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Public Policy Gaps in Local Governance: A 7-C Analysis of Stunting Reduction Implementation in Biak Numfor Regency

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ABSTRACT

Research Problem: Stunting reduction policies in Indonesia rely on cross-sectoral convergence, yet formal coordination arrangements may coexist with uneven frontline implementation. In Biak Numfor Regency, the problem concerns how institutional responsibilities, service resources, and household circumstances intersect within an archipelagic setting.

Research Purposes: This study aims to analyse implementation gaps in Biak Numfor's stunting reduction policy using the 7-C policy by Burger, (2018) implementation framework, focusing on how institutional, operational, and contextual conditions shape implementation performance.

Research Methods: This qualitative case study draws on semi-structured interviews with 19 participants from government institutions, district administrations, frontline health services, community actors, and a non-governmental partner. Interviews were supplemented by non-participant observation and policy documents, including Stunting Reduction Acceleration Team (TPPS) records, convergence reports, regional plans, and e-PPGBM data. Framework-guided analysis compared formal responsibilities with reported implementation practices.

Results and Discussion: Formal instruments and convergence activities established an administrative foundation, but operational responsibilities remained concentrated within selected agencies. Personnel and equipment constraints complicated service continuity. Counselling directed towards mothers did not always reach actual caregivers, while fixed service schedules conflicted with livelihood activities. Communication often depended on hierarchical intervention, and coordination forums did not consistently secure authorised decisions or follow-up. These patterns suggest interruptions between institutional decisions, service delivery, and household participation. Incomplete measurement coverage and the case-study design limit inferences about policy effects on stunting.

Research Implications and Contributions: The study offers a contextual explanation of interactions among established 7-C dimensions in an archipelagic regency. It identifies priorities for explicit task ownership, coordinated frontline support, caregiver-responsive delivery, and feedback linked to authorised action. These implications require further evaluation to establish their effects on service continuity and nutritional outcomes.

Keywords: Policy implementation; Stunting reduction; 7-C framework; Archipelagic regions; Biak Numfor

INTRODUCTION

Stunting remains a public health and development concern because it reflects chronic nutritional deprivation, recurrent infection, and unequal access to conditions that support child growth. In Indonesia, national prevalence has declined in recent years, with the 2024 Indonesian Nutrition Status Survey reporting a national figure of 19.8%, after earlier figures of 21.6% in 2022 and 21.5% in 2023 (Kementerian Kesehatan, 2025; Tarmizi, 2024). The decline, however, does not remove the importance of local variation. Stunting risk in eastern Indonesia has been linked to nutrition, maternal and household conditions, health-service access, sanitation, caregiving practices, and broader socio-economic factors (Rahmadhita, 2020; Widiyanti et al., 2025). These conditions show that stunting reduction is not only a technical nutrition agenda but also an implementation challenge for local institutions that must deliver services, coordinate actors, and reach households consistently.

The Indonesian government has addressed stunting through an integrated convergence approach that combines nutrition-specific and nutrition-sensitive interventions across sectors. This approach requires local governments to coordinate planning, budgeting, service delivery, monitoring, data management, and evaluation rather than assigning stunting reduction only to the health sector (Kementerian PPN/Bappenas, 2019; Permanasari et al., 2020). At the local level,

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the Stunting Reduction Acceleration Team, or Tim Percepatan Penurunan Stunting (TPPS), is expected to connect government agencies, frontline service providers, village institutions, and community actors. The convergence model is operationalised through eight actions, including situation analysis, activity planning, stunting consultation, local regulation, cadre development, data management, measurement and publication, and annual performance review (Kementerian PPN/Bappenas, 2019). Biak Numfor Regency formally adopted this policy architecture through a regent decree establishing the local TPPS and distributing responsibilities among relevant government units *(SK Bupati Biak Numfor Nomor 97/ 188.4.5/Tahun 2025 Tentang Pembentukan Tim Percepatan Penurunan Stunting Pada Pemerintah Kabupaten Biak Numfor, 2025)*. The policy design was therefore administratively available, but its implementation still depended on whether these arrangements were translated into operational responsibility at district, frontline, and community levels.

Biak Numfor Regency provides an important local setting for examining this issue. The regency is an archipelagic area consisting of Biak Island, Numfor Island, the Padaido island group, and smaller island areas, with 19 districts and 254 villages recorded in the regional statistical profile (BPS Kabupaten Biak Numfor, 2025; Likumahua & Nifaan, 2020). Several implementation activities must therefore operate across separated service points, uneven transport access, and different local socio-cultural conditions. In such a setting, the availability of formal policy structures does not automatically guarantee regular supervision, stable reporting, equal distribution of personnel and equipment, or continuous communication between regency-level agencies and frontline implementers. This makes Biak Numfor analytically relevant because a nationally standardised convergence policy is implemented in a local environment where geography, administrative reach, infrastructure, and community practices shape service delivery.

The recorded stunting trend in Biak Numfor did not move consistently toward local policy targets. Local planning and evaluation materials used in this study record stunting prevalence at 6.59% in 2022, 6.10% in 2023, 6.39% in 2024, and 7.19% in 2025, while local targets were set at 6% for 2024 and 5% for 2025 (Bupati Biak Numfor, 2023; Tim Percepatan Penurunan Stunting Kabupaten Biak Numfor, 2024). This trend is presented in Figure 1. The increase occurred after the local TPPS had been formally established and after convergence actions had been reported in local programme documents (Bupati Biak Numfor, 2025; Tim Percepatan Penurunan Stunting Kabupaten Biak Numfor, 2024). The figures must be interpreted carefully because recorded prevalence depends on measurement coverage and reporting quality. The empirical issue in this article is therefore not whether TPPS formation directly caused a prevalence change, but why formal convergence arrangements did not consistently become reliable implementation practice across local service areas.

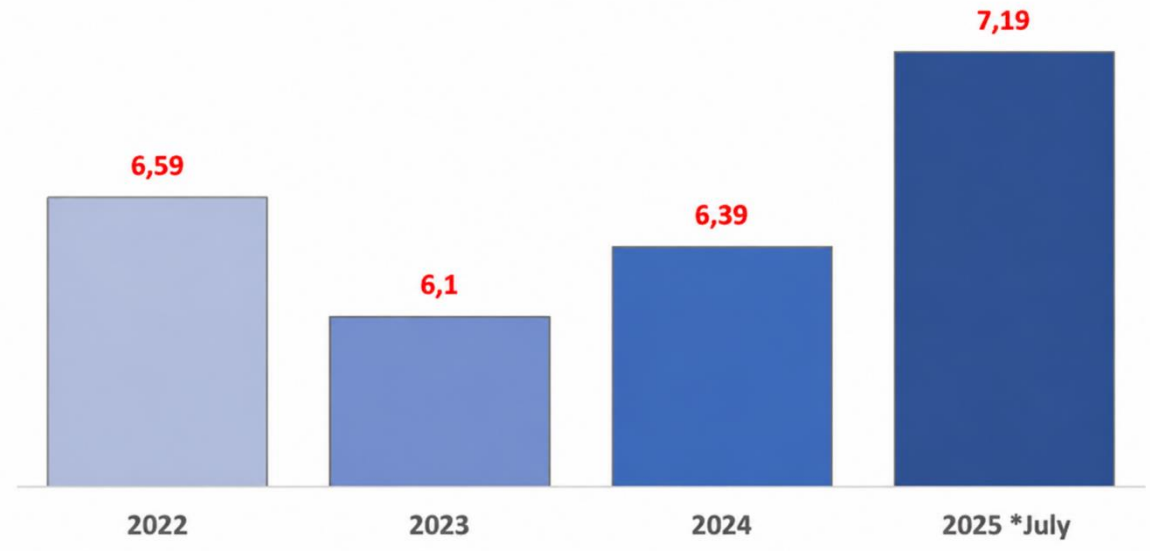

Figure 1. Recorded Stunting Prevalence in Biak Numfor Regency, 2022–2025 (July)
Source: Biak Numfor Regency documents and e-PPGBM data, processed by the author (2025).

