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Sustainable governance for stunting reduction programs in Jayawijaya Indonesia

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Abstract

Please minimize the use of abbreviations and do not cite references in the abstract. The abstract must include the following two sections: This article aims to analyze the implementation, challenges, policy impacts, and sustainable governance directions of the stunting reduction program in Wamena Kota District, Jayawijaya Regency, Indonesia. The data were collected through a qualitative case study involving in-depth interviews, field observations, and documentation studies. Research informants included local government officials, health office representatives, community health center staff, nutrition officers, midwives, integrated health post cadres, community leaders, parents of stunted toddlers, and community organization partners. The results show that the stunting reduction program has been implemented through nutrition education, child growth monitoring, maternal and child health services, supplementary feeding, and cross-sector coordination. However, implementation is still constrained by limited health personnel, inadequate facilities, geographical barriers, uneven nutrition literacy, household economic limitations, and fragmented coordination. Sustainable stunting reduction in Jayawijaya requires stronger multisectoral coordination, improved frontline service capacity, expanded outreach to remote communities, culturally adaptive nutrition education, integrated health and social interventions, and data-driven monitoring. These directions are essential to strengthen local governance and improve child health outcomes in the Papua Highlands.

1. Introduction

Stunting in Indonesia remains a serious public health and governance issue because it reflects long-term nutritional deprivation among children under five. This condition is not merely a matter of short stature, but a sign of chronic undernutrition that affects physical growth, brain development, learning capacity, and future productivity. Global evidence shows that undernutrition during pregnancy and early childhood contributes substantially to child morbidity, mortality, and impaired developmental potential (Black et al., 2013; Victora et al., 2008). In Jayawijaya, especially Wamena Kota District, the high number of stunted toddlers indicates that nutritional vulnerability is closely connected to household welfare, food access, maternal health, and public service delivery. Therefore, stunting reduction must be understood as a social development priority rather than a narrow health-sector program.

The local data from Wamena Kota District in 2023 reveal an alarming nutritional situation among children under five. Of 595 measured toddlers, a large proportion were identified as stunted, including children categorized as very short, short, and even some recorded in other height-status groups in the local dataset. This pattern suggests that child growth problems in Jayawijaya are not isolated cases, but part of a broader structural challenge involving poverty, geography, limited health-service access, sanitation, and nutrition knowledge. Studies in Indonesia confirm that stunting is associated with maternal education, household wealth, birth weight, sanitation, antenatal care, and child-feeding practices (Beal et al., 2018; Titaley et al., 2019). Thus, the social fact in Jayawijaya shows that sustainable stunting reduction requires stronger integration between health programs and basic public services.

The literature emphasizes that the first 1,000 days of life, from conception to a child's second birthday, are the most critical period for preventing stunting. The reason is that nutritional deficits during this period can produce long-term and partly irreversible consequences for cognition, immune function, schooling, productivity, and adult health risks (Dewey & Begum, 2011; Prendergast & Humphrey, 2014). Evidence-based interventions include maternal nutrition, breastfeeding promotion, complementary feeding, micronutrient supplementation, infection prevention, sanitation improvement, and social protection (Bhutta et al., 2013). In Indonesia, these interventions must be combined with culturally appropriate education, premarital and antenatal counseling, and community-based growth monitoring. Consequently, the literature supports a governance model that links nutrition-specific interventions with nutrition-sensitive policies across sectors.

Sustainable governance is essential because stunting reduction depends on coordination among health offices, planning agencies, village governments, education services, sanitation programs, food-security institutions, and community actors. The reason is that no single institution can address all determinants of stunting, especially in remote and geographically difficult regions such as Highland Papua. Research on nutrition governance shows that multisectoral coordination, political commitment, adequate resources, accountable implementation, and reliable monitoring systems are central to reducing child undernutrition (Hoddinott et al., 2013; Ruel & Alderman, 2013). For Jayawijaya, Presidential Regulation No. 72 of 2021 provides a policy foundation for accelerating stunting reduction through specific and sensitive nutrition interventions. Therefore, the main governance challenge is not only the availability of policy, but also the sustainability, coordination, and local adaptation of implementation.

This article aims to analyze how stunting reduction programs in Jayawijaya can be governed sustainably under Indonesia's national policy framework. The reason for this focus is that policy effectiveness depends on the capacity of local institutions to translate national regulations into coordinated, culturally relevant, and accessible services. For example, strengthening the 1,000 Days of Life movement in Jayawijaya requires health education for pregnant women, preparation for prospective brides and grooms, improved food access, clean water, sanitation, early childhood education, and household-level behavioral change. The article therefore examines the challenges of implementation, including limited human resources, weak nutrition literacy, geographic barriers, bureaucratic fragmentation, and uneven community participation. In conclusion, the article seeks to formulate policy directions that strengthen institutional synergy, community empowerment, and long-term accountability in stunting reduction.

