

Addressing Stunting Data Disparity Through the Optimization of the "SiCantik" Application Ecosystem in North Gorontalo Regency

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Abstract

This article addresses the significant disparity in stunting prevalence data in North Gorontalo Regency, where the 2023 Indonesian Health Survey (SKI) recorded a prevalence of 30.5%, in stark contrast to the 2024 e-PPGBM routine recording which showed only 12.06%. Using Root Cause Analysis (RCA), the study identifies that this anomaly stems from the low technical capacity of posyandu cadres, the use of unstandardized and uncalibrated measuring tools due to village budget limitations, and weak real-time field supervision by health workers. Although the local government has implemented the "SiCantik" application through Regent Regulation No. 8 of 2023 to accelerate reporting, it has not yet resolved the upstream data quality issues. Through Multi-Criteria Decision Analysis (MCDA), this paper evaluates several policy alternatives based on effectiveness, budget efficiency, technical feasibility, and regulatory support. Consequently, the study recommends an Integrative Policy approach that includes: adding a "Smart Validation" feature to the SiCantik application to automatically reject medically illogical data, shifting cadre training methods to risk-based On-the-Job Training (OJT), and issuing a Regent's Instruction mandating the allocation of Village Funds for standardized anthropometric equipment and calibration.

Keywords: *Stunting; Data Disparity; SiCantik Application*

Introduction

Stunting is not merely an issue of short stature; rather, it constitutes a severe threat to the quality of human resources. According to the World Health Organization (WHO), stunting is a developmental disorder in children caused by poor nutrition, recurrent infections, and inadequate psychosocial stimulation, characterized by a height that falls below -2 standard deviations from the growth median. The short-term impacts of this condition encompass increased morbidity, whereas its chronic effects can severely diminish cognitive function and intelligence. In the subsequent life cycle, children who experience malnutrition during the first 1,000 Days of Life (HPK) bear a heightened risk of non-communicable diseases (NCDs) in adulthood. Furthermore, on a macroeconomic scale, stunting can significantly impede economic growth and widen social inequality.

Epidemiologically, Indonesia faces a massive challenge as one of the 20 countries with the highest number of stunted children worldwide, contributing to nearly 80% of the 149 million global cases. Moreover, the country bears a double burden of malnutrition, indicated

by a high prevalence of stunting alongside anemia in pregnant women. In response to this state of emergency, the government has established stunting alleviation as a priority development agenda through Presidential Regulation Number 72 of 2021, setting a national prevalence target of 14% by 2024. Aggregately, Indonesia has demonstrated an improving trend, successfully reducing the national prevalence to 21.5% based on the 2023 Indonesian Health Survey (SKI).

However, this national downward trend is not uniformly reflected across all regions, particularly in Gorontalo Province. Conversely, the average stunting prevalence in this province has escalated from 23.8% in 2022 to 26.9% in 2023. Within this regional constellation, North Gorontalo Regency shoulders a highly critical epidemiological burden. According to the 2023 SKI data release, the stunting prevalence in this regency was recorded at 30.5%, making it the area with the second-highest stunting burden in Gorontalo Province and standing 9% higher than the national average.

Amidst this high prevalence burden, mitigation efforts in North Gorontalo Regency are confronted with a crucial issue: a remarkably wide data

disparity. The regional routine recording system, operated through the e-PPGBM application, presents a "false positive" anomaly, recording the prevalence as if it had drastically plummeted to a mere 12.06% in 2024. The illusion of success generated by this biased recorded data is profoundly dangerous. It can misdirect policy trajectories and intervention targets away from children who are genuinely in critical condition, thereby risking the creation of a lost generation during the golden age of toddlerhood.