This study distinguishes three levels that are often conflated in discussions of stunting policy. Administrative outputs refer to formal products such as TPPS formation, local circular letters, planning documents, convergence-action reports, and evaluation materials. Implementation performance refers to whether these outputs are translated into service coverage, measurement coverage, resource distribution, supervision, data management, communication, and coordination across administrative and service levels. Policy outcomes refer to recorded changes in stunting prevalence, which require careful interpretation when measurement coverage is incomplete. This distinction is important because implementation studies show that policy adoption, organisational structure, resources, communication, and coordination may operate differently once a policy enters local practice (Burger, 2018; Cloete et al., 2018; Wahab, 2020). The Biak Numfor case is therefore

better understood as a study of implementation gaps between formal convergence outputs and field-level implementation conditions.

Previous studies on stunting reduction policy in Indonesia have examined leadership, convergence actions, collaborative governance, communication strategy, community participation, and programme effectiveness in several local settings. Studies in areas such as Rokan Hulu, Tangerang, Wonogiri, Pesawaran, Tegal, Bangka, Kolaka, Donggala, and border regions show that implementation is shaped by role clarity, budget alignment, data management, cross-sectoral commitment, frontline capacity, partner involvement, and community participation (Izah et al., 2024; Maharani & Syafiq, 2025; Maulid et al., 2025; Nahak & Nitsae, 2024; Syamsuadi et al., 2023; Widyowati & Utomo, 2023; Yusmiati et al., 2024). These studies provide important evidence that local stunting reduction depends on more than the existence of formal policy instruments. However, they have not sufficiently explained how several implementation dimensions interact as a system in a remote archipelagic regency where administrative convergence may be formally completed while service coverage, data coverage, and implementation consistency remain uneven.

This article addresses that gap by applying the 7-C Protocols for Policy Implementation as an analytical framework. The framework examines implementation through seven interrelated dimensions: content, context, commitment, capacity, clients and coalitions, communication, and coordination (Burger, 2018; Cloete et al., 2018). Content concerns the substance and clarity of the policy; context concerns the political, administrative, social, cultural, economic, and geographical environment; commitment concerns willingness and follow-up among political, managerial, and operational actors; and capacity concerns the tangible and intangible resources needed to implement the policy. Clients and coalitions refer to target groups, community actors, and supporting organisations, while communication and coordination connect information flows, authority relations, and joint action among implementers. The contribution of this study is not to propose a new implementation framework, but to use the seven dimensions to explain why formal convergence in Biak Numfor did not automatically produce consistent operational follow-up.

The purpose of this study is to analyse implementation gaps in the stunting reduction acceleration policy in Biak Numfor Regency using the 7-C policy implementation framework. The research question guiding the study is: how do the seven dimensions of the 7-C policy implementation framework explain implementation gaps in the stunting reduction acceleration policy in Biak Numfor Regency? This question directs attention to the relationship between formal convergence arrangements and the practical conditions of implementation across administrative levels, frontline service locations, and community settings. The study does not measure the statistical effect of TPPS on stunting prevalence because the design is a qualitative case study and the local prevalence figures are affected by measurement coverage. Instead, it provides context-specific evidence from a remote archipelagic regency in Papua and explains how policy content, local context, institutional commitment, capacity, target-group participation, communication, and coordination shape implementation consistency.

METHOD

This study employed a qualitative case-study design to examine implementation gaps in the stunting reduction acceleration policy in Biak Numfor Regency, Papua, Indonesia. The design was selected to investigate how policy arrangements were translated into implementation practices across administrative and service levels. A qualitative approach was appropriate because the study focused on institutional interactions, actor perspectives, implementation processes, and contextual constraints rather than statistically estimating the effects of policy interventions on stunting prevalence (Creswell & Creswell, 2023).

Biak Numfor Regency was selected because it had formally established the Stunting Reduction Acceleration Team *(Tim Percepatan Penurunan Stunting)* and implemented the eight convergence actions, while implementation remained uneven across geographically dispersed service areas. The regency's archipelagic characteristics also provided a relevant setting for examining how geographical accessibility, institutional capacity, and local practices influenced policy delivery. The case was geographically bounded within Biak Numfor Regency and analytically focused on the implementation of the stunting reduction acceleration policy. The unit of analysis was the policy implementation process involving regency-level institutions, district administrations, community health centres, community actors, and non-governmental partners.

Primary fieldwork was conducted from 18 April to 10 May 2026. Documentary evidence covering 2022–2025, including local stunting records, planning documents, and programme evaluations, was used to establish the policy context and examine reported implementation conditions. The Methods section should provide a clear and sufficiently detailed explanation of how the research was conducted, allowing readers to understand the basis of the findings and, where applicable, assess or reproduce the research process.

Participants and Sampling

Participants were selected through purposive sampling based on their direct involvement in policy coordination, programme planning, district administration, frontline service delivery, community mobilisation, or non-governmental programme support. This approach enabled the study to obtain information from actors occupying different positions within the local implementation system. Snowball sampling was subsequently used to identify additional participants with relevant institutional or operational knowledge (Creswell & Creswell, 2023)

District-level participants were drawn from five districts with relatively high recorded stunting cases between

January and May 2025 and one comparison district with lower recorded cases. This selection provided perspectives from implementation areas with different reported conditions without treating the districts as statistically representative samples.

The study involved 19 participants comprising seven regency-level policy and TPPS actors, six district-level administrative actors, three frontline health-service actors, two community and local leadership actors, and one non-governmental programme partner. Each participant was assigned an alphanumeric code to protect their identity and maintain the traceability of interview evidence. Table 1 presents the participant composition and its relevance to the 7-C analytical framework.

Table 1. Composition and Codes of Research Participants

Participant Category	Participant Code	Number of Participants	Main Relevance to the 7-C Analysis
Regency-level policy and TPPS actors	R1–R7	7	Policy content, institutional commitment, programme planning, inter-organizational coordination, and monitoring
District-level administrative actors	D1–D6	6	Local implementation context, administrative follow-up, district-level coordination, and implementation constraints
Frontline health-service actors	H1–H3	3	Implementation capacity, measurement coverage, service delivery, and reporting practices
Community and local leadership actors	C1–C2	2	Client perspectives, coalition support, socio-cultural context, and community participation
Non-governmental programme partner	N1	1	External programme support, coalition building, and cross-sector coordination
Total	—	**19**	—

Source: Author's field data (2026).

Research Procedures and Data Collection

Interview

Semi-structured in-depth interviews were conducted with 19 participants to examine their experiences, responsibilities, and perspectives concerning the implementation of the stunting reduction policy. The interview guide was organised around the seven dimensions of the 7-C framework while allowing participants to describe implementation issues beyond the predetermined questions.

Interviews were conducted at regency government offices, district offices, and by telephone, with an average duration of approximately 40 minutes. All interviews were conducted in Bahasa Indonesia, audio-recorded with participants' consent, and transcribed verbatim. The transcripts were checked during analysis where local terminology, institutional responsibilities, or descriptions of programme activities required clarification. The semi-structured approach enabled the collection of comparable information across participant categories while preserving flexibility to identify context-specific implementation problems (Abrar, 2024; Anggraini & Romadona, 2020).

