

Demand-Side Financing Transformation: Formulating Indexed Scholarship Unit Costs for Inclusive SMA Unggul Garuda

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Abstract

This study formulates an indexed scholarship unit-cost framework for SMA Unggul Garuda, an affirmative secondary education program relying on the Indonesia Endowment Fund for Education (LPDP). The transition to demand-side financing reveals critical policy gaps in the national input cost standards (SBM), including the absence of secondary education tuition nomenclature, uniform national nutritional allowances ignoring regional price disparities, and exclusionary reimbursement-based transportation mechanisms. Using a qualitative policy study approach, three policy alternatives were evaluated based on William Dunn's criteria: effectiveness, efficiency, adequacy, equity, responsiveness, and appropriateness. The analysis concludes that standardizing financing through generic national regulations is administratively inefficient. Instead, this paper recommends enacting a specific Other Input Cost Standards (SBML) package. This tailored intervention ensures legally binding tuition fees, regionally indexed living allowances, and centralized zero-cost transportation, effectively securing the program's inclusivity and long-term sustainability.

Keywords : Education Financing, Demand-Side Financing, Endowment Fund, Policy Analysis, Unit Cost.

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INTRODUCTION

Education is widely recognized as a fundamental pillar for enhancing human capital and driving sustainable economic growth. In the context of Indonesia, achieving the "Golden Indonesia 2045" vision requires an extraordinary transformation of its demographic dividend into a highly competitive workforce (Mulyadi et al., 2025; Zakaria et al., 2025; Saibah, 2025). However, empirical evidence highlights a systemic stagnation in national academic performance. According to the Programme for International Student Assessment (PISA) 2022 report, the proficiency of Indonesian students remains significantly below the global average, indicating a structural challenge in equitable access to high-quality secondary education for marginalized communities (Shaturae, 2021).

In response to this human capital crisis, the government initiated a strategic affirmative intervention through the Blueprint of the SMA Unggul Garuda Ecosystem (Kusumah, 2025). Designed as a global-standard "Incubator for Leaders" and an "Access Equalizer," the program commits to providing full scholarships for at least 80% of its student body, strictly prioritizing underprivileged adolescents from frontier, outermost, and underdeveloped (3T) regions. To shield the program's sustainability from political cycles and sectoral state budget volatility, the policy mandates that operational frameworks be financed by the National Endowment Fund for Education managed by

LPDP. This strategic shift alters the financing paradigm from a traditional, institution-based aggregate funding model (supply-side) to an individualized, beneficiary-based financing mechanism (demand-side) (Rosser & Fahmi, 2020; Novelantika & Karim, 2025).

However, translating this financing transition into operational reality has encountered severe regulatory bottlenecks. The current state financial instruments exclusively regulate scholarship unit costs for higher education. This regulatory vacuum at the secondary education level creates three critical systemic barriers. *First*, the absence of a legally binding Tuition Fee (SPP) nomenclature eliminates the legal basis for the institution to invoice the endowment fund. *Second*, the national standards impose a flat-rate daily nutritional allowance across the country. In practice, this uniformity ignores extreme regional price disparities, violating the principle of fiscal adequacy and risking malnutrition among eastern students (Marliana et al., 2025; Meoded & BenDavid-Hadar, 2025; Muhammad et al., 2025). *Third*, the existing official travel financing relies on a reimbursement mechanism requiring an initial cash outlay. Coupled with the absence of a regulatory basis for personal stipends, this creates an insurmountable financial barrier to entry that systematically excludes the poorest demographics (Ma, 2022; Omoeva & Gale, 2016; Caraka & Sugiarto, 2017; Sika & Nyawanda, 2023).

To systematically trace the root causes of these administrative bottlenecks, a problem tree analysis was conducted, as illustrated in Figure 1.

