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Risk-Based Stakeholder Management Model for Self-Managed Elementary School Revitalization Programs

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ABSTRACT

Indonesia's elementary school infrastructure faces significant challenges, with approximately 174,000 educational units experiencing moderate to severe classroom damage. The 2025 Elementary School Revitalization Program, implementing a self-managed mechanism with direct fund disbursement to schools, represents a policy innovation requiring effective stakeholder coordination and risk management. This research develops a risk-based stakeholder management model for the program's implementation. The study employs a mixed-method approach combining document analysis, stakeholder surveys, and expert validation following Project Management Body of Knowledge (PMBOK) standards. Data were collected from school principals, School Development Committees (P2SP), education offices, and technical consultants across multiple implementation sites. Results reveal seventeen key stakeholders categorized through power-interest analysis, with five identified as key players requiring intensive engagement. Critical communication pathways exist between schools, district education offices, and central directorates. Twenty-three dominant risks were identified, primarily administrative and communication-related rather than technical. The developed model integrates stakeholder mapping, communication mechanisms, and risk mitigation strategies into a comprehensive engagement framework. This research contributes a practical tool for enhancing program transparency, accountability, and effectiveness in self-managed educational infrastructure projects.

Keywords: *PMBOK, Risk Communication, School Revitalization, Self-Managed Projects, Stakeholder Management*

INTRODUCTION

Educational infrastructure quality fundamentally shapes learning outcomes and educational equity (Oshinowo et al., 2025). In Indonesia, however, elementary school facilities remain inadequate despite decades of development efforts (Elpina et al., 2021). Recent data from the Ministry of Primary and Secondary Education revealed that among 439,000 educational units nationwide, approximately 174,000 institutions possess classrooms in moderate to severe disrepair, totaling 981,000 damaged rooms, while 219,000 units fail to meet National Education Standards (Kementerian Pendidikan Dasar dan Menengah, 2025). This condition significantly impedes teaching and learning processes, as confirmed by Subagio and Yani (2024), who documented that most elementary school buildings in Indonesia require substantial renovation to support effective educational delivery.

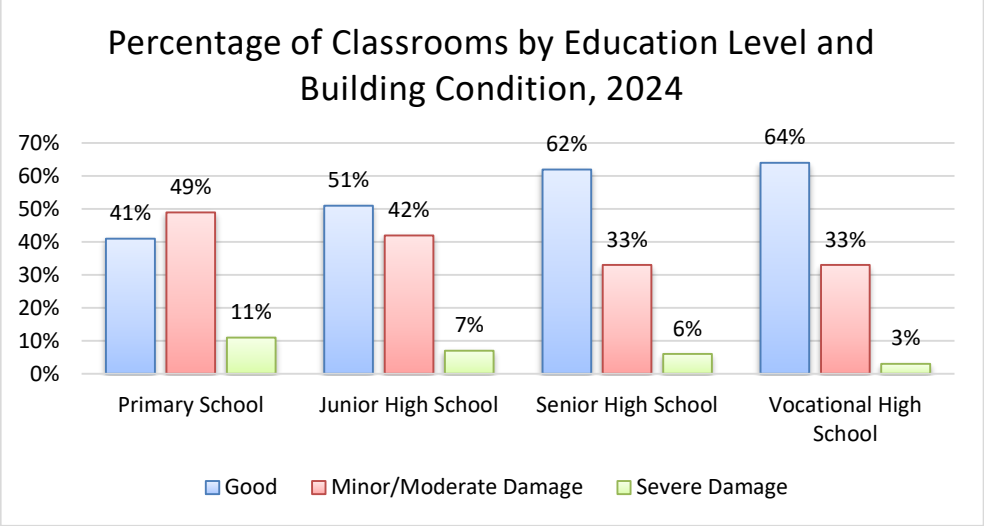

Figure 1 Classroom Condition Data 2024
Source: BPS, Education Statistics 2024

Addressing these infrastructure deficiencies, the government launched the 2025 Elementary School Revitalization Program through the Ministry of Education, Culture, Research, and Technology. The program targets revitalization of 4,053 elementary schools with a budget allocation of IDR 4.89 trillion in 2025 alone. The National Development Planning Agency (Bappenas) projects total revitalization needs reaching IDR 571.6 trillion over the 2025-2029 period (Badan Perencanaan Pembangunan Nasional, 2025). A fundamental policy innovation distinguishes this program from previous infrastructure initiatives: the implementation of self-managed mechanisms through direct fund disbursement to school accounts and establishment of School Development Committees (P2SP), as regulated in Technical Guidelines for Educational Unit Revitalization 2025 and Minister of Education Regulation No. 70 of 2024 concerning Guidelines for Government Assistance Distribution (Ghozali & Ariskawanti, 2022; Kementerian Pendidikan