Observation

Non-participant observation was used to examine implementation conditions, institutional interactions, and organisational practices without the researcher directly participating in the activities observed. This technique provided contextual information for interpreting participant accounts and assessing how formal policy arrangements operated within local implementation settings.

Observation notes were used alongside interview evidence to examine reported operational constraints and institutional practices. They served as supplementary material for triangulation rather than as independently coded sources in the NVivo hierarchy charts.

Documentation

Documentary data were collected from official regulations, local policy instruments, planning documents, programme records, and monitoring and evaluation materials relating to stunting reduction in Biak Numfor Regency.

The reviewed documents included the decree establishing the local TPPS, circular letters concerning village-fund allocation and stunting interventions, the local regulation governing integrated health service posts, the 2024–2026 Regional Development Plan, the 2024 convergence-action implementation materials, TPPS evaluation records, and stunting data recorded through the electronic Community-Based Nutrition Recording and Reporting system (e-PPGBM) (Bupati Biak Numfor, 2023; Surat Edaran Kepala Dinas Pemberdayaan Masyarakat, 2024; Tim Percepatan Penurunan Stunting Kabupaten Biak Numfor, 2024).

Documentary evidence was used to identify formal policy objectives, institutional responsibilities, implementation instruments, programme activities, and reported monitoring conditions. It also provided a basis for comparing

administrative outputs with the implementation practices described by participants. Recorded stunting prevalence was treated as contextual evidence rather than as a statistical measure of policy effectiveness, particularly because measurement coverage was incomplete in several reporting periods.

Data Analysis

Data were analysed using framework-based thematic analysis, combining deductive categories derived from the 7-C Protocol for Policy Implementation with inductively developed empirical subthemes. The seven dimensions served as a priori analytical categories, while additional subcodes were developed from recurring issues identified in the interview transcripts (Burger, 2018; Cloete et al., 2018).

The analysis began with the organisation and review of interview transcripts, observation notes, and documentary materials. Interview transcripts were subsequently imported into NVivo 12 and coded according to the seven analytical dimensions. Within these categories, empirical subcodes were developed to capture specific implementation conditions reported by participants. Coded material was retrieved and compared across participant categories to examine similarities, differences, and relationships among implementation problems.

NVivo 12 was used to organise, code, retrieve, compare, and visualise interview data, while analytical interpretation remained the responsibility of the researchers (Hartono et al., 2025; Rahadi, 2020). Hierarchy charts were generated to display the relative distribution of coded interview references within selected analytical categories. The size of each visual area represented the volume of coded material and was not interpreted as evidence of causal strength, statistical significance, or the objective importance of an implementation problem.

The coded findings were subsequently interpreted alongside observation notes and official documents. This process enabled the analysis to distinguish formal policy arrangements from reported implementation practices and to examine how the seven dimensions interacted across institutional and service levels. Observation notes and documents were used for triangulation and interpretation but were not included as coded sources in the NVivo hierarchy charts.

Trustworthiness and Ethical Considerations

The credibility of the findings was strengthened through source and technique triangulation. Source triangulation involved comparing accounts from regency-level policy actors, district administrators, frontline health personnel, community representatives, and a non-governmental partner. Technique triangulation involved examining the consistency of evidence obtained through interviews, observation notes, and official documents (Nurfajriani et al., 2024).

Selected interview summaries and factual information were clarified with relevant participants to minimise misunderstandings concerning institutional roles, programme activities, local terminology, and implementation constraints. Documentary evidence was also used to assess the consistency between reported administrative activities and the experiences described by participants.

Fieldwork was conducted with permission from the relevant local government offices. Participants were informed about the purpose of the research, participated voluntarily, and provided consent before interviews were recorded. Personal names and other identifying information were removed from transcripts and research reporting, while alphanumeric codes were used to distinguish participant categories.

The findings were interpreted within the institutional, geographical, and sociocultural context of Biak Numfor Regency. As a single qualitative case study employing purposive and snowball sampling, the research was intended to support analytical generalisation and contextual transferability rather than statistical generalisation to all stunting reduction programmes (Creswell & Creswell, 2023).

RESULTS AND DISCUSSION

Formal Convergence and Uneven Operational Responsibility

The findings reveal a gap between the formal establishment of stunting-reduction policy instruments and their translation into routine implementation in Biak Numfor Regency. At the regency level, the local government established the Stunting Reduction Acceleration Team (*Tim Percepatan Penurunan Stunting*, TPPS) through Regent Decree No. 97/188.4.5/2025. The documentary materials also included circular letters concerning the use of village funds and stunting reduction, a local regulation on integrated health service posts (*posyandu*), the 2024–2026 Regional Development Plan, and records of the eight convergence actions implemented in 2024 (Bupati Biak Numfor, 2023; Kepala Dinas Pemberdayaan Masyarakat Kabupaten Biak Numfor, 2024). These instruments established administrative responsibilities and provided a basis for planning, service delivery, and monitoring. However, evidence from interviews and supporting documents indicated that responsibilities and follow-up activities were not carried out consistently across administrative and service levels. Table 2 distinguishes the formal outputs identified in local documents from their intended functions and the implementation gaps reported in the field.

Table 2. Formal Policy Outputs and Reported Implementation Gaps

Formal Policy Output	Specific Evidence Source	Expected Implementation Function	Reported Implementation Gap
Establishment of the TPPS structure	Regent Decree No. 97/188.4.5/2025	Formalise cross-sectoral responsibilities, institutional roles, and	Operational responsibilities remained concentrated within selected technical

Formal Policy Output	Specific Evidence Source	Expected Implementation Function	Reported Implementation Gap
		coordination arrangements	agencies
Reporting of the eight convergence actions	2024 implementation materials on the eight convergence actions	Integrate planning, programme implementation, monitoring, evaluation, and corrective follow-up	Follow-up activities were implemented unevenly across districts and frontline service units
Issuance of circular letters on village funds and stunting reduction	DPMK Circular Letter No. 973/121/DPMK/V/2024 and the local circular letter on stunting reduction	Align village-level programmes and budget allocations with stunting-reduction priorities	Village budgets were not consistently prioritised for stunting-related programmes and activities
Availability of a local regulation on posyandu	Local regulation governing integrated health service posts	Provide an institutional basis for community-based services and local participation	Implementation continued to depend heavily on cadre capacity and the availability of service resources
Availability of measurement and evaluation materials	e-PPGBM records and TPPS evaluation materials	Support monitoring, performance assessment, and corrective action	Measurement coverage remained incomplete during several reporting periods

Source: Authors' synthesis of local policy and planning documents, TPPS evaluation materials, e-PPGBM records, and reported field evidence (2026).

The discrepancy was also evident below the regency level. Four of the five districts recording relatively high numbers of stunting cases between January and May 2025 had been designated as priority areas in 2024. Samofa, located near the regency capital and with comparatively easier access to public services, also recorded the highest number of cases. This pattern warrants examining implementation in accessible as well as remote districts, but it does not establish which district had the highest prevalence or underlying risk. A larger child population, more complete detection, and differences in service reach could each contribute to higher recorded counts. Local TPPS evaluation materials indicated that measurement coverage remained substantially below the target population and fell below 50% in several reporting periods.

