encouragingly, 75 percent of schools have doors in good condition, and an equal percentage maintain well-kept classrooms. Electricity is available in 83.32 percent of schools, complemented by fans in the same proportion and lights in 75 percent of them. Despite these relatively positive percentages, it is evident that there is room for improvement, and achieving a 100 percent standard is essential to deliver quality education. Therefore, it is incumbent upon local governments to increase their investment in education to ensure qualitative education for all.

Safe Drinking Water and Canteen Facility

Safe drinking water and canteen facilities in schools are essential components of a healthy and conducive learning environment. These provisions not only promote the physical well-being of students but also contribute to their overall educational experience and success. Based on the study and observation of 12 primary schools based on sub-headings of the practice of clean drinking water hygiene in primary level schools, it is found as follows.

Table 2*Drinking water facilities at schools*

Topic area	Much worse	Somewhat worse	Somewhat better	Better	Much better
Drinking water facility	-	16.66%	16.66%	33.33%	33.33%
Reservation water tank	8.33%	16.66%	41.66%	16.66%	16.66%
Water filter facility	58.33%	16.66%	8.33%	8.33%	8.33%

Table 3*canteen facility at schools*

Topic area	Much worse	Somewhat worse	Somewhat better	Better	Much better
Cleanliness and Hygiene	-	8.33%	33.33%	50%	8.33%
Seating Arrangements	-	-	41.66%	50%	8.33%
Food Safety and Hygiene	8.33%	16.66%	33.33%	33.33%	8.33%
Handwashing Taps	8.33%	16.66%	33.33%	33.33%	8.33%
Solid Waste management	8.33%	8.33%	33.33%	50%	-
Rotational Food Options	66.66%	25%	8.33%	-	-

According to the data presented in Table No. 2, a significant portion of schools has access to basic amenities, with 83.32 percent having electricity and fans, and 75 percent having adequate lighting. However, when it comes to the availability of drinking water, the situation is less promising,

with only 66.66 percent of schools meeting the criteria for "good" water access. Furthermore, a mere 41.66 percent of schools have a water storage arrangement considered to be at an acceptable level, indicating a need for improvement in this critical aspect of school infrastructure. The most concerning finding relates to the filtration system, with a substantial 75 percent of schools found to have a very weak filtration system, potentially jeopardizing the health and well-being of students. It is evident that there is a pressing need for increased investment in school infrastructure by both local and federal governments. Specifically, efforts should be directed toward expanding electricity facilities to ensure a comfortable learning environment and, more urgently, enhancing the quality of drinking water. This investment would not only contribute to the overall well-being of students but also promote a healthier and more conducive atmosphere for learning in schools.

According to the data presented in Table No. 3, a note worthy observation has been made regarding the standards of cleanliness and overall conditions within canteen houses in primary schools under the jurisdiction of Harion municipality. The term canteen facility in this context pertains to a designated room within the school premises utilized for the provision of breakfast to students. The findings indicate that in 58.33 percent of these schools, the cleanliness of the canteen houses is deemed good, suggesting that the maintenance of hygiene standards in these areas is commendable. Similarly, the conditions of student accommodation within these canteen houses are also reported as good in 58.33 percent of the schools, highlighting the positive aspects of their facilities. However, while these figures are certainly commendable, it's essential to emphasize that the pursuit of excellence should remain an ongoing goal. In an ideal scenario, one would expect a 100 percent rating for both cleanliness and accommodation quality within canteen houses, signifying the highest possible standards for students' well-being and health.

Furthermore, the data reveals that a significant proportion of schools, specifically 41.66 percent, had good handwashing facilities available within their canteen houses. Handwashing is a critical aspect of maintaining hygiene and preventing the spread of diseases, and it is encouraging to see that a substantial number of schools have addressed this need. However, it is concerning that a notable percentage of schools still lack proper handwashing facilities, indicating an area where further improvement is necessary.

Similarly, in the management of solid materials, 50 percent of schools reported good practices, which is a positive sign. Effective waste management is vital for maintaining cleanliness and safety. However, it is worth noting that the same percentage of schools reported not having a solid material management system in place, highlighting the need for increased attention to this aspect of school hygiene.

Toilet Facility and Waste Management

Toilet facilities and waste management in schools are critical aspects of providing a safe, healthy, and conducive learning environment for students. Proper sanitation and waste management practices contribute to students' overall well-being and their ability to focus on their studies. Table no. 4 and 5 show the toilet facility and waste management at primary schools of Harion, municipality.