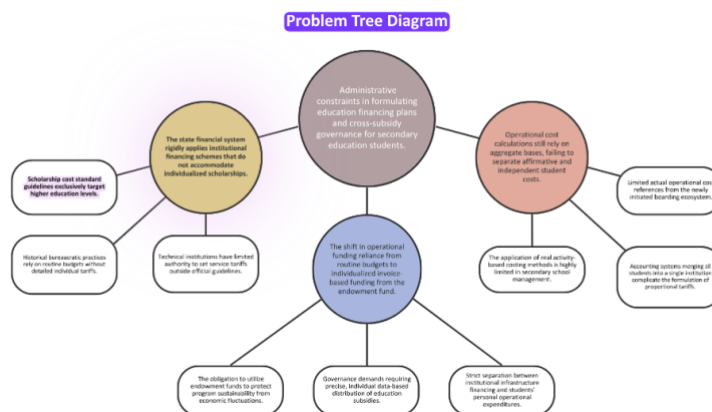


Figure 1. Problem Tree Diagram of SMA Unggul Garuda Financing Constrains

These issues highlight a "policy mismatch" commonly observed in developing nations, where centralized financial models are rigidly applied without contextual adaptation, leading to severe structural inefficiencies (Marliana et al., 2025). To address this policy gap, this study aims to formulate an indexed scholarship unit-cost architecture for SMA Unggul Garuda. Furthermore, this paper evaluates various policy scenarios to replace the *status quo*, ultimately providing recommendations to ensure equal access to quality education.

METHODS

Research Design and Data Collection

This research employs a qualitative policy study design to systematically identify regulatory bottlenecks and evaluate potential governmental interventions (Skerritt, 2023). The study relies entirely on secondary data collected through an extensive document review (Tahir & Jährir, 2025). Primary policy documents analyzed include the Blueprint of the SMA Unggul Garuda Ecosystem and state fiscal instruments. These regulatory frameworks were triangulated with empirical academic literature focusing on education financing equity, activity-based unit cost formulation, and the socioeconomic impacts of scholarship stipends on marginalized students.

Data Analysis and Evaluation Framework

The study relied on document-based analysis. The primary materials consisted of three groups of sources. First, the study drew on the author's policy manuscript on SMA Unggul Garuda financing, which provided the main analytical basis for identifying the strategic issue, policy gaps, causal structure, and policy alternatives. Second, the study used relevant Indonesian policy and regulatory documents, particularly the ministerial blueprint governing SMA Unggul Garuda and the 2026 Standard Input Cost framework, to examine the legal and administrative setting of the program. Third, the study incorporated academic literature on demand-side financing, education finance equity, activity-based costing, indirect educational costs, and adequacy in education financing to strengthen the conceptual and analytical grounding of the paper. These materials were reviewed to establish the policy context, identify the nature of the financing mismatch, and support the formulation of policy options. The data analysis was conducted in two sequential phases. First, to avoid analytical bias and ensure the policy intervention targets the most critical issue, the study utilized the USG (Urgency, Seriousness, Growth) Matrix method (Munfa'ati, 2025; Yusuf & Sa'adah, 2020). Based on expert judgment parameters, three identified administrative bottlenecks were evaluated. As demonstrated in Table 1, the regulatory constraints in formulating the education financing plan and cross-subsidy governance emerged as the core problem, attaining the highest cumulative score.

Table 1. USG (Urgency, Seriousness, Growth) Matrix for Problem Prioritization

No	Problem Description	Urgency	Seriousness	Growth	Total Score
1.	Administrative constraints in formulating education financing plans and cross-subsidy governance.	5	5	4	14
2.	High initial financial burdens that systematically exclude the educational participation of underprivileged students.	4	4	3	11
3.	High risk of nutritional standard fulfillment deficits for boarding students in eastern Indonesia.	3	3	3	9

(Note: Scale 1 to 5, where 5 represents the highest priority)

Following the problem identification, several policy alternatives were constructed. To rigorously assess and select the most optimal alternative, this study adopted a comprehensive policy evaluation framework comprising six operationalized criteria: Effectiveness, Efficiency, Adequacy, Equity, Responsiveness, and Appropriateness (Cruz & Sanchez, 2021). Each alternative was systematically scored using a Likert scale ranging from 1 (Very Poor) to 5 (Excellent).

RESULTS AND DISCUSSIONS

Financing Transition and State Financial Instrument Constraints

The successful transition from a traditional supply-side institutional financing model to an individual-based demand-side financing model fundamentally mandates the educational institution to formulate a precise Unit Cost. Academic literature robustly indicates that an accurate unit cost formulation particularly through methodologies such as Activity-Based Costing (ABC) is indispensable for producing precise budgetary information. It allows institutions to map exact resource consumption based on student activities, thereby establishing a transparent foundation for cross-subsidization (Sumardingsih et al., 2018; Maelah et al., 2011; Kurniawan & Pribadi, 2018). However, the current regulatory architecture presents a critical void. The absence of a specific legal instrument to determine the Tuition Fee (SPP) for secondary affirmative education at SMA Unggul Garuda effectively eliminates the legal basis for the school to invoice the endowment fund agency (LPDP) for the 80% affirmative quota.

