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Management of Facilities and Infrastructure in Efforts to Improve the Quality of Learning at a Public Junior High School

Marlina*, Sariakin, Musdiani

Education Quality Assurance, Bina Bangsa Getsempena University, Banda Aceh, 23112, Indonesia

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* Corresponding author:

E-mail: marlinas2pmp@gmail.com

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ABSTRACT

This study examines the management of school facilities and infrastructure and its contribution to improving learning quality at SMP Negeri 1 Baitussalam, Aceh Besar Regency. Effective management of educational facilities is essential to support the teaching and learning process and achieve better learning outcomes, although in many schools it is still limited to administrative compliance rather than educational effectiveness. This research employed a qualitative descriptive approach. Data were collected through in-depth interviews with the principal, vice principal for facilities and infrastructure, and teachers, supported by observation and documentation. Data analysis involved data condensation, data display, and conclusion drawing, while validity was ensured through source triangulation. The findings reveal that the planning, procurement, inventory, and maintenance of facilities were conducted systematically and in accordance with national education standards. Such effective management fosters active learning environments, enhances student motivation, and improves overall learning quality. In conclusion, well-planned and systematic management of school facilities and infrastructure significantly contributes to enhancing the quality of learning.

1. Introduction

Education is a strategic instrument for improving the quality of human resources and determining a nation's competitiveness. The improvement of educational quality is not only determined by the curriculum and educators' competencies but is also strongly influenced by the availability and management of adequate and sustainable educational facilities and infrastructure. Effectively managed facilities and infrastructure are able to create a safe, comfortable, and conducive learning

environment, thereby supporting the achievement of high-quality learning processes.

Undang Undang Number 20 of 2003 concerning the National Education System emphasizes that education is a conscious and planned effort to create a learning atmosphere and learning process that enable students to optimally develop their potential. This mandate requires educational institutions to provide and manage educational facilities and infrastructure in accordance with national standards (Mardiana, Caska, 2025). This is further reinforced by Regulation of the Minister of Education and Culture Number 51 of 2021, which clearly distinguishes facilities as movable learning equipment and infrastructure as basic facilities that support the educational function.

Theoretically, educational quality reflects the integration of teaching quality, availability of facilities, curriculum relevance, student-centered learning approaches, objective evaluation systems, and human resource empowerment (Rini, 2025). In this context, facilities and infrastructure become key elements that enable learning processes to take place effectively and meaningfully (Intan et al., 2025). A number of studies indicate that good management of facilities and infrastructure contributes significantly to the improvement of learning quality, whereas limited facilities and weak management can hinder the effectiveness of teaching and learning activities (Azizah, Zahraini, 2025).

At the junior secondary school level, the need for complete and well-managed facilities and infrastructure has become increasingly important in line with the demands for interactive, contextual, and competency-based learning (Sholeh, 2017). However, empirical realities show that many schools still face constraints in the provision, utilization, and maintenance of educational facilities and infrastructure (Hanannika & Sukartono, 2022). This condition has the potential to reduce the quality of learning processes and student learning outcomes (Darmawati, Hera Yanti, 2025).

SMP Negeri 1 Baitussalam, Aceh Besar Regency, is one of the educational institutions that in recent years has made efforts to improve learning quality through the development of school facilities and infrastructure. Nevertheless, based on initial observations and preliminary interviews with teachers, several problems were identified, including limited classroom learning support facilities, suboptimal maintenance of facilities, and the utilization of facilities that has not fully complied with the standards stipulated in educational regulations. This situation indicates a gap between policy, expectations of educational quality, and the actual practices of facilities and infrastructure management at the school level (Sulfemi, 2020). Based on the above description, an in-depth study on the management of educational facilities and infrastructure at SMP Negeri 1 Baitussalam, Aceh Besar Regency, is necessary, particularly in terms of planning, procurement, utilization, maintenance, and evaluation. This study is important to analyze the extent to which facilities and infrastructure management contributes to improving the quality of learning, while also providing an empirical basis for policymaking and the improvement of educational management at the school level (Ilmaa et al., 2024).

