



Defense Spending as Strategic Investment in Indonesia: A Systematic Review of Governance and Capability Sustainability

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How to cite: Haridinuto, & Surjaatmadja, S. (2026) Defense Spending as Strategic Investment in Indonesia: A Systematic Review of Governance and Capability Sustainability. *Administratio: Jurnal Ilmiah Administrasi Publik dan Pembangunan*, 17(1)

Article History

Received: April 26, 2026

Accepted: June 8, 2026

Keywords:

Defense spending
Strategic investment
Defense governance
Capability sustainability
Life-cycle costing

ABSTRACT

Indonesia's defense-spending problem cannot be understood only as a shortage of fiscal resources. It also reflects a governance-mediated capability risk: annual budget allocations, procurement decisions, sustainment obligations, manpower policy, industrial participation, and accountability mechanisms are not yet fully integrated into a long-cycle capability system. This article examines the conditions under which defense spending in Indonesia may function as strategic investment rather than as a recurring fiscal burden. Strategic investment is understood here as expenditure that generates durable readiness, life-cycle affordability, industrial learning, strategic resilience, and public legitimacy. The study employs a concept-driven systematic literature review using a PRISMA-informed protocol. Literature was identified through Scopus, Web of Science, and targeted Google Scholar searches, then screened and synthesized thematically. A final core corpus of 33 studies was analyzed across four themes: fiscal capacity and governance gap; life-cycle costing, procurement, and sustainment; defense manpower, reserve components, and budget efficiency; and industrial participation, accountability, and strategic value. The review finds that Indonesia's central challenge is not merely underfunding, but capability leakage caused by weak alignment between fiscal planning, procurement continuity, sustainment costs, manpower design, industrial policy, and oversight. Through the Defense Resource Governance and Management System framework, the article argues that defense spending becomes strategic investment only when it is governed as an integrated long-term capability system. The article concludes that failure to govern defense spending in this way is not simply an administrative inefficiency, but a national security risk because repeated expenditure may fail to accumulate durable strategic value.

Kata Kunci:

Belanja pertahanan
Investasi strategis

ABSTRAK

Persoalan belanja pertahanan Indonesia tidak dapat dipahami hanya sebagai kekurangan sumber daya fiskal. Persoalan tersebut juga mencerminkan risiko

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Tata kelola pertahanan Keberlanjutan kapabilitas Biaya daur hidup	kapabilitas yang dimediasi tata kelola, yaitu ketika alokasi anggaran tahunan, keputusan pengadaan, kewajiban sustainment, kebijakan personel, partisipasi industri, dan mekanisme akuntabilitas belum sepenuhnya terintegrasi dalam sistem kapabilitas jangka panjang. Artikel ini menelaah kondisi yang memungkinkan belanja pertahanan Indonesia berfungsi sebagai investasi strategis, bukan sekadar beban fiskal berulang. Investasi strategis dipahami sebagai belanja yang menghasilkan kesiapan pertahanan yang berkelanjutan, keterjangkauan biaya daur hidup, pembelajaran industri, resiliensi strategis, dan legitimasi publik. Studi ini menggunakan systematic literature review berbasis konsep dengan protokol yang diinformasikan oleh PRISMA. Literatur diidentifikasi melalui Scopus, Web of Science, dan penelusuran terarah Google Scholar, kemudian diseleksi dan disintesis secara tematik. Sebanyak 33 studi inti dianalisis dalam empat tema: kapasitas fiskal dan kesenjangan tata kelola; biaya daur hidup, pengadaan, dan sustainment; personel pertahanan, komponen cadangan, dan efisiensi anggaran; serta partisipasi industri, akuntabilitas, dan nilai strategis. Kajian ini menemukan bahwa tantangan utama Indonesia bukan semata-mata underfunding, melainkan kebocoran nilai kapabilitas akibat lemahnya keselarasan antara perencanaan fiskal, kesinambungan pengadaan, biaya sustainment, desain personel, kebijakan industri, dan pengawasan. Melalui kerangka Defense Resource Governance and Management System, artikel ini berargumen bahwa belanja pertahanan hanya dapat menjadi investasi strategis apabila dikelola sebagai sistem kapabilitas jangka panjang yang terintegrasi. Artikel ini menyimpulkan bahwa kegagalan mengelola belanja pertahanan dengan cara tersebut bukan sekadar inefisiensi administratif, melainkan risiko keamanan nasional karena belanja yang berulang dapat gagal terakumulasi menjadi nilai strategis yang berkelanjutan.
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A. INTRODUCTION

Defense spending occupies a contested position in public administration and defense economics because it is both a fiscal claim on scarce public resources and a potential investment in national resilience. In developing and middle-income countries, military expenditure often competes with infrastructure, education, welfare, and other priorities, making it vulnerable to being treated as a recurring fiscal burden (Hewitt, 1991). Yet defense spending may generate strategic value when it strengthens deterrence, readiness, technological learning, industrial capability, and state capacity (Hartley, 2011; Herrera & Gentilucci, 2013; MacDonald, 2024). Its value is therefore not automatic, but depends on whether governance arrangements convert expenditure into durable capability rather than fragmented or short-lived outputs (Giraldo, 2006; Jones & McCaffery, 2005).

This issue is especially significant for Indonesia. As the world's largest archipelagic state, Indonesia faces dispersed territorial obligations, extensive maritime boundaries, and Indo-Pacific uncertainty (Rosyidin, 2024; Runturambe & Fernando, 2022). These demands require capabilities that are not only acquired, but also operated, maintained, upgraded, and legitimized over long time horizons. Yusgiantoro (2017) emphasizes that Indonesian defense development depends on the state's capacity to mobilize budgetary and human resources before moving toward ideal force development. However, Indonesian defense spending remains constrained by fiscal pressure, modernization delays, procurement discontinuity, and uneven implementation capacity (Gindarsah & Priamarizki, 2021; Himawan et al., 2024; Triantama & Abdul, 2023). Marsudiyanto et al. (2024) further show that Indonesia's defense financing problem reflects a widening gap between capability requirements and fiscal capacity. The problem is therefore not simply that Indonesia spends too little, but that annual budgeting often sits uneasily with the long-cycle logic of defense capability development.

