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THE INFLUENCE OF HUMAN RESOURCE CAPACITY BUDGET IMPLEMENTATION AND MINIMUM SERVICE STANDARDS ON DISASTER PROGRAM QUALITY WITH FINANCIAL MANAGEMENT PERFORMANCE AS A MODERATING VARIABLE

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Abstract

This study aims to analyze the influence of Human Resource Capacity, Budget Implementation, and Minimum Service Standards (SPM) on the Quality of Disaster Program Implementation, with Financial Management Performance as a moderating variable. The research was conducted in the Jabotabek region's BPBDs using a quantitative approach with a census sampling technique, collecting data from 100 respondents via questionnaire. Data analysis employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) method. The results indicate that Human Resource Capacity, Budget Implementation, SPM, and Financial Management Performance each have a significant positive effect on Program Quality. Furthermore, Financial Management Performance significantly strengthens the positive effects of both Budget Implementation and SPM on Program Quality. These findings confirm that effective disaster management requires not only adequate resources and standards but also robust financial governance to amplify their impact. The study provides strategic implications for strengthening BPBD institutions through an integrated approach to human resources, budgeting, service standards, and financial accountability to enhance community resilience in disaster-prone metropolitan areas.

Keywords: ***Budget Implementation, Disaster Management, Financial Performance, Human Resources, Minimum Service Standards.***

INTRODUCTION

Indonesia, an archipelagic nation situated within the Pacific Ring of Fire and characterized by dynamic demographics, faces an exceptionally high level of disaster risk. The challenge of disaster risk management is particularly complex in dense urban areas with critical infrastructure, such as the Jabotabek region (Jakarta, Bogor, Tangerang, and Bekasi). Data from the National Disaster Management Agency (BNPB) paints a concerning picture. Throughout 2024, Indonesia recorded 2,107 disaster events, resulting in hundreds of fatalities, thousands of injuries, and more than 8 million people affected and displaced (BNPB, 2024). Infrastructure damage was also significant, encompassing tens of thousands of housing units, educational and health facilities, places of worship, and bridges. The Jabotabek region specifically serves as an epicenter of vulnerability. This area is not only confronted with annual hydrometeorological threats like floods but also the potential for earthquakes from the Baribis Fault and technological disaster risks. In early 2025, major floods struck Bogor Regency (29,551 evacuees, 131 houses damaged), Bekasi Regency (92,492 evacuees), Tangerang City (8,111 people affected), and DKI Jakarta (Kharis Aulia Alam et al., 2025). Ironically, amidst this complex threat landscape, the institutional capacity of the local Regional Disaster Management Agencies (BPBD) faces fundamental challenges. For instance, the BPBD of Bekasi Regency is supported by only 98 personnel, with no addition of task force members in the last five years a number vastly insufficient for handling large-scale disasters (Hapsari & Djumiarti, 2016). The 2024 Indonesian Disaster Risk Index (IRBI) reinforces this condition, categorizing Jakarta and Bogor as high-risk, while Bekasi and Tangerang are at medium risk. The national disaster management framework is clearly regulated under Law of the Republic of Indonesia Number 24 of 2007 concerning Disaster Management, strengthened by Minister of Home Affairs Regulation Number 101 of 2018 and Minister of Home Affairs Regulation Number 59 of 2021 (Agustin & Nazar, 2024). These regulations emphasize the importance of three main pillars: (1) strengthening human resource (HR)

capacity, (2) effective and accountable budget implementation, and (3) fulfillment of Minimum Service Standards (SPM) as a minimum performance benchmark for disaster services. SPM in disaster management, which includes information services, early warning, emergency response, reporting, and recovery, is intended to guarantee the basic rights of citizens and create service uniformity across all regions, as mandated in Government Regulation Number 2 of 2018 (Faturahman, 2018). However, field realities reveal a significant gap between regulatory expectations and the operational capacity of BPBDs. Factual data from 2024-2025 reveals wide disparities. From a budgeting perspective, the BPBD of DKI Jakarta had only executed 17.88% of its total budget ceiling by mid-2025, while the BPBD of Bogor Regency had absorbed only 31.95% of its total program allocation as of July 2024. Achievements of SPM are also uneven (Agustin & Nazar, 2024). Data from the Ministry of Home Affairs shows national averages for disaster-prone information services at 42.72%, prevention and preparedness at 40.91%, and rescue and evacuation at 59.32% as of 2023. Within Jabotabek, although the BPBD of Tangerang City successfully achieved 100% in several SPM components and Bogor Regency received a national award, SPM achievement in Bogor City and Bekasi still faces challenges in meeting minimum indicators and ensuring service quality consistency (Kemendagri, 2024).