The initial assumption of this article is that stunting reduction in Jayawijaya will be more sustainable when governance is collaborative, locally adaptive, and supported by consistent resources. This assumption is based on the understanding that chronic malnutrition is produced by interconnected causes, including maternal health, food insecurity, poor sanitation, limited service access, and sociocultural practices. If local government commitment, cross-sector coordination, community participation, and data-based monitoring are strengthened, then stunting programs are more likely to reach vulnerable households effectively. Conversely, if programs remain fragmented, health-sector-centered, and weakly adapted to local geographic and cultural conditions, stunting prevalence may

remain high despite national policy support. Thus, the working hypothesis is that sustainable governance—rather than program existence alone—is a decisive factor in accelerating stunting reduction in Jayawijaya.

2. Research Methods

This research uses a qualitative approach with a case study to analyze the sustainable governance of the stunting reduction program in Wamena City District, Jayawijaya Regency, Papua Mountains Province, Indonesia. The qualitative approach was chosen because this research seeks to understand the policy implementation process, coordination patterns between actors, service barriers, and the social meanings constructed by the government and community in implementing the stunting reduction program. The case study was used because the research focuses on a specific policy context, namely the implementation of the stunting reduction program in Wamena City, which has unique social, geographic, and institutional characteristics. Creswell and Poth (2018) explain that case studies are appropriate when researchers want to explore a program, event, activity, or process in depth within specific spatial and temporal boundaries. Thus, this design allows researchers to gain a comprehensive understanding of the sustainability of governance, implementation challenges, and the direction of stunting reduction policies in Jayawijaya.

The research location was determined in Wamena City District, Jayawijaya Regency, Papua Mountains Province, Indonesia. This location was chosen purposively because Wamena City is a region that is the center of public services, health, and government, but still faces serious challenges in reducing stunting. Previous research manuscripts indicate that the stunting reduction program in Wamena City is closely related to inter-agency communication, resource availability, apparatus disposition, bureaucratic structure, community participation, and geographical challenges that affect access to health services. In addition, the prepared article document also confirms that the research was conducted in Wamena City District with data collection techniques through interviews, observations, and documentation studies. Therefore, the selection of this location is relevant to explain how the national policy of accelerating stunting reduction is translated into local government practice.

Research informants were selected using purposive sampling, selecting informants based on their knowledge, experience, authority, and direct involvement in the stunting reduction program. This technique aligns with qualitative research because informants are selected not based on population size but rather on the depth of information they can provide (Patton, 2015). Key informants in this study included members of the local government, the Health Office, Community Health Centers (*Puskesmas*), nutrition workers, *Posyandu* (Integrated Service Post) cadres, district or village governments, community leaders, and families of toddlers targeted by the program. The selection of informants also took into account the variety of roles they played to ensure the data obtained could illustrate the relationship between policy formulation, technical implementation, and community acceptance. This strategy enabled the study to capture the perspectives of policymakers, program implementers, and beneficiaries. Specifically, the informants involved in this study are presented in the following table:

Table 1
Research Informants

No.	Informant Code	Informant Category	Number of Informants	Selection Criteria
1	INF01	Official of the Jayawijaya Regency Health Office	1	Has authority in planning, coordinating, and evaluating stunting reduction programs
2	INF02	Official of the Regional Development Planning Agency	1	Involved in development planning and budgeting for stunting-related programs
3	INF03	Head or official of Wamena Kota District	1	Understands local social conditions and program implementation at the district level
4	INF04	Head of Community Health Center/Puskesmas	1	Responsible for primary health services and nutrition program implementation
5	INF05–INF06	Nutrition officers at Puskesmas	2	Directly involved in child measurement, nutrition education, and growth monitoring
6	INF07–INF08	Midwives or maternal and child health workers	2	Provide services for pregnant women, infants, and toddlers
7	INF09–INF11	Posyandu cadres	3	Actively involved in Posyandu activities and household-level assistance
8	INF12–INF13	Community, religious, or customary leaders	2	Have social influence within the local community
9	INF14–INF18	Mothers or parents of stunted toddlers	5	Have children categorized as stunted or have received program intervention
10	INF19	Representative of NGO or community organization partner	1	Involved in education, assistance, or support for stunting reduction programs
Total			**19**	

Source: researcher data processing, 2025

Data collection was conducted through in-depth interviews, field observations, and documentation studies. In-depth interviews were used to explore informants' experiences, perspectives, and assessments regarding the implementation of the stunting reduction program, including supporting and inhibiting factors. Observations were conducted to directly understand service delivery, communication patterns between staff and the community, Posyandu activities, and social conditions that influence the success of nutrition interventions. Documentation studies were conducted by reviewing policy

documents, activity reports, stunting data, service records, regional planning documents, and regulations related to accelerating stunting reduction. The combination of these three techniques served as a form of data triangulation, as triangulation can strengthen the credibility of findings through comparisons of various sources and methods (Denzin, 1978; Yin, 2018).