Dasar dan Menengah, 2025; Run et al., 2025). This approach aims to enhance efficiency, transparency, and community participation.

Despite its promising framework, the new policy encounters substantial implementation challenges. National media coverage has documented allegations of misconduct during construction phases, delayed second-phase fund disbursements, incomplete reporting documentation, and weak coordination among stakeholders (Nke & Wachira, 2023; Paci-Green et al., 2020). These phenomena indicate that schools' managerial capacity, communication effectiveness among stakeholders, and oversight mechanisms remain suboptimal. Adhi and Muslim (2023) believed that ineffective communication and weak stakeholder engagement potentially generate budget waste, work delays, declining construction quality, and eroded public trust. Furthermore, potential risks including community resistance, procurement irregularities, and inadequate documentation require systematic anticipation (Kementerian Pendidikan Dasar dan Menengah, 2025).

Previous research on stakeholder management and project communication based on PMBOK demonstrates significant potential for enhancing program implementation effectiveness. Ulum et al. (2021) examined stakeholder management planning in educational institutions using the Project Management Body of Knowledge framework, grouping stakeholders based on interest and influence levels through power-interest matrices to produce targeted stakeholder management strategies. However, this research focused solely on stakeholder aspects without integrating communication management and risk analysis, and was not conducted in large-scale physical project contexts such as elementary school revitalization. Similarly, Rabbani et al. (2022) investigated stakeholder management in schools based on National Education Standards, emphasizing identification and classification of school stakeholders including principals, committees, students, and parents, but did not integrate project communication standards or discuss risks in project management processes.

The application of PMBOK-based approaches in elementary school revitalization contexts with self-managed mechanisms and risk management focus remains severely limited. This research gap necessitates in-depth studies examining actual conditions of risk-based communication and stakeholder management, as well as formulating relevant optimization models. Freeman's (2010) stakeholder theory emphasizes that project success heavily depends on clarity of roles and relationships among involved parties, a perspective reinforced by Bourne (2016) who advocated for initial stakeholder mapping to determine individuals or groups possessing influence, interest, and contribution toward project success. Project Management Institute (2025) further established that systematic stakeholder identification through primary and secondary data collection produces comprehensive and validated stakeholder registers.

This research addresses the identified gap by developing a risk-based stakeholder management and communication optimization model for the

Elementary School Revitalization Program. The study integrates stakeholder identification, power-interest analysis, communication pathway mapping, and risk management into a comprehensive framework applicable to self-managed educational infrastructure projects. The research novelty lies in developing a stakeholder engagement strategy based on communication risks specifically designed for government programs at national scale with direct school implementation. This model not only analyzes stakeholders and risks but also develops systematic communication and engagement strategies aligned with international project management standards. The expected output provides practical guidance for educational units and government agencies in planning, implementing, and monitoring revitalization programs more effectively, transparently, and accountably, ultimately supporting achievement of sustainable elementary education development goals.

LITERATURE REVIEW

Elementary School Revitalization Program Overview

The Elementary School Revitalization Program represents a government priority initiative for enhancing elementary education service quality through comprehensive infrastructure rehabilitation and development (Zulfikar et al., 2025). Launched by the Ministry of Education, Culture, Research, and Technology for Fiscal Year 2025, the program responds to persistent inadequate elementary education facilities and infrastructure. Program implementation follows Technical Guidelines for Educational Unit Revitalization Fiscal Year 2025 and Minister of Education Regulation No. 70 of 2024 concerning Government Assistance Distribution Guidelines. The program aims to improve school facility quality through classroom rehabilitation, construction of adequate sanitation facilities, and provision of sufficient learning resources. In 2025, the government targets revitalization of 4,053 elementary schools with budget allocation of IDR 4.89 trillion (Kementerian Pendidikan Dasar dan Menengah, 2025).

