PAPANDA

# Management Facilities and Infrastructure in Improving Quality Learning at Elementary School

**Ade Saripah**

Islamic University of Nusantara, Bandung, Indonesia

**Ida Tejawiani**

Islamic University of Nusantara, Bandung, Indonesia

**\*Corresponding Author:** adesaripah2829@gmail.com

**Abstract**
Effective facilities and infrastructure management is critical for educational quality, yet many elementary schools in rural areas face significant resource constraints that impede optimal facility utilization. This study examines how Planning, Organizing, Actuating, and Controlling (POAC) management principles are implemented to optimize facilities and infrastructure in improving learning quality at two elementary schools with contrasting institutional characteristics. A qualitative descriptive case study was conducted at SDN Cinangsi (public) and MIS Sukamulya (foundation-based private) in Cianjur Regency, Indonesia. Data were collected through semi-structured interviews with principals, teachers, and students, systematic observations, and documentary analysis. Data analysis employed Miles and Huberman's interactive model with triangulation to ensure validity.
Both schools implemented systematic POAC-based management despite resource limitations. Planning involved participatory needs assessment and strategic prioritization. Organization utilized adaptive strategies including manual inventory systems with practical solutions. Implementation emphasized teacher creativity in developing improvised instructional materials. Supervision focused on administrative compliance but inadequately assessed pedagogical impact. Systematic facilities management through POAC principles, combined with stakeholder collaboration and teacher improvisation, enables resource-constrained schools to optimize facility utilization and support learning quality. However, supervision systems require enhancement to evaluate facility impacts on educational outcomes effectively.

## INTRODUCTION

The quality of education at the elementary level constitutes a fundamental cornerstone in developing qualified human resources, with the effectiveness of teaching and learning processes being significantly influenced by the availability and systematic management of educational facilities and infrastructure (Barrett et al., 2019; Fisher et al., 2014). Contemporary educational policies, including the National Education Standards, the Merdeka Learning program, and the ongoing digital transformation in education, have consistently emphasized the critical role of quality inputs as essential prerequisites for achieving high-quality learning outcomes. Research from multiple international contexts demonstrates a positive correlation between various types of school infrastructure and student achievement, with facilities ranging from basic services to specialized learning spaces significantly impacting educational quality (Andrade et al., 2024; Khan, 2023; UNESCO, 2020). Despite these policy frameworks and empirical evidence, numerous elementary educational institutions, particularly those situated in rural areas, continue to experience suboptimal facility conditions that potentially impede the delivery of quality education. This persistent disparity between policy expectations and ground realities raises a fundamental academic inquiry: how can educational facilities and infrastructure be managed efficiently to support quality learning processes amid resource constraints?

Previous research has extensively documented the relationship between facilities management and educational quality, yet significant gaps remain in understanding the practical implementation of management principles in resource-constrained settings. Gulua (2020) highlighted infrastructure administration as a crucial supporting factor in educational processes, while Asy'ari (2020) demonstrated that effective facilities management at SLB Buah Hati Jambi was determined by consistent implementation of planning, organization, implementation, and supervision functions. Furthermore, Wijaya & Selamat (2024) indicated that well-managed facilities and infrastructure facilitate teacher performance and enhance student learning comfort. International studies corroborate these findings, with research from South Africa revealing that inadequate infrastructure in rural schools creates systemic limitations affecting curriculum delivery and student outcomes (Dube, 2020; Mestry & Ndhlovu, 2014; Nkomo et al., 2020). However, these studies tend to adopt a generalized approach and have not adequately explored the nuanced dynamics of facility management in elementary schools facing dual challenges of limited facilities and constrained budgetary support. Moreover, existing literature predominantly focuses on inventory assessment and needs fulfillment without comprehensively examining the sustainable managerial aspects that ensure long-term effectiveness through systematic application of management principles such as planning, organizing, actuating, and controlling (Narindro et al., 2020).