Data analysis was conducted interactively through the stages of data condensation, data presentation, and conclusion drawing. The data condensation stage involved selecting, simplifying, grouping, and coding data from interviews, observations, and documentation. Next, the data is presented in the form of a thematic narrative and an analysis matrix that includes aspects of communication, resources, implementer disposition, bureaucratic structure, community participation, and the sustainability of program governance. Miles, et al., (2014) explain that qualitative data analysis is a continuous process, involving data condensation, data presentation, and conclusion verification. In this study, conclusions are drawn by comparing patterns of findings across informants and linking them to policy implementation theory and the concept of collaborative governance.

Data validity is maintained through source triangulation, technical triangulation, member checking, and systematic recording of the research process. Source triangulation was conducted by comparing statements from local governments, health workers, cadres, community leaders, and program target families. Technical triangulation was conducted by comparing interview results, observations, and documents to ensure that findings are not solely dependent on one type of data. Member checking involves reconfirming important information with informants to ensure that the researcher's interpretation does not deviate from the intended meaning. Lincoln and Guba (1985) emphasize that credibility, transferability, dependability, and confirmability are important criteria in maintaining the quality of qualitative research.

3. Results

3.1. Implementation of the Stunting Reduction Program in Wamena District

The stunting reduction program in Wamena Kota District, Jayawijaya Regency, is implemented as part of the local government’s commitment to improving child nutrition, maternal health, and the quality of human resources in the Papua Highlands. The program is carried out through nutrition education, child growth monitoring at Posyandu, maternal and child health services, supplementary feeding, and coordination between the Health Office, Puskesmas, district government, community cadres, and local stakeholders. This approach is consistent with evidence that effective stunting reduction requires the integration of nutrition-specific interventions, such as maternal and child health services, with nutrition-sensitive interventions, such as sanitation, food security, social protection, and community education (Bhutta et al., 2013; Ruel & Alderman, 2013).

In Indonesia, studies also show that multisectoral coordination and convergence among local government institutions are essential to accelerate stunting reduction and improve program implementation outcomes (Sufri et al., 2024; Aminah & Mahmudiono, 2024). However, implementation in Wamena Kota is shaped by local challenges, including limited health personnel, uneven public understanding of balanced nutrition, geographical barriers, and the need for stronger cross-sector coordination. These conditions indicate that the success of the program depends not only on the availability of health interventions, but also on the capacity of local governance to ensure continuity, coordination, and community participation. Therefore, to understand the progress and fluctuation of this intervention over time, the following figure presents the trend of stunting reduction in Jayawijaya Regency.

Sources: Fig. 1. processed from various sources by researchers, 2025

The diagram shows that the prevalence of stunting in Jayawijaya Regency fluctuated during the 2020–2025 period. In 2020, the stunting rate was recorded at 25.8%, then increased to 29% in 2021. This increase may be attributed to the disruption of the optimization of stunting reduction programs during the COVID-19 pandemic, when basic health services, integrated health post (Posyandu) activities, toddler growth monitoring, nutrition education, and home visits could not operate optimally. This condition aligns with findings that the pandemic disrupted nutrition and public health services, including the closure or restriction of integrated health services at the community level, potentially exacerbating the risk of child malnutrition (Wenang et al., 2022; Ntambara & Chu, 2021). Although the stunting rate declined to 25% in 2022, its rebound in 2023 to 29% indicates that the impact of the pandemic is not only short-term but also impacts program sustainability, service capacity, and the recovery of family socio-economic conditions.

In the post-pandemic period, stunting rates in Jayawijaya began to show a downward trend, from 29% in 2023 to 28.5% in 2024, then dropping even more sharply to 21% in 2025. This decline indicates improvements in the implementation of the stunting reduction program, particularly through strengthening maternal and child health services, reactivating Integrated Health Posts (Posyandu), nutrition education, monitoring toddler growth and development, and cross-sectoral coordination between