Furthermore, the 12.06% average figure claimed by the reporting application actually conceals extreme disparities at the basic service level. For instance, the Molingkapoto Community Health Center (Puskesmas) recorded the highest stunting prevalence rate at 28.24%, while, conversely, the Dulukapa Puskesmas reported the lowest prevalence at 2.12%. This remarkably sharp data variation among healthcare facilities further corroborates strong indications of non-uniformity in measurement quality standards, pertaining both to the measuring instruments utilized and the competence of cadres in the field.

This data disparity is not an incidental occurrence; rather, it is a systemic pattern demonstrating that the

regional reporting application consistently receives and accommodates inaccurate data input, generating a gap that progressively widens year by year. This phenomenon can be elucidated through the data quality concept of Garbage In, Garbage Out (GIGO) within health information systems. Regardless of the sophistication of the reporting system employed, the quality of the data output relies heavily on the accuracy of the input at the grassroots level. Consequently, if Posyandu cadres erroneously weigh or measure the length of toddlers, the prevalence figures generated by the system will inevitably be biased or false.

Fundamentally, the unavailability of standardized measuring instruments at the Posyandu level reveals underlying issues of governance and policy synchronization at the grassroots level, specifically concerning the optimal utilization of Village Funds (Dana Desa). Although Presidential Regulation Number 72 of 2021 explicitly mandates a specific and sensitive nutritional intervention approach through evidence-based fulfillment of Posyandu facilities, implementation at the village level frequently suffers from priority bias. Village operational budgets tend to be heavily allocated toward physical

infrastructure development rather than investments in preventive health development. The absence of derivative regulations at the regency level that strictly mandate (earmarking) a portion of the Village Fund for the procurement of Ministry of Health-standard Anthropometry Kits and routine calibration financing renders the measuring tools in the field invalid. In turn, this structural negligence obscures the actual determinant risk factors of stunting experienced by toddlers on the ground.

The condition of inadequate facility infrastructure is further exacerbated by the stagnation in human resource capacity, specifically concerning Posyandu cadres who serve as the vanguard of data collection. Measuring the body length of toddlers, particularly those under two years of age, is not merely a routine administrative task, but a basic medical procedure that demands a high degree of psychomotor skill and precision. Viewed through the lens of adult learning theory (Andragogy), the cadre training conducted thus far—which has been predominantly classical and theoretical in meeting rooms—has proven ineffective in transferring genuine technical skills. Therefore, cadres require a Capacity Building

approach rooted in experiential learning through On-the-Job Training (OJT), wherein they receive direct mentoring in the field.

On the other hand, in an effort to streamline the bureaucracy of data reporting, the North Gorontalo Regency Government has indeed made a leap in digital innovation through the issuance of Regent Regulation Number 8 of 2023 concerning the Stunting Prevention Information System (SiCantik). Nevertheless, when analyzed using the analytical framework of the Technology Acceptance Model (TAM), the adoption of this technology has the potential to backfire if it is not balanced by the readiness of physical facilities and the reliability of the system architecture itself. Currently, the SiCantik application primarily functions as a rapid reporting "vehicle," but has not yet fully transformed into a smart quality control governance system. The absence of a Smart Validation feature, such as an automatic AI alert, renders the application incapable of rejecting anomalous data inputs or medically impossible measurement discrepancies. Consequently, rather than resolving the issue, this innovation risks becoming a repository for flawed data right from the source.

Confronted with a complex web of problems intertwining human resource quality, limited facility financing, and digital system vulnerabilities, conventional public policy evaluation approaches are no longer adequate. The selection of policy alternatives to resolve this stunting data disparity cannot be measured solely from the standpoint of monetary efficiency via Cost-Benefit Analysis (CBA), as public health policies must accommodate social, technical, and regulatory compliance dimensions. Consequently, a comprehensive analytical instrument such as Multi-Criteria Decision Analysis (MCDA) is indispensable. This method is deemed highly strategic because it enables decision-makers to objectively evaluate various intervention scenarios by simultaneously balancing four crucial criteria: the level of effectiveness in resolving the root cause, regional budget efficiency, the feasibility of technical implementation in the field, and the robustness of regulatory support and the local political climate.