The knowledge gap becomes more pronounced when considering the heterogeneity of elementary school contexts, particularly the management differences between public and private institutions in rural settings. While previous studies have addressed facilities management broadly, they have insufficiently investigated how schools with different institutional characteristics and resource bases navigate similar challenges. Comparative research reveals that public and private schools operate under distinct governance structures, with public schools subject to greater regulatory oversight while private institutions maintain more operational autonomy, leading to different resource allocation patterns and management approaches (Chubb & Moe, 1990; Jabbar et al., 2019). The comparative analysis between public schools operating within government systems and foundation-based private schools managing independent resources remains underexplored in current literature, particularly in developing country contexts where resource disparities are most acute. This gap is particularly significant given that both institutional types serve similar communities but operate under distinct management structures, funding mechanisms, and accountability frameworks that fundamentally shape their approaches to facilities management.

This research addresses these scholarly gaps by examining facilities and infrastructure management in two elementary schools with contrasting characteristics: SDN Cinangsi as a public institution and MIS Sukamulya as a foundation-based private school, both located in Naringgul Subdistrict, Cianjur Regency. The study adopts a comprehensive approach that extends beyond mere facility availability assessment to encompass management strategies, utilization optimization, and stakeholder collaboration mechanisms. By applying G.R. Terry's management theory through the POAC framework (Planning, Organizing, Actuating, Controlling), this research systematically examines how these schools implement management principles to optimize limited resources. Research demonstrates that effective stakeholder participation in educational management enhances decision quality, builds ownership, and facilitates achievement of educational objectives when properly designed and implemented (Reed, 2008; Ngampravatdee et al., 2023; UNDP, 2017). The investigation not only describes practices in planning, organizing, implementing, and monitoring but also reveals stakeholder involvement patterns and adaptive strategies employed by teachers and school principals in overcoming facility limitations, contributing to understanding of participatory management approaches in resource-constrained educational settings.

The justification for this research rests on both theoretical and practical grounds. Theoretically, it contributes to management science in education by proposing a contextualized understanding of how management principles function in resource-constrained environments, addressing the identified need for sustainable, long-term management strategies in middle-income countries where infrastructure

management often lacks structured approaches due to governmental policy changes and budget constraints (Khan, 2023). Practically, the findings offer actionable insights for school administrators and policymakers in designing more effective and sustainable facilities management strategies that acknowledge contextual realities while maintaining alignment with national education standards, particularly crucial given that rural schools in developing countries face multiple interconnected challenges including geographical isolation, resource scarcity, and infrastructure deficiencies that create barriers to educational equity (Fleisch et al., 2012).

This research aims to describe and analyze the management of facilities and infrastructure in improving learning quality at SDN Cinangsi and MIS Sukamulya, specifically examining how planning, organizing, actuating, and controlling functions are implemented and how these processes contribute to enhanced learning quality. The significance of this study lies in its potential to provide evidence-based recommendations for improving facilities management practices in similar contexts, thereby contributing to educational equity and quality improvement in underserved areas. By offering both theoretical contributions to management science in education and practical benefits for schools and policymakers through development of a collaborative, technology-integrated management model, this research endeavors to bridge the gap between management theory and educational practice in the specific context of rural elementary education.

## METHODS

This study employed a qualitative approach with a descriptive case study design to examine the management of facilities and infrastructure in improving learning quality at two elementary schools. The descriptive case study methodology was selected as it enables intensive, holistic description and analysis of bounded phenomena within their natural contexts, making it particularly suitable for exploring complex educational management practices (Baxter & Jack, 2008; Merriam, 1998; Stake, 1995). This design was deemed appropriate given the study's objective to describe management processes, experiences, strategies, and the social contexts surrounding facilities and infrastructure management in elementary education settings. The multiple-case design, examining both SDN Cinangsi as a public institution and MIS Sukamulya as a foundation-based private school in Naringgul Subdistrict, Cianjur Regency, allowed for comparative insights while enriching understanding of management practices across different institutional contexts (Yin, 2018).