The study entitled Management of Facilities and Infrastructure in Efforts to Improve the Quality of Learning at a Public Junior High School is based on the idea that effective management functions such as planning, organizing, implementing, and controlling are essential in ensuring that educational facilities and infrastructure are properly utilized to support the learning process (Solikhin & Munastiwi, 2022). The management of these resources involves systematic stages, including planning, procurement, utilization, maintenance, and evaluation, which must be carried out continuously (Sulfemi, 2020). The quality of learning itself is reflected in students' cognitive, affective, and psychomotor development and is influenced by the effectiveness of learning time, which is closely related to the availability of adequate facilities (Lumban Gaol, 2017). In addition, a conducive physical and social learning environment plays a significant role in supporting student interaction and development (Chusniyah et al., 2023). Therefore, proper management of facilities and infrastructure contributes to creating an effective learning environment and ultimately improves the quality of learning in public junior high schools (Sholeh, 2017).

2. Methodology

This study employs a qualitative approach with a descriptive research design. The selection of a qualitative approach is based on the research objective, which focuses on gaining an in-depth understanding of the phenomenon of learning facilities and infrastructure management within the natural context of SMP Negeri 1 Baitussalam, Aceh Besar Regency. This approach enables the researcher to explore meanings, processes, and dynamics of facilities and infrastructure management as they occur in actual school practices. Qualitative research does not rely on statistical procedures or quantification but emphasizes a holistic understanding of phenomena through descriptive narratives expressed in words and language. This study is descriptive in nature, as it aims to describe and interpret conditions, processes, and trends related to the management of facilities and infrastructure in efforts to improve learning quality. The study was conducted at SMP Negeri 1 Baitussalam, Aceh Besar Regency, located on Jl. Krueng Banda Aceh-Krueng Raya, Kaju Village, Baitussalam District, Aceh Besar Regency, Aceh Province. The research site was selected due to its relevance to the focus of the study, particularly regarding efforts to manage learning facilities and infrastructure to enhance learning quality. The research was carried out from November 2025 to February 2026, covering the stages of preparation, data collection, data analysis, and report writing.

The research subjects consisted of individuals directly involved and holding strategic roles in the management of educational facilities and infrastructure at the school, namely the principal and teachers. The subjects were selected purposively, considering that the principal has authority in planning and decision-making, while teachers serve as the primary users of facilities and infrastructure in the learning process. The object of the study is the management of learning facilities and infrastructure, which includes planning, procurement, utilization, maintenance, and evaluation in supporting the improvement of learning quality at SMP Negeri 1 Baitussalam, Aceh Besar Regency. The research subjects function as informants

who provide data and information in accordance with the focus and research questions.

The research procedure was carried out in a systematic and sequential manner. The initial stage involved the preparation of the research proposal and the determination of the research approach and focus (Choiri, 2019). This was followed by preliminary observations at the research site to obtain a general overview of the school conditions and the research object. The next stage involved initial identification of phenomena and problems related to the management of learning facilities and infrastructure. Subsequently, the researcher developed research instruments in the form of observation guidelines, interview guidelines, and documentation checklists (Safrudin et al., 2023). Data collection was conducted through observations, interviews, and documentation studies. The collected data were then analyzed qualitatively, and the results of the analysis were compiled into a research report containing findings, conclusions, and recommendations.

In this qualitative study, the researcher served as the main research instrument. To support this role, several data collection techniques were employed. Participant observation was conducted to directly observe the condition of facilities and infrastructure as well as learning activities at the school (Choiri, 2019). Through this observation, the researcher was able to understand real situations in the field and adapt to the research environment. In-depth interviews were conducted with the principal and teachers to comprehensively explore information regarding the practices of managing learning facilities and infrastructure. The interviews were conducted in a semi-structured manner to remain focused on the research objectives while allowing flexibility to accommodate field dynamics (Safrudin et al., 2023). In addition, documentation studies were carried out by collecting supporting documents such as facilities and infrastructure inventory data, activity photographs, and relevant school policy documents.

Data analysis in this study employed an interactive qualitative analysis model, which emphasizes that data analysis is not a linear or sequential process but occurs simultaneously and continuously from the beginning of data collection to the final stage of conclusion drawing (Choiri, 2019). The analytical components, namely data reduction, data display, and conclusion drawing/verification, operate interactively and influence one another throughout the research process. Data reduction was carried out by selecting, focusing, simplifying, and transforming raw data obtained from observations, interviews, and documentation, while data display was presented in descriptive narratives and matrices to facilitate interpretation. At the same time, conclusion drawing and verification were conducted continuously by reviewing and comparing data across sources to ensure consistency and validity (Safrudin et al., 2023).