Based on the discrepancy between current information system policy innovations and the reality of upstream data quality, an in-depth academic evaluation is necessary to formulate comprehensive improvements.

Therefore, this study aims to unravel the disparity in stunting data through Root Cause Analysis and to evaluate the proposed solutions using the Multi-Criteria Decision Analysis (MCDA) method. More specifically, the research questions of this study are formulated as follows: (1) What fundamental factors constitute the root causes of the extreme disparity between e-PPGBM data and SKI data in North Gorontalo Regency?; (2) To what extent do implementation gaps in the reporting policy via the SiCantik application contribute to the emergence of "false positive" anomalous stunting data?; and (3) What is the most integrative policy alternative design to resolve issues pertaining to human resource competence, the availability of standardized measuring instruments, and the reliability of the data validation system?

Research Methodology

This research employs an evaluative qualitative design utilizing a case study approach in North Gorontalo Regency. The preliminary phases of data collection and analysis were executed through a comprehensive literature review and policy assessment. The researcher analyzed national regulatory foundations, such as Presidential

Regulation Number 72 of 2021 concerning the Acceleration of Stunting Reduction and Minister of Health Regulation Number 2 of 2020 concerning Child Anthropometry Standards. These national regulations were subsequently juxtaposed with the local policy framework, particularly North Gorontalo Regent Regulation Number 8 of 2023 concerning the Stunting Prevention Information System. This cross-tier regulatory assessment was then compared against data management theories to identify the policy gaps that precipitate the emergence of anomalous stunting reporting data at the regional level.

To address the primary research question regarding the fundamental factors triggering data disparity, this study applied the Root Cause Analysis (RCA) method. This method systematically deconstructs overarching issues and surface-level symptoms into a structured delineation of specific problems. The analytical process was conducted hierarchically, commencing with the identification of first-level causes, which encompass human resource (HR) capacity factors, measuring instrument infrastructure, and technical supervision systems. This analysis was subsequently delineated

into second-level causes, ultimately reaching third-level causes that illustrate the baseline conditions or actual limitations encountered in the field. Through this hierarchical tracing, the researcher was able to formulate a Problem Statement representing the fundamental root cause that serves as the genesis of the "false positive" phenomenon within the e-PPGBM application's data input.

Furthermore, to formulate and select the most optimal alternative policy design, this research utilized the Multi-Criteria Decision Analysis (MCDA) method. In contrast to Cost-Benefit Analysis (CBA), which focuses exclusively on measuring monetary value and financial efficiency, MCDA was selected for its capacity to evaluate public policy alternatives in a more holistic, objective, and systematic manner. This approach is particularly optimal for evaluating public health governance policies, wherein decision-making instruments cannot rely solely on budget availability but must accommodate and calculate various non-financial variables, including aspects of social acceptance, technical operational feasibility, and compliance with regulatory hierarchies.

The implementation of the MCDA method in this study was executed

through the establishment of four primary criteria along with their weighting system, cumulatively amounting to 100%. These criteria consist of: Problem Solving Effectiveness with the highest weight of 40%, Regional Budget Efficiency at 25%, Technical Feasibility at 20%, and Regulatory/Political Support at 15%. Each proposed alternative policy scenario was subsequently evaluated against each criterion utilizing a scoring scale ranging from 1 to 3, with a score of 1 designating a low or suboptimal value, a score of 2 denoting a moderate value, and a score of 3 indicating a high or excellent value. The final policy decision was derived based on the highest cumulative weighted score, obtained mathematically by multiplying the assessment scores by their respective criteria weights.