This article argues that Indonesia's defense-spending challenge should be understood as a governance-mediated capability risk. This risk emerges when fiscal allocation, procurement, sustainment, manpower policy, industrial participation, and accountability are not governed as one integrated capability system. Under such conditions, defense spending may continue annually without accumulating durable strategic value, creating what this article terms capability leakage: the loss of potential strategic value when expenditure produces acquisition outputs but fails to generate sustained readiness, affordable life-cycle support, industrial learning, or public legitimacy. This argument builds on defense governance scholarship linking budgeting, procurement, transparency, and accountability to effective resource conversion (Giraldo, 2006; Jones & McCaffery, 2005; McNab, 2011; Pyman et al., 2009), and on life-cycle costing literature that stresses the long-term cost consequences of acquisition decisions (Korpi & Ala-Risku, 2008; Mo & Caporaso, 2021; Testa et al., 2011).

Indonesian defense scholarship has examined many parts of this problem, but often through separate lenses. Studies address fiscal constraint and budget resilience (Himawan et al., 2024; Marsudiyanto et al., 2024; Triantama & Abdul, 2023), modernization and procurement (Gindarsah & Priamarizki, 2021; Setiarsono, 2022; Yusgiantoro, 2017), defense expenditure implementation (Destyananda et al., 2022), reserve-force and manpower governance (Hastuti & Camelia, 2025), defense industry and technology transfer (Cahyana et al., 2023; Sutisna et al., 2025), and parliamentary oversight or civil-military accountability (Ng & Kurniawan, 2024). These contributions are valuable, but they rarely explain how these domains interact as a single resource-governance pathway. The remaining blind spot is how annual fiscal decisions, procurement choices, sustainment obligations, manpower structures, industrial participation, and accountability mechanisms jointly determine whether defense spending becomes strategic investment or remains recurring expenditure with limited accumulated value.

To address this gap, the article employs the Defense Resource Governance and Management System (DRGMS) as an analytical framework. DRGMS is not used as a formal doctrine or as a replacement for existing planning and budgeting models. Rather, it is used as a synthesis framework for assessing whether defense resources are governed across five interdependent stages: fiscal prioritization, capability planning, procurement and life-cycle costing, manpower and sustainment integration, and industrial-accountability value. Its utility lies in exposing where integration fails and how disconnected governance arrangements produce capability leakage (Giraldo, 2006; Jones & McCaffery, 2005; Petrov, 2019; Shalamanov, 2009).

The review is guided by three questions. First, how does the literature explain the gap between Indonesia's defense capability requirements and available fiscal space? Second, what factors shape the sustainability of Indonesian defense spending, particularly in relation to life-cycle costing, maintenance, manpower, and long-term capability support? Third, how can the literature on defense economics, governance, and capability sustainability be synthesized through DRGMS to explain the conditions under which Indonesian defense spending can function as strategic investment? The article contributes to public administration and defense policy scholarship by reframing defense spending as a governance problem of long-cycle capability formation rather than as a budgetary question alone.

B. LITERATURE REVIEW

Defense Economics, Governance, and Strategic Investment

Defense economics begins from scarcity, opportunity cost, efficiency, and public value. Military expenditure is a public-policy choice about how scarce resources are allocated away from alternative development priorities (Hewitt, 1991). In developing economies, this trade-

off is sharper because fiscal space is narrower while development needs remain substantial. However, defense economics is not limited to the question of whether defense spending crowds out development. A second strand asks whether expenditure is converted into usable capability, readiness, and strategic effect through procurement discipline, budgeting logic, cost control, and long-term performance management (Hartley, 2011; Malizard, 2020; McGuire, 2000). A third strand concerns strategic return: defense expenditure may function as strategic investment when it generates deterrence, resilience, technological upgrading, industrial learning, and broader state capacity (Herrera & Gentilucci, 2013).

The tension is that these returns are neither automatic nor purely financial. This creates a persistent tension between efficiency-oriented approaches that prioritize speed, cost control, and output delivery, and accountability-oriented approaches that emphasize transparency, oversight, and public legitimacy. They depend on institutions capable of aligning fiscal rationality, strategic priority, procurement discipline, and accountability (Giraldo, 2006). Strategic investment is therefore understood in this article as defense expenditure that produces durable readiness, life-cycle affordability, industrial learning, strategic resilience, and public legitimacy. This debate suggests that the relevant question is not whether defense should be funded or constrained in the abstract, but under what governance conditions defense expenditure creates sustainable capability rather than recurring fiscal pressure. Defense economics therefore converges with governance studies because allocative efficiency and strategic return depend as much on institutional quality as on budget size (Dunne & Tian, 2013; McGuire, 2000).

Defense Resource Governance and Capability Sustainability

Capability sustainability depends on institutional integration rather than acquisition volume alone. In this article, capability sustainability refers to the ability of a defense system to maintain usable capability over time through affordable operation, maintenance, personnel support, upgrade pathways, supply-chain resilience, and accountable governance. It therefore includes, but is not limited to, whether equipment can be kept operational; it also concerns whether the wider force structure, industrial support, and fiscal commitments remain viable across the life cycle. Governance scholarship emphasizes the linkage between planning, budgeting, procurement, sustainment, manpower, and oversight. When these functions are fragmented, formally approved modernization programs may still fail to produce affordable and sustainable capability.