To ensure trustworthiness, the study applied the criteria of credibility, transferability, dependability, and confirmability through prolonged engagement, persistent observation, triangulation, peer debriefing, and maintaining transparency throughout the research process so that the findings remain grounded in the data and free from researcher bias. The interview instrument for the principal and the

vice principal for facilities and infrastructure was designed to obtain comprehensive information regarding the planning, procurement, management, and utilization of school facilities in supporting the quality of learning. The instrument focuses on several key aspects, including planning and procurement, inventory and maintenance, and the influence of facilities on learning quality. The details of the interview instrument are presented in Table 1.

Table 1. Interview Instrument for the Principal/Vice Principal for Facilities and Infrastructure

No	Aspect	Indicator	Interview Questions
1	Planning and Procurement	Identification of infrastructure needs	How is the process of identifying facilities and infrastructure needs conducted at SMPN 1 Baitussalam at the beginning of each academic year?
2	Planning and Procurement	Determination of procurement priorities	How does the school determine priority scales in procuring facilities that support the quality of learning, such as digital equipment or learning media?
3	Planning and Procurement	Sources of funding	What sources of funding are used to fulfill facilities and infrastructure needs in the school?
4	Inventory and Maintenance	Asset inventory system	How is the recording or inventory system for school assets managed to ensure proper control of facilities?
5	Inventory and Maintenance	Facility maintenance procedures	How are routine maintenance procedures for facilities and infrastructure implemented? Is there a specific budget allocated for building and classroom maintenance?
6	Learning Quality	Influence of facilities on curriculum	In your opinion, how does the completeness of facilities influence the achievement of curriculum targets in this school?
7	Learning Quality	Challenges in facility management	What are the main challenges in managing facilities to support the quality of learning, and how does the school address these challenges?

The interview instrument designed for teachers was carefully developed to gain a deeper and more comprehensive understanding of teachers' perspectives regarding the utilization, availability, and adequacy of school facilities within the teaching and learning process. This instrument was structured to explore in detail how teachers integrate existing facilities into their classroom activities, including the extent to which teaching aids, learning media, and other supporting resources are effectively used to enhance instructional delivery. In addition, the questions were intended to identify the level of accessibility of these facilities for both teachers and students, as well as any challenges or limitations encountered in their daily use. Furthermore, the interview also seeks to examine teachers' perceptions of the impact that school facilities have on students' learning motivation, engagement, and academic outcomes, particularly in terms of how a well-equipped learning environment contributes to more effective and meaningful learning experiences. Through this comprehensive approach, the instrument aims to provide rich qualitative data that reflects the real conditions of facility utilization in schools. The complete interview instrument for teachers is systematically presented in Table 2.

Table 2. Interview Instrument for Teachers

No	Aspect	Indicator	Interview Questions
1	Utilization of Facilities	Use of learning facilities	What facilities do you most frequently use to support the teaching and learning process in the classroom?
2	Utilization of Facilities	Availability of learning media	Is the availability of teaching aids or digital media in the school sufficient to support the subjects you teach?
3	Utilization of Facilities	Access to supporting facilities	How do teachers access laboratories or the library to enrich learning materials?
4	Learning Quality	Classroom conditions	Do the current classroom conditions (desks, chairs, and lighting) support students' comfort during the learning process?
5	Learning Quality	Impact of facilities on students	Have you observed any improvement in students' motivation or learning outcomes since the addition of certain facilities, such as projectors or laboratory renovations?
6	Learning Quality	Expectations for facility development	What are your expectations regarding the development of facilities and infrastructure to improve the quality of learning in the future?