Furthermore, an in-depth analysis of the national fiscal instrument, specifically the Minister of Finance Regulation No. 32 of 2025 concerning the 2026 Input Cost Standards (SBM 2026), reveals extreme regional price disparities that are not adequately accommodated by the current framework (Prasojo & Tristiana, 2018). The SBM 2026 implicitly imposes a flat-rate daily nutritional allowance across the country. Enforcing a uniform national rate for student meals unequivocally violates the principle of 'adequacy' within the framework of education finance equity (Yusuf & Putra, 2022). To illustrate the severity of this policy mismatch, a comparative simulation of the daily nutritional allowance against the relative regional cost index is presented in Table 2.

Table 2. Simulation of Daily Nutritional Allowance Disparities and Budget Deficit Risks in Affirmative Regions (Based on PMK 32/2025 SBM 2026)

Region / Province	Flat-Rate Daily Allocation (IDR)	Indexed Daily Requirement (IDR)	Estimated Daily Deficit (IDR)	Relative Cost Index (Java = 1.00)
Central Java	41,000	42,000	(1,000)	1.00
Bangka Belitung	41,000	48,000	(7,000)	1.14
West Kalimantan	41,000	54,000	(13,000)	1.29
North Maluku	41,000	52,000	(11,000)	1.24
Highland Papua	41,000	89,000	(48,000)	2.12

(Note: Data simulated based on the 2026 Input Cost Standards and regional market price projections)

As demonstrated in Table 2, a flat-rate daily allocation of IDR 41,000 may approximate the actual basic needs in Central Java. However, it becomes increasingly inadequate in higher-cost regions. In frontier areas such as Highland Papua, the actual cost to meet the exact same nutritional standards surges to IDR 89,000, representing a relative cost index of 2.12 compared to Java. If implemented, this rigid flat-rate policy will inevitably trigger a massive nutritional deficit of IDR 48,000 per student per day. This deficit will subsequently degrade the cognitive development and academic performance of students in Eastern Indonesia, negating the affirmative purpose of the program (Marliana et al., 2025; Meoded & BenDavid-Hadar, 2025).

Another critical barrier identified in the current state financial standard is the reimbursement based mobility mechanism for official travel, which is currently the only available instrument to fund students' flights to the boarding school. Educational economists argue that high initial financial burdens systematically exclude vulnerable groups from accessing quality education (Ma, 2022). Requiring underprivileged parents from remote islands to provide an initial cash outlay for commercial flight tickets (which can amount to tens of millions of rupiah) creates an insurmountable barrier to entry. Additionally, the lack of a legal nomenclature to disburse personal living stipends (*uang saku*) for secondary school students exacerbates the issue. Empirical path analysis studies conducted in the Indonesian context have proven that the availability of personal stipends has a direct, strong correlation with students' academic retention and achievement, as it alleviates daily psychosocial and economic pressures (Caraka & Sugiarto, 2017; Omoeva & Gale, 2016).

Formulation of Policy Alternatives

To resolve the previously identified administrative deadlocks and ensure the successful operationalization of the SMA Unggul Garuda ecosystem, this study formulates three distinct alternative policy interventions. Each alternative represents a different bureaucratic approach to securing the legal basis for the scholarship unit cost.

Alternative 1: Revision of the National SBM

This scenario proposes amending the existing Minister of Finance Regulation (PMK No. 32/2025) to expand the scholarship nomenclature globally, encompassing all secondary education institutions across Indonesia. While this provides a sweeping national solution and strong legal

certainty, the bureaucratic process to revise a macro national financial standard requires comprehensive inter-ministerial harmonization and an extensive fiscal impact assessment. Comparative policy studies demonstrate that attempting to synchronize cross-sectoral ministries in Indonesia often leads to prolonged bureaucratic friction, massive inefficiencies, and delays (Harun et al., 2020). Furthermore, politics and bureaucracy frequently become structural bottlenecks that hinder the effectiveness of education financing (Rosser & Fahmi, 2020). A national standard revision also tends to maintain rigid flat-rate characteristics, which fundamentally fails to accommodate the specific affirmative interventions required by SMA Unggul Garuda, such as zero-cost entry transportation and locally indexed stipends.