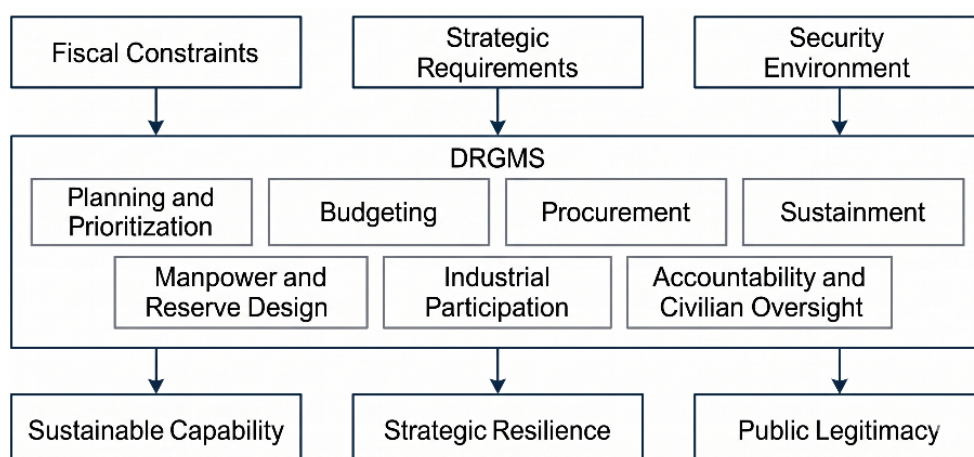
The most relevant tradition connects strategic objectives to resource allocation through planning and budgeting systems that stress prioritization, sequencing, affordability, and implementation discipline (Jones & McCaffery, 2005; Petrov, 2019; Shalamanov, 2009). Life-cycle costing literature further shows that acquisition decisions create long-term obligations in maintenance, upgrades, logistics, and support (Korpi & Ala-Risku, 2008; Mo & Caporaso, 2021). At the same time, defense governance studies emphasize transparency, civilian control, audit, and procurement oversight as conditions for legitimacy and effective resource conversion (Giraldo, 2006; McNab, 2011; Pyman et al., 2009). Integrity building, parliamentary review, and audit mechanisms are therefore not secondary administrative concerns; they are integral to whether defense resources can be governed as strategic assets. Capability sustainability is not merely a technical sustainment problem, but a governance problem across the full resource pathway.

DRGMS as an Integrative Framework

This review employs the Defense Resource Governance and Management System (DRGMS) as an integrative analytical framework. DRGMS is not treated as a formally

established doctrine or as a replacement for existing planning, programming, budgeting, or public financial management models. It is used as a synthesis framework to examine whether defense resources are governed across five interdependent stages: fiscal prioritization, capability planning, procurement and life-cycle costing, manpower and sustainment integration, and industrial-accountability value. Its value lies not simply in connecting these domains, but in exposing where integration fails and where capability leakage occurs. This approach draws on defense governance and resource-management literature that links strategic objectives, budgeting discipline, procurement governance, implementation capacity, and accountability (Giraldo, 2006; Jones & McCaffery, 2005; Petrov, 2019; Shalamanov, 2009).

Under DRGMS, budgeting affects procurement logic; procurement shapes sustainment burden; sustainment influences readiness; manpower policy affects affordability; industrial participation affects long-term autonomy; and accountability conditions public legitimacy. The framework is therefore useful for the Indonesian case because studies of defense spending, modernization, reserve policy, industrial participation, and oversight often develop in parallel rather than as one resource-governance pathway. DRGMS helps synthesize these strands without claiming that governance integration is easy or politically neutral. It provides an analytical bridge between defense economics and public administration by showing how institutional quality, affordability, implementation discipline, and civilian oversight condition the transformation of defense spending into strategic value (Pyman et al., 2009). Figure 1 visualizes this DRGMS logic.



Source: Developed by the authors based on defense governance, resource-management, and life-cycle costing literature.

Figure 1. DRGMS as an Integrative Framework for Defense Spending, Governance, and Capability Sustainability

C. METHOD

Search Strategy

This study employed a concept-driven systematic literature review (SLR) with a PRISMA-informed protocol to synthesize scholarship on defense spending, defense economics, resource governance, and capability sustainability in Indonesia and comparable contexts. A systematic review was selected because the topic spans defense economics, public policy, strategic studies, civil-military relations, and governance research, requiring a transparent procedure capable of handling heterogeneous evidence types (Byrd & Guimbert, 2009; McNab, 2011; Pyman et al., 2009). The review was PRISMA-informed rather than a

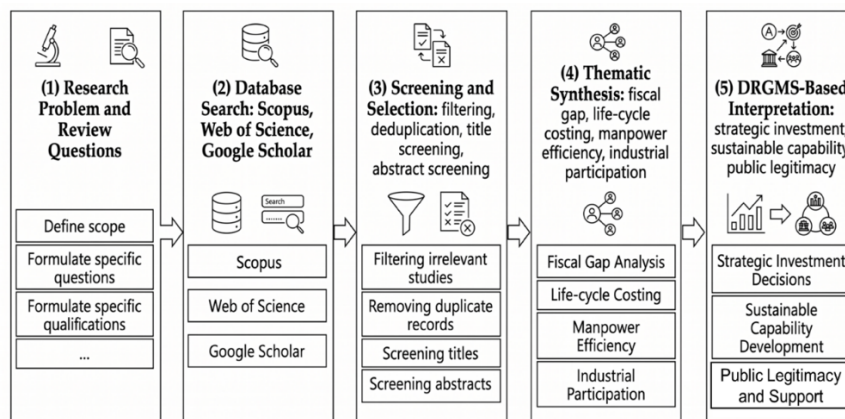
quantitative meta-analysis because the evidence base consists largely of conceptual studies, policy analyses, comparative work, and case-based research.