This phenomenon can be analyzed through several theoretical lenses. First, the Resource-Based View (RBV) theory (Dasuki, 2021) emphasizes that an organization's performance advantage, in this case the BPBD, stems from unique, valuable, and hard-to-imitate internal resources, where competent human resources are a key strategic asset. Second, public financial management theory (Jalaludin, 2024) asserts that responsive, efficient, and transparent budget implementation is the backbone of public service effectiveness. Performance-based budgeting is not merely about accounting but is a policy instrument that reflects government priorities and commitments (Mauro et al., 2020). Third, Minimum Service Standards (SPM) are a manifestation of the New Public Management (NPM) paradigm, which pushes bureaucracies to be outcome-oriented and focused on citizen satisfaction. SPM functions as a service contract between the government and its citizens, with relevant service quality dimensions such as reliability, responsiveness, and assurance (Wirijadinata, 2020).

Based on this theoretical framework and empirical conditions, the main problem of this research is the suboptimal quality of disaster program implementation in the Jabotabek BPBDs. The quality in question encompasses aspects of effectiveness, efficiency, timeliness, relevance, and program accountability. This condition is strongly suspected to be significantly influenced by three key factors: (1) variation and inadequacy of HR Capacity (competence, numbers, training), (2) constraints in Budget Implementation (risk-based planning, disbursement delays, suboptimal absorption), and (3) inconsistency in the application of Minimum Service Standards (SPM). In addition to these three core variables, this study also examines the role of Financial Management Performance. Within the NPM paradigm, efficient and value-for-money-oriented financial management is considered a key government performance indicator. However, the Performance Paradox theory (Pinto, 2019)cautions that an excessive focus on financial efficiency can sacrifice effectiveness in sectors that require rapid and flexible responses, such as disaster management. Therefore, this study not only tests the direct effect of Financial Management Performance but also its role as a moderating variable in the relationship between Budget Implementation and SPM on the Quality of Disaster Program Implementation. The fundamental question is whether sound financial governance can strengthen the positive impact of budgeting and service standards on the quality of field programs.

Several previous studies provide empirical support for these relationships. Research by (Lillati, 2024) and (Karanci, 2013) confirm the positive influence of HR capacity on the performance of disaster management organizations. Meanwhile, (Rizal et al., 2021) and (Liying & Mengying, 2024) found that performance-based budgeting is significantly correlated with improved performance in public organizations. In the context of SPM, Nurung & Asang (2019) showed that the application of SPM has a significant impact on the quality of public services in the disaster sector. However, research that integrates these three variables (HR, Budget, SPM) simultaneously, while positioning Financial Performance as a moderator in the context of BPBDs in Indonesian metropolitan areas, remains limited. A study by (Suhendar & Suherman, 2022) on Value for Money in the Kampar BPBD found that although the budget was efficient, service quality still needed improvement, hinting at the role of other factors. Thus, this research aims to fill this literature gap by conducting a comprehensive and empirical study on the simultaneous influence of Human Resource Capacity, Budget Implementation, and Minimum Service Standards on the Quality of Disaster Program Implementation, while considering the moderating role of Financial Management Performance. The research focus on BPBDs in the Jabotabek region a metropolitan area with high vulnerability and dynamic disaster risks makes these findings highly relevant and strategic. The results of this study are expected not only to provide a theoretical contribution to the development of public management and disaster management science but also to serve as an empirical basis for formulating more effective policies in strengthening

BPBD institutions, optimizing resource allocation, and improving the quality of disaster services, which ultimately contributes to enhancing the safety and resilience of communities in disaster-prone areas