Alternative 2: Issuance of a Presidential Regulation (Perpres)

This scenario involves issuing a specific Presidential Regulation designed to exclusively govern the holistic financing architecture of SMA Unggul Garuda. A Presidential Regulation offers the highest degree of legal certainty, structurally binding all relevant ministries including the Ministry of Finance and LPDP to comply with the school's specific funding mechanisms. However, the legislative drafting process for a Presidential Regulation is notoriously lengthy, requiring complex harmonization across the Ministry of Law, the State Secretariat, and the initiating ministries. Research indicates that structural education reforms relying on top-tier presidential decrees often suffer from severe implementation delays due to the multitude of actors involved in the decision-making chain (Hill & Wie, 2012). Consequently, this alternative is highly incompatible with the urgent timeline required for the school's inaugural academic year.

Alternative 3: Proposal of Specific SBML

This alternative proposes the enactment of an Other Input Cost Standards (SBML) package tailored specifically and exclusively for the SMA Unggul Garuda Scholarship Unit Cost. The SBML is an existing, flexible fiscal mechanism provided by the Ministry of Finance to accommodate state institutions with unique operational characteristics that are not covered by the macro SBM (Azizi & Faslah, 2025). By proposing a tailored SBML document, the technical ministry can accurately bypass the rigid flat-rate system and inject affirmative components directly into the unit cost. This strategic intervention aligns with the concept of regional based education financing innovation, which allows for localized financial adjustments without overhauling the national framework (Yusuf & Putra, 2022). The SBML specifically accommodates four main pillars: legally binding tuition fees, regionally indexed nutritional allowance rates, centralized zero-cost entry transportation, and personal stipends.

Comparative Evaluation of Policy Alternatives

These three policy alternatives were systematically evaluated to determine the most optimal and feasible intervention. The assessment adopted a comprehensive policy evaluation framework comprising six operationalized criteria: Effectiveness, Efficiency, Adequacy, Equity, Responsiveness, and Appropriateness (Cruz & Sánchez, 2021). The comprehensive results of the evaluation scoring are presented in Table 3.

Table 3. Evaluation Matrix for Policy Alternatives

Evaluation Criteria	Alt 1 (Revision of SBM)	Alt 2 (Presidential Reg)	Alt 3 (Proposal of SBML)
Effectiveness	4	5	5
Efficiency	2	2	4
Adequacy	3	5	5
Equity	3	5	5
Responsiveness	2	2	4
Appropriateness	2	1	4
Total Score	16	20	27

(Note: Likert Scale 1 to 5, where 1 = Very Poor and 5 = Excellent)

Based on the evaluation matrix in Table 3, Alternative 3 (Proposal of Specific SBML) achieved the highest absolute score (27), significantly outperforming Alternative 1 (Score 16) and Alternative 2 (Score 20). The evaluation reveals that while all alternatives strive for high *Effectiveness* in securing a legal basis, they differ drastically in *Efficiency*, *Responsiveness*, and *Appropriateness*. Alternative 3 emerges as the most optimal administrative intervention because it utilizes an existing fiscal trajectory within the Ministry of Finance. This targeted approach successfully avoids the bureaucratic friction and institutional deadlock associated with drafting a new top-tier Presidential Regulation or overhauling the macro-level national SBM (Harun et al., 2020; Munfa'ati, 2025).

Furthermore, Alternative 3 scores perfectly in the dimensions of *Equity* and *Adequacy*. The specific nature of the SBML allows the technical ministry to legally enact a regionally indexed nutritional allowance rate that accommodates the 2.12 price index of the Papua Highlands. This flexibility prevents the severe nutritional deficit projected in Alternative 1, aligning with the core principle that fiscal adequacy must be adjusted to real regional burdens rather than standardized superficially (Marliana et al., 2025; Meoded & BenDavid-Hadar, 2025).

From an *Equity* standpoint, Alternative 3 specifically facilitates the enactment of a centralized corporate booking mechanism for official transportation and the disbursement of personal stipends. This targeted formulation directly dismantles the high initial financial barriers (barrier to entry) that systematically exclude marginalized groups, thereby securing the program's affirmative mandate (Omoeva & Gale, 2016; Bartik et al., 2022). Additionally, the approval of the SBML establishes a legal benchmark for the Tuition Fee (SPP), which is indispensable for providing precise budgetary information and a transparent foundation for institutional cross-subsidization between affirmative and independent students (Sumardingsih et al., 2018). Thus, Alternative 3 provides the most scientifically and administratively robust solution to ensure equal access to quality education.