Scopus and Web of Science were used as primary databases because they provide broad coverage of peer-reviewed literature on defense economics, governance, and public policy. Google Scholar was used as a supplementary source to reduce the risk of missing policy-oriented and Indonesia-specific studies not indexed in the primary databases. To avoid uncontrolled expansion and selective searching, Google Scholar searches were conducted only after the primary screening and applied the same substantive eligibility criteria. The search was conducted on 1–2 April 2026. The core search strings used in Scopus and Web of Science were: (“military expenditure” OR “defense spending” OR “defence spending”) AND (“Indonesia” OR “Indonesian”); (“defense economics” OR “defence economics”) AND (“governance” OR “budget” OR “procurement”); and (“defense procurement” OR “defence procurement”) AND (“life-cycle costing” OR “sustainment” OR “capability sustainability”). Supplementary Google Scholar searches used narrower keyword combinations related to Indonesian defense budgeting, Minimum Essential Force, defense industry, reserve components, offsets, and accountability. The purpose was not merely to collect publications, but to synthesize fragmented studies into an integrated explanation of how defense spending may function as strategic investment under specific governance conditions.

Eligibility Criteria and Screening

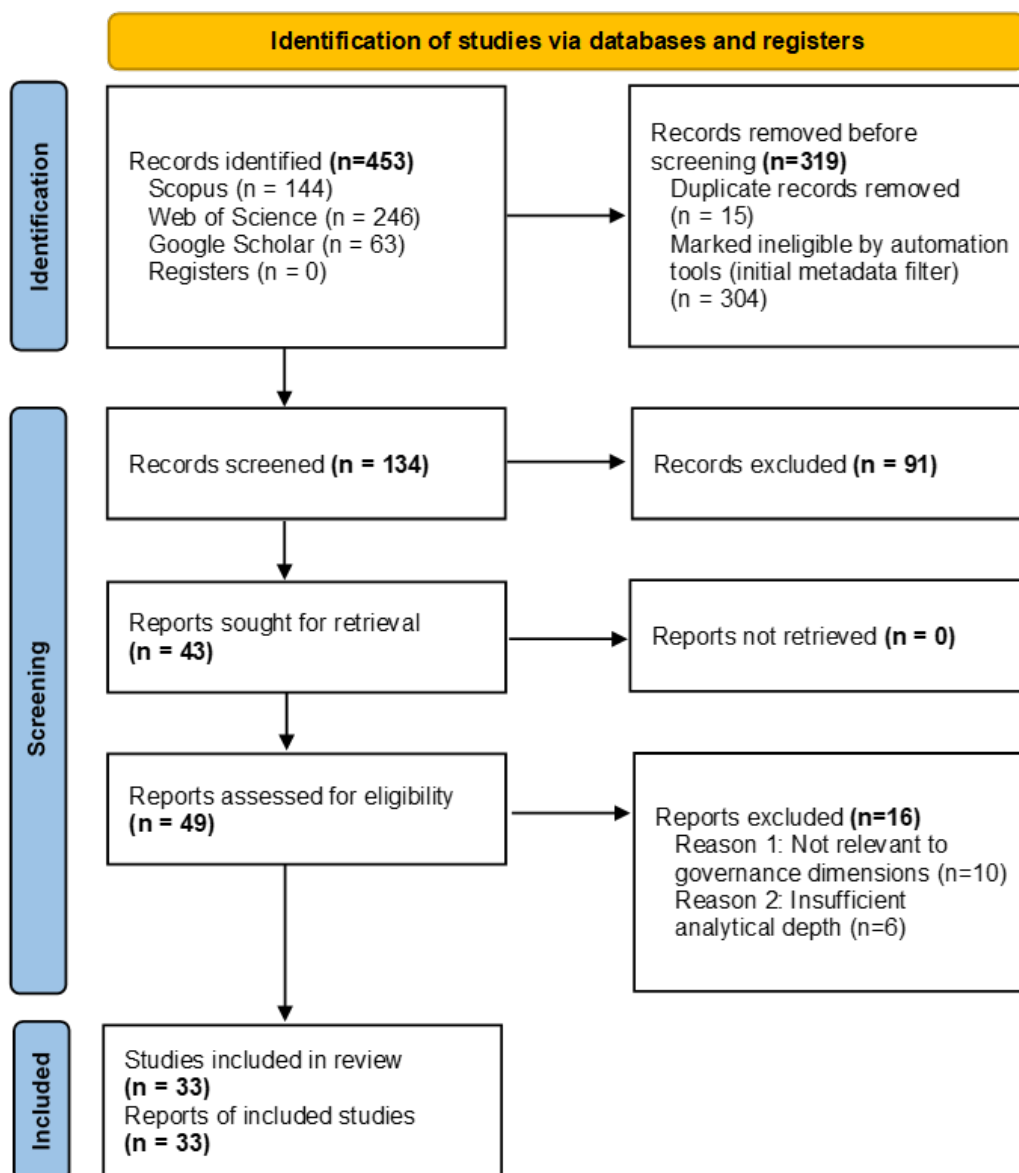
Eligibility criteria were applied in two stages. At the initial stage, the review prioritized English-language journal articles published between 2020 and 2026 to capture recent international debates, while retaining seminal earlier works for theoretical framing and comparative interpretation. This language and time-frame choice is acknowledged as a limitation, but it was partly mitigated through targeted searches for Indonesia-specific and policy-oriented studies. At the substantive stage, studies were included when they addressed defense spending or military expenditure; defense economics; defense governance, transparency, or accountability; procurement and long-term capability sustainment; reserve-force or manpower efficiency; defense industry, offsets, or technology transfer; or the institutional conditions under which defense expenditure may create long-term strategic value. Indonesia-focused studies were prioritized, while comparative and cross-national studies were included when they provided relevant conceptual or empirical insight.