Incomplete coverage has implications for both interpretation and programme management. WHO's data-quality framework requires attention to completeness, consistency, and the population denominators used to interpret reported indicators (World Health Organization, 2017). Without knowing whether measured and unmeasured children have comparable characteristics, the direction of any bias in recorded prevalence cannot be determined. A second concern is whether children absent from measurement are also missed by subsequent contact and follow-up, although this overlap was not established by the available data. Monitoring would therefore benefit from distinguishing the eligible population, children measured, children identified as requiring support, and children subsequently contacted. This proposed distinction follows the principle of examining coverage at successive service stages to locate bottlenecks Tanahashi, (1978); it is not a set of coverage estimates calculated in the present study. The 2024 evaluation materials, early-2025 case records, and 2025 TPPS decree also refer to different periods; their juxtaposition describes implementation concerns across time and cannot establish the effects of that particular decree.

The substantive meaning of this gap is that assigning responsibility institutionally does not necessarily establish who will complete a particular task when implementation becomes difficult. A TPPS member may have a formal role without routinely committing staff, transport, equipment, or budget support to another agency's service needs. In this case, the concentration of operational work within selected technical agencies suggests that responsibility was distributed more broadly on paper than in practice. The relevant distinction within the 7-C framework is between *content*, which specifies objectives and arrangements, and the continuing commitment and coordination required to carry them out. Burger, (2018) treats these dimensions as interrelated; the Biak Numfor findings locate their interaction in the transition from an assigned institutional role to an identifiable operational task.

This interpretation does not establish that officials lacked personal concern about stunting. Uneven follow-up could also reflect limited resources, competing workloads, uncertain authority, or an unclear division of tasks. This reading is consistent with the interdependence of commitment, capacity, and institutional context in the 7-C protocol Burger, (2018). The available evidence supports assessing commitment through observable institutional actions, such as responding to requests and sustaining agreed support, rather than inferring individual motivation from meeting attendance. It also distinguishes resource limitations from accountability problems: additional resources may expand what agencies can do, while explicit task ownership is needed to determine who should act and who should explain an unresolved delay.

The comparison with previous research is more informative when it identifies where implementation becomes interrupted. Permanasari et al., (2020), drawing on interviews in 13 priority districts, reported sectoral divisions, incomplete understanding of convergence, interrupted information flows, difficult geographical conditions, and the unavailability of implementation guidance at the time of their study. Biak Numfor presents a related problem despite the documented presence of formal instruments. The distinction concerns the implementation stage: the local evidence directs attention to

how existing arrangements are activated and sustained, without establishing whether every actor understood those arrangements adequately.

Afandi et al., (2023) similarly found in three West Java regencies that mandated stunting collaboration remained largely owned by government institutions, with limited engagement of non-state actors. Their study helps explain why creating a collaborative structure does not necessarily produce shared responsibility. The Biak Numfor case brings this issue into the relationship between regency institutions and separated service locations, where an unresolved request for transport, equipment, or personnel can leave frontline work dependent on a small number of active agencies.

An operational response would be to connect each agreed convergence activity to a responsible institution, an authorised contact person, the support required, a completion date, and a record of follow-up. The rationale is supported by Afandi et al.'s (2023)finding that general commitments in mandated convergence could leave actors without individually accountable responsibilities. District and frontline actors would need a route for referring unresolved tasks to an official able to decide them. These are proposed adjustments to the documented responsibility gap, rather than interventions evaluated by this study. Their initial assessment could examine whether agreed tasks are completed and whether unresolved requests receive a documented decision, before drawing conclusions about changes in nutritional outcomes.

Frontline Capacity and the Continuity of Service Delivery

The second pattern concerned the capacity of frontline services to sustain routine measurement, counselling, reporting, and follow-up. The interview-coded material brought together constraints relating to personnel, equipment, infrastructure, and community health cadres. Figure 2 presents these themes as a hierarchy chart generated in NVivo 12. Its visual areas represent the relative volume of interview references coded to each theme, not the strength of a causal relationship or the objective severity of a constraint. Observation notes and documents were considered separately when interpreting the coded material.

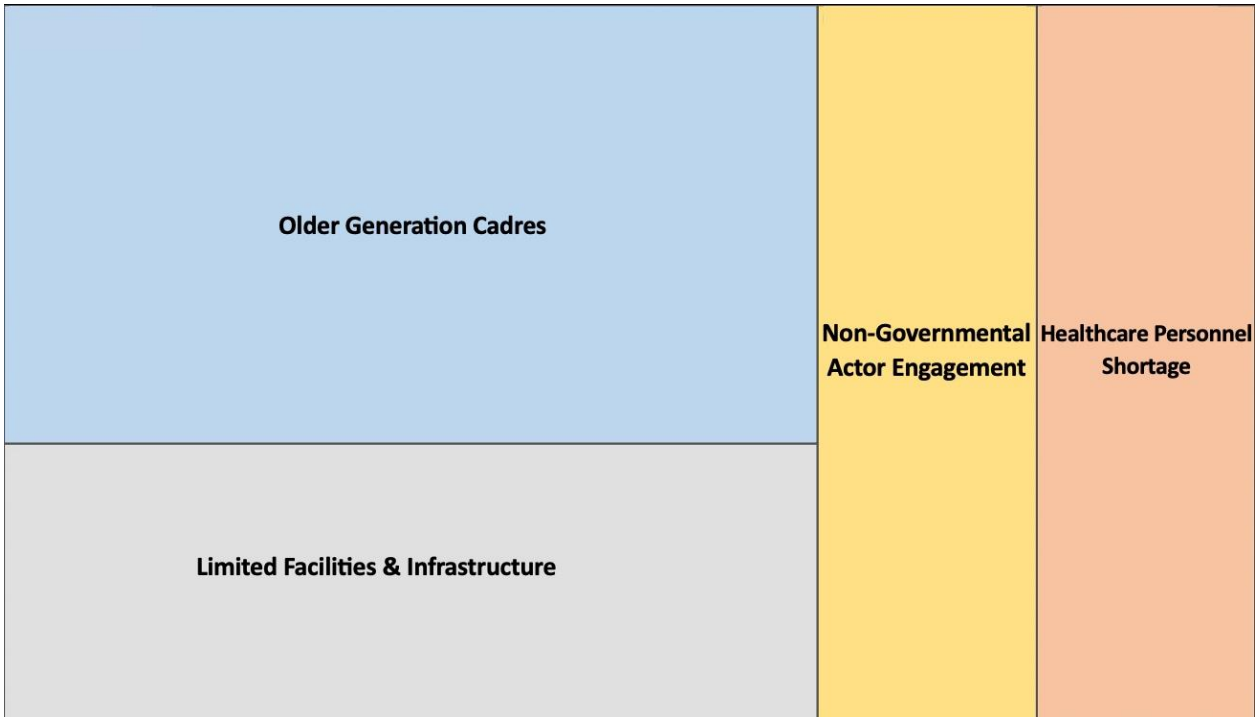

Figure 2. NVivo 12 Hierarchy Chart of Capacity Constraints

Source: NVivo 12 coding output from interview transcripts, processed by the authors (2026).

Interview accounts indicated that several community health centres served multiple villages with a limited number of nutrition workers. When posyandu activities in different villages were scheduled simultaneously, available personnel could not attend every service point. A frontline participant described the practical difficulty of supporting measurement activities in two villages at the same time. This was not merely a staffing issue: the limited availability of personnel affected whether measurement, counselling, record keeping, and follow-up could be maintained consistently across service locations.