Policy Implications and Risk Mitigation Strategies

While the implementation of the specific SBML (Alternative 3) offers the most scientifically and administratively robust solution, the transition from institutional supply-side financing to individual demand-side financing entails significant systemic risks. Policymakers must proactively address these institutional implications to ensure the policy's long-term sustainability. This study identifies two primary implementation risks and formulates their respective mitigation strategies.

First, the risk of double budgeting and financial maladministration. The duality of funding sources where institutional infrastructure, facilities, and teacher salaries are funded by the regular ministerial budget (supply-side) while individual student operations (such as meals and personal stipends) are funded by the LPDP endowment fund (demand-side) creates a high vulnerability for overlapping budget claims. Financial management literature emphasizes that transparency, efficient funding source optimization, and strict accountability systems are crucial to increasing stakeholder trust and preventing administrative errors in educational institutions (Syamsiyah et al., 2025). To mitigate this risk, the educational institution must enact a rigorous accounting segregation mechanism. The school's financial management system must unequivocally separate the general ledger for infrastructure maintenance from personal scholarship disbursements. Implementing an integrated digital reporting dashboard is highly recommended to enhance monitoring efficiency and simplify cross-ministerial audits (Jaelani, 2021).

Second, the vulnerability to macroeconomic fluctuations and inflation in frontier, outermost, and underdeveloped (3T) regions. Although the proposed SBML currently accommodates regional price disparities, the logistical cost of food provision and commercial flight transportation in remote areas is highly volatile. Unpredictable inflation rates or sudden disruptions in local supply chains could render the indexed SBML rate inadequate within a few fiscal years. If the budget fails to keep pace with real market prices, the affirmative education program will regress into violating the principle of fiscal adequacy (Bartik et al., 2022). Therefore, a static policy is insufficient. The technical ministry must establish a periodic review mechanism (e.g., a biennial fiscal evaluation) to continuously adjust the

SBML index based on the latest macroeconomic inflation data provided by the Central Bureau of Statistics (BPS).

Through these targeted mitigations, the proposed SBML framework will not only resolve the immediate administrative constraints but also establish a resilient, long-term financing architecture that safeguards the inclusive mandate of SMA Unggul Garuda as a true "Access Equalizer" for the nation's marginalized youth.

CONCLUSIONS

The establishment of the SMA Unggul Garuda ecosystem as an "Access Equalizer" for underprivileged students faces a systemic policy mismatch. The transition from institutional supply-side financing to a demand-side model reliant on the LPDP Endowment Fund mandates a precise unit-cost formulation. However, the existing national fiscal framework (SBM 2026) exhibits severe regulatory voids: it lacks a legally binding secondary education scholarship nomenclature, imposes a uniform national nutritional allowance that ignores regional price disparities, and enforces an exclusionary reimbursement-based mobility mechanism. The comparative policy evaluation confirms that standardizing the financing through a generic national regulation is administratively inefficient. Instead, formulating an indexed scholarship unit cost through a specific Other Input Cost Standards (SBML) package emerges as the most effective, equitable, and feasible policy intervention to secure the program's affirmative mandate.

Policy Recommendations

To ensure the inclusive and sustainable operationalization of SMA Unggul Garuda, this study strongly recommends that the Ministry of Higher Education, Science, and Technology immediately formulate and propose a dedicated Other Input Cost Standards (SBML) to the Ministry of Finance. As a concrete call to action, the proposed SBML must explicitly regulate four fundamental pillars:

1. **Legal Certainty of Tuition Fees (SPP):** Establishing an activity-based tuition fee that provides a legal basis for invoicing the LPDP for affirmative students while creating a transparent cross-subsidy benchmark for independent students.
2. **Regionally Indexed Nutritional Allowances:** Mandating a regionally adjusted daily meal allowance adopting the SBM's highest multiplier index (e.g., accommodating the 2.12 index for Highland Papua) to prevent nutritional deficits and ensure adequate caloric intake across all boarding schools (Marliana et al., 2025).
3. **Centralized Zero-Cost Transportation:** Eliminating the reimbursement mechanism by enacting a centralized corporate booking system for students' flight tickets, thereby removing upfront financial barriers and ensuring a zero-cost entry for marginalized demographics (Omoeva & Gale, 2016).
4. **Secondary Education Personal Stipends:** Establishing a legal nomenclature for the disbursement of personal stipends (*uang saku*) tailored to local living costs to support the students' psychological well-being and academic retention (Caraka & Sugiarto, 2017).