Table 4

Toilet facility at school

Topic area	Much worse	Somewhat worse	Somewhat better	Better	Much better
Hygiene and Cleanliness	-	8.33%	66.66%	16.66%	8.33%
Water facility	-	16.66%	33.33%	25%	25%
Shop in Toilet	25%	41.66%	16.66%	8.33%	8.33%
Door in toilet	-	8.33%	8.33%	25%	8.33%
Accessibility for disabilities	25%	41.66%	25%	8.33%	-
Ladies' toilet	8.33%	16.66%	41.66%	33.33%	-

Table 6

waste management at school

Topic area	Much worse	Somewhat worse	Somewhat better	Better	Much better
Non-recyclable bins	-	-	58.33%	41.66%	-
Recyclable bins	-	-	66.66%	25%	8.33%

Cleanliness of the Playground	8.33%	8.33%	25%	41.66%	16.66%
Security Measures in playground	58.33%	16.66%	16.66%	-	-

The findings from Table No. 4 provide valuable insights into the hygiene and infrastructure conditions of the surveyed schools. In terms of toilet cleanliness, it is observed that approximately 66.66 percent of the schools maintained a standard of normal cleanliness. This suggests that there is room for improvement in a significant portion of the surveyed schools to ensure that the restroom facilities are consistently clean and well-maintained.

Regarding water availability in toilets, the results show that 50 percent of the schools offered good access to water, which is a positive sign. Access to water is crucial for maintaining proper hygiene and sanitation in restrooms, and these schools should be commended for their efforts in this regard. However, the availability of soap, another essential component of proper hygiene, is noted to be poor in approximately 66.66 percent of the schools. This indicates a substantial deficiency in providing students and staff with the means to practice good hand hygiene, which is crucial in preventing the spread of infections.

In terms of the availability of door locks, it is observed that 50 percent of the schools maintained a good standard in this aspect. Having functional door locks ensures the privacy and security of users in restrooms. On the other hand, it is concerning to find that the ventilation system is weak in 75 percent of the schools. Proper ventilation is essential for maintaining air quality and preventing unpleasant odors within restroom facilities.

Furthermore, the state of disabled-friendly toilets is reported as poor in 66.66 percent of the schools. It is imperative for educational institutions to provide facilities that cater to the needs of individuals with disabilities to ensure inclusivity and accessibility. Additionally, only 41.66 percent of the schools are found to have gender-friendly toilets, which, ideally, should be normal in all institutions to support the diverse needs of the school community.

These findings underscore the need for concerted efforts to enhance the hygiene and infrastructure conditions of school restrooms. It is essential for schools to prioritize the availability of soap, improve ventilation systems, and invest in the creation of disabled-friendly and gender-friendly facilities to ensure the well-being and comfort of all students and staff.

Upon analyzing the data presented in Table 5, it becomes evident that an important aspect of cleanliness within schools is the management of waste. The table reveals that approximately

66.66 percent of schools are equipped with dust bins that are designed to contain rotting waste, which suggests that these schools maintain a standard of cleanliness considered "normal." Additionally, 58.33 percent of the schools have dust bins specifically designated for non-ratable waste, indicating a similar normal cleanliness condition in this aspect.

It is apparent that the condition of school playgrounds is a key factor to consider. Notably, 58.33 percent of the schools surveyed boast a good condition of their playgrounds. This suggests that these institutions prioritize the upkeep and safety of these areas, which are vital for students' physical health and recreational activities. However, the data also highlights a concern - a significant 75 percent of the schools report a poor condition regarding the presence of sharp objects in the playground. This alarming statistic underscores the importance of addressing safety hazards within these areas to ensure the well-being of students and to maintain a conducive environment for physical activities and play. These insights underscore the need for schools and schools to continue addressing these aspects of cleanliness and safety to provide students with a healthier and safer learning environment.

Discussion

The physical environment of the majority of schools is generally satisfactory, providing students with a reasonably comfortable and functional space for learning. However, it falls short of being the best it can be, and there is a compelling case for increased investment in school infrastructure. While many schools have made strides in ensuring basic amenities, there is a need to recognize that the physical environment plays a pivotal role in education. A well-maintained and modern school infrastructure not only enhances the overall learning experience but also contributes to students' well-being and academic performance. According to Kayumba et al (2009), a school must have appropriate, sufficient and secure buildings for the classroom environment for quality education. According to this study, the cleanliness of most schools is good, desks and benches are student-friendly, but the condition of black/white boards is average, with normal windows; however, most schools have good doors and classrooms, with electricity, fans, and lights, yet, to ensure quality education, it is imperative for local governments to invest more comprehensively in education. Physical infrastructure has significant impact on children's enrolment, attendance, completion rates and even learning achievements (UNESCO, 2022). Therefore, by directing more resources and investment toward improving and expanding school infrastructure, it should be created a more conducive and inspiring environment that fosters optimal learning outcomes and equips students with the tools they need to thrive in their educational journey.