A significant innovation in this program involves implementing self-managed mechanisms, namely direct assistance fund disbursement to school accounts and formation of School Development Committees (P2SP) at school level. This mechanism intends to increase efficiency, transparency, community participation, and local ownership in school development management (Kementerian Pendidikan Dasar dan Menengah, 2025). P2SP holds responsibility for fund management, goods/services procurement according to regulations, and financial reporting and accountability. The program also aligns with National Development Planning Agency (Bappenas) projections in the 2025-2029 RPJMN preliminary draft, estimating total educational unit revitalization needs reaching IDR 571.6 trillion over five years, demonstrating the program's massive scale and urgency requiring proper planning, coordination, and oversight for effective target achievement (Badan Perencanaan Pembangunan Nasional, 2025).

Stakeholder Management

Stakeholder management constitutes a critical element in project success, particularly in public sector initiatives involving multiple parties with diverse interests. Freeman (2010) defined stakeholders as individuals, groups, or organizations capable of affecting or being affected by project implementation. In public project contexts, stakeholders encompass central government, local government, schools, communities, goods/services providers, and oversight agencies. Stakeholder management aims to identify interested parties, understand their needs and expectations, and develop effective engagement strategies supporting project success (Project Management Institute, 2025).

According to the Project Management Body of Knowledge (PMBOK Guide), stakeholder management processes include stakeholder identification, analysis of needs, influence, and expectations, engagement planning, and monitoring and evaluating stakeholder involvement throughout the project lifecycle (Project Management Institute, 2025). This approach facilitates smoother project progression by anticipating conflicts, increasing support, and strengthening communication among parties. Aaltonen and Kujala (2016) found that proactive stakeholder management strategies can enhance public sector project legitimacy and sustainability. In educational contexts, especially self-managed programs like the Elementary School Revitalization Program, stakeholder management becomes particularly important due to multiple involved parties ranging from ministries, education offices, schools, committees, communities, to goods/services providers, thereby preventing potential risks of conflicting interests, budget misappropriation, and fund disbursement delays due to weak stakeholder engagement (Langrafe et al., 2020; Peng et al., 2024).

Communication Management

Project communication management ensures appropriate information generation, collection, storage, distribution, and delivery to proper parties at proper times (Shakeri & Khalilzadeh, 2020). Effective communication plays a vital role in maintaining stakeholder engagement, minimizing conflicts, and ensuring project objective alignment (Butt et al., 2016; Project Management Institute, 2025). In government construction project contexts such as elementary school revitalization, communication management becomes a key factor because it involves various stakeholders with diverse interests, roles, and influence levels. Kerzner (2022) distinguished project communication into formal and informal types. Formal communication includes written reports, coordination meetings, contracts, and technical documents possessing administrative and legal value. Meanwhile, informal communication encompasses daily discussions, conversations, and social interactions that, despite lacking official documentation, significantly impact stakeholder relationships.

In elementary school revitalization projects, communication management faces unique challenges. Project stakeholders consisting of central government, local government, schools, students' parents, contractors, and surrounding communities possess different information needs. Poor communication management may generate misunderstandings, disagreements, and potential project delays. Therefore, structured communication strategies considering communication channels, reporting frequency, and clear information delivery mechanisms become necessary (Ismaeil et al., 2025). Primary benefits of implementing communication management include creating transparency, improved coordination, and increased stakeholder trust (Project Management Institute, 2025; Turner, 2014). Furthermore, effective communication management contributes to good governance principles implementation, as open and accurate informat

Risk Management

Risk management represents an essential element in construction project management, including government elementary school revitalization programs. Project risk can be understood as an uncertain event or condition that, if occurring, will positively or negatively impact project objectives, particularly concerning time, cost, quality, and scope aspects (Kadir & Musdiana, 2024; Qazi & Dikmen, 2021). Consequently, risk management functions not only to anticipate losses but also to maximize opportunities enhancing project performance. According to Hillson (2023), project risk management encompasses systematic processes from identification, analysis, evaluation, to risk mitigation strategy planning. Risk identification examines internal and external factors potentially disrupting project progress. Risk analysis then assesses occurrence probability levels and generated impact magnitudes, generally performed through qualitative or quantitative approaches. Subsequently, analysis results become the basis for designing mitigation strategies, whether through avoidance, transference, control, or risk acceptance.