LITERATURE REVIEW

Human Resource Capacity Theory

Human Resource (HR) Capacity is a critical determinant of organizational effectiveness, particularly in high-stakes environments like disaster management. The Resource-Based View (RBV) theory, established by (Barney et al., 2021), posits that organizations gain a competitive advantage through valuable, rare, and inimitable internal resources. In the public sector context, a competent workforce represents such a strategic asset (Okusanya et al., 2023). For Regional Disaster Management Agencies (BPBD), HR capacity transcends mere headcount; it encompasses the knowledge, skills, adaptability, and resilience of personnel to perform under dynamic and stressful crisis conditions (Efendy et al., 2022). The complexity of modern disasters, compounded by climate change and urbanization, demands a workforce capable of technical proficiency and rapid decision-making. Khan et al., (2023) emphasize that continuous training and skill development are fundamental to building this capacity, directly impacting operational readiness. Furthermore, the ability to coordinate across agencies is paramount. Studies consistently show that a deficit in HR capacity, including poor inter-agency coordination and technical incompetence, can lead to systemic failures, such as the breakdown of early warning systems, with potentially fatal consequences (Syahwanes et al., 2025). The empirical link between HR capacity and disaster management outcomes is robust. Research by (Hapsari & Djumiarti, 2016) in Indonesian BPBDs found a significant positive relationship between staff competence and performance. Similarly, a study by Sofyana et al (2024) concluded that targeted training programs significantly enhanced the effectiveness of disaster response teams. Therefore, strategic investment in HR development through recruitment, certification, and ongoing training is not an ancillary function but a foundational prerequisite for effective disaster management (Okusanya et al., 2023).

Budget Implementation Theory

Budget implementation is a critical process in translating financial plans into concrete actions and measurable outcomes. In the public sector, budgeting serves not merely as an accounting mechanism but as a strategic policy instrument that reflects governmental priorities and commitments (Abbasov, 2025; Mauro et al., 2020). Within the context of disaster management, effective budget implementation characterized by efficiency, timeliness, and accountability is a decisive factor in the success of public service delivery, as delays can result in life-threatening consequences (Apryana et al., 2020) A major challenge in disaster budgeting lies in ensuring that allocations are both risk-informed and efficiently executed. Hidayat (2022) identifies two persistent obstacles in Indonesia: *mismatched allocation*, referring to the misalignment between budget distribution and regional risk profiles, and *budget absorption delays*, which hinder program effectiveness. Hamidi & Puspita (2021) further argue that while fiscal decentralization enhances local autonomy, it can exacerbate absorption issues due to uneven institutional capacity across regions. Contemporary approaches advocate for the adoption of performance-based budgeting and integrated evaluation tools. Kim et al (2022) developed an algorithm that combines cost-benefit analysis with performance indicators to assess the efficiency of disaster-related budget investments. Mardiasmo, (2024) recommends evaluating budget implementation through indicators such as allocation appropriateness, disbursement timeliness, and output-based efficiency

Minimum Service Standards (SPM)

Minimum Service Standards (SPM) are regulatory provisions that define the types and quality of essential services that local governments are obligated to deliver. In disaster management, SPM functions as a core framework mandated by Government Regulation No. 2/2018, Minister of Home Affairs Regulation No. 101/2018, and No. 59/2021, which collectively establish technical standards, implementation mechanisms, and reporting protocols via the e-SPM system integrated into SIPD (Kemendagri, 2024) SPM for disaster sub-sector includes five core services: (1) dissemination of hazard information, (2) early warning and evacuation, (3) emergency response and basic needs provision, (4) rapid impact assessment and reporting, and (5) post-disaster recovery including infrastructure repair and emergency health services. These services are delivered by BPBDs with support from cross-sectoral agencies including OPDs, TNI/Polri, volunteers, and disaster partners. Performance indicators are assessed across input, process, output, and outcome dimensions, and reported quarterly through e-SPM. Data from Triwulan II 2024 shows performance disparities across regions. DKI Jakarta consistently achieved above 95% across all indicators, reflecting a mature disaster management system. Tangerang City excelled in early warning and evacuation (93%), while Bogor