Records were excluded when they were duplicates, outside the thematic scope, non-English where translation was not feasible, or disconnected from the governance and economic dimensions of defense spending. Materials focused solely on military tactics, weapons technology, or operational details without relevance to budgeting, governance, procurement, industrial participation, or accountability were excluded. Editorials, opinion pieces, and non-peer-reviewed commentary were excluded unless they represented authoritative institutional sources of direct policy relevance. An initial metadata filter reduced the initial pool of 453 records to 149 eligible or provisionally eligible records. A deduplication review identified 15 duplicate records, leaving 134 unique records for title screening. Abstract screening produced a primary corpus of 27 studies. Because procurement-sustainment and manpower-reserve themes were underrepresented, a targeted supplementary search was conducted using the same eligibility criteria, yielding 6 further studies and resulting in a final core corpus of 33 included articles. Additional references outside this corpus were retained only as conceptual, methodological, or contextual sources. Figure 2 illustrates the SLR analytical workflow, and Figure 3 presents the PRISMA-informed identification, screening, and inclusion process.



Source: Developed by the authors based on the systematic literature review design and DRGMS framework

Figure 2. SLR Review Design and Analytical Workflow



Source: Developed by the authors based on the PRISMA-informed screening and selection procedure

Figure 3. PRISMA-Informed Flow Diagram of Study Identification, Screening, and Inclusion

Quality Assessment and Data Extraction

Quality assessment was adapted to accommodate both empirical and conceptual studies. Studies were evaluated using five criteria: theoretical coherence, methodological transparency, evidence quality, policy relevance, and engagement with the defense-governance nexus. These criteria were applied by examining whether each study clearly stated its analytical framework, explained its method or evidence base, used credible data or institutional sources, addressed policy relevance, and linked defense spending to governance, accountability, or institutional quality. Data extraction used a structured synthesis sheet recording bibliographic information, country or regional context, conceptual focus, analytical framework, theme assignment, and key findings relevant to defense spending as strategic investment.

Extracted studies were grouped into four analytical themes: (1) fiscal capacity, capability requirements, and governance gap; (2) life-cycle costing, procurement, and long-term capability sustainability; (3) defense manpower, reserve components, and budget efficiency; and (4) industrial participation, accountability, and strategic-investment logic. The synthesis tables in the Results and Discussion section report selected representative studies from each theme rather than the full corpus of 33 studies. Selection of representative studies was based on direct relevance to the theme, clarity of evidence, and contribution to the governance-centered argument. Thematic synthesis was used as the main analytical technique. DRGMS was applied after thematic grouping to integrate findings across fiscal, procurement, manpower, industrial, and accountability dimensions, rather than as a prior filter for inclusion. This review has several limitations: it did not employ quantitative meta-analysis owing to evidence heterogeneity, the synthesis remained interpretive rather than statistical, and gray literature was only selectively incorporated.

D. RESULT AND DISCUSSION

Fiscal Capacity, Capability Requirements, and the Governance Gap

A central finding of the reviewed literature is that Indonesia's defense problem cannot be reduced to the claim that the country spends too little. The more precise explanation is a governance-mediated fiscal-capability gap produced by the interaction of limited fiscal space, fragmented budgeting, uneven political commitment, and weak continuity between planning and implementation (Bachtiar et al., 2025; Himawan et al., 2024; Triantama & Abdul, 2023). This gap is not merely a matter of nominal budget size. It reflects the difficulty of converting annual fiscal allocations into executable and sustainable capability programs under long-term strategic requirements (Marsudiyanto et al., 2024; Setiarsono, 2022).

The literature explains this gap through three interrelated mechanisms. First, modernization pressure exceeds predictable resources in a developing economy where defense competes with infrastructure, welfare, and other public priorities. Studies on Minimum Essential Force implementation show that maritime and airpower modernization have not been matched by sufficiently predictable and scalable funding, resulting in delays, partial fulfillment, and uneven modernization across services (Gindarsah & Priamarizki, 2021; Triantama & Abdul, 2023). Second, political and bureaucratic fragmentation weakens the conversion of authorized plans into funded and executable programs. Gindarsah and Priamarizki (2021) show that stagnation in naval and air force modernization is shaped not only by external threat dynamics, but also by inefficient bureaucracy, limited government commitment, and fragmented priorities. Third, procurement and financing decisions often lack the continuity required for long-cycle capability development. Marsudiyanto et al. (2024) argue that Indonesia's defense budget gap persists because the financing architecture remains narrow and dependent on conventional annual budget channels. Comparative evidence reinforces this conclusion: military expenditure becomes more productive when fiscal realism is matched by

coherent institutions, procurement discipline, and implementation capacity (Gnidehou & Faton, 2025).

Table 1. Selected Representative Studies on Fiscal Capacity, Capability Requirements, and Governance Constraints

Reference	Country/Context	Governance Problem	Key Finding	Policy Implication
Bachtiar et al. (2025)	Indonesia	Institutional fragmentation weakens budgeting resilience	Defense budget sensitive to inflation, exchange rate, debt, and regional military spending	Strengthen sustainable, inflation-adjusted defense financing mechanisms
Marsudiyanto et al. (2025)	Indonesia	Chronic fiscal deficits; weak alignment of requirements and resources	Persistent widening gap between financing needs and fiscal capacity, 2003–2023	Interpret through long-term fiscal history, not short-term budgeting alone
Triantama & Abdul (2023)	Indonesia	Stagnant defense budget during MEF era reflects structural constraints	Modernization bottleneck driven by political-economic and governance constraints, not funding alone	Reform budget prioritization and governance integration
Gnidehou & Faton (2025)	Sub-Saharan Africa	Weak institutional quality reduces growth contribution of military expenditure	Military spending contributes positively to growth but the effect depends on governance quality	Governance capacity is critical for productive strategic value