The provision of safe drinking water and canteen facilities within schools is undeniably crucial for the well-being of students and staff (Unicef, 2018). While it is encouraging to acknowledge

that the majority of schools maintain good standards in these areas, there remains ample room for improvement. The current status in case of drinking water of these primary schools are satisfactory, but to meet truly the highest standards of health and well-being for the school community, it is imperative that local government consider increasing investment in these essential services. It is because schools must have enough access to drinkable water, which can be accomplished by suitable plumbing infrastructure, a borehole, well, or a water stream, by establishing their own standards based on national and international standards (Sphere, 2018).

Similarly, canteen facilities play a significant role in promoting healthy eating habits among students, aiding their growth and development (The World Bank, 2009c). By enhancing investment in these areas, infrastructure can be modernized, update water purification systems, and provide a more diverse and nutritious range of food options. This, in turn, will contribute to the creation of a safer and healthier school environment, ultimately benefiting the academic and physical well-being of students (The World Bank, 2009c). This study revealed that the cleanliness of canteen houses and student accommodation is generally satisfactory in Harion municipality's primary schools, though there is room for improvement as the goal is to achieve hundred percent cleanliness and accommodation quality, while the condition of food storage is categorized as normal; additionally, a significant number of schools lack proper handwashing facilities in the canteen houses, and a considerable percentage has no system in place for solid material management. The best canteen facilities in schools offer a wide variety of nutritious food options, prioritize food safety and hygiene, accommodate dietary preferences and restrictions, and promote healthy eating habits among students (Beynon, 1997). Thus, it is imperative that local government should prioritize and increase investment in the improvement of safe drinking water and canteen facilities, recognizing that the well-being of students is an investment in the future.

Toilet facilities are unavoidable features in any school, ensuring the health, safety, and well-being of students and staff (WHO, 2022). Properly maintained and accessible restroom facilities are crucial for a conducive learning environment, promoting hygiene, and preventing health issues (WHO, 2022). The study revealed varying levels of infrastructure and hygiene in school toilets: while normal toilet cleanliness is observed in most schools, good water availability is present in only half, with poor soap availability in the majority; door locks is good in half of schools, but the ventilation system is weak in majority; disabled friendly toilets is in poor condition in approximately two-thirds of schools, and gender-friendly toilets are deemed normal in just less than fifty percentage. It is essential that every school prioritizes the provision of top-quality toilet facilities complete with clean water, soap, and effective door-locking systems (WHO, 2022). Additionally, it is imperative to create a secure physical environment within schools, addressing the concerns of parents, especially

regarding the safety of their children, particularly girls (WHO, 2022). This proactive approach ensures that schools become safer and more gender-responsive spaces, fostering a conducive and secure environment for all students (Narayan et al., 2010).

Efficient waste management at schools is of paramount state for maintaining a clean and healthy environment (Barrett et al., 2019). Schools generate a significant amount of waste daily, including paper, food, plastics, and other materials. To address this, it is crucial to establish a well-organized waste management system that promotes sustainability and instills responsible environmental practices in students (Barrett et al., 2019). Schools should have clearly labeled recycling bins and trash containers, making it easy for students and staff to separate recyclables from general waste (Barrett et al., 2019). This study findings revealed that a significant number of schools have dustbins designated for both rotting and non-rotatable waste, indicating a fairly normal cleanliness condition. Furthermore, when these results are analyzed, it is evident that a considerable proportion of primary school maintained a well-maintained playground. However, it is concerning to note that a substantial percentage of schools exhibited a poor condition in terms of the presence of sharp objects on their playgrounds. The provision of playgrounds must ensure that both boys and girls have equal access and opportunities to freely participate in games and sports, and when schools encourage the practice of specific games for girls, it is essential to allocate dedicated areas within the school grounds, thereby promoting inclusivity and fostering a supportive environment for all students to engage in physical activities (Filardo et al., 2019).

Conclusion

The study sheds light on several critical aspects of school infrastructure, sanitation, and the well-being of students. While the majority of schools maintain a reasonably satisfactory physical environment, there is a compelling case for increased investment in school infrastructure to enhance the overall learning experience, prioritize students' well-being, and support their academic performance. The provision of safe drinking water, improved canteen facilities, and adequate waste management are fundamental for maintaining a clean, healthy, and inclusive environment, promoting positive habits among students and fostering a conducive learning atmosphere. Furthermore, efficient waste management and the safety and inclusivity of playgrounds are essential considerations for creating a secure and nurturing educational environment. Therefore, it is imperative that local governments and educational authorities prioritize and invest comprehensively in these areas, recognizing that the well-being of students is an investment in a brighter and more successful future.

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