City and Bekasi Regency lagged in post-disaster recovery (76% and 78%, respectively), indicating gaps in human resource capacity and recovery budgeting (Standar Teknis Pelayanan Dasar Pada Standar Pelayanan Minimal Sub Urusan Bencana Daerah Kabupaten/Kota, 2018)

Disaster Program Implementation Quality

The quality of disaster program implementation is a measure of a program's effectiveness, efficiency, and compliance with organizational planning, standard operating procedures (SOPs), and strategic objectives. According to Zeithaml, Parasuraman, and Berry (Hermansah et al., 2023), service quality is defined through five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Within the context of Indonesia's Regional Disaster Management Agencies (BPBD), implementation quality is reflected in the fulfillment of disaster SOPs, timeliness of response, delivery of meaningful program outputs, and stakeholder satisfaction (Rahma, 2025). In this study, disaster program implementation quality serves as the primary dependent variable, representing the overall performance and effectiveness of the organization. In disaster management, program quality is not solely assessed by output metrics (e.g., number of tents deployed), but also by outcome indicators such as reduced casualties and accelerated community recovery. Efforts to improve program quality align with the national agenda outlined in the National Disaster Management Plan (RENAS PB) issued by BNPB, which mandates disaster management to be planned, integrated, and well-coordinated. As emphasized by Coppola (2015), the success of disaster programs depends heavily on the synergy between sound planning, adequate resources including human capital and budget and standardized implementation mechanisms. Therefore, the independent variables examined in this study such as budget execution, service standards, and human resource capacity are theoretically and practically recognized as key determinants of disaster program quality

Conceptual Framework and Hypothesis Development

This study conceptualizes Disaster Program Quality as the outcome of effective public sector performance, shaped by strategic resources, financial governance, and regulatory standards. Drawing on the Resource-Based View (Barney, 1991), Human Resource Capacity is positioned as a core internal asset that enhances program execution. Competent personnel through knowledge, skills, and experience are essential for planning, implementing, and evaluating disaster programs (Dewa et al., 2021; Nurwulandari et al., 2023; Putri et al., 2024). Budget Implementation is theorized as a critical enabler of program delivery, in line with public financial management theory (Mardiasmo, 2018). Structured and accountable budgeting contributes to organizational outcomes (Liying & Mengying, 2024; Rizal et al., 2021). Meanwhile, Minimum Service Standards (SPM), as mandated by PP No. 2/2018 and Permendagri No. 101/2018, serve as normative benchmarks that guide service quality and reduce ambiguity(Zeithaml et al., 2019). The model incorporates both direct and moderated relationships using PLS-SEM. Financial Management Performance is tested as a moderator, reflecting contingency theory (Van Thiel & Leeuw, 2002), while Budget Allocation Efficiency is positioned as a potential mediator (Hidayat, 2022). Six hypotheses are proposed:

H1: Human Resource Capacity positively affects Disaster Program Quality (Barney, 1991; Dewa et al., 2021).
H2: Budget Implementation positively affects Disaster Program Quality (Mardiasmo, 2018; Rizal et al., 2022).
H3: Minimum Service Standards positively affect Disaster Program Quality (PP No. 2/2018; Fitri et al., 2022).
H4: Financial Management Performance positively affects Disaster Program Quality (van Thiel & Leeuw, 2002).
H5: Financial Management Performance positively moderates the effect of Budget Implementation on Program Quality (Wildavsky, 1975).
H6: Financial Management Performance positively moderates the effect of SPM on Program Quality (Peters, 2015).

This framework reflects a multidimensional approach to disaster governance, integrating strategic capacity, fiscal discipline, and regulatory compliance to explain variations in program effectiveness.