Results and Discussion

1. Root Cause Analysis of Stunting Data Disparity

The identification of the primary problem in this study centers on the remarkably wide data disparity occurring in North Gorontalo Regency, where the 2023 Indonesian Health Survey (SKI) recorded a stunting prevalence of 30.5%, starkly contrasting with the 2024 e-PPGBM data which

reported a figure of 12.06%. The analysis focuses on the underlying factors causing the e-PPGBM data to be significantly lower or inaccurate. Through a Root Cause Analysis (RCA), three primary first-level causes were identified: the low competence of Posyandu cadres (Human Resource Factor), the utilization of unstandardized measuring instruments (Instrument Factor), and the lack of supervision and quality control from Community Health Center (Puskesmas) personnel (System Factor).

Delving deeper into the Human Resource (HR) dimension, this competency issue stems from the Posyandu cadre recruitment process, which is frequently conducted haphazardly without basic competency requirements, driven solely by the scarcity of willing volunteers. This condition is exacerbated by a high turnover rate among cadres who resign upon securing permanent employment elsewhere or relocating. Furthermore, the minimal incentives—both financial and non-financial—provided by the village government contribute to the cadres feeling undervalued, thereby diminishing their work motivation in the field.

The workload of Posyandu cadres is also demonstrably excessive and

unfocused. Cadres are frequently assigned to simultaneously manage various supplementary programs from other institutions. During Posyandu Open Days, the lack of specific task delegation forces a single cadre to concurrently handle registration, weigh toddlers, and record results. This fragmentation of focus significantly amplifies the potential for human error during precise anthropometric measurements, particularly when the e-PPGBM application server experiences disruptions, compelling cadres to hastily input data merely to complete their tasks.

From the dimension of measuring instrument infrastructure, the distribution of nationally standardized Anthropometry Kits remains uneven due to supply chain bottlenecks and procurement bureaucracy at both the central and regional levels. Even when standardized tools have been distributed, many suffer damage due to improper storage procedures at village halls or cadres' residences. Standard instruments, such as infantometers, are also frequently perceived as excessively heavy or overly complex to assemble by elderly cadres. Consequently, cadres revert to their former habits of utilizing traditional measuring tools, such as the

dacin (traditional steelyard balance) or cloth measuring tapes, deeming them more practical, despite these tools being highly inaccurate and strictly prohibited for state reporting purposes.

The system and supervision dimension further reveals structural fragilities. The limited allocation of civil servant (CPNS) or government employee (PPPK) quotas for nutritionists at the Puskesmas results in an unbalanced ratio between the number of Posyandus requiring supervision and the availability of Nutrition Implementing Personnel (TPG). The existing TPGs are frequently consumed by a profound administrative workload, reducing the frequency of their field visits to an absolute minimum. The scarcity of official vehicles and the absence of transport allowances for personnel to monitor Posyandus across expansive working areas constitute physical barriers to the execution of adequate supervision.

The vulnerabilities within the infrastructure and supervision dimensions are fundamentally rooted in the misalignment of grassroots political budget priorities. Village Heads frequently lack an understanding of the urgency of allocating Village Funds (Dana Desa) to equip Posyandu health facilities. Indications suggest that village budget

allocations prioritize physical infrastructure development over preventive health capacity building. Consequently, neither the village administration nor the Puskesmas possesses a dedicated budget for engaging third parties, such as the Metrology Agency, to conduct periodic instrument calibrations. This operational predicament is further complicated by the distant location of calibration facilities, which are typically centralized in regency or provincial capitals.

By accumulating all causal details from the uppermost to the deepest levels, this analysis identifies a single fundamental root cause precipitating the stunting data disparity in North Gorontalo Regency. Fundamentally, this disparity occurs due to the absence of a continuous, hands-on cadre training system, specifically On-the-Job Training (OJT). This HR capacity deficit is subsequently compounded by the minimal availability of calibrated measuring instruments resulting from limited village budget allocations. At the terminus of the reporting system, the vulnerability of real-time field supervision by health workers—constrained by HR ratios and operational costs—allows anomalous data to slip through entirely unchecked, particularly

because the e-PPGBM system lacks an automatic warning feature (AI alert) designed to prevent cadres from inputting medically impossible measurement discrepancies for a single toddler.