3. Results and Discussion

Part 1: Interview with the Principal for Facilities and Infrastructure

To obtain in-depth information regarding the planning and procurement of school facilities and infrastructure, the researcher conducted an interview with the principal responsible for facilities and infrastructure at SMPN 1 Baitussalam. The interview was specifically focused on exploring how the school identifies its facility needs at the beginning of each academic year, including the procedures and considerations involved in the assessment process. It also examined how these identified needs are prioritized and integrated into the school's strategic planning framework. This process is an important part of ensuring that the planning and procurement of facilities are aligned with the school's educational goals and standards. Through this approach, the study seeks to understand how effective facility management contributes to supporting and improving the overall quality of education provided by the school.

Researcher: Good morning, Sir/Madam. Thank you for the opportunity to conduct this interview today. Let us begin with the aspect of planning and procurement of facilities and infrastructure. First, how is the process of identifying facilities and infrastructure needs carried out at SMPN 1 Baitussalam at the beginning of each academic year?. Respondent: *Good morning as well. In our school, the identification process usually begins around June-July through a coordination meeting involving the school leadership team, guidance and counseling teachers, and the school committee. We conduct an internal survey of the existing facilities, including an evaluation of deficiencies based on reports from the previous year. For example, if there is damage to desks or whiteboards, it is recorded through*

the school's online application. The collected data are then verified by the Vice Principal for Facilities and Infrastructure to ensure compliance with the National Education Standards, such as the requirement of at least one desk for two students and adequate air circulation in classrooms. This process is aligned with the Regulation of the Minister of Education and Culture Number 19 of 2018 concerning Standards for Educational Facilities and Infrastructure.

Following the discussion on the identification of facility needs, the interview continued by examining how the school determines priority levels in the procurement of facilities that support the quality of learning. This part of the discussion aimed to gain a deeper understanding of the criteria, considerations, and decision-making processes used by the school in allocating available resources effectively and efficiently. Particular attention was given to how the school distinguishes between essential facilities that are urgently required for teaching and learning activities and supplementary educational tools that enhance but are not immediately critical to instructional processes. In addition, the interview explored the strategies employed by the school in balancing limited budgets with increasing demands for improved learning infrastructure, as well as how stakeholder input is incorporated into the prioritization process. Through this approach, the study seeks to reveal how systematic planning and resource allocation contribute to the effective development of school facilities that directly support the enhancement of learning quality.

Researcher: Thank you. Next, how does the school determine priority scales in procuring facilities that support the quality of learning, such as digital equipment or learning media? Respondent: The priority scale is determined based on the level of urgency and its impact on curriculum implementation. We use an ABC matrix: category A for essential needs such as projectors for information technology subjects, category B for additional needs such as science teaching aids, and category C for non-essential needs. Monthly meetings with the regional education office are also conducted to align these priorities with national targets, for example the provision of inclusive facilities for students with special needs to optimize national graduation outcomes.

After discussing the determination of procurement priorities, the interview focused on identifying the financial resources available for fulfilling the school's facilities and infrastructure needs. This aimed to explore the variety of funding sources, including government allocations, community contributions, and external partnerships, as well as their allocation in supporting the school's development plans.

Researcher: What are the sources of funding used to fulfill the school's facilities and infrastructure needs? Respondent: The primary sources come from the national and regional budgets through the Special Allocation Fund for basic infrastructure. In addition, there is community-based support through parents' contributions and Corporate Social Responsibility

programs from local partners, such as Bank BPD Aceh. For digital facilities, the school also submits proposals to the Ministry of Education through the Merdeka Belajar program. The total annual budget is around IDR 500,000,000, with about 70 percent allocated for procuring new facilities.

Following the discussion on funding and procurement priorities, the interview moved to a critical aspect of school facility management: inventory and maintenance. The researcher aimed to explore the methods and systems implemented by the school to record, track, and monitor each asset, including preventive measures to avoid loss or deterioration, the role of digital technologies such as cloud-based inventory software, and the processes for regular audits and quality assurance. Understanding this aspect provides insight into how the school maintains operational readiness and supports long-term educational outcomes.

Researcher: Moving to the aspect of inventory and maintenance, how is the asset recording system implemented to ensure proper control of school assets?. Respondent: The school uses a cloud-based inventory software system integrated with the national database of the Ministry of Education. Each asset is recorded using a QR code that contains information about the date of acquisition, location, and asset status. Quarterly audits are conducted by the facilities and infrastructure staff to ensure data accuracy and compliance with national standards, such as asset usage periods that should not exceed five years without quality improvement. This system helps prevent asset loss and supports external audit processes.