In elementary school revitalization projects, risks may emerge in various forms. Technical risks may originate from field conditions inconsistent with design plans, material availability, or workforce limitations. Financial risks may arise from material price changes, budget disbursement delays, or cost overruns. Socio-political risks also potentially occur, such as surrounding community resistance, permit delays, or local government policy dynamics (Ali et al., 2021). Therefore, project success heavily depends on the extent to which risks can be identified early and handled appropriately. Effective risk management implementation provides several benefits, including increased planning certainty, reduced delay possibilities, and more efficient resource utilization achievement (Kerzner, 2022). Furthermore, successful risk management supports project governance creation aligned with good governance principles, as every risk control step proceeds transparently, accountably, and based on measurable planning.

Integration of Stakeholder Management, Communication, and Risk

The Elementary School Revitalization Program 2025 represents a government priority agenda for enhancing elementary education quality through adequate facility and infrastructure provision. Program success depends not only on construction technical aspects but also significantly influenced by comprehensive project management implementation, particularly regarding stakeholder management, communication management, risk management, and good governance principles (Eyieyien et al., 2024). Stakeholder management plays an important role because revitalization projects involve numerous parties, ranging from central and local government, schools, teachers, students' parents, to contractors and surrounding communities. Appropriate stakeholder identification and engagement can increase support, reduce conflicts, and ensure projects proceed according to user needs (Freeman, 2010; Freeman et al., 2007).

Subsequently, communication management becomes a crucial element for coordinating these various stakeholders. Effective communication can minimize misunderstandings, resolve potential conflicts, and maintain objective alignment among parties. Information transparency regarding planning, progress, and project constraints will strengthen coordination and build stakeholder trust (Kerzner, 2022; Project Management Institute, 2025). Additionally, elementary school revitalization projects face various risks, such as material provision delays, budget limitations, or social constraints in the field. Therefore, risk management implementation becomes necessary to identify, analyze, and formulate appropriate mitigation strategies preventing risks from disrupting project time, cost, and quality target achievement (Hillson, 2023). This entire process must operate within good governance principle frameworks. Transparency, accountability, participation, effectiveness, efficiency, and legal compliance principles become foundations ensuring revitalization projects not only produce physical buildings but also realize clean and accountable development governance (IBRD, 1992).

RESEARCH METHODOLOGY

This research employed a qualitative approach supported by descriptive quantitative data to comprehensively understand stakeholder engagement and communication patterns in the Elementary School Revitalization Program. The qualitative approach was selected because the research aimed to explore phenomena contextually through direct interaction with research subjects (Creswell & Creswell, 2023; Creswell & Poth, 2024). Descriptive quantitative data support was also necessary to measure engagement levels, interests, and stakeholder power using questionnaire instruments and power-interest matrix mapping (Project Management Institute, 2025). The research strategy utilized case study approaches with research objects comprising elementary schools receiving revitalization programs in Subang Regency. Yin (2018) explained that case studies constitute appropriate strategies for researching contemporary phenomena in real contexts

when boundaries between phenomena and context are unclear. This approach proved relevant because the Elementary School Revitalization Program involved diverse stakeholders with different interests and influence levels, requiring in-depth examination within local contexts.

Data collection was conducted through multiple methods to ensure triangulation and data validity. Primary data were obtained through structured questionnaires distributed to key stakeholders including school principals, School Development Committee (P2SP) members, school committees, education offices, and technical consultants. Questionnaires were designed following PMBOK standards to measure stakeholder power and interest dimensions, communication effectiveness, and risk perceptions. Secondary data were collected through document analysis including program policy documents, technical guidelines, organizational structures, implementation reports, and coordination meeting minutes. Expert validation was conducted through Delphi method involving project management practitioners and education policy experts to ensure instrument validity and result consistency with field conditions. Data analysis employed descriptive qualitative techniques for stakeholder identification and communication pathway mapping, while quantitative scoring was applied for power-interest analysis and risk assessment using probability-impact matrices.