2. Policy Implementation Gaps and the "SiCantik" Digital Ecosystem

The "false positive" phenomenon in this regional reporting data can be evaluated through the Garbage In, Garbage Out (GIGO) theory. The output quality of a health information system relies profoundly on the accuracy of the input at the Posyandu level; if the inputted raw data is erroneous due to weighing or measuring inaccuracies, the resulting prevalence figures will inevitably be biased. The North Gorontalo Regency Government has indeed enacted Regent Regulation Number 8 of 2023 concerning the Stunting Prevention Information System (SiCantik) to accelerate data flow, rendering it more real-time. However, drawing upon the Technology Acceptance Model (TAM), the adoption of this digital technology risks imposing an additional burden if it is not supported by the users' technical comprehension and standardized physical infrastructure.

The introduction of Regent Regulation Number 8 of 2023 is

fundamentally an extraordinary progressive step by the North Gorontalo Regency Government in responding to the sluggish reporting system. The SiCantik application is specifically designed to circumvent the lengthy reporting bureaucracy from the village to the regency level, while simultaneously accelerating information flow to enable real-time monitoring. Nevertheless, a highly tangible gap exists between this policy instrument and the resolution of root causes in the field. Utilizing a systemic analogy, the SiCantik digital application is essentially a "vehicle," whereas the Posyandu cadres and their anthropometric measuring tools serve as the "engine and fuel." If this regional regulation focuses exclusively on reporting obligations and digital data input without being accompanied by crucial articles mandating cadre competence standardization and tool calibration, SiCantik will ultimately be reduced to merely a faster repository for a collection of inaccurate data.

Furthermore, the existing implementation of the SiCantik application has not yet been capable of addressing the critical challenge regarding weak field supervision by health workers. This quality control vulnerability is further exacerbated by

the absence of more technical derivative regulations at the regency level that explicitly mandate the confirmation and verification of stunted toddler data by Puskesmas nutritionists prior to locking the data into the system. In practice, the absence of this validation protocol manifests as highly passive communication between Village Midwives and cadres regarding the cross-verification of daily measurement data. Therefore, until the SiCantik digital ecosystem is equipped with an automatic validation feature or a proactive alert system that notifies the Puskesmas when anomalous data is detected prior to central submission, the weaknesses of hierarchical supervision will never be comprehensively resolved.

The failure of the digital system to filter biased data carries profoundly fatal medical consequences for program targets. When the e-PPGBM or SiCantik applications display "false positive" data, toddlers who are genuinely stunted forfeit their vital rights to specific nutritional interventions during their golden growth period. The first 1,000 Days of Life (HPK) constitutes a defining critical juncture, wherein a failure in early detection will condemn the child to permanent cognitive and physical growth impairments.

Invalid anthropometric data resulting from damaged measuring tools systematically obscures the determinant risk factors for stunting in the field. According to the literature, toddlers with a history of Low Birth Weight (LBW)—weighing less than 2,500 grams at birth—have a 5.760 times higher risk of experiencing stunting compared to normal-weight infants. Erroneous measurements render Puskesmas health workers blind to the declining growth curve trends of toddlers with an LBW history, thereby delaying the provision of nutritional improvement educational interventions to mothers.

Additionally, the absence of an alert system within the reporting application eradicates the early warning function for health workers regarding feeding habits. Toddlers who receive Exclusive Breastmilk (ASI) are known to possess a 3.429 times lower risk of stunting. A failure in early detection equates to a failure of personnel to advocate for the paramount importance of Early Initiation of Breastfeeding (IMD) and to prevent early weaning. Therefore, algorithmic validation within the SiCantik application must serve as the vanguard to medically mitigate these determinant risk factors.