Maintaining school facilities and infrastructure is a critical aspect of ensuring a safe, comfortable, and effective learning environment. After exploring the processes of asset recording and inventory management, the interview shifted to examine the practical implementation of routine maintenance procedures, including how often maintenance activities are conducted, the types of facilities covered, and the strategies used to prevent disruptions to teaching and learning. Understanding these procedures provides insight into the school's commitment to sustaining facility quality, optimizing resource use, and supporting the long-term functionality of both general and specialized educational spaces.

Researcher: How are routine maintenance procedures for facilities and infrastructure carried out? Is there a specific budget allocated for building and classroom maintenance?. Respondent: Routine maintenance is conducted weekly for general facilities such as toilets and sports fields, and monthly for the main buildings, including repainting and electrical installation repairs. The school allocates a specific budget of around IDR 100,000,000 per year from the School Activity and Budget Plan for these maintenance activities. The approach used is preventive so that it does not disrupt the learning process. If severe damage occurs, the school coordinates with the regional public works office for technical support.

The researcher aimed to explore how the availability and completeness of infrastructure, such as classrooms, laboratories, and learning tools, influence the school's ability to meet curriculum targets. This line of questioning is particularly important in assessing whether the physical and technological resources provided to students support practical, hands-on learning experiences, facilitate inclusive education, and contribute to achieving both the national standards and the objectives of the Merdeka Curriculum.

Researcher: In your opinion, how does the completeness of facilities and infrastructure influence the achievement of curriculum targets in this school?. Respondent: The influence is very significant. The availability of facilities such as well-equipped laboratories can increase the achievement of the Merdeka Curriculum targets to about 90 percent because students can conduct practical activities rather than only learning theoretical concepts. Without adequate facilities, achieving national targets would be difficult, especially considering the requirements for inclusive facilities under the national standards.

Following the discussion on the influence of facilities on curriculum achievement, the interview proceeded to explore the challenges faced by the school in managing its facilities and infrastructure. In addition, the discussion sought to understand the strategies and solutions implemented by the school to overcome these challenges, including collaborations with external institutions, training programs for human resources, and the adoption of innovative technologies such as artificial intelligence-based monitoring systems. Understanding these aspects provides a comprehensive view of how the school ensures the sustainability and quality of its educational facilities despite various operational constraints.

Researcher: What are the main challenges in managing facilities and infrastructure, and what solutions have been implemented?. Respondent: The main challenges include limited budgets and a shortage of skilled personnel for maintaining complex facilities, as well as tropical weather conditions that accelerate material deterioration. The solutions include establishing collaborations with local universities for human resource training and implementing an artificial intelligence-based asset monitoring system to detect potential damage earlier so that maintenance costs can be minimized.

Part 2: Interview with Teachers

To obtain a deeper understanding of how school facilities are utilized in the classroom learning process, the researcher conducted an interview with one of the teachers at SMPN 1 Baitussalam. In addition, the question was intended to identify how the availability of learning facilities, such as technological devices and instructional teaching aids, assists teachers in delivering learning materials more effectively to students. Through this interview, the researcher expected to gain insight into the practical use of educational facilities in everyday teaching activities

and their role in making learning more interactive, engaging, and easier for students to understand.

Researcher: Good afternoon, Sir/Madam. Thank you for your willingness to participate in this interview. What facilities do you most frequently use to support the learning process in the classroom?. Respondent: The facilities I use most frequently are the interactive whiteboard and a laptop for teaching Mathematics, as well as teaching aids such as three-dimensional geometric models. These facilities make learning more visual and engaging, especially for abstract topics like geometry.

This discussion aimed to understand whether the existing resources are sufficient to support the subjects taught, particularly in terms of helping teachers explain concepts effectively and facilitating interactive learning. In addition, the question sought to identify any limitations related to the availability, maintenance, and functionality of teaching aids and digital media, as well as the school's future needs in improving facilities to meet national education standards and support subjects related to science, technology, engineering, and mathematics (STEM).

Researcher: Is the availability of teaching aids and digital media sufficient to support the subject you teach?. Respondent: The availability is not yet fully adequate. Some teaching aids are damaged due to limited maintenance. However, digital media such as tablets are already available in about 80 percent of classrooms. In the future, additional facilities for STEM subjects will be necessary to meet national standards.

