

Standardization of Educational Facilities in SDN Kamarung Pagaden

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Abstract: Based on Permendikbudristek Number 22 of 2023 concerning Standards for Elementary School Facilities and Infrastructure, this study investigates the level of standardization of educational facilities and infrastructure at SDN Kamarung Pagaden. This study is a qualitative study using a single case study approach. Interviews with the school committee, principal, and teachers, as well as facility inspections and analysis of maintenance and budget documents, were all methods used to collect data. The results of the study show that most facilities and infrastructure, such as libraries, classrooms, and sanitation facilities, have met the minimum standards. However, several aspects, such as laboratories, health rooms, and playgrounds, still need improvement. These schools still do not have a planned infrastructure prevention program, and their management depends on school operational funds (BOS) and community donations. Therefore, a more comprehensive standardization method is needed, which includes data-based planning, improving the management skills of school principals, and actively involving the community in facility maintenance. Measurable and sustainable infrastructure standardization is expected to create a safe and comfortable learning environment and support the improvement of basic education quality

Keywords: Standardization, facilities and infrastructure, basic education.

Introduction

The availability and adequacy of school facilities and infrastructure (saprasi) greatly affect the quality of basic education. Saprasi in basic education is not merely physical features such as classrooms, libraries, toilets, and fields; it is the operational foundation that supports the learning process, safety, and well-being of students (Hulipa, 2025). Empirical research shows that the availability of adequate facilities correlates positively with student academic achievement, attendance, and motivation (Hendra Herlambang Nugroho, 2024). Schools with better infrastructure tend to have better academic results and a better learning environment (Reynaldi Ksanjaya, 2022). Therefore, standardizing facilities and infrastructure at SDN Kamarung Pagaden is an important systematic step to ensure equal

educational services and reduce quality differences between schools.

Standardization of school facilities must be understood as a normative and practical process, including the establishment of minimum sizes, the determination of how they are to be used, and mechanisms for sustainable maintenance (Nanda Santin Permatasari, 2025). To ensure that educational services are safe, healthy, and inclusive, schools in Indonesia must meet the requirements set by the regulatory and policy framework related to the provision of educational facilities (Tyasa Anggita Sari, 2025). However, implementation in the field often faces challenges such as limited budgets, inappropriate maintenance priorities, and the ability of school management to manage assets (Asroful Reza Saputra, 2022). Therefore, this study focuses on the aspects of availability, compliance with national standards, and facilities and

infrastructure management practices at SDN Kamarung Pagaden. The focus of this study is to highlight challenges and opportunities for improvement.

To capture the actual conditions and practices of infrastructure management, the research approach used a combination of facility observation, interviews with school principals and employees, and examination of maintenance documents. This method is in line with facility management studies that emphasize the importance of empirical data for targeted interventions, such as determining repair priorities, funding strategies, and improving the technical capabilities of schools. This research links local findings with national and international studies. The objective of this research is to identify key standardization metrics that can be applied in the context of equivalent elementary schools and to provide policy recommendations to education stakeholders.

It is hoped that the results of this study will provide both practical and theoretical benefits. In practical terms, the results will provide recommendations for the planning, maintenance, and budgeting of responsive school facilities at SDN Kamarung Pagaden. In theoretical terms, the results will enrich the discussion on the standardization of educational facilities at the elementary level in the context of school autonomy and resource constraints. In addition, this study considers the aspect of sustainability. In the long term, a cost-effective and participatory infrastructure management model involving the community and school committees can ensure sustainability. Therefore, this study aims to provide evidence to support efforts to improve the quality of school infrastructure, which has a direct impact on the welfare of students and the quality of the learning process.

Materials and Methods

This study uses a qualitative methodology with a single case study design that focuses on the SDN Kamarung Pagaden analysis unit. To learn more about the understanding, application, and management of infrastructure standardization in local elementary schools, a case study approach was

chosen. This approach incorporates structural, managerial, and community elements that can influence facility conditions (Arfin, 2023). Unlike quantitative case studies, qualitative case studies allow researchers to capture details of practices, interactions between actors (principals, teachers, school committees, parents), and contextual dynamics that are difficult to reveal through quantitative approaches. Previous studies emphasize the importance of contextual analysis for educational facility policy, and methodological references and facility studies reinforce this design choice.

The principal, vice principal in charge of facilities, 6–8 teachers representing different grade levels, and 4 school committee members involved in facility maintenance were selected purposively to obtain valuable information. The principle of data saturation, which means that more information does not add new information, allowed the number of participants to be adjusted (Fheny Dwinita Nur Irawandi, 2025). By using a purposive sample, informants with direct experience in the procurement, maintenance, and use of school facilities can be selected. As a result, the data produced is more relevant for the analysis of facility standardization and management. This technique is in line with facility management and facility research practices in elementary schools.

This study involved all stakeholders at SDN Kamarung Pagaden, including the school committee, administrative staff, principal, classroom teachers, and parents. To represent various roles and grade levels, the sampling technique was divided into stratified sampling for questionnaire respondents, consisting of resource management teachers, principals, and committee chairpersons (Devi, 2021). For key informants, the sampling technique was purposive. All physical facilities, including the library, school health unit, toilets, classrooms, accessibility, learning media, and playground, were inventoried using a checklist adapted from national guidelines and sample instruments that had been validated in previous studies. The educational case study method was used to determine the sample size. This method balances qualitative depth.