The functional gaps within this application reflect structural negligence within cross-sectoral financing schemes at the village government level. The pretext of Puskesmas budget unavailability for providing standardized tools should not occur, given that the implementation of nutritional interventions is supported by a convergence scheme. Village Fund Allocations (ADD) sourced from the Regional Budget (APBD) and Village Funds (DD) originating from the National Budget (APBN), which are recorded in the Village Budget (APBDesa), possess legitimate fiscal space to be earmarked to equip Posyandu facilities. The failure to convert these regulations into technical instructions proves that SiCantik is merely a downstream instrument disconnected from the upstream financing roots.

3. Evaluation of Policy Alternatives using Multi-Criteria Decision Analysis (MCDA)

To resolve this data governance deadlock, this study evaluated three policy alternatives utilizing the Multi-Criteria Decision Analysis (MCDA) method. The four primary criteria utilized encompass: Problem Solving Effectiveness with a weight of 40%, Regional Budget Efficiency (25%),

Technical Feasibility (20%), and Regulatory/Political Support (15%). Based on the weighted calculation matrix, Alternative 3 (Integrative Policy) achieved the highest final score of 2.55.

Table 1. MCDA Assessment Matrix of Policy Alternatives

Criteria (Weight)	Alt 1 (Digital Only)	Alt 2 (Conventional)	Alt 3 (Integrative)
Effectiveness (40%)	1	2	3
Budget Efficiency (25%)	3	1	2
Technical Feasibility (20%)	3	2	2
Regulatory Support (15%)	2	2	3
Total Score (Raw Value)	9	7	10

(Score: 1=Low, 2=Moderate, 3=High)

Alternative 1 (Digital Ecosystem Optimization) is designed to maintain the status quo while intensifying massive socialization regarding the obligation to input data into the SiCantik application. Within the assessment matrix, this alternative secured an excellent score in the Budget Efficiency and Technical Feasibility criteria due to its low cost and ease of operationalization. However, this alternative received the lowest score in the Effectiveness criterion as its nature is purely cosmetic; it completely bypasses the root causes of poor cadre skills and the absence of standardized measuring tools at the Posyandu.

Meanwhile, Alternative 2 (Conventional Intervention) prioritizes a physical approach through instructions for massive Anthropometry Kit procurement and the implementation of classical cadre training. Although capable of addressing the physical requirements of the field, this approach is deemed highly extravagant, severely depleting the Regional Revenue and Expenditure Budget (APBD). More critically, this conventional method obtained a moderate score in the feasibility aspect as it fails to resolve the weaknesses of hierarchical field supervision by health workers.

The weighting within this MCDA was proportionally designed to reflect the urgency of regional governance. The Effectiveness criterion was assigned a dominant weight of 40% because the fundamental objective of this policy is to eliminate false positives within e-PPGBM data to safeguard nutritional intervention targets. Subsequently, Regional Budget Efficiency was allocated a 25% share as a manifestation of fiscal rationalization. Considering the fiscal space limitations of North Gorontalo Regency post-economic recovery, policies that encumber the APBD must be avoided to the greatest extent possible.

Technical Feasibility was granted a 20% weight to guarantee that the selected policy exhibits a high level of acceptance in the field, and avoids exploiting the additional administrative burdens placed upon Nutrition Implementing Personnel (TPG) and cadres. The Regulatory and Political Support criterion, carrying a 15% weight, is positioned as an anchor of legality, ensuring that the proposed solution resonates and harmonizes seamlessly with the legal framework of Regent Regulation No. 8 of 2023 and the mandate of Presidential Regulation No. 72 of 2021.

4. Implications and Integrative Policy Recommendations

Based on the results of the MCDA analysis, the most rational approach to curing the root causes of data disparity is the implementation of the Integrative Policy. The primary intervention involves executing a technical upgrade to the SiCantik application by embedding a Smart Validation algorithm. This artificial intelligence feature is designed to read the reasonable limits of toddler growth; if a cadre inputs a medically impossible height spike within a single month, the system will automatically reject (auto-reject) the data and prompt the cadre to conduct a remeasurement.