Research participants comprised all stakeholders directly involved in facilities and infrastructure management at both schools, including school principals, teachers, and students as primary users of learning facilities. The selection of participants employed purposive sampling technique, specifically criterion sampling based on participants' roles and relevance to the research focus (Patton, 2002). This non-probability sampling strategy enabled the intentional selection of information-rich cases possessing characteristics essential to addressing the research questions, ensuring that collected data provided focused and in-depth insights into the phenomenon under investigation (Creswell & Plano Clark, 2011; Palinkas et al., 2015). The purposive approach was particularly appropriate for this study as it facilitated identification of participants who could offer valuable perspectives on facilities management based on their direct experiences and involvement in decision-making processes.

Data collection utilized three complementary techniques to ensure comprehensive understanding of the phenomenon. First, semi-structured interviews were conducted with school principals, teachers, and student representatives to explore their experiences, management strategies, and perceptions regarding facilities and infrastructure. Second, systematic observations were undertaken in school environments to examine the actual conditions of facilities and infrastructure and observe their utilization patterns during learning processes. Third, documentary analysis was performed examining archival records, inventory documentation, photographs of facilities and infrastructure, and policy-related documents. To enhance the validity and credibility of findings, data triangulation was implemented by systematically comparing results obtained from interviews, observations, and documentation (Carter et al., 2014; Denzin, 1978; Patton, 1999). This methodological triangulation

approach strengthened the trustworthiness of conclusions by allowing cross-verification of information from multiple sources and perspectives (Thurmond, 2001).

The research procedure followed three sequential stages to ensure systematic data collection and analysis. The preparation stage involved development of research instruments, securing necessary permissions from relevant authorities, and establishing coordination with school stakeholders. During the implementation stage, researchers engaged in fieldwork activities including conducting interviews with predetermined participants, undertaking direct observations of facilities and their usage, and gathering relevant documentary evidence. The final stage encompassed data analysis and reporting, where collected data underwent systematic processing through reduction, presentation in narrative descriptive form, and conclusion drawing based on identified patterns and themes.

Data analysis employed the interactive model developed by Miles and Huberman (1994), which conceptualizes analysis as an ongoing, iterative process occurring throughout data collection rather than as a discrete final stage. This analytical framework comprises three concurrent flows of activity: data reduction involving the selection, focusing, simplification, and transformation of raw field notes and transcriptions; data display through which organized, compressed assemblies of information permit conclusion drawing; and conclusion drawing and verification where researchers begin to identify patterns, explanations, and potential configurations from the data (Miles et al., 2014; Saldaña, 2013). Analysis was conducted thematically with explicit reference to G.R. Terry's POAC management principles—Planning, Organizing, Actuating, and Controlling—enabling systematic mapping of findings according to the theoretical framework guiding the study. This alignment between analytical approach and theoretical foundation ensured coherent interpretation of how management functions were implemented and their implications for learning quality improvement. Through this comprehensive methodological approach, the research aimed to produce deep and nuanced understanding of facilities and infrastructure management practices in elementary school contexts.

## RESULTS AND DISCUSSION

### Results

This section presents findings from the examination of facilities and infrastructure management at SDN Cinangsi and MIS Sukamulya through the POAC management framework. The findings are organized according to the four management functions—Planning, Organizing, Actuating, and Controlling—revealing how these elementary schools implement systematic approaches to optimize limited resources and enhance learning quality.

### Planning of Facilities and Infrastructure

The planning stage revealed that both schools conducted structured needs assessments involving multiple stakeholders. Interview data from school principals indicated that planning processes incorporated systematic analysis of existing conditions, identification of facility gaps, and prioritization based on curriculum requirements and National Education Standards alignment. One principal stated, "We conduct annual evaluations with teachers and school committees to identify which facilities are most urgently needed for learning activities." Documentary analysis confirmed that both schools maintained planning documents detailing facility requirements, estimated costs, and procurement timelines. However, observation and interview data revealed significant budget constraints that prevented immediate fulfillment of all identified needs. The planning process at SDN Cinangsi prioritized government funding channels through BOS (School Operational Assistance) funds, while MIS Sukamulya demonstrated more flexible planning incorporating foundation resources and community contributions. Table 1 presents the key planning activities documented across both schools.