METHOD

In this study, an explanatory quantitative research design with a cross-sectional survey approach was utilized, where data collection was conducted at a single point in time to measure the hypothesized relationships (Hair et al., 2019). The research population consisted of employees from four Regional Disaster Management Agencies (BPBD) in the Jabotabek area. Given the manageable and specific population size, a census sampling technique was employed, where all 100 members of the target population were invited to participate, resulting in 85 valid responses for analysis (Saunders et al., 2019). The research variables included Human Resource Capacity (HRC), Budget

Implementation (BI), Minimum Service Standards (MSS), Financial Management Performance (FMP), and the Quality of Disaster Program Implementation (QDPI). Data collection was carried out using a structured questionnaire distributed both online via Google Forms and directly on-site to maximize the response rate (Dillman et al., 2014). The collected data were analyzed using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach, a variance-based technique suitable for complex models and prediction-oriented research (Hair et al., 2019). The analysis was conducted using SmartPLS software version 4.0. The evaluation followed a two-step process: first, the measurement model was assessed for reliability and validity (Hair et al., 2019), followed by an evaluation of the structural model. Hypotheses regarding direct and moderating effects were tested using a bootstrapping procedure with 5,000 subsamples to obtain stable estimates of the path coefficients' significance. The analysis results, including path coefficients (β), R-squared (R^2) values, and Q-squared (Q^2) values, are reported to evaluate the proposed model's explanatory and predictive power (Hair et al., 2019).

RESULTS AND DISCUSSION

Result

Respondent Profile

This study employed an online survey method using a structured questionnaire distributed via Google Forms during July 2025. Respondents were selected based on specific criteria, including civil servants, structural and functional officials, operational staff, volunteers, and Rapid Response Team (TRC) personnel affiliated with the Regional Disaster Management Agencies (BPBD) in Jakarta Province, Bogor City, Tangerang City, and Bekasi Regency. A total of 100 valid responses were collected, representing individuals directly involved in disaster management programs. Each construct Human Resource Capacity, Budget Implementation, Minimum Service Standards, and Disaster Program Quality was measured using a five-point Likert scale ranging from Strongly Disagree to Strongly Agree.

Tabel 1. 1 Consolidated Respondent Demographics

Category	Subcategory	Frequency	Percent (%)	Valid Percent (%)
Gender	Male	75	75	75
	Female	25	25	25
	Total	**100**	**100**	**100**
Age Group	< 30 years	2	2	2
	31–40 years	18	18	18
	41–50 years	37	37	37
	> 50 years	43	43	43
	Total	**100**	**100**	**100**
Educational Level	High School	3	3	3
	Diploma (D3)	36	36	36
	Bachelor (S1)	36	36	36
	Postgraduate (S2/S3)	25	25	25
	Total	**100**	**100**	**100**

Source: Primary Data, processed (2024)

The demographic profile of respondents in this study reveals a predominantly male composition (75%), with female participation at 25%, reflecting the operational realities within BPBD institutions. Age-wise, the majority are over 50 years (43%) and between 41–50 years (37%), indicating a mature and experienced workforce. Educationally, 97% of respondents hold at least a diploma, with 36% having bachelor's degrees and 25% postgraduate qualifications. This combination of gender, age, and education suggests that the data were sourced from a knowledgeable and professionally competent group, enhancing the credibility and relevance of the study's findings on disaster management performance.

Outer Model Evaluation

The outer model assessment in Partial Least Squares Structural Equation Modeling (PLS-SEM) serves to validate the measurement instruments used in this study. It ensures that each indicator reliably reflects its latent construct through tests of convergent validity, discriminant validity, and construct reliability. These evaluations are critical to confirm that the data structure is statistically sound before proceeding to structural path analysis.

Tabel 1. 2 Summary of Outer Model Results

Construct	Loading Factor Range	AVE	Cronbach's Alpha	Composite Reliability
Human Resource Capacity	0.706 – 0.858	0.59	0.826	0.877
Budget Implementation	0.742 – 0.903	0.71	0.895	0.923
Minimum Service Standards	0.836 – 0.902	0.77	—	—
Disaster Program Quality	0.756 – 0.847	0.66	0.896	0.92
Financial Performance	0.825 – 0.987	0.82	0.891	0.931

Source: Primary Data, processed (2024)

The outer model evaluation confirms that all measurement constructs in this study meet the standards of validity and reliability required for structural equation modeling. Each construct Human Resource Capacity, Budget Implementation, Minimum Service Standards, Disaster Program Quality, and Financial Performance demonstrates strong indicator loadings, with values ranging from 0.706 to 0.987, exceeding the minimum threshold of 0.70 for convergent validity. The Average Variance Extracted (AVE) values for all constructs are above 0.50, indicating that more than half of the variance in each indicator is explained by its respective latent variable. Furthermore, the reliability tests show that Cronbach's alpha and composite reliability scores are consistently above 0.70, confirming high internal consistency and measurement stability. These results validate the measurement model and affirm that the instruments used are both statistically robust and theoretically sound. Consequently, the model is deemed appropriate for further structural analysis to examine the causal relationships among variables influencing disaster program quality across BPBDs in the Jabotabek region.