To gain further insight into how school facilities support the enrichment of teaching materials, the researcher asked about teachers' access to shared learning resources such as laboratories and the library. In addition, the discussion sought to explore whether scheduling mechanisms or digital systems are used to regulate access, particularly when multiple teachers require the same facilities at the same time. Understanding this aspect helps provide a clearer picture of how the school manages its academic resources to ensure that teachers can effectively integrate laboratory activities, library materials, and digital learning tools into the teaching and learning process.

Researcher: How do teachers access laboratories and the library to enrich teaching materials?. Respondent: Access is relatively easy through the scheduling system in the school application. However, at certain times there is a high demand for these facilities. The science laboratory uses an online reservation system, while the library provides additional service hours for teachers. This greatly helps in enriching learning materials, including the use of virtual simulations.

To further understand the condition of the physical learning environment, the researcher asked about the extent to which current classroom conditions support students' comfort during the learning process. In addition, the discussion sought to identify any existing limitations or issues that may affect students' comfort and

concentration during lessons. By examining these aspects, the researcher expected to gain insight into how classroom conditions contribute to the overall effectiveness of teaching and learning activities at the school.

Researcher: Do the current classroom conditions support students' learning comfort?. Respondent: In general, they are supportive, although some chairs are still damaged and are being replaced gradually. LED lighting has been optimized, but air circulation during the rainy season is still not ideal, which sometimes affects students' comfort.

To examine the impact of improved school facilities on students' academic development, the researcher asked about changes in students' motivation and learning outcomes following the addition or renovation of certain facilities. In addition, the discussion sought to identify how these facilities support more interactive and practical learning experiences, which may encourage students to participate more actively in academic activities, including competitions and other educational programs. Understanding this impact helps illustrate the role of adequate facilities in supporting meaningful learning and improving overall educational outcomes.

Researcher: Have there been improvements in students' motivation or learning outcomes after the addition of certain facilities?. Respondent: Yes, there has been a fairly significant improvement. After the renovation of the science laboratory last year, the average student exam scores increased by about 15 percent, and interest in participating in academic competitions also increased. Learning becomes more meaningful because students are directly involved in practical activities.

To conclude the interview, the researcher asked about the teacher's expectations regarding the future development of school facilities and infrastructure. In addition, the discussion sought to identify innovative ideas related to the integration of modern technology in education, such as digital learning tools and advanced laboratory equipment. Understanding these expectations is important to provide insight into potential directions for school development, particularly in adapting educational facilities to technological advancements and the evolving needs of students and teachers.

Researcher: What are your expectations regarding the future development of facilities and infrastructure?. Respondent: Our hope is the addition of technology-based facilities such as virtual reality for history learning simulations and modern chemistry laboratories, as well as the integration of artificial intelligence for personalized learning so that this school can become a model project.

Management of Learning Facilities and Infrastructure

The findings indicate that the management of learning facilities and infrastructure at SMP Negeri 1 Baitussalam has been implemented in a planned and systematic

manner, particularly in the aspects of planning and procurement. The process of identifying infrastructure needs is conducted through internal coordination meetings involving the school leadership team, guidance and counseling teachers, and the school committee during the June-July period each year. The school utilizes internal surveys, annual report evaluations, and online applications to capture actual needs in the field. All proposed needs are then verified by the vice principal for facilities and infrastructure with reference to the National Education Standards, such as the minimum requirement of one desk for two students and classroom air circulation standards.

Interview results reveal that procurement decisions are also discussed in monthly meetings with the education office to ensure alignment with national targets. In terms of funding, the school relies on diversified sources, including Special Allocation Funds from the national and regional budgets, parental contributions, corporate social responsibility (CSR) support from regional banking institutions, and proposals submitted to the Ministry of Education through the *Merdeka Belajar* program. The total annual budget for facilities and infrastructure reaches approximately IDR 500,000,000, with around 70% allocated for procurement activities. These findings are confirmed by RKAS documents and procurement planning proposals, which demonstrate transparent budget planning aligned with applicable standards. Regarding inventory management and maintenance, the study reveals that the school has implemented a digital asset recording system based on cloud technology. Inventory management is carried out using cloud-based software integrated with the Ministry of Education's system and equipped with QR codes containing information on procurement dates, locations, and asset status. Asset audits are conducted quarterly by the facilities and infrastructure staff, with a maximum asset lifespan of five years in accordance with the National Education Standards.