The participatory approach observed aligns with established principles of effective educational planning, wherein stakeholder engagement enhances both the quality of decision-making and ownership of outcomes. These findings demonstrate adherence to participatory needs assessment

frameworks where community involvement ensures that planned interventions reflect actual contextual requirements.

**Table 1.** Planning Activities in Facilities and Infrastructure Management

| Planning Component | SDN Cinangsi | MIS Sukamulya |
|---|---|---|
| Needs Analysis | Annual evaluation involving teachers and the school committee | Semester-based review involving the foundation and parents |
| Stakeholder Involvement | School committee, teachers, parents | Foundation board, teachers, community leaders |
| Priority Setting | Based on urgency level and availability of BOS funds | Based on learning needs and availability of resources |
| Documentation | Planning documents accompanied by cost estimates | Detailed proposals with multiple funding sources |

### Organization of Facilities and Infrastructure

Organizational practices at both schools included systematic inventory management, facility categorization, and strategic spatial arrangement. Observational data revealed that both schools maintained master inventory books recording facility quantities, conditions, and locations, though the systems remained predominantly manual rather than digitized. Interview responses from administrative staff indicated regular inventory updates conducted at the beginning and end of each semester. Teachers reported that facilities were organized into categories including classroom equipment, learning media, sports equipment, and office supplies, facilitating easier access and accountability. Physical observation confirmed that facilities were strategically arranged based on frequency of use and accessibility considerations, with frequently used items stored in readily accessible locations. Documentation analysis revealed systematic recording procedures, though both schools acknowledged limitations in their current manual systems. One teacher noted, "We still use the traditional inventory book, which sometimes makes it difficult to quickly locate specific items, especially when staff changes occur."

An unexpected finding emerged regarding the adaptation strategies employed by both schools. Despite lacking sophisticated digital management systems, schools developed practical organizational solutions including color-coding systems, dedicated storage personnel, and regular physical audits. These adaptive practices demonstrated resourcefulness in maintaining orderly facility management despite technological limitations, reflecting creative problem-solving in resource-constrained contexts.

### Implementation of Facilities and Infrastructure

The implementation stage revealed active engagement from school leadership in directing optimal facility utilization. Interview data from principals indicated regular guidance provided to teachers emphasizing maximal use of available facilities to support instructional objectives. Teachers demonstrated notable creativity and initiative in developing improvised instructional materials when conventional resources were unavailable or insufficient. Observation data documented multiple instances of teacher-created learning aids using locally available materials—cardboard models for geometry instruction, recycled materials for science demonstrations, and community resources for contextual learning experiences. Student interview responses consistently indicated that facility availability positively influenced their learning motivation and engagement. One student stated, "When teachers use interesting teaching aids, even if they're made from simple materials, it makes learning more enjoyable and easier to understand."

Documentary evidence, including lesson plans and teaching reports, confirmed systematic integration of available facilities into instructional practices. Teachers at both schools reported participation in professional development sessions focused on creative utilization of limited resources. The implementation stage also revealed collaborative patterns wherein teachers shared improvised teaching materials and strategies, creating informal communities of practice around resource optimization. This finding was particularly significant as it demonstrated how resource constraints can

catalyze pedagogical innovation and professional collaboration rather than merely limiting instructional quality.

### Supervision and Evaluation of Facilities and Infrastructure

Supervision practices encompassed systematic inventory documentation, periodic reporting, and routine evaluation procedures. Interview data from school principals indicated that formal evaluations occurred each semester, involving physical verification of facility conditions and assessment of utilization patterns. Documentation analysis confirmed maintenance of inventory records, condition reports, and utilization logs, though the depth and consistency of these records varied between schools. Teachers reported regular informal monitoring through daily observations, with formal reporting occurring during scheduled evaluation periods. One teacher explained, "We continuously monitor facility conditions during use, and if damage occurs, we immediately report it so repairs can be scheduled."