Material resources presented related constraints. Participants described uneven access to anthropometric equipment, medical supplies, transport support, electricity, and internet services. Some health centres temporarily borrowed or transferred measurement equipment between posyandu units while awaiting procurement. Instability in electricity and internet connectivity complicated data entry and communication with higher administrative levels. These accounts were consistent with local evaluation materials showing that measurement did not consistently reach the full target population (Tim Percepatan Penurunan Stunting Kabupaten Biak Numfor, 2024). However, the documentary coverage figures do not isolate the effect of any single resource constraint; they support an interpretation of uneven operational readiness when considered alongside interview evidence.

Cadre capacity further shaped the continuity of community-based services. Participants described cadres as committed volunteers, while also reporting that some service areas relied on older cadres who experienced difficulties reading scales, recording decimals, or conducting measurements. Regeneration was constrained by limited interest among younger community members in voluntary or low-incentive work. Delayed incentives and insufficient follow-up training were also reported. These findings point to a capacity problem involving not only the number of available workers but also the maintenance of skills, equipment, incentives, and continuity of local participation.

The staffing accounts show that capacity depends on whether resources can be brought together at the time and place a service is required. Levesque et al., (2013) similarly distinguish the physical existence of resources from service availability that accommodates timely access. A nutrition worker responsible for several villages cannot provide simultaneous support at two posyandu sessions, even when both sessions appear in an approved schedule. Borrowing anthropometric equipment can keep an activity running, but it also makes its timing dependent on equipment availability elsewhere. These practices indicate efforts to maintain services under constraint; they should not be interpreted simply as implementer inactivity. The reported arrangements nevertheless leave limited flexibility when staff, equipment, or transport are unavailable.

These constraints matter because measurement, interpretation, counselling, recording, and follow-up are connected service tasks. Tanahashi, (1978) distinction between contact coverage and effective coverage provides a reason to examine what happens after initial service contact, rather than equate attendance with the intended benefit. A completed measurement does not itself demonstrate that a caregiver received usable advice or that a child requiring attention was subsequently contacted. Conversely, a delayed digital entry does not establish that measurement or counselling never occurred. The findings support separating these tasks analytically so that a reporting delay is not confused with a missed service, and a recorded visit is not treated as evidence that every component of care was completed. The study did not trace each child's pathway through these stages, so the proposed connections identify plausible points of interruption rather than measured rates of service loss.

The accounts of cadre difficulties also require interpretation in terms of task demands and support. Reading scales, recording decimals, communicating with caregivers, and entering data involve different competencies. Age alone does not explain an individual's ability to perform them, and the interviews cannot justify a general claim that older cadres are less capable. Experienced cadres may also hold local knowledge and relationships that are difficult to replace. A practical response would combine supervised measurement practice, checks on recording accuracy, and mentoring between experienced and newer cadres, with responsibilities allocated according to demonstrated skills. The use of supportive and peer supervision has a basis in the community health worker literature reviewed by Nida et al., (2024), although the proposed arrangement would still require local evaluation. Regeneration would then preserve local experience while expanding the number of people able to undertake technical tasks.

This interpretation is consistent with WHO guidance that situates community health worker performance within education, deployment, supervision, remuneration, and integration into health systems and communities (World Health Organization, 2018). For Biak Numfor, a one-off training session would address only part of the reported problem if equipment remains unavailable, incentives are delayed, or trained cadres receive little subsequent support. A proposed support package would therefore connect practical training to functioning equipment, predictable incentive arrangements, and an identified supervisor. Its feasibility would depend on the responsible agencies' staffing and budget capacity.

Nida et al., (2024), in a systematic review of community health worker workloads and supervision, likewise identified broad responsibilities, inadequate facilities, inappropriate incentives, and insufficient mentoring as recurring difficulties. Their review also indicates that supervision quality and method matter alongside frequency. The Biak Numfor accounts give these issues a local operational form: cadres' requests for training and support must be considered together with the availability of health-centre personnel who would provide it. Adding a supervisory obligation to already limited technical staff could reproduce the same workload difficulty unless time and responsibility are explicitly allocated.

Geography changes the resources needed to sustain these arrangements. The same number of workers or sets of equipment may support different levels of service when one catchment requires sea travel and another permits short land journeys. This interpretation draws on the relationship between geographical accessibility, provider availability, and the population's ability to reach care (Levesque et al., 2013). The interaction of *capacity* and *context* is therefore visible in deployment time, supervision opportunities, and the ability to replace unavailable resources. Reviewing actual session schedules and travel requirements could identify opportunities to stagger activities or share technical support. Such adjustments would still need to accommodate weather, caregiver availability, and personnel workloads rather than assume that rescheduling alone resolves a staffing shortage.

Technology has a supporting role where the observed problem concerns delayed recording or information exchange. World Health Organization, (2019)stresses that digital interventions complement functioning health systems and cannot replace their essential resources. In Biak Numfor, locally retained records with later synchronisation could be considered where electricity and connectivity are unreliable, provided compatibility with existing reporting systems, data protection, staff capability, and responsibility for resolving duplicate or conflicting entries are established. The relevant improvement would be continuity between service delivery and usable information, rather than the introduction of an additional application. No digital intervention was tested in this study.

Local Context, Actual Caregivers, and Community Coalitions

The third pattern showed that implementation was shaped by the interaction between local context and the ways households and community institutions participated in services. Maritime transport, vessel availability, weather conditions, unstable electricity, and uneven internet access affected supervision, distribution, reporting, and contact between regency institutions and local service points. Some communities also faced constraints in access to safe water, with households reportedly relying on rainwater or brackish water. These geographical and environmental conditions were relevant, but they did not fully account for differences in service participation. Household responsibilities and livelihood routines also affected whether families could engage with the programme.

Participants reported that grandmothers sometimes assumed primary responsibility for children because parents were working, migrating, continuing education, or considered insufficiently prepared for childcare. In such circumstances, grandmothers managed daily feeding, posyandu attendance, and follow-up care. Programme counselling and family assistance, however, were still frequently directed towards biological mothers. This created a possible mismatch between the intended recipient of programme communication and the person responsible for everyday caregiving. The finding does not establish that this pattern applies to all households in Biak Numfor, but it identifies a practical limitation in assuming that formal target categories necessarily reflect actual caregiving responsibilities.

Service participation was also affected by the timing of household activities. Interview accounts described lower posyandu attendance when measurement schedules coincided with market days or other livelihood demands, including trading, fishing, shopping, and inter-island travel. Such absences should not automatically be interpreted as programme rejection; they may reflect a conflict between fixed service schedules and the time available to caregivers. In areas closer to the regency capital, some families used private doctors instead of community-based health facilities. Where these encounters were not consistently reflected in posyandu or maternal and child health records, children could receive care without their monitoring information being fully connected to the community reporting system.

Local coalitions contributed to outreach but did not always have continuing roles in programme follow-up. Churches disseminated information about measurement and posyandu activities during worship services. A community participant described this announcement practice as a way of reaching local residents (C2, interview, 2026). A customary representative recognised the ability of customary leaders to encourage pregnant women and parents to attend health services, while explaining that providing technical health information was not viewed as their principal responsibility (C1, interview, 2026). Non-governmental partners supported selected activities, including supplementary feeding, but their involvement did not always continue through monitoring and evaluation. Table 3 summarises the main contextual and participation-related constraints identified in the available evidence.

Table 3. Local Context and Participation Constraints

Area of Finding	Main Evidence	Implementation Implication
Archipelagic geography	Sea transport, weather, distance, and infrastructure instability shaped access	Supervision, distribution, service delivery, and reporting were difficult to maintain consistently across locations
Household caregiving arrangements	Grandmothers sometimes performed daily caregiving responsibilities	Counselling and follow-up did not always reach the person directly responsible for childcare
Household livelihood schedules	Market-day and livelihood activities affected caregivers' availability	Fixed posyandu schedules could contribute to irregular attendance
Alternative service pathways	Some families sought care from private doctors	Care received outside posyandu was not always consistently reflected in community-based monitoring records
Local coalition involvement	Churches helped disseminate information; customary and non-governmental actors contributed to selected activities	Mobilisation was not always linked to sustained monitoring, outreach, and follow-up

Source: Authors' analysis of interviews, observation notes, and local documents (2026).