Beyond the automatic rejection function, this digital ecosystem update must also incorporate an independent capacity-building module. It is recommended that the SiCantik application provide a Micro-Learning feature consisting of a collection of short-duration video tutorials directly accessible to cadres. These videos can serve as practical visual references, replacing pocketbooks when cadres experience uncertainty regarding assembling infantometers or positioning a toddler's head measurement points. The integration of this micro-learning

acts as a transitional bridge toward a more user-friendly technology adoption.

The control center for this system upgrade resides in the provision of a "Posyandu Report Card Dashboard" feature. This dashboard empowers the Health Agency to map, in real-time, the specific Posyandus exhibiting the highest input error or measurement discrepancy frequencies. Armed with precise data from this dashboard, Nutrition Implementing Personnel and Village Midwives can shift their coaching methodology from passive theoretical socialization to highly targeted On-the-Job Training (OJT), directly visiting the Posyandus located within the data error red zones.

At these red-zone Posyandu locations, health workers conduct comprehensive measurement corrections coinciding with Posyandu Open Days. This direct, hands-on mentoring approach is significantly more potent in elevating the psychomotor skills of cadres, while simultaneously facilitating health workers in providing direct education to the parents of toddlers. To safeguard this entire innovation chain, the Regent must issue a Circular Letter strictly mandating a specific percentage of Village Funds to finance annual third-party instrument

calibrations, the procurement of Ministry of Health-standard tools, and the allocation of sweeping travel costs for absent toddlers. The synergy of these three pillars will transform the SiCantik application into a multi-layered quality control ecosystem.

Conclusion

This study concludes that the remarkably sharp disparity in stunting prevalence within North Gorontalo Regency—specifically, the discrepancy between the high data recorded by the Indonesian Health Survey (30.5%) and the low figures from the e-PPGBM routine recording (12.06%)—does not indicate a successful intervention, but rather constitutes a tangible manifestation of systemic failure. Fundamentally, this "false positive" data phenomenon stems from the Garbage In, Garbage Out (GIGO) principle at the baseline data collection level, namely the Posyandu. The validity of the regional health information system has proven to be highly susceptible to bias when the processes of data collection and input at the grassroots level are not governed by precise quality standards.

Through the application of Root Cause Analysis (RCA), it was identified that this reporting anomaly originates from three interconnected fundamental

root causes. First, the technical capacity of Posyandu cadres remains severely limited due to the absence of continuous practical experience via an On-the-Job Training (OJT) mechanism. Second, the anthropometric measuring instruments utilized are frequently unstandardized and uncalibrated, primarily due to constraints and misaligned priorities in village budget allocations. Third, the fragile real-time data validation system supervised by health workers allows medically illogical data inputs to bypass scrutiny and be permanently recorded within the regional reporting system.

To unravel the complexity of this data governance, the mandatory digital reporting via the SiCantik application—as mandated by North Gorontalo Regent Regulation Number 8 of 2023—must absolutely be optimized in its functionality through an Integrative Policy. The results of the Multi-Criteria Decision Analysis (MCDA) evaluation confirm that resolving this issue necessitates the simultaneous synergy of three primary intervention pillars. These three pillars encompass the integration of a Smart Validation feature within the application system to automatically reject data anomalies, the implementation of risk-mapping-based OJT for cadres, and the issuance of a

Regent's Instruction that strictly mandates the utilization of Village Funds to fulfill the proper physical infrastructure requirements of Posyandus.

The implementation of these three integrative policy pillars is anticipated to effectively transform the positioning of the SiCantik application, evolving it from a mere passive "recording repository" into an instrument of a "smart quality control system." This policy will not only eliminate the bias of data disparity that could misdirect regional development trajectories, but it will also fundamentally construct a resilient nutritional surveillance ecosystem. Ultimately, this valid and precise health data architecture will serve as the imperative foundation for the regional government to formulate genuinely targeted nutritional intervention designs.

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