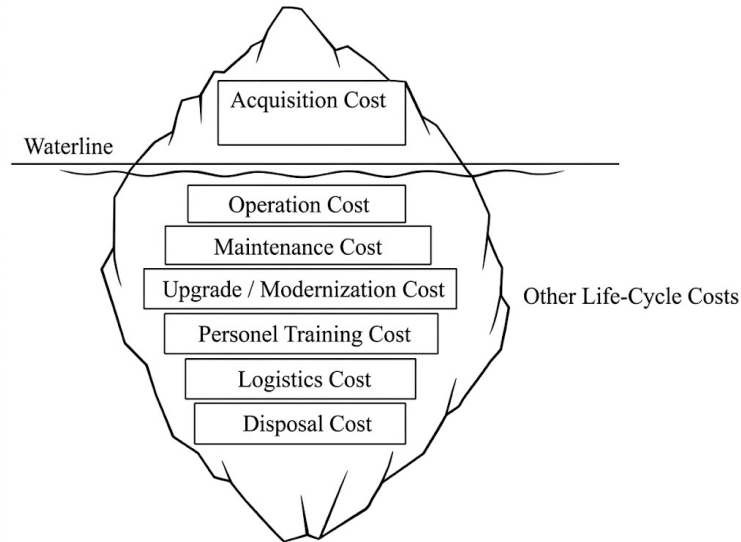
Source: Compiled by the authors from the reviewed literature

Table 1 presents selected representative studies most directly relevant to Theme 1. The table shows that fiscal limitation, capability requirements, and governance constraints are repeatedly linked in the literature. By placing Indonesian studies alongside comparative evidence, it clarifies that the fiscal-capability gap is best interpreted as a governance-mediated problem rather than a purely budgetary shortfall. This interpretation matters because the Indonesian problem is not only resource scarcity, but also capability leakage: resources are allocated, but the value of spending is weakened when planning, budgeting, procurement, and execution are insufficiently integrated. Indonesian defense expenditure has historically remained within a narrow range relative to gross domestic product, approximately 0.5 to 0.9 percent, making sustained modernization difficult when force development requires long-horizon commitments rather than episodic procurement (Marsudiyanto et al., 2024). The fiscal-capability question is therefore a governance problem as much as a budgetary one.

Life-Cycle Costing, Procurement, and Long-Term Capability Sustainability

A second major finding is that defense capability sustainability depends not only on asset acquisition, but on whether procurement decisions are governed through a life-cycle perspective. Life-cycle costing aggregates costs across an asset’s service life, including acquisition, deployment, operation, maintenance, upgrades, and disposal (Korpi & Ala-Risku, 2008; Testa et al., 2011). In defense settings, much of total ownership cost occurs during operation and support rather than at purchase. Assets that appear affordable at acquisition may become costly when maintenance intensity, spare-part vulnerability, upgrade needs, or external dependency are ignored (Mo & Caporaso, 2021). This is where capability leakage can occur:

fiscal resources are spent on acquisition, but long-term readiness declines because sustainment costs are underestimated. Budgeting cultures that privilege purchase price over through-life affordability, weak data discipline, and obsolescence risk all contribute to this problem (De Giacomo et al., 2019; Korpi & Ala-Risku, 2008). Figure 4 illustrates this logic through an iceberg model, where acquisition cost is visible while operation, maintenance, logistics, training, upgrading, and disposal form the larger submerged burden.



Source: Developed by the authors based on the life-cycle costing literature and the DRGMS framework
 Figure 4. Conceptual Representation of the Life-Cycle Cost Structure of Defense Equipment (Iceberg Model)

This issue is especially significant for Indonesia, which depends on imported systems while operating across dispersed archipelagic geography. When procurement decisions fail to model dependency risk and support-chain vulnerability, sustainment burdens may exceed initial planning assumptions. Conversely, procurement systems that institutionalize life-cycle costing and align supplier incentives with through-life performance are more likely to convert defense spending into sustainable strategic capability (Bertoni & Bertoni, 2020; Mo & Caporaso, 2021; Testa et al., 2011).

Table 2. Selected Representative Studies on Life-Cycle Costing, Procurement, and Long-Term Capability Sustainability

Reference	Policy Focus	Cost Dimension	Main Result	Sustainability Implication
Matthews et al. (2025)	Indonesia defense acquisition strategy	Acquisition strategy, procurement continuity, long-term capability development	Acquisition strategy shaped by need to balance external procurement, domestic industrial goals, and long-term capability demands	Capability sustainability requires acquisition policy integrating procurement choice, industrial participation, and long-term support planning

Suwanda (2026)	Indonesia satellite acquisition project	Budget coordination failure, procurement blockage, capability delay	Procurement failure linked to weak coordination between budgeting and acquisition processes	Sustainable capability requires integrated governance across planning, budgeting, and procurement
Mozharovskyi & Hodz (2024)	Capability maintenance under strategic pressures	Maintenance burden, sustainment costs, long-term readiness	Maintaining capability generates enduring resource requirements beyond acquisition	Defense spending must be evaluated through maintenance and sustainment burdens across the lifecycle

Source: Compiled by the authors from the reviewed literature

The literature treats life-cycle costing not merely as an accounting tool, but as a governance discipline for comparing alternatives according to total cost of ownership and through-life affordability. Procurement decisions should account for maintenance, reliability, service support, obsolescence management, supply-chain resilience, and end-of-life implications (Bertoni & Bertoni, 2020; Korpi & Ala-Risku, 2008; Scherz et al., 2023). A recurring finding is that practical life-cycle costing applications often omit significant cost categories, rely on deterministic estimates, or fail to apply sensitivity analysis, making sustainment projections unreliable (De Giacomo et al., 2019; Korpi & Ala-Risku, 2008). Maintenance cost is not limited to scheduled servicing; it also includes unscheduled repairs, spare-part availability, reliability degradation, software and subsystem upgrades, and supply-chain disruption (Mo & Caporaso, 2021). Table 2 synthesizes selected representative studies connecting procurement governance, life-cycle costing, and long-term capability sustainability.