The finding about grandmothers identifies a mismatch between the person addressed by an intervention and the person positioned to act on it. Aubel, (2012) identifies grandmother caregiving and advisory roles as reasons for nutritional programmes to look beyond the mother–child dyad. Counselling directed to a biological mother may still be relevant, but its practical use depends on whether advice reaches the person preparing food, accompanying the child to services, and managing daily care. Where these responsibilities are undertaken by a grandmother, an additional transfer of information within the household is required. The interviews identify this potential interruption; they do not establish how frequently advice was lost, misunderstood, or successfully shared.

UNICEF's framework distinguishes diets and care as immediate determinants of nutrition and relates them to food, practices, services, resources, norms, and governance (UNICEF, 2021). This provides a substantive connection between the implementation finding and the purpose of stunting prevention: information delivered during counselling has to become feasible feeding and care practices within a household. In Biak Numfor, the relevant targeting question is therefore who performs those practices and what support that person needs. The 7-C framework remains the implementation lens, while UNICEF's framework helps specify why the reported caregiving arrangement matters for nutrition-related service delivery.

Wiliyanarti et al., (2025), in interviews with 11 mothers in rural Pamekasan, reported intergenerational influences on

feeding and health-seeking alongside constraints in time, money, and nutritional information. This comparison supports examining household practices and resources together, but those particular beliefs cannot be assumed to occur in Biak Numfor. The present finding concerns who undertakes daily care and whether programme contact reaches that person. It does not demonstrate that grandmothers provide inappropriate care or that intergenerational disagreement explains local stunting.

A corresponding service adjustment would begin by asking who feeds the child, who attends appointments, and who can act on a referral. These responsibilities may be shared, so identifying an actual caregiver should expand family involvement rather than exclude mothers or fathers. Counselling could then involve the relevant caregivers, consistent with Aubel's, (2012) attention to household caregiving relationships. One option for checking comprehension is teach-back, in which recipients explain advice in their own words and the provider clarifies misunderstandings (Talevski et al., 2020). The evidence reviewed by Talevski et al. supports considering this communication method; it does not establish its effectiveness for stunting prevention in Biak Numfor. The material and delivery method would need to reflect observed comprehension, language, and practical needs. The evidence does not support assigning fixed communication preferences or nutritional beliefs to different generations simply because some caregivers are grandmothers.

The conflict with market days gives non-attendance a different meaning from lack of awareness. A caregiver may understand the value of growth monitoring yet face a choice between a fixed session and income-generating work or inter-island travel. The distinction is consistent with the availability and accommodation dimension of access, which includes service timing and occupational flexibility (Levesque et al., 2013). Under that interpretation, repeating the same health message leaves the scheduling problem unresolved. The relevant response would be to identify recurrent conflicts with caregivers and cadres, consider alternative session times or opportunities for missed measurements, and check whether attendance becomes more consistent. These adjustments must also be coordinated with staff deployment, since a convenient household schedule is of limited use when trained personnel and equipment cannot be available.

The use of private doctors identifies a separate distinction between receiving healthcare and being visible within community monitoring. WHO's account of informational continuity emphasises making relevant information available across encounters and care settings (World Health Organization, 2018). A child's absence from posyandu records may reflect an unconnected service pathway rather than absence of care. However, a private consultation cannot automatically be assumed to include the same measurements or follow-up arrangements as posyandu. A proposed connection between providers would therefore specify which measurements are comparable, how existing maternal and child health records can be used, who verifies the information, and how consent and confidentiality are protected. Counting private visits alone would not resolve these questions.

The reports of rainwater or brackish-water use also limit an explanation centred only on household knowledge. Advice on feeding and hygiene may be difficult to apply where suitable water is not reliably available. UNICEF, (2021) places safe water and sanitation-related services within the wider determinants of adequate nutrition. The local accounts therefore provide a reason to investigate whether counselling is accompanied by access to the conditions it presupposes. They do not establish the microbiological quality of the reported water sources or the contribution of water conditions to individual children's growth.

The coalition findings show that reaching a household and supporting its subsequent service needs are different functions. Church announcements demonstrate a channel for communicating service dates to residents; they do not establish whether households attended or whether children needing further attention were followed up. The customary representative's distinction between encouraging attendance and providing technical health information is equally relevant. WHO guidance also situates community engagement within clearly defined health-worker roles and integration with other providers (World Health Organization, 2018). It identifies a possible division of labour in which community leaders support mobilisation while trained personnel retain responsibility for measurement, nutritional assessment, and clinical advice.

This distinction also sharpens the comparison with Afandi et al., (2023). Their account of limited non-state ownership in mandated collaboration directs attention to the responsibilities partners can influence, rather than their presence at an event. In Biak Numfor, churches, customary representatives, and non-governmental partners already contributed to selected activities, but the reported discontinuity concerned what happened afterwards. An appropriate continuing role would need to be agreed with each partner, supported by a contact person, and bounded by its competence and resources. Community actors could help communicate revised schedules or connect willing households with cadres without receiving unnecessary access to children's health information.

The practical meaning of *clients and coalitions* is thus located in the fit between programme arrangements and the people who make participation possible. This interpretation uses Burger's, (2018) inclusion of target groups and non-state actors as participants in implementation. Caregivers influence whether advice can enter daily routines; cadres connect households to services; local institutions provide additional routes for contact and mobilisation. Their involvement would need to be assessed through those specific functions. More partners or more announcements would not, by themselves, demonstrate improved continuity of care.

Communication and Coordination Across Implementation Levels

The final pattern concerned the relationship between information exchange and the ability of institutions to act together. Interview-coded themes relating to internal, vertical, and external communication are shown in Figure 3, while Figure 4 presents the corresponding coordination themes. As with Figure 2, the visualisations describe the distribution of coded interview material and should be read alongside participant accounts and documentary evidence, rather than treated as statistical tests of the importance of particular barriers.

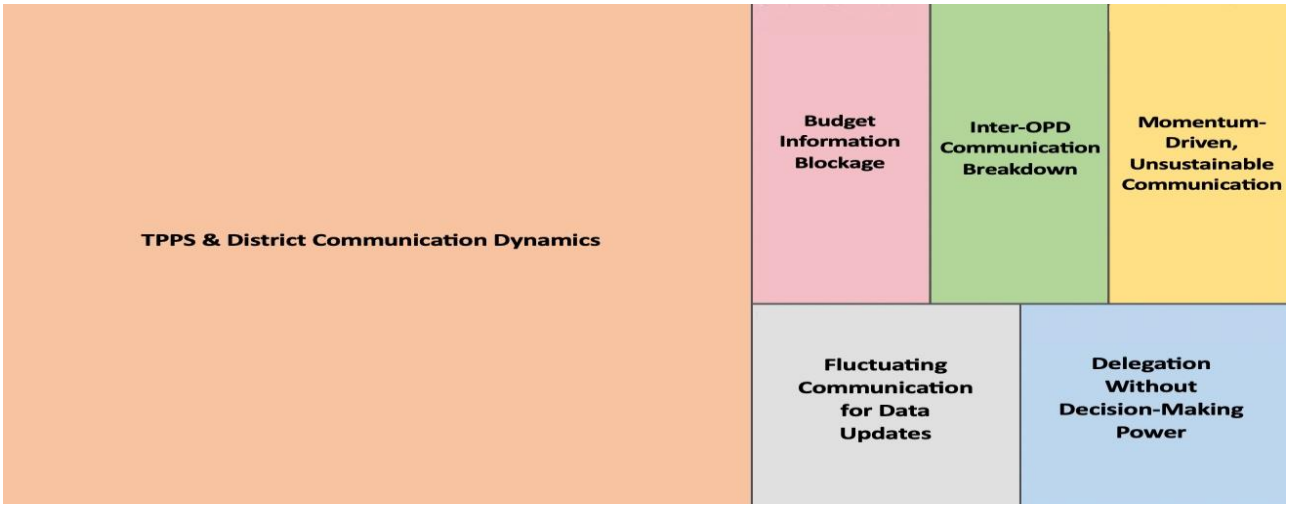

Figure 3. NVivo 12 Hierarchy Chart of Communication Constraints

Source: NVivo 12 coding output from interview transcripts, processed by the authors (2026).