Furthermore, to mitigate the risk of financial maladministration, the institutional management must enforce strict accounting segregation between infrastructure expenditures funded by the state budget and personal operational expenses funded by the endowment fund (Syamsiyah et al., 2025).

Limitations

This policy analysis relies primarily on the projected financial ceilings stipulated in the 2026 Input Cost Standards (SBM) and secondary assumption data. During actual implementation, dynamic macroeconomic factors such as localized inflation in frontier and outermost (3T) regions and the volatile nature of commercial aviation tariffs may cause deviations from the projected budget. Therefore, future research must incorporate longitudinal field evaluations and performance-based budgeting reviews to continuously adjust the SBML indices against real-time market fluctuations (Bartik et al., 2022).

Appendix A

Implementation Action Plan Matrix for the SBML Policy

This action plan outlines the chronological roadmap for transitioning to a demand-side financing model within the first 12 months (pre-operational and early operational phases).

Table A1. Action Plan and Bureaucratic Responsibilities

Phase	Key Action / Intervention	Primary Actor(s)	Target Timeline
Short-Term (Quick Wins)	1. Enactment of the Decree for the SBML Formulation Team	Dir. Gen. of Science and Technology	Month 1
	2. Submission of the SBML Academic Paper and Proposal to the Ministry of Finance	Minister of Higher Ed., Science, and Tech.	Months 1 – 3
	3. Approval and Legal Enactment of the specific SBML	Minister of Finance	Months 4 – 5
	4. Signing of the Centralized Ticket Corporate Booking Contract	Dir. Gen. of Sci. & Tech. / LPDP	Months 5 – 6
Medium-Term	5. Issuance of Ministerial Decree on Affirmative Education Tariffs	Minister of Higher Ed., Science, and Tech.	Months 6 – 7
	6. Enactment of Guidelines for Accounting Segregation to Mitigate Double Budgeting	Dir. Gen. of Science and Technology	Months 7 – 8
	7. Execution of Internal Financial Audit for the First Semester	Inspectorate General	Month 12

(Note: The short-term phase focuses on establishing the legal foundation prior to student admission, while the medium-term phase focuses on institutional financial governance).

Appendix B

Full Scholarship Unit Cost Simulation Based on Regional Price Indices

Assumptions and Methodology:

1. Baseline Index (1.00): Utilizes Central Java Province as the baseline, representing the lowest daily nutritional standard cost within the national fiscal framework.
2. Nutritional Allowance: Directly adopted from the Minister of Finance Regulation (PMK) No. 32/2025 concerning the 2026 Input Cost Standards (SBM), multiplied by 360 active boarding days.
3. Education Fund (Tuition/SPP): Set at a national flat rate of IDR 28,000,000/year to ensure equal curriculum quality, laboratory facilities, and international benchmarking across all schools.
4. Personal Support Allowance (Stipend): Proportionally calibrated according to the regional price index cluster (e.g., Central Java = IDR 9 Million/year; Highland Papua = IDR 12 Million/year).
5. Mobility Transportation: Calculated based on centralized corporate booking estimates for round-trip mobilization per year.

Table B1. Simulated Affirmative Scholarship Unit Cost Formula (Fiscal Year 2026)

Province (Sample)	Daily Meal SBM (IDR)	Cost Index	Annual Meal (360 Days)	Tuition Fee / SPP (IDR)	Personal Stipend (IDR)	Flight / Mobility (IDR)	Total Annual Unit Cost (IDR)
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Central Java (Baseline)	42,000	1.00	15,120,000	28,000,000	9,000,000	2,000,000	54,120,000
West Kalimantan	54,000	1.29	19,440,000	28,000,000	10,000,000	4,000,000	61,440,000
Central Papua	60,000	1.43	21,600,000	28,000,000	11,000,000	7,902,000	68,502,000
South Papua	88,000	2.10	31,680,000	28,000,000	12,000,000	8,767,000	80,447,000
Highland Papua	89,000	2.12	32,040,000	28,000,000	12,000,000	8,767,000	80,807,000

(Note: Data simulated based on the 2026 SBM ceilings and projected operational parameters of SMA Unggul Garuda. The calculation explicitly prevents nutritional deficits in frontier regions).

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