The research process followed systematic stages beginning with stakeholder identification through document analysis and questionnaires validated by experts, producing comprehensive stakeholder registers including roles, responsibilities, and engagement levels. Subsequently, power-interest analysis was conducted using Likert scale questionnaires to classify stakeholders into four categories: Key Players, Keep Satisfied, Keep Informed, and Minimal Effort, following Mendelow's (1991) framework as adopted in PMBOK standards. Communication pathway mapping analyzed formal and informal information flows through questionnaires and document review, identifying critical communication nodes potentially becoming risk sources. Risk identification and analysis employed probability-impact assessment questionnaires to map communication and coordination risks, producing risk registers with mitigation priorities. Finally, stakeholder engagement assessment compared expected versus actual engagement levels to identify engagement gaps and formulate risk-based engagement strategies. The entire analytical process integrated findings to develop a comprehensive risk-based stakeholder management model applicable to self-managed elementary school revitalization program implementation.

RESULT AND DISCUSSION

Stakeholder Identification and Categorization

Document analysis and expert-validated questionnaires identified seventeen primary stakeholders involved in the Elementary School Revitalization Program, categorized into five groups: central government (Directorate General of PAUD,

Primary and Secondary Education; Directorate of Elementary Schools; BBPMP/BPMP; Inspectorate General), local government (District/City Education Offices; Public Works Offices; school supervisors), educational unit level (school principals; P2SP; teachers; school treasurers), community and committees (school committees; community leaders; students' parents), and technical support (planning experts; supervision experts; local material suppliers). This finding aligns with Freeman's (1984) stakeholder theory emphasizing that project success heavily depends on role and relationship clarity among involved parties. Each stakeholder was subsequently classified based on roles, interests, and potential contributions toward program success. Mapping results indicated that school-level stakeholders (principals, P2SP, teachers, committees) possessed high influence over daily self-management operations, while central government held strategic influence through policies, oversight, and budget disbursement.

The comprehensive stakeholder identification proved essential for developing effective engagement strategies. Bourne (2016) argued that initial stakeholder mapping determines individuals or groups possessing influence, interest, and contribution toward project success. In self-managed revitalization program contexts, stakeholder complexity increased due to direct fund management responsibility transfer to schools, requiring stronger coordination among parties. The stakeholder register produced from this stage became the foundation for subsequent power-interest mapping, communication pathway analysis, and risk-based engagement level assessment, consistent with PMBOK Guide recommendations that stakeholder identification must be conducted systematically through primary and secondary data collection to produce comprehensive and validated stakeholder lists (Project Management Institute, 2025).

Power-Interest Analysis and Strategic Positioning

Power-interest analysis using Likert scale questionnaires and expert validation produced stakeholder classification into four categories following Mendelow's (1991) framework. Five stakeholders were identified as Key Players (high power-high interest): Ministry of Education (Directorate General PAUD-Primary-Secondary Education), Directorate of Elementary Schools, District/City Education Offices, school principals, and P2SP. These actors constituted key players requiring intensive management and involvement in all decision-making processes. The Keep Satisfied category (high power-low interest) included Inspectorate General, Public Works Offices, and external supervisors, requiring sufficient information provision to maintain compliance and oversight. The Keep Informed category (low power-high interest) comprised teachers, school committees, and students' parents, who demonstrated strong interest in project outcomes but possessed limited decision-making power. The Minimal Effort category (low power-low interest) included local material suppliers and general public, managed through basic information approaches.

Table 1 Power-Interest Stakeholder Classification Matrix

Category	Stakeholders	Management Strategy
Key Players (High Power - High Interest)	Ministry of Education, Directorate of Elementary Schools, District Education Office, School Principal, P2SP	Intensive engagement, collaborative decision-making, frequent communication
Keep Satisfied (High Power - Low Interest)	Inspectorate General, Public Works Office, External Supervisors	Regular reporting, compliance assurance, relationship maintenance
Keep Informed (Low Power - High Interest)	Teachers, School Committee, Students' Parents	Information dissemination, transparency, participation encouragement
Minimal Effort (Low Power - Low Interest)	Local Material Suppliers, General Public	Basic information, standard procedures