However, a critical finding emerged regarding the scope of supervision. While both schools maintained systematic administrative oversight of facility inventory and physical conditions, supervision practices had not yet been optimized to evaluate the functional impact of facilities on actual learning outcomes. Evaluation procedures focused predominantly on quantitative aspects—availability, physical condition, and maintenance records—rather than qualitative dimensions linking facility quality to pedagogical effectiveness and student achievement. This represents a significant gap, as effective supervision should encompass both compliance monitoring and impact assessment to inform continuous improvement efforts.

### Integration Across Management Functions

Analysis across the four management functions revealed an integrated system where planning informed organization, organizational structures enabled implementation, and supervision provided feedback for planning refinement. Documentary evidence and interview data demonstrated cyclical processes wherein evaluation findings from one period influenced priority setting and resource allocation in subsequent planning cycles. Both schools exhibited systematic approaches to facilities management despite operating in resource-constrained rural contexts, suggesting that structured management frameworks can function effectively across diverse institutional settings when adapted to local conditions. The comparative analysis between the public school (SDN Cinangsi) and foundation-based private school (MIS Sukamulya) revealed both similarities in management processes and differences in resource mobilization strategies, with the private institution demonstrating greater flexibility in funding diversification while the public school maintained stronger alignment with national policy frameworks.

### Discussion

The findings of this study reveal that systematic implementation of POAC management principles—Planning, Organizing, Actuating, and Controlling—enables elementary schools in resource-constrained rural settings to optimize facilities and infrastructure utilization, thereby supporting improved learning quality. The research confirms that even amid significant resource limitations, structured management approaches combined with stakeholder collaboration and teacher creativity can mitigate facility deficiencies and maintain educational effectiveness. These findings address the central research question by demonstrating how management processes adapt to contextual constraints while maintaining alignment with national education standards.

The participatory planning practices observed at both schools align with established principles emphasizing stakeholder engagement in educational decision-making. The involvement of teachers, school committees, and community members in needs assessment and priority setting reflects participatory approaches documented in educational planning literature, where inclusive processes enhance both decision quality and implementation commitment. These findings corroborate international evidence suggesting that participatory needs assessment processes provide deeper

understanding of contextual requirements and generate actionable recommendations reflecting authentic institutional needs. However, the study extends this literature by revealing how rural elementary schools navigate the tension between comprehensive needs identification and resource availability constraints, employing priority-setting mechanisms that balance pedagogical requirements with fiscal realities.

The budget constraints documented in this study align with broader evidence from developing country contexts where rural schools face systemic resource limitations affecting infrastructure adequacy. While previous research has emphasized the negative impacts of inadequate facilities, this study reveals how schools employ strategic planning processes to maximize available resources through careful prioritization and diversified funding strategies. The comparative finding that private foundation-based schools demonstrate greater funding flexibility while public schools maintain stronger policy alignment suggests that institutional type influences both resource mobilization strategies and management approaches, a dimension insufficiently explored in previous literature.

The predominantly manual inventory systems documented in this study reflect technological limitations common in rural educational contexts, yet the research reveals unexpected adaptive capacity. Schools developed practical organizational solutions—color-coding, dedicated personnel, regular physical audits—demonstrating that effective facilities management can occur without sophisticated digital systems. This finding challenges assumptions in contemporary facilities management literature that often emphasizes technology-based solutions as prerequisites for effective operations. Research on educational facilities management systems increasingly promotes digital inventory platforms and computerized management systems for tracking assets across multiple locations, yet the current study demonstrates that carefully designed manual systems can maintain operational effectiveness when appropriately structured and consistently implemented.