Ethically, the research must be approved by the local Education Office and written consent must be

obtained from informants. The identity of informants is kept confidential, and data is stored securely (Prihantini, 2021). Recognized limitations include the possibility of biased results due to the focus on a single elementary school case, the possibility of results not matching the desired social response, and the inability to obtain detailed budget documents. Nevertheless, the purpose of this study is to provide practical advice that can be applied to elementary schools such as this one, such as planning, prioritizing maintenance budgets, and participatory facility management models. The results are expected to assist in the standardization of literature and educational facility management.

Results and Discussion

Analysis of Conditions and Management of Infrastructure at Kamarung Pagaden Elementary School

Observations and document analysis show that SDN Kamarung Pagaden has several infrastructure components that meet minimum national criteria (classrooms, a simple library, and basic sanitation), but some elements are still below the technical standards set out in the latest regulations. The suitability of these components is only partial: some classrooms have adequate ventilation and minimum space, but additional facilities such as a proper health room, a simple laboratory, and a safe play area need to be improved. These findings indicate that there is a discrepancy between administrative compliance with the inventory list and the functional quality of the facilities, which has a direct impact on learning comfort. Permendikbudristek No.22/2023 stipulates the minimum components for the basic level, so the field results show that improvements are needed so that compliance is not only formal but also of high quality.

Field findings support clear evidence that school quality is linked to learning outcomes: cramped classrooms, non-ergonomic furniture, and a lack of learning media impact teacher-student interaction and the use of active learning strategies. Teachers say they often stick to the lecture model because they cannot use methods that require space or

media, such as simple practical learning (Wahyu Purwasih, 2022). A large body of literature shows a positive relationship between student attendance and academic achievement and adequate infrastructure; this also confirms that infrastructure improvements are not only necessary as an administrative goal but also as a tool for improving the quality of learning. Therefore, infrastructure improvements should be considered a pedagogical fund that helps implement the curriculum.

According to managerial analysis, despite inventory records, maintenance practices are not preventive (scheduled maintenance) but reactive (repairs when damage occurs). The lack of procedures for recording periodic conditions, standard operating procedures (SOPs) for maintenance, and technical personnel responsible for maintenance has resulted in a reduction in the useful life of assets (Rahma Nur Aprilia, 2021). Studies of educational facility management in Indonesia emphasize that school administrative capabilities, scheduled maintenance plans, and sophisticated inventory management are essential for maintaining assets and reducing long-term repair costs. The results encourage building the capacity of school principals and administrative staff in asset management and creating easy-to-use maintenance checklists.

According to data in the budget document, most of the funding for repairs depends on BOS allocations and contributions from school committees and the community; these allocations are often insufficient for medium-scale repair projects (Ni Made Indhi Yani, 2023). Urgent needs—such as leaky roofs and broken toilets—are prioritized over investments to improve the quality of learning. Related literature shows that, in order to optimize limited allocations, a mixed financing strategy—combining BOS funds, local government assistance, CSR, and community involvement—as well as impact-based priority analysis is necessary. Practical recommendations for SDN Kamarung Pagaden include a detailed annual cost plan and medium-term priority recommendations to optimize resource use.

According to interviews, the role of the principal is very important in managing infrastructure, from budget proposals to coordination with the school

committee. The school committee acts as a liaison between the community and local resources; however, some committees actively assist with planning, while others only act reactively. It was shown that a participatory approach, involving parents and community leaders, increases non-budgetary support, such as volunteer labor and material donations. Other studies in similar contexts show that participatory models of sustainable maintenance are highly effective and lend legitimacy to school policies. Therefore, it is recommended to enhance the role of committees through training and simple standard operating procedures (SOPs).

Analysis of School Facilities and Infrastructure Management at SDN Kamarung Pagaden

Concerns about accessibility for students with special needs arise from evaluations of physical conditions. Not all spaces have ramps, special toilets, or adaptive learning facilities (Liza Murniviyanti, 2021). A safe and responsive basic facility that meets the needs of all students must be available in accordance with national standards and the principles of inclusive education. Furthermore, international literature shows that inclusive infrastructure improves the participation and well-being of vulnerable students (Ferry Randan, 2025). Therefore, plans for fair infrastructure standardization should include simple, low-cost, high-impact improvements, such as installing handrails, improving road access, and modifying desks and assistive devices.

Observational findings indicate that student health (respiratory tract infections and mild diarrhea) and school comfort can be affected by inadequate sanitation facilities and sporadic hygiene management (Iik Timamah, 2025). In the educational health literature, it has been found that attendance and learning achievement are related to the availability of clean water, adequate toilets, and school hygiene policies, such as cleaning schedules and handwashing facilities (Ika Merdeka Wati Siregar, 2021). Health problems that hinder attendance can be reduced by simple measures such as providing handwashing facilities, regular sanitation maintenance, and hygiene instruction. Practical recommendations include making hygiene

maintenance a top priority and involving students in hygiene campaigns.