In an archipelagic setting such as Indonesia, long logistics chains and operational dispersion are structural constraints rather than temporary problems. Procurement decisions that neglect life-cycle discipline can therefore produce fragmented capability, rising sustainment burdens, and weak readiness accumulation. Yelwe (2025) reinforces this point through the Indian Project-75i case, showing that procedural rigidity in procurement can delay modernization and create hidden sustainability costs that compound over time. The lesson for Indonesia is that procurement governance must balance strategic urgency with through-life affordability, so sustainment planning is embedded in acquisition decisions from the outset.

Defense Manpower, Reserve Components, and Budget Efficiency

A third major finding is that manpower policy cannot be separated from budget efficiency and long-term capability sustainability. Force structure, personnel cost, reserve design, and readiness are interdependent policy domains. Decisions about active personnel, reserve components, and mobilization systems directly affect payroll burden, procurement affordability, sustainment obligations, and long-term defense efficiency (Klimas et al., 2014). Effective defense budgeting therefore requires personnel planning to be integrated with acquisition and operations-support budgeting rather than treated as a separate administrative line item. Comparative evidence from Brazil similarly shows that defense policy, defense

budget, and force structure are analytically inseparable, because budget execution shapes the practical configuration of armed forces and the feasibility of assigned defense roles (Ferreira da Silva & Teixeira Junior, 2022).

Reserve components occupy a central place in this debate because they are often presented as a way to improve fiscal efficiency while preserving operational flexibility. Comparative studies suggest that reserve forces can generate savings when they provide surge capacity or specialist skills without imposing the permanent payroll burden of a fully active force (Klimas et al., 2014). However, reserve efficiency depends on clear legal authority, credible training systems, interoperable force design, mobilization readiness, and realistic cost accounting. In Indonesia, Hastuti and Camelia (2025) show that *Komponen Cadangan* (*Komcad*) requires clear legal grounding, realistic role definition, and credible civilian safeguards. A reserve system that is legally ambiguous may undermine recruitment, morale, and long-term sustainability even if it appears fiscally attractive. Table 3 presents selected representative studies on reserve components and defense manpower economics.

Table 3. Selected Representative Studies on Reserve Components and Defense Manpower Economics

Reference	Case	Force Structure Issue	Main Findings	Critical Notes
Hastuti & Camelia (2025)	Indonesia	Military reserve policy (<i>Komcad</i>)	Reserve policy is a legal and ethical governance issue requiring clear legal grounding, civilian safeguards, and realistic role definition	Directly anchors <i>Komcad</i> within governance and policy debates
Klimas et al. (2014)	United States	Active-reserve force mix	Balance involves trade-offs; efficiency depends on mobilization needs and mission design, not reserve size alone	Comparative foundation for interpreting whether reserve expansion in Indonesia improves budget efficiency
Djuyandi et al. (2025)	Indonesia	Personnel governance and professional military development	Professional military development affects how manpower resources are governed and legitimized in democratic settings	Governance supporting study; contribution more indirect to manpower efficiency

Source: Compiled by the authors from the reviewed literature

The implication for Indonesia is that reserve-force expansion should not be interpreted as a universally cheaper alternative to active force development. The real policy question is not whether reserves are cheaper in the abstract, but whether they produce reliable readiness at acceptable long-term cost. *Komcad* can contribute to strategic value if it is legally grounded, operationally credible, fiscally transparent, and publicly legitimate. If pursued without integrated budgeting, training standards, and mobilization readiness, however, it risks becoming another layer of administrative burden rather than a source of cost-effective capability (Djuyandi et al., 2025; Hastuti & Camelia, 2025).

Industrial Participation, Accountability, and Strategic-Investment Logic

A fourth major finding is that defense spending acquires strategic-investment meaning when linked to industrial participation, technology transfer, and accountable governance. Offsets, local-content requirements, technology-transfer arrangements, and defense-industry collaboration are mechanisms through which defense expenditure may generate domestic capability, industrial deepening, and technological learning (Gomes et al., 2021; Sutisna et al., 2025). However, these benefits are not automatic. Industrial participation creates strategic value only when commitments are enforceable, absorptive capacity exists, and procurement governance is consistent. Offsets may appear in contracts yet fail to produce substantive domestic capability when implementation is weak or monitoring is limited (Gomes et al., 2021). Indonesia-specific research suggests that capability gains depend less on headline offset commitments than on policy consistency, funding continuity, and industrial learning over time (Cahyana et al., 2023). Damanik et al. (2024) also emphasize that investment dynamics in the Indonesian defense industry are closely connected to national security, technological innovation, and policy support, indicating that industrial participation should be assessed as part of long-term capability governance rather than as a procurement side effect. Comparative defense-industrial ecosystem studies similarly show that indigenous defense capability requires coordinated policy support, human-capital development, and country-specific industrial strategies (Agarwala, 2025). Accountability, civilian oversight, and public legitimacy are equally indispensable because transparency, parliamentary review, democratic control, and audit mechanisms help ensure that defense expenditure serves strategic rather than narrow purposes (Amorim Neto & Accorsi, 2022; Giraldo, 2006; Lunn, 2023; Sudarto & Rahmawati, 2026).