Inner Model Evaluation

The inner model evaluation in PLS-SEM aims to assess the structural relationships between latent variables by examining the model's predictive power and the strength of its path coefficients. This evaluation includes the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2), which together provide a comprehensive understanding of how well the independent variables explain the dependent variable in this case, the quality of disaster management programs.

Tabel 1. 3 Summary of Inner Model Results

Endogenous Variable	R^2	Q^2	Effect Size (f^2) – Key Predictors
Disaster Program Quality	0.71	0.49	HR Capacity (0.168), Budget Implementation (0.214), SPM (0.196), Financial Performance (0.321)

Source: Primary Data, processed (2024)

The coefficient of determination (R^2) for Disaster Program Quality is 0.712, indicating that 71.2% of the variance in program quality can be explained by the combined influence of Human Resource Capacity, Budget Implementation, Minimum Service Standards (SPM), and Financial Performance. This value reflects a substantial level of explanatory power, suggesting that the model is robust in capturing the dynamics of disaster program implementation. The predictive relevance (Q^2) value of 0.487 further supports the model's validity, as it exceeds the minimum threshold of 0.35 for strong predictive relevance (Hair et al., 2021). This implies that the model not only fits the data well but also has strong out-of-sample predictive capability. In terms of effect size (f^2), Financial Performance exhibits the largest contribution (0.321), followed by Budget Implementation (0.214), Minimum Service Standards (0.196), and Human Resource Capacity (0.168). These values indicate that all predictors have a moderate to large effect on the quality of disaster programs, with financial governance emerging as the most influential factor.

Overall, the inner model results confirm that the structural relationships hypothesized in the study are statistically significant and substantively meaningful. The findings underscore the importance of strengthening financial performance and budget execution mechanisms, alongside human capital and service standards, to enhance disaster management outcomes across BPBDs in the Jabotabek region.

Hypothesis Testing

Hypothesis testing in the PLS-SEM framework evaluates the significance and strength of relationships between latent variables through path coefficients, t-statistics, and p-values. This process determines whether the proposed theoretical relationships are supported by empirical data.

Tabel 1. 4 Summary of Hypothesis Testing Results

Hypothesis Code	Path Relationship	Coefficient (β)	t-Statistic	p-Value	Conclusion
H1	Human Resource Capacity → Disaster Program Quality	0.312	4.215	0.000	Supported
H2	Budget Implementation → Disaster Program Quality	0.338	5.102	0.000	Supported
H3	Minimum Service Standards → Disaster Program Quality	0.296	3.987	0.000	Supported
H4	Financial Performance → Disaster Program Quality	0.402	6.014	0.000	Supported
H5	Financial Performance × Budget Implementation → Quality	0.187	2.764	0.006	Supported
H6	Financial Performance × SPM → Disaster Program Quality	0.165	2.531	0.012	Supported

Source: Primary Data, processed (2024)

All six hypotheses proposed in the structural model are statistically supported, with p-values below the 0.05 threshold and t-statistics exceeding the critical value of 1.96. The strongest direct effect is observed in H4, where Financial Performance significantly influences Disaster Program Quality (β = 0.402), highlighting the central role of financial governance in disaster management outcomes. Budget Implementation (H2) and Human Resource Capacity (H1) also show substantial effects, with coefficients of 0.338 and 0.312 respectively, confirming their strategic importance in program execution. Minimum Service Standards (H3) contribute meaningfully as well (β = 0.296), indicating that service benchmarks are integral to program quality. The moderating effects tested in H5 and H6 reveal that Financial Performance amplifies the impact of both Budget Implementation and Minimum Service Standards on Disaster Program Quality. These interaction terms are statistically significant, suggesting that financial governance not only has a direct effect but also strengthens the influence of other operational variables. In conclusion, the hypothesis testing results validate the theoretical framework and confirm that improvements in human resources, budgeting, service standards, and financial performance both independently and interactively are essential for enhancing the quality of disaster management programs in BPBDs across the Jabotabek region.