Source: Author's Analysis

This mapping revealed that program success was significantly influenced by intensive coordination among Key Players at central, regional, and school levels. Ackermann and Eden (2011) emphasized that actors in high power-high interest quadrants must receive primary attention, be involved intensively, and become communication strategy focus. Research findings confirmed this theoretical proposition, demonstrating that obstacles in coordination among Key Players, particularly between schools-education offices-central directorate, became major sources of implementation delays and administrative complications. Aaltonen and Kujala (2016) found that proactive stakeholder management strategies can enhance public sector project legitimacy and sustainability. In revitalization program contexts, this finding provided foundation for determining communication strategies, coordination mechanisms, risk management, and stakeholder engagement enhancement in subsequent research stages, consistent with PMBOK principles emphasizing that stakeholder categorization should guide resource allocation and engagement intensity (Project Management Institute, 2025).

Communication Pathways and Coordination Mechanisms

Communication pathway mapping identified three main information flow levels: vertical communication (central→regional→school), horizontal communication (internal school), and cross-level communication (technical coordination). Vertical communication flowed through decision letters, technical guidelines, MoUs, Revit application system, and physical and financial progress reporting. Horizontal communication occurred between principals↔P2SP, P2SP↔teachers and committees, and P2SP↔community/material suppliers. Cross-level communication involved planning/supervision experts, education offices, P2SP, and BBPMP/BPMP. Analysis results revealed that the most critical communication pathway existed in the principal→P2SP→Education Office→Directorate relationship, particularly concerning technical document

verification, construction progress, and second-phase fund disbursement. This finding supports Kerzner's (2022) assertion that project communication should be distinguished into formal and informal types, both requiring balanced management for smooth project coordination.

Several potential obstacles were identified from communication analysis: communication frequency inconsistency, dependency on administrative documents, diverse P2SP capacities, and technical perception differences among parties. These findings align with PMBOK guidance on Plan and Manage Communications processes, emphasizing that project success significantly depends on information clarity, delivery speed, appropriate media, and information need suitability with stakeholder characteristics (Project Management Institute, 2025). Turner (2014) reinforced that primary benefits of implementing communication management include creating transparency, improved coordination, and increased stakeholder trust. In revitalization contexts, communication played critical roles because self-managed construction processes required intensive inter-party coordination, especially during technical document verification and second-phase fund disbursement phases. Loosemore (2014) noted that communication in construction projects becomes complex when involving multiple parties with different expertise and authority levels, requiring structured communication protocols and clear escalation mechanisms to prevent information bottlenecks and decision delays.

Risk Identification and Prioritization

Risk analysis using probability-impact questionnaires identified twenty-three dominant risks, primarily related to administrative and communication aspects rather than technical construction. High-impact risks included second-phase fund disbursement delays due to reporting inconsistencies, technical guideline and manual misinterpretation by schools, weak work progress documentation, delayed coordination between schools and offices regarding document verification, mid-implementation technical policy changes, and low P2SP managerial capacity. High-probability risks comprised slow responses from key stakeholders due to high workloads, minimal digital communication literacy in schools, understanding differences between experts and P2SP, and interest conflicts with communities or school committees. All risks were entered into Risk Registers including risk categories, causes, impacts, and mitigation action recommendations, following PMBOK risk management processes (Project Management Institute, 2025).

Table 2 Priority Risk Categories and Mitigation Strategies

Risk Category	Key Risks	Priority Level	Mitigation Strategy
Administrative	Fund disbursement delays, guideline misinterpretation, weak documentation	Critical	Standardized reporting templates, training programs, clear verification procedures
Communication	Coordination delays, slow stakeholder responses, digital literacy gaps	High	Communication SOP, response time limits, digital capacity building
Capacity	Low P2SP managerial capacity, inadequate training	Critical	Intensive training, expert mentoring, phased implementation support
Social	Community conflicts, interest misalignment	Medium	Community engagement protocols, transparent information sharing