At the regency level, participants described horizontal communication among agencies as intermittent rather than a sustained working relationship. Meeting invitations, telephone calls, and coordination requests sometimes went unanswered, while participation became more responsive following direct instructions from senior officials, including the Regional Secretary. This suggests that communication often depended on hierarchical activation rather than routine inter-agency engagement. At district level, contact was reportedly more visible with the Health Office and the agency responsible for women's empowerment, child protection, and family planning than with the wider TPPS membership. The formal breadth of the coordinating structure was therefore not consistently reflected in day-to-day communication.

Vertical communication between regency institutions, districts, and frontline units was similarly uneven. Some participants characterised it as episodic or one-way: instructions were received, but requests for cadre training, technical assistance, and responses to operational problems did not always result in follow-up. Weak telephone signals, unstable internet access, and infrequent physical visits increased these difficulties in island districts. The concern was consequently not limited to whether information could be transmitted. It also involved whether information generated at the frontline could reach actors able to make decisions and organise support.

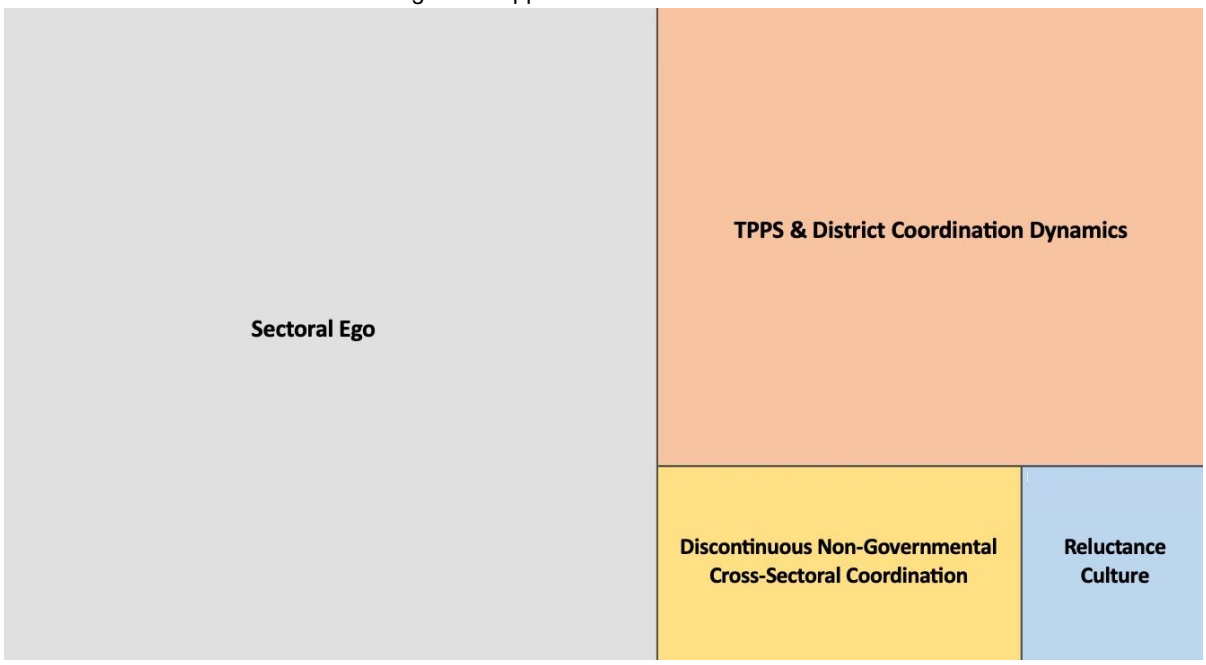

Figure 4. NVivo 12 Hierarchy Chart of Coordination Constraints

Source: NVivo 12 coding output from interview transcripts, processed by the authors (2026).

Coordination problems became particularly visible when formal meetings did not translate into authorised decisions. Participants reported that some meetings were attended by representatives who could share information but lacked authority to determine programmes, adjust budgets, or commit their institutions to joint action. A district participant reported routinely coordinating with two technical agencies rather than the full TPPS structure (D2, interview, 2026). Sectoral boundaries and *segan rasa*—reluctance among officials of comparable rank to direct one another—were also described as obstacles to horizontal action. These accounts indicate that a coordination forum may exist without securing the authority and follow-up needed to address implementation problems.

Continuity was also limited in relationships with non-governmental partners. One partner described a lack of regular follow-up after participation in an activity targeting children (N1, interview, 2026). Another account indicated that supplementary-feeding support was financed internally because information about available public funding had not been clearly communicated. These accounts show that participation in programme activities did not necessarily create sustained partnerships for monitoring or responding to subsequent needs. The empirical concern is not the absence of collaboration altogether, but the interruption between initial involvement and continuing responsibility.

Communication and coordination concern different points in the response to an implementation problem. Communication makes a need known; coordination aligns the people, authority, and resources required to respond. Provan and Provan & Kenis, (2008) distinguish network governance, including authority and resource allocation for collective action, from operational links such as information sharing. A frontline request for training may be transmitted successfully yet remain unresolved because no institution accepts responsibility, a meeting representative cannot authorise support, or the request is not reviewed again. In this interpretation, repeated messages or additional meetings can coexist with limited operational change. The reported lack of follow-up directs attention to the decision made after information was received, alongside the technical difficulties in transmitting it.

The dependence on instructions from senior officials suggests that hierarchical authority could activate participation when routine horizontal contact was insufficient. This does not mean that senior involvement was unhelpful: it may have enabled action that otherwise remained delayed. Provan & Kenis, (2008) likewise explain that central coordination can facilitate network action under particular conditions; shared participation is not universally the most effective arrangement. The concern is whether ordinary implementation problems repeatedly required such intervention. If so, service continuity would depend partly on the availability and attention of senior actors. The evidence supports examining the scope of delegated authority and the procedures for referring unresolved tasks, rather than treating a meeting invitation as sufficient authority to commit another institution's resources.

The reported *segan rasa* provides a more specific explanation of difficulty among officials of comparable rank. Where directing a peer is viewed as inappropriate, a formally cross-sectoral task may remain unresolved even when the institutions recognise its relevance. This is an interpretation of the participant accounts, not a general claim about Papuan administrative culture. The broader issue of how authority for collective action is organised is supported by network-governance theory Provan & Kenis, (2008), while the particular account of reluctance among peers remains a local finding. A possible response is an agreed procedure specifying who may convene a decision, what representatives can authorise, and which issues require referral to a higher level. Such a procedure would give officials an institutional basis for requesting follow-up without relying only on personal willingness to challenge a colleague.