According to the analysis, staff do not have the capacity to evaluate the technical condition of infrastructure. This includes assessing initial structural damage and calculating repair costs. Many repair decisions are made based on non-technical assessments, which can potentially lead to inappropriate handling (Arif Prasetyo, 2025). Facilities management studies show that principals and administrative staff need basic training in technical inspection, local contractor management, and simple cost planning. District or city education offices can create short training modules and technical mentoring from authorities or nearby universities to improve these skills.

Based on the results, a phased approach is a realistic intervention method: (1) emergency safety improvements (electricity, sanitation, roofing), (2) functional learning enhancements (ergonomic furniture, learning media), and (3) medium-term investments (basic ICT, multifunctional rooms). This priority method refers to the high-impact allocation model recommended for school facility studies, ranging from safety risks to elements that directly affect the learning process (Juita Gusniati, 2024). Phased budgeting and periodic monitoring, also known as the trimester checklist, ensure continuous, clear improvements that are in line with real needs in the field. This study has policy implications. These include translating the provisions of the Ministerial Regulation into practical steps for implementation in elementary schools; providing support for school principals through targeted funding and mandatory training systems; and providing an easily accessible maintenance monitoring system. The focus of this study is to provide contextual evidence for SDN Kamarung Pagaden that can be used to develop measurable action plans. The single case study focus limits generalizations and quantitative data on the impact of funding on learning outcomes; further research should combine multi-school quantitative surveys and intervention impact evaluations.

Discussion

The study's findings demonstrate that the state of SDN Kamarung Pagaden's infrastructure and

facilities reflects structural issues that public elementary schools in semi-urban locations frequently deal with. In order to achieve national standards, administrative features take precedence over functional excellence. Financial resources that are not focused on long-term maintenance and a lack of management capability are the causes of this disparity. If an asset management system is not prevention-based, small harm could become major issues that cost a lot of money. This demonstrates a recurrent pattern of response: after damage occurs, educational institutions put off repairs, which results in inefficient budgeting and an insecure learning environment.

Non-ergonomic furniture, learning materials, and a lack of space all demonstrate the connection between instructional strategies and the physical state of schools. Teachers often remain with this teaching style even when the facilities don't permit unrestricted mobility and interaction because it works best in small spaces. As a result, learning innovation is directly impacted by facility quality in addition to being a supporting factor. The same teaching strategies are employed due to physical constraints, which lowers student engagement and learning results. According to learning environment theory, the physical characteristics of the learning area serve as "agents of learning behavior" rather than just containers.

Research results show that the facilities and infrastructure at SDN Kamarung Pagaden do not always support an effective learning process. This occurs because management is still largely administrative and reactive rather than based on long-term planning. Staff lack technical skills in assessing assets and have limited funds for maintenance, resulting in a decline in the quality of facilities. In addition to management factors, a financing pattern based on BOS data without a priority strategy leads to changes being made only according to immediate needs rather than enhancing the quality of learning. Because the environment and media are not supportive, this affects teachers' ability to implement active learning.

Although the participation of community and school committees is crucial to address discrepancies, it is still not fully utilized. The

sustainability of facility maintenance is disrupted due to a lack of involvement and role training. Since it is not included in planning priorities, accessibility for students with special needs remains limited. Therefore, it is not only the shortage of facilities, but also poor management systems, inadequate technical capabilities, and non-participatory governance. To achieve national standards and optimal educational quality, an integrated strategy based on phased budgeting and active collaboration between schools, the government, and the community is required.

Conclusions

The research results show that the facilities and infrastructure at SDN Kamarung Pagaden generally meet national standards in several aspects, particularly for classrooms, libraries, and basic sanitation facilities. However, some important elements that are still not optimal exist. These include the school health room (UKS), basic laboratories, and student playground areas. The mismatch between administrative capacity and functional quality indicates that facility standardization has not been fully implemented. Therefore, meeting standards should not only be based on the quantity or presence of facilities but also on their quality, safety, and functionality, thus enabling an enjoyable and effective learning process.

SDN Kamarung Pagaden does not yet have a scheduled preventive maintenance system and still manages facilities and infrastructure reactively. To meet sustainable standards for facilities and infrastructure, the main constraints are limited budgets and the technical capacity of human resources. Therefore, data-driven planning must be strengthened, the principal and administrative staff must become more skilled in asset management, and the school committee and community must collaborate. It has been proven that the implementation of a participatory model improves maintenance efficiency, budget transparency, and a sense of ownership of school facilities. All of this impacts the quality of better basic education services.

Overall, there is a need to improve the standardization of facilities and infrastructure at SDN Kamarung Pagaden through the implementation of a reasonable and sustainable phased strategy. With targeted funding, mandatory training for school principals, and an easily accessible periodic evaluation system, local governments must strengthen operational technical policies. Sustainability and inclusion must be top priorities in school facility development policies. The standardization of facilities can be an important tool to create a safe and comfortable learning environment that supports the improvement of education quality for all students if planned and implemented correctly.

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