The adaptive strategies observed reflect broader patterns of teacher and administrator resourcefulness in resource-constrained settings, where creativity and improvisation become essential competencies rather than occasional responses to emergencies. This finding suggests that management effectiveness depends not solely on technological sophistication but fundamentally on systematic processes, clear accountability structures, and sustained organizational commitment—elements achievable regardless of technological capacity. However, the study also confirms that manual systems present limitations in data accessibility, particularly during personnel transitions, indicating that while functional, these approaches remain suboptimal compared to integrated digital solutions. This finding suggests a need for scalable technological interventions appropriate to rural school contexts rather than wholesale adoption of systems designed for resource-rich urban environments.

The documented teacher creativity in developing improvised instructional materials represents a significant finding with both theoretical and practical implications. Research on improvisation in teaching emphasizes how educators adapt instructional strategies and create materials responsively to meet educational goals despite unforeseen constraints. The current study confirms that teacher improvisation functions as a critical adaptive capacity in resource-constrained contexts, enabling continued instructional quality despite facility limitations. The creativity demonstrated by teachers—cardboard models, recycled materials, community resources—reflects improvisation principles documented across educational contexts, wherein teachers transform ordinary objects into effective pedagogical tools.

These findings extend existing literature by revealing how institutional resource constraints can catalyze pedagogical innovation rather than merely impeding instructional quality. The informal communities of practice that emerged around resource optimization suggest that scarcity can generate collaborative professional cultures focused on creative problem-solving. This represents a valuable contribution to understanding how teachers navigate resource limitations, shifting the discourse from deficit-focused narratives emphasizing what teachers lack to strength-based perspectives highlighting adaptive capacities and innovative practices. The positive student responses

to teacher-created materials further suggest that improvised resources can effectively support learning engagement and comprehension, challenging assumptions that standardized commercial materials are inherently superior to contextually adapted teacher-developed alternatives.

However, the study also acknowledges that improvisation has limits—certain facilities cannot be adequately substituted through creativity alone, particularly specialized equipment for science laboratories or advanced technology infrastructure. This finding emphasizes that while teacher creativity mitigates resource constraints, it cannot completely replace adequate facility provision. The implication is that educational policy must pursue dual strategies: supporting teacher professional development in creative resource utilization while simultaneously addressing systemic facility inadequacies through sustained investment.

The supervision practices documented demonstrate systematic administrative oversight of facility inventory and physical conditions, reflecting established principles in educational facilities management emphasizing regular monitoring, documentation, and maintenance planning. However, the finding that supervision remains predominantly focused on compliance and inventory management rather than impact assessment represents a critical gap with implications for management effectiveness. Educational supervision literature emphasizes that effective monitoring systems should encompass both process evaluation (whether activities occur as planned) and outcome evaluation (whether activities achieve intended results). The current study reveals that supervision practices emphasize the former while insufficiently addressing the latter, particularly regarding how facility quality influences pedagogical practices and learning outcomes.

This gap aligns with broader patterns in educational monitoring systems where data collection focuses on readily quantifiable inputs and processes rather than complex outcome relationships. Research examining monitoring and evaluation effectiveness in educational facilities improvement suggests that systems often inadequately reflect actual school infrastructure needs, with monitoring mechanisms updating facility conditions without necessarily improving educational effectiveness. The current study confirms this pattern while revealing potential pathways for enhancement—specifically, integrating pedagogical effectiveness assessments into supervision protocols to create feedback loops linking facility management directly to instructional quality improvement.

The finding that supervision has not yet optimized evaluation of facility impacts on learning outcomes suggests opportunities for management system refinement. Implementing comprehensive supervision approaches incorporating both administrative compliance and pedagogical effectiveness dimensions would enable schools to make more informed decisions about resource allocation and facility improvement priorities. This recommendation aligns with contemporary educational accountability frameworks emphasizing results-based monitoring that tracks not merely whether resources are present but whether they contribute meaningfully to educational objectives.