The communication problem also has a vertical dimension. When frontline units mainly receive instructions, higher-level actors may have limited information about why a session was missed, why equipment was borrowed, or why a training request remains urgent. Unstable connectivity can intensify that difficulty, but connectivity alone cannot ensure that a report receives a decision. WHO's data-quality guidance includes supervision, feedback, analysis, and use of information in assessing the reporting system (World Health Organization, 2017). A two-way arrangement would need both an accessible channel and an identified recipient responsible for acknowledging the issue, directing it to an authorised actor, and reporting the response to the originating unit.

One feasible proposal is to use existing TPPS reviews to maintain a short record of unresolved operational issues, the institution responsible, the decision required, and the next follow-up date. This is the authors' operational adaptation of the accountability problem identified in mandated convergence research Afandi et al., (2023), rather than a procedure evaluated in that study. Representatives would either hold the necessary authority or have a clear route to obtain a decision from their institutions. District and frontline participants would receive the resulting response, including an explanation where support could not be provided. This arrangement could initially be assessed through response times, completion of agreed tasks, and recurrence of unresolved issues. These indicators would assess the proposed coordination process; they would not substitute for monitoring service coverage or nutritional outcomes.

Interacting Constraints and the Continuity of Convergence

The relationship across the findings is most evident at the transitions between implementation tasks. The reading combines interdependent implementation dimensions Burger, (2018) with the distinction between contact and effective coverage (Tanahashi, 1978). Formal responsibilities have to become authorised decisions; decisions have to be supported by deployable resources; services have to reach the relevant caregivers; and information about missed or incomplete activities has to lead to further action. The Biak Numfor evidence identifies difficulties at each of these transitions. It does not establish that all difficulties occurred for the same households or in a fixed sequence, but it supports examining how an interruption in one task can leave another task incomplete.

For example, the reported combination of shared personnel, simultaneous posyandu schedules, and transport

constraints offers a plausible explanation for uneven technical support across service points. Where a missed session is then difficult to report or does not receive a response, restoring coverage may take longer. At household level, a rescheduled session may still fail to reach the child if it conflicts with livelihood activities or if communication does not reach the actual caregiver. These are analytically connected possibilities grounded in the reported constraints; establishing their frequency and sequence would require linked service records and follow-up of specific cases.

Reading the 7-C dimensions relationally therefore adds explanatory value to their use as categories. The theoretical basis is the interlinked treatment of the dimensions in Burger's, (2018) account; the following relationships are this study's interpretation of the Biak Numfor evidence. Context changes the time and support needed to deploy capacity. Communication allows those needs to become visible, while coordination determines how agencies respond. Institutional commitment is expressed through sustained follow-up, and clients and coalitions influence whether delivery arrangements connect with household care. Content provides the formal basis for these activities. The case elaborates these relationships within the existing framework rather than demonstrating a new theoretical component or a tested causal model.

The evidence also challenges an explanation based entirely on remoteness or unwillingness to participate. Samofa's recorded caseload requires attention to population size and detection as well as service accessibility. Private consultations complicate the interpretation of absence from posyandu records, while market-day conflicts complicate the interpretation of non-attendance. Cadres' efforts to share equipment further indicate active adaptation under constraint. These observations preserve alternative explanations and prevent the analysis from assigning every implementation difficulty to geography, individual motivation, or community knowledge.

The resulting policy implication is to align improvements at the particular transitions where work is interrupted. Training would need opportunities for supervised practice and available equipment; mobilisation would need accessible services and contact with the relevant caregivers; information systems would need usable records and actors able to respond to them. These proposed alignments draw on workforce support (Nida et al., 2024), household caregiving (Aubel, 2012), and continuity across care settings (World Health Organization, 2018). Evidence that these arrangements improve task completion or service continuity would be an initial implementation finding. Claims about their effects on stunting would require a separate assessment with sufficiently complete and comparable nutritional data. The present interpretation is bounded by the available qualitative accounts, documentary materials from different periods, and incomplete measurement coverage.

CONCLUSION

This study examined how the stunting reduction acceleration policy was implemented in Biak Numfor Regency through the 7-C policy implementation framework. The main finding is that implementation gaps emerged not because the formal policy architecture was absent, but because formal convergence was not consistently translated into operational follow-up across districts, frontline service units, and community settings. The local government had established the TPPS structure, implemented the eight convergence actions, and produced relevant policy documents, yet these administrative outputs did not automatically ensure shared institutional responsibility, adequate frontline capacity, continuous communication, or coordinated action. The recorded stunting prevalence should therefore be interpreted carefully, especially because measurement coverage was incomplete in several periods and the qualitative design does not establish causal effects on prevalence. The central issue identified by this study is implementation performance, particularly the uneven movement of authority, resources, information, and support from regency-level policy arrangements to the places where children are measured, counselled, and followed up.

The empirical contribution of this study lies in showing how nationally standardised stunting convergence operates in a remote archipelagic regency. Biak Numfor demonstrates that implementation is shaped by the interaction between formal policy content, institutional commitment, frontline capacity, local context, target-group participation, communication, and coordination. Archipelagic access constraints, unstable infrastructure, limited nutrition personnel, ageing cadres, household caregiving patterns, market-day routines, and discontinuous partner involvement did not stand outside the 7-C framework. They affected how existing implementation dimensions worked in practice. For this reason, the study does not propose connectivity as an eighth component of the framework. Connectivity-related evidence is better understood as a descriptive condition that appears through context, capacity, communication, and coordination.

The policy implication is that stunting reduction in Biak Numfor requires more than completing formal convergence requirements. Local government needs to strengthen operational responsibility among all TPPS members, improve the distribution of nutrition personnel and anthropometric equipment, support cadre regeneration and training, adjust service communication to actual caregivers, and create more reliable feedback channels between regency, district, health-centre, village, and partner actors. Community institutions such as churches, customary leaders, and non-governmental partners can support mobilisation, but their roles need clearer connection to routine monitoring and follow-up. These implications are realistic for an archipelagic setting because they focus on improving the continuity of implementation rather than assuming that one policy instrument can directly change recorded prevalence.

This study has several limitations. It is based on a single qualitative case study, so the findings are not intended for statistical generalisation to all Indonesian regions. Participants were selected purposively and through snowball sampling, which means the analysis reflects the perspectives of relevant policy, district, frontline, community, and partner actors rather than a representative household survey. Household-level perspectives were limited, and recorded prevalence data

were affected by incomplete measurement coverage. Future studies can compare several archipelagic and non-archipelagic districts, include broader household participation, and combine qualitative implementation analysis with more complete service-coverage and child-growth datasets. Such research would strengthen understanding of how formal stunting convergence can be adapted to different territorial, institutional, and community conditions.

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AUTHOR CONTRIBUTIONS

Author1: Conceptualization, methodology, investigation, data curation, formal analysis, visualization, project administration, writing – original draft, and writing – review and editing.
Author 2: Supervision and writing – review and editing.
Author 3: Supervision and writing – review and editing.

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CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest related to the research, authorship, and publication of this article.

DATA AVAILABILITY

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

AI USE DECLARATION

The authors used ChatGPT to assist with language editing and grammar improvement. The authors reviewed and verified all AI-assisted output and remain fully responsible for the accuracy, originality, and integrity of the manuscript.

ETHICAL CLEARANCE

Ethical clearance was not required according to the applicable institutional research ethics procedures. The participants were informed about the purpose of the study and their participation was voluntary.

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