Disscussion

The results of Hypothesis 1 testing indicate that Human Resource Capacity (HRC) has a positive and statistically significant effect on the Quality of Disaster Program Implementation, with a path coefficient (β) of 0.312, a t-statistic of 4.215, and a p-value of 0.000. This finding affirms the theoretical proposition that the effectiveness of public policy implementation is closely tied to the operational capacity of frontline actors (Onyango, 2024). In the context of disaster governance, human resource capacity encompasses technical competence, field experience, and the ability to coordinate across sectors factors that are essential for delivering core services mandated under the Minimum Service Standards (SPM) for disaster sub-affairs, as stipulated in Government Regulation No. 2 of 2018 and Ministry of Home Affairs Regulation No. 101 of 2018. Empirical studies reinforce this relationship. Tamitiadini et al (2019) found that regions with well-trained personnel are more capable of executing disaster preparedness, early warning, and evacuation procedures. Conversely, areas with limited human resources often experience delayed responses and substandard service delivery, particularly in geographically isolated regions such as Papua and Kalimantan (Marfai et al., 2021). These disparities highlight the critical role of human capital in translating policy

mandates into effective action at the local level. From a policy capacity perspective, the operational dimension is indispensable. (Wu et al., 2017) argue that even well-designed policies will falter without adequate implementation capacity. In the case of the KENCANA initiative, the ability of sub-district governments to fulfill their roles as disaster response coordinators hinges on the presence of skilled and empowered personnel. However, data from the Directorate of Disaster and Fire Management (2025) reveal that many sub-districts still lack trained disaster officers, suggesting a gap between regulatory expectations and institutional readiness.

Therefore, strengthening human resource capacity at the sub-district level is not merely a technical necessity but a strategic imperative. This includes establishing minimum competency standards, providing localized training programs, and promoting professional certification in disaster management. By investing in human capital, the government can transform sub-districts from passive administrative units into proactive, resilient nodes within Indonesia's national disaster management system. The results of Hypothesis 2 testing reveal a significant positive relationship between Budget Implementation and Disaster Program Quality, with a path coefficient of 0.338, t-statistic of 5.102, and p-value of 0.000. This finding aligns with the theoretical framework of fiscal governance, which emphasizes that effective budget execution is a critical determinant of public service delivery (Isman et al., 2025). In the context of disaster management, budget implementation reflects not only the allocation of resources but also the timeliness, transparency, and responsiveness of spending mechanisms. The Minimum Service Standards (SPM) for disaster sub-affairs, as regulated by PP No. 2/2018 and Permendagri No. 101/2018, require local governments to fund early warning systems, evacuation infrastructure, and community preparedness programs. However, studies by (Karim et al., 2020) and (Tamitiadini et al., 2019) show that many sub-districts struggle with delayed disbursements, fragmented budgeting, and insufficient contingency planning. These issues undermine the operational readiness of disaster response units. The significant impact of budget implementation in this study confirms that financial execution is not merely a technical process but a strategic enabler of resilience. Strengthening budget planning and execution at the sub-district level through integrated disaster budgeting, performance-based allocations, and fiscal accountability will enhance the quality and sustainability of disaster programs.

Hypothesis 3 is statistically supported, with a path coefficient of 0.296, t-statistic of 3.987, and p-value of 0.000. This result underscores the importance of regulatory frameworks in shaping service delivery outcomes. The concept of Minimum Service Standards (SPM) is rooted in the public administration principle of equity and baseline guarantees (World Bank, 2004; UNDP, 2011). In Indonesia, SPM for disaster affairs mandates three core services: risk information dissemination, preparedness activities, and victim rescue and evacuation. However, as highlighted by (Munawaroh & Kusuma, 2024) and (Wungo et al., 2024), many regions fail to meet these standards due to limited infrastructure, weak coordination, and lack of enforcement mechanisms. The positive effect of SPM in this study suggests that when standards are clearly defined and operationalized, they provide a framework for accountability and performance. Yet, the challenge lies in translating normative standards into actionable programs at the sub-district level. This requires not only technical guidelines but also institutional incentives, monitoring systems, and community engagement strategies. The findings affirm that SPM is not just a compliance tool but a catalyst for improving disaster program quality when supported by adequate capacity and political will.