Facilities and infrastructure maintenance is carried out routinely through weekly general maintenance activities and monthly maintenance for main buildings, such as painting and electrical installation repairs. The school allocates a specific maintenance budget of approximately IDR 100,000,000 per year. Field observations indicate that most classrooms, learning media, libraries, and public facilities are in good and proper condition. However, constraints were found in laboratory facilities, where only about 70% of computer equipment functions optimally. This finding suggests that although the inventory system has been implemented effectively, maintenance implementation for certain facilities still faces challenges, particularly due to tropical climate conditions and limited technical resources.

Learning Quality Viewed from the Utilization of Facilities and Infrastructure

The findings also indicate that teachers' utilization of learning facilities and infrastructure contributes positively to learning quality. Teachers make use of various facilities such as interactive whiteboards, laptops, projectors, and instructional teaching aids in the teaching and learning process. Observations show that both teachers' and students' activities in utilizing these facilities are active and

effective. Access to laboratories and libraries is relatively easy, although congestion occurs at certain times. In terms of impact, interview results and documentation studies show that laboratory renovations have led to improvements in students' learning outcomes, as indicated by an approximately 15% increase in examination scores and enhanced motivation and interest among students in participating in academic activities, including academic competitions. The achievement of the *Merdeka Curriculum* at this school is reported to reach around 90%, largely due to the availability of practical learning facilities. Nevertheless, the availability of digital facilities has not yet been evenly distributed, covering only about 80% of classrooms, and issues with classroom air circulation persist during the rainy season.

Contribution of Facilities and Infrastructure Management to Learning Quality

Based on data triangulation, the management of learning facilities and infrastructure makes a significant contribution to improving the quality of learning at SMP Negeri 1 Baitussalam. Well-planned management, optimal utilization of facilities, and a strong commitment to adequate budget allocation have been proven to support curriculum achievement and improve students' learning outcomes. All data sources-interviews, observations, and documentation-consistently confirm a positive relationship between facilities and infrastructure management and learning quality. The study also identifies inconsistencies, particularly in laboratory conditions that are not yet fully optimal, which may hinder the achievement of maximum learning quality. These findings emphasize the importance of strengthening maintenance aspects through enhanced human resource capacity, the use of early detection technologies for equipment damage, and the development of funding partnerships to support the sustainability of learning quality.

Discussion

Management of Learning Facilities and Infrastructure in Efforts to Improve Learning Quality

Based on the findings, the management of learning facilities and infrastructure at SMP Negeri 1 Baitussalam, Aceh Besar Regency, demonstrates a structured, systematic, and learning quality-oriented management pattern. In the aspects of planning and procurement, the school has implemented a needs-based planning approach through a needs identification mechanism involving school leaders, teachers, and the school committee (Sulfemi, 2020). This pattern reflects participatory management principles that position stakeholders as integral actors in the decision-making process (Nengsih, 2023). The alignment of facilities and infrastructure planning with the National Education Standards indicates that the school is not merely oriented toward administrative compliance, but also toward the quality of learning services (Ahmad Dhiyaur Rahman et al., 2024). Priority setting reflects managerial rationality in resource allocation, whereby procurement focuses on facilities that have a direct impact on curriculum implementation (Mahendrawan & Rahayu, 2020). This aligns with the view that the effectiveness

of educational management is largely determined by an institution's ability to align facilities planning with learning objectives (Haryanto et al., 2021).

The diversification of funding sources through Special Allocation Funds, community contributions, CSR programs, and central government initiatives illustrates the school's managerial capacity to build networks and optimize external opportunities (Firmansyah et al., 2019). This strategy is particularly important in the context of limited educational budgets, especially in regional areas, and reflects adaptive and innovative leadership. By allocating a dominant portion of the budget to learning facilities procurement, the school demonstrates a strong commitment to improving the quality of teaching and learning processes (Mujianto, 2016). In terms of inventory and maintenance, the implementation of a cloud-based digital system and QR codes enhances transparency and accountability in school asset management (Kristiawan et al., 2019). This system enables periodic monitoring of facility conditions and facilitates the audit process.