This research contributes theoretically by demonstrating how classical management principles adapt to resource-constrained educational contexts, revealing that systematic management approaches remain relevant and effective across diverse institutional settings when appropriately contextualized. The integration of Terry's POAC framework with humanistic learning theory and CIPP evaluation models provides comprehensive understanding of how facility management influences learning quality through multiple pathways—not merely through physical resource availability but through stakeholder engagement processes, teacher creative practices, and systematic feedback mechanisms. The study extends facilities management literature by proposing that effective management in resource-limited contexts requires emphasizing adaptive capacity, stakeholder collaboration, and creative problem-solving alongside traditional administrative functions.

Practically, findings suggest several actionable recommendations for schools and policymakers. Schools should strengthen participatory planning processes while developing systematic approaches to linking supervision data with instructional improvement efforts. Professional development programs should explicitly incorporate training in creative resource utilization and improvised material development. Policymakers should prioritize scalable technological solutions appropriate to rural

contexts while recognizing that technology implementation requires accompanying support for organizational capacity building. The comparative findings suggesting different management adaptations between public and private schools indicate that policy frameworks should accommodate institutional heterogeneity rather than imposing uniform management models.

The study's limitations include its focus on two elementary schools within one district, potentially limiting generalizability to other contexts. The predominantly qualitative approach provides rich descriptive data but limits capacity for statistical generalization. Future research should employ larger samples across diverse geographical contexts and incorporate quantitative measures linking facility management practices to student achievement outcomes. Longitudinal studies examining how management practices evolve over time would provide valuable insights into sustainability and continuous improvement processes.

In conclusion, this research confirms that systematic facilities and infrastructure management based on POAC principles, enhanced through participatory stakeholder engagement and teacher creativity, enables rural elementary schools to optimize limited resources and support learning quality improvement. The study contributes to educational management literature by revealing how classical management frameworks function in resource-constrained contexts while identifying pathways for enhanced management effectiveness through integrated digital systems, comprehensive supervision approaches, and sustained collaborative practices. These findings offer both theoretical contributions to understanding adaptive management processes and practical guidance for schools and policymakers seeking to improve educational quality through enhanced facilities management.

## CONCLUSION

This study demonstrates that systematic implementation of POAC management principles—Planning, Organizing, Actuating, and Controlling—enables elementary schools in resource-constrained rural contexts to optimize facilities and infrastructure utilization, thereby supporting learning quality improvement. The research reveals that effective facilities management in such contexts requires integration of participatory planning processes, adaptive organizational strategies, teacher creative capacity in improvising instructional materials, and systematic supervision mechanisms. Both SDN Cinangsi and MIS Sukamulya successfully implemented structured management approaches despite significant resource limitations, though critical gaps remain in linking supervision practices to pedagogical effectiveness assessment.

The study contributes to educational management scholarship by demonstrating how classical management frameworks adapt to resource-limited contexts and by revealing that facility constraints can catalyze pedagogical innovation through teacher creativity and collaborative problem-solving rather than merely impeding instructional quality. The comparative analysis between public and foundation-based private institutions illuminates how institutional type influences resource mobilization strategies while maintaining fundamental similarities in management processes. Practically, findings suggest that schools should strengthen stakeholder engagement, develop systematic impact-focused supervision protocols, and invest in professional development emphasizing creative resource utilization. Policymakers should prioritize scalable technological solutions appropriate to rural contexts while ensuring sustained infrastructure investment recognizing that teacher improvisation cannot substitute for adequate facility provision.

Study limitations include the two-school sample within one district and predominantly qualitative methodology, potentially limiting generalizability and statistical inference capacity. Future research should employ multi-site quantitative designs examining relationships between specific management practices and student achievement outcomes, conduct longitudinal investigations of management practice evolution and sustainability, and explore technological interventions scalable to resource-constrained rural contexts. Despite these limitations, the research provides valuable evidence-based guidance for enhancing facilities management effectiveness in underserved educational settings.

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