Source: Author's Analysis

These findings support Hillson's (2023) argument that project risk management encompasses systematic processes from identification, analysis, evaluation, to risk mitigation strategy planning. In elementary school revitalization projects, risks emerged in various forms including technical risks from field conditions inconsistent with design plans, financial risks from material price changes or budget delays, and socio-political risks such as community resistance or permit delays. However, research results demonstrated that non-technical risks dominated over technical risks, particularly miscommunication and administrative delays. This finding contradicts common assumptions that construction project risks primarily stem from technical aspects. Kerzner (2022) noted that in government projects, administrative and coordination risks often become more critical than pure technical risks due to bureaucratic complexity and multi-level approval requirements. The risk mapping produced in this stage became the foundation for formulating risk-based stakeholder engagement strategies, ensuring that communication activities and stakeholder involvement were conducted in planned, scheduled, and proportional manners according to risk levels and program implementation phases.

Stakeholder Engagement Assessment and Strategy Development

Stakeholder engagement analysis comparing expected versus actual engagement levels revealed engagement gaps in several stakeholders, particularly teachers, school committees, and P2SP. Key stakeholders tended toward "Medium to High Engagement" categories, though gaps remained between central expectations and school capacities. Stakeholders such as school committees and teachers demonstrated lower engagement levels than expected, especially during planning and reporting stages. Technical experts engaged actively in technical

stages, but coordination with P2SP occasionally proved inconsistent. These findings align with Bourne's (2016) stakeholder engagement model emphasizing the importance of mapping stakeholder involvement levels at each project phase to ensure objective alignment, process transparency, and sustained program support.

The identified engagement gaps became the foundation for developing Risk-Based Engagement Strategies integrating stakeholder priorities, critical communication pathways, and communication and coordination risks. The developed model provided recommendations for specific communication strategies per stakeholder, communication frequency and media, risk mitigation based on stakeholder roles, and engagement monitoring mechanisms. This approach aligns with PMBOK guidance on Manage Stakeholder Engagement processes, emphasizing that strategies should be based on stakeholder positions in power-interest grids, information needs, and risk levels related to respective stakeholders (Project Management Institute, 2025). The final model recommended three engagement strategy levels: communication actions, risk response interactions, and capacity alignment strategies, ensuring that program implementation could proceed more effectively, transparently, and accountably.

The research findings both support and extend previous studies on stakeholder management in educational and construction projects. While Ulum et al. (2021) demonstrated the applicability of PMBOK-based stakeholder management in educational institutions, their research focused solely on stakeholder aspects without integrating communication management and risk analysis. This present study extends their work by developing a comprehensive framework integrating all three dimensions—stakeholder management, communication pathways, and risk mitigation—specifically tailored for self-managed elementary school revitalization programs. Similarly, Rabbani et al. (2022) emphasized stakeholder identification and classification in schools based on National Education Standards but did not address project communication standards or risk management processes. The current research bridges this gap by incorporating systematic communication analysis and risk assessment methodologies.

The findings also contradict conventional assumptions about construction project risks. While technical and financial risks typically dominate traditional construction project literature, this research revealed that administrative and communication risks posed greater threats to self-managed educational infrastructure projects (Hillson, 2023; Kerzner, 2022). This contradiction extends understanding of risk profiles in decentralized public sector projects, where authority transfer to local levels amplifies coordination and communication challenges over technical execution difficulties. Furthermore, the research confirms Aaltonen and Kujala's (2016) assertion that proactive stakeholder management strategies enhance public sector project legitimacy and sustainability, while providing empirical evidence from Indonesian educational infrastructure contexts.

The power-interest mapping results validate Mendelow's (1991) framework applicability in multi-level government programs, demonstrating that Key Players require intensive engagement regardless of organizational hierarchy, as school principals and P2SP members held equal strategic importance to central government directorates in determining program success. These findings contribute to stakeholder theory by emphasizing that in self-managed public projects, operational-level actors (schools, committees) require recognition as strategic partners rather than mere implementation agents, necessitating engagement strategies emphasizing capacity building, continuous communication, and collaborative risk mitigation rather than top-down directive approaches.