These findings strengthen the argument that the utilization of technology in educational management can improve efficiency and effectiveness in resource management (Fitriah, Musdiani, 2024). However, the study also reveals a gap between the designed system and its implementation in practice, particularly regarding laboratory facilities that have not yet been optimally maintained. This condition indicates that facilities and infrastructure management depends not only on recording systems and budget allocation, but also on human resource capacity and responsiveness to environmental factors, such as climate conditions (Arsal et al., 2024). Facilities maintenance requires a more proactive and sustainable approach to ensure that learning facilities continue to function optimally in supporting educational processes (Mulyati & Suryaman, 2025).

Contribution of Facilities and Infrastructure Management to Improving Learning Quality

The findings indicate that facilities and infrastructure management makes a significant contribution to improving learning quality at SMP Negeri 1 Baitussalam. The availability and utilization of adequate learning facilities, such as laboratories, interactive media, and teaching aids, have been shown to enhance the quality of the learning process. Teachers have greater opportunities to implement active, contextual, and practice-based learning, which ultimately leads to improved student learning outcomes (Pramesti et al., 2024). The achievement of the *Merdeka Curriculum* at approximately 90% and the increase in students' learning outcomes following laboratory renovations demonstrate that facilities and infrastructure serve as key supporting factors in achieving learning objectives (Ulfa & Saifuddin, 2018). These findings reinforce the view that learning quality is determined not only by teacher competence and curriculum, but also by a conducive learning environment supported by adequate facilities. With proper facilities, learning becomes more meaningful as students actively engage in exploration and hands-on practice (Latifah, 2022).

However, this positive contribution has not yet been fully optimized due to limitations in maintenance and the uneven distribution of digital facilities. Laboratory facilities that are not fully functional may hinder the achievement of maximum learning quality (Sulfemi, 2020). This indicates that the contribution of facilities and infrastructure management is dynamic and highly dependent on the continuity of management processes, from planning and procurement to maintenance and utilization. Learning facilities and infrastructure management plays a strategic role in improving learning quality (Mulyati & Suryaman, 2025). When managed in a planned, accountable, and learning-oriented manner, facilities and infrastructure function not merely as supporting elements, but as essential instruments in achieving educational objectives. Strengthening school managerial capacity, utilizing technology, and developing sustainable partnerships are key factors in ensuring that the contribution of facilities and infrastructure management to learning quality can be sustained over time (Bararah, 2020).

4. Conclusion

Based on the results of the research and the discussion conducted, it can be concluded that the management of learning facilities and infrastructure at SMP Negeri 1 Baitussalam, Aceh Besar Regency, has been implemented in a structured manner and is oriented toward improving the quality of learning. The planning and procurement processes are carried out through a data-based needs identification mechanism, involving school leadership, teachers, and the school committee, and are aligned with the National Education Standards. The establishment of rational priority scales and the support of diversified funding sources indicate the school's managerial commitment to ensuring the availability of learning facilities that are relevant to curricular needs. In terms of inventory and maintenance, the implementation of a technology-based digital recording system has enhanced transparency and accountability in school asset management. Facilities maintenance is conducted routinely with a dedicated budget allocation, resulting in most learning facilities being in proper and usable condition. However, this study also found constraints related to several laboratory facilities that have not yet functioned optimally, highlighting the need to strengthen maintenance strategies to ensure the sustainability of learning facility functions.

The management of learning facilities and infrastructure has been proven to make a significant contribution to improving the quality of learning. The availability and effective utilization of adequate learning facilities encourage the implementation of active and practice-based learning, which positively impacts curriculum achievement and student learning outcomes. The observed improvement in academic performance and increased student learning motivation indicate that facilities and infrastructure serve not merely as administrative support, but as strategic factors in creating an effective and meaningful learning environment. This study emphasizes that the success of improving learning quality is strongly influenced by the quality of facilities and infrastructure management. Strengthening needs-based planning, optimizing sustainable maintenance, and enhancing the use

of technology and external partnerships are strategic steps that must continue to be developed in order to support sustainable educational quality.

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