Table 4. Selected Representative Studies on Industrial Participation, Accountability, and Strategic Value

Reference	Domain	Policy Tool	Main Finding	Future Direction
Sutisna et al. (2025)	Defense economics, Indonesia	Industrial self-reliance policy, governance diagnosis	Indonesian defense industry far behind global patterns due to import dependence, weak R&D, and governance constraints	Examine how industrial policy and governance reform can generate strategically productive defense industrial capacity
Gomes et al. (2021)	Offset policy and technology transfer	Offset policy and technology transfer arrangements	Offsets can create strategic value but outcomes depend on implementation quality and institutional coordination	Strengthen absorptive capacity and governance so defense offsets produce sustained domestic capability
Agarwala (2025)	Comparative defense industrial development	Indigenous defence ecosystem building, comparative policy learning	Defence-industrial development depends on coordinated policy support, human-capital development, and country-specific strategies	Assess how Indonesia can adapt ecosystem-based industrial lessons without mechanically copying foreign models
Sudarto & Rahmawati (2026)	Defense governance, legal policy	Civil supremacy, legal oversight, democratic accountability	Post-reform governance closely tied to legal oversight; spending cannot be framed as	Integrate accountability mechanisms more explicitly into resource governance

			strategic investment without democratic accountability	frameworks such as DRGMS
Giraldo (2006)	Defense governance, civil-military relations	Democratic civilian control, budget accountability	Defense budgets must be embedded in systems of civilian control and accountability; strategic value cannot be separated from legitimacy	Refine how accountability and governance can be operationalized in defense resource frameworks

Source: Compiled by the authors from the reviewed literature

Taken together, these findings show that industrial participation and accountability are not secondary issues in defense spending as strategic investment. They determine whether expenditure generates broader national value or becomes another form of capability leakage. For Indonesia, industrial participation should not be treated as an optional benefit attached to procurement, but as a strategic governance issue central to the long-term value of defense expenditure. Similarly, accountability mechanisms should not be viewed merely as bureaucratic constraints on acquisition speed, but as governance foundations that make strategic-investment claims credible and publicly defensible (Giraldo, 2006; Ng & Kurniawan, 2024). Table 4 summarizes selected representative studies linking industrial participation, accountability, and the strategic value of defense spending.

Integrative Discussion

The reviewed literature converges on one overarching conclusion: Indonesia’s defense-spending problem is a governance-mediated capability risk. Across the four themes, nominal budget debates are repeatedly outweighed by questions of institutional coordination, procurement continuity, life-cycle discipline, manpower design, industrial participation, and accountability. Fiscal scarcity matters, but its effects are amplified when annual budget routines are weakly connected to long-cycle capability requirements. Governance is therefore not simply an administrative solution, it is the arena in which fiscal priorities, bureaucratic incentives, procurement choices, sustainment obligations, and public accountability compete. In practice, this competition may privilege visible capital acquisition over less visible maintenance, training, and sustainment obligations, thereby weakening the budgeting-sustainment coupling.

The four themes converge on a common pattern. Fiscal-capability gaps become intelligible when linked to implementation capacity and financing architecture. Procurement becomes credible when evaluated through through-life cost rather than acquisition price alone. Reserve-force policy becomes persuasive when legal clarity, mobilization readiness, and realistic cost integration are present. Industrial participation becomes strategically meaningful only when offset and technology-transfer commitments are enforceable and publicly accountable. Under a DRGMS perspective, the primary bottleneck is the weak institutional coupling between budgeting and sustainment. Without this coupling, procurement reform, reserve expansion, and industrial participation remain partial solutions. The review also identifies evidence gaps regarding domestic spillovers from industrial participation, the measurable effects of governance reform on readiness, and the life-cycle cost consequences of Indonesian procurement choices under changing macro-fiscal conditions.

Overall, the results reinforce the central argument of this review. Indonesian defense spending should not be assessed only as a fiscal burden or nominal modernization budget, but as a governance-dependent strategic investment whose value depends on through-life

discipline, institutional coherence, industrial participation, and accountability. When these dimensions are disconnected, repeated expenditure can produce capability leakage rather than durable strategic value. The stronger the integration among these dimensions, the stronger the case for interpreting defense expenditure as a productive strategic asset rather than a recurring budgetary cost.

E. CONCLUSION

This systematic literature review shows that Indonesian defense spending is best understood not through nominal budget size alone, but through the governance arrangements that determine whether resources are converted into durable capability. In relation to the first research question, the gap between defense capability requirements and available fiscal space is produced by the interaction of limited fiscal capacity, fragmented budgeting, uneven political commitment, and weak continuity between planning and implementation. The fiscal-capability gap is therefore not only a budgetary shortfall, but a governance-mediated capability risk.

In relation to the second research question, the sustainability of Indonesian defense spending is shaped by factors extending beyond initial acquisition. Life-cycle costing, maintenance burden, long-term supportability, manpower design, and external dependency determine whether expenditure generates durable readiness or merely short-term acquisition outputs. The literature shows that sustainment is underestimated when procurement is assessed mainly through purchase price rather than total cost of ownership, making life-cycle discipline indispensable.

In relation to the third research question, Indonesian defense spending can function as strategic investment only when fiscal rationality, procurement discipline, sustainment planning, manpower design, industrial participation, and accountability are governed as an integrated system. DRGMS contributes by identifying where integration fails and where capability leakage occurs. The central problem is therefore not simply how much Indonesia spends, but whether expenditure accumulates into readiness, industrial learning, strategic resilience, and public legitimacy. Future research should move beyond nominal budget debates toward longitudinal analysis of how governance reform, sustainment practice, industrial learning, and manpower design affect the long-term strategic value of defense expenditure.

These findings carry practical implications. The primary reform priority is to strengthen the institutional coupling between budgeting and sustainment so that acquisition decisions are tied to life-cycle cost, maintenance, training, upgrade, and readiness obligations from the outset. Reserve-force reforms such as Komcad should be accompanied by transparent cost accounting and clear mobilization standards rather than treated primarily as headcount expansion. Industrial participation commitments in offset agreements and local-content requirements should be subject to enforceable monitoring and public reporting. Failure to govern defense spending in this way is not merely administrative inefficiency; it is a national security risk because repeated expenditure may fail to accumulate durable strategic value.

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