CONCLUSION

This research developed a risk-based stakeholder management model for the Elementary School Revitalization Program 2025 through systematic integration of stakeholder identification, power-interest analysis, communication pathway mapping, risk assessment, and engagement strategy formulation. The study identified seventeen primary stakeholders categorized into five groups, with five key players requiring intensive engagement: Ministry of Education, Directorate of Elementary Schools, District/City Education Offices, school principals, and P2SP. Power-interest analysis revealed that program success heavily depended on coordination quality among these key players, while communication pathway mapping identified critical nodes in school-education office-central directorate relationships, particularly concerning technical document verification and second-phase fund disbursement. Risk analysis demonstrated that administrative and communication risks dominated over technical construction risks, with twenty-three identified risks primarily related to reporting delays, guideline misinterpretation, documentation weaknesses, and coordination inconsistencies. Engagement assessment revealed gaps between expected and actual stakeholder involvement, especially among teachers, school committees, and P2SP members, necessitating structured engagement strategies.

The developed model contributes both theoretically and practically to project management literature and educational infrastructure implementation. Theoretically, the research extends PMBOK-based stakeholder management frameworks by demonstrating their applicability in self-managed public sector educational projects, while highlighting that in decentralized programs, administrative and communication risks surpass technical risks contrary to conventional construction project assumptions. The model validates stakeholder theory applications in multi-level government programs, emphasizing that operational-level actors require recognition as strategic partners rather than mere implementation agents. Practically, the model provides actionable guidelines for educational units and government agencies in managing stakeholder relationships, communication flows, and risk mitigation strategies throughout program

implementation phases. The risk-based engagement framework enables program managers to prioritize resources, customize communication approaches, and implement proactive risk responses aligned with stakeholder characteristics and project phases, ultimately enhancing program transparency, accountability, and effectiveness.

The research acknowledges several limitations requiring consideration for future studies. First, questionnaire administration involved purposively selected experts and stakeholders, rendering findings dependent on respondent perceptions and limiting generalizability across all Indonesian regions without additional empirical validation. Second, analysis focused exclusively on construction phases according to research delimitation, thus excluding planning and post-construction phases that may present distinct stakeholder dynamics and risk profiles. Third, risk assessment remained qualitative, necessitating implementation testing for validating mitigation strategy effectiveness in actual field conditions. Future research should expand empirical scope across diverse provinces and districts to examine governance variations, communication challenges, and engagement strategy effectiveness under different regional contexts. Longitudinal studies tracking program implementation from planning through post-construction phases would provide comprehensive understanding of stakeholder role evolution, communication pattern shifts, and risk profile transformations across project lifecycle stages. Additionally, quantitative risk modeling incorporating cost-benefit analyses of mitigation strategies would strengthen practical applicability.

SUGGESTION

Based on research findings, several strategic recommendations emerge for enhancing self-managed elementary school revitalization program implementation. First, capacity building initiatives for P2SP and educational units should be prioritized, providing supplementary training in project management, progress reporting, technical communication, and Revit application utilization to improve administrative quality and coordination effectiveness. Second, standardized cross-level communication Standard Operating Procedures should be established by the Directorate of Elementary Schools and Education Offices, encompassing information delivery flows, response time limits, standardized document formats, mandatory communication media, and problem escalation mechanisms. Third, Revit application optimization should extend beyond reporting functions to include technical information dissemination, constraint documentation, and risk monitoring, thereby reducing miscommunication across government levels. Fourth, non-technical stakeholder roles, particularly teachers and school committees, require strengthening through enhanced participation in planning stages, construction activity monitoring, fund utilization oversight, and community communication. Fifth, risk management integration into program implementation flows necessitates developing standardized risk checklists for schools,

encompassing communication, administrative, and social risks in school environments.

Furthermore, priority-based stakeholder engagement strategies should be customized for each power-interest category: Key Players require intensive coordination through periodic meetings and collaborative decision-making; Keep Satisfied stakeholders need routine reporting and regulatory compliance; Keep Informed stakeholders benefit from periodic information dissemination and social participation; and Minimal Effort stakeholders receive basic information at designated times. The developed model should undergo implementation testing across diverse regional contexts to validate effectiveness under varying governance structures, infrastructure conditions, and stakeholder capacity levels. Such empirical validation would enable model refinement and adaptation to specific local contexts while maintaining core framework integrity. Ultimately, these recommendations aim to transform the risk-based stakeholder management model from conceptual framework into operational tool supporting transparent, accountable, and effective self-managed educational infrastructure program implementation nationwide.

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