Hypothesis 4 yields the strongest direct effect among all tested relationships, with a path coefficient of 0.402, t-statistic of 6.014, and p-value of 0.000. This confirms that financial performance defined by budget absorption, audit compliance, and fiscal discipline is a key driver of disaster program effectiveness. Theories of public financial management emphasize that sound financial governance enhances service delivery, reduces waste, and builds institutional trust (Nurhidayah & Djalante, 2017). In disaster contexts, financial performance determines the speed and scale of emergency response, the reliability of procurement systems, and the continuity of recovery efforts. Empirical studies by (Heryati, 2020) and (Wahyunengseh & Pamungkas, 2025) reveal that sub-districts with strong financial oversight are better equipped to implement contingency plans and mobilize resources during crises. The findings of this study reinforce the notion that financial performance is not peripheral but central to disaster governance. Strengthening financial systems at the sub-district level through capacity building, digital budgeting tools, and transparent reporting will significantly improve the quality and resilience of disaster programs.

Hypothesis 5 is accepted, with a path coefficient of 0.187, t-statistic of 2.764, and p-value of 0.006. This indicates that Financial Performance enhances the effect of Budget Implementation on Disaster Program Quality. The interaction suggests that even well-planned budgets may fail to deliver results if financial systems are weak. Conversely, strong financial performance amplifies the impact of budget execution by ensuring that funds are used efficiently and strategically. This aligns with the contingency theory of budgeting, which posits that the effectiveness of fiscal instruments depends on the institutional context in which they operate (Islam, 2023; Nurhidayah & Djalante, 2017). In the case of KENCANA, sub-districts with high financial integrity are more likely to translate budget plans

into tangible disaster preparedness outcomes. The moderating role of financial performance highlights the need for integrated fiscal and programmatic planning. It also calls for reforms that link budget implementation to performance metrics and audit feedback, ensuring that disaster funds are not only allocated but also optimized. Hypothesis 6 is supported, with a path coefficient of 0.165, t-statistic of 2.531, and p-value of 0.012. This finding reveals that Financial Performance strengthens the influence of SPM on Disaster Program Quality. In other words, the effectiveness of regulatory standards depends on the financial capacity to implement them. This supports the argument by (Pierre & Peters, 2020) and (Wu et al., 2017) that policy instruments require enabling conditions to function optimally. In disaster governance, SPM provides the normative framework, but financial performance ensures its operationalization. Regions with strong financial systems are better positioned to meet SPM targets, procure necessary equipment, and sustain preparedness programs. The moderating effect also reflects the interdependence between rule-based governance and resource-based capacity. To maximize the impact of SPM, it is essential to embed financial performance indicators into SPM monitoring systems and provide fiscal incentives for compliance. This will ensure that standards are not only adopted but also translated into measurable improvements in disaster program quality.

CONCLUSION

Based on the results of hypothesis testing, this study concludes that all six proposed hypotheses are empirically supported. First, Human Resource Capacity has a significant positive effect on the Quality of Disaster Program Implementation. Second, Budget Implementation significantly and positively influences Program Quality. Third, the application of Minimum Service Standards (SPM) proves to have a significant positive impact on Program Quality. Fourth, Financial Management Performance has the strongest direct positive effect on Program Quality. Furthermore, the moderating role of Financial Management Performance is also confirmed, as it fifth, positively and significantly strengthens the effect of Budget Implementation on Program Quality, and sixth, similarly strengthens the effect of SPM on Program Quality. These findings affirm that the quality of disaster programs in Jabotabek's BPBDs is determined by a synergistic interplay of strategic resources, fiscal governance, and regulatory standards. Therefore, enhancing program quality requires a comprehensive strategy that simultaneously improves human resource competence, ensures timely and accountable budget execution, enforces consistent SPM adherence, and prioritizes robust financial management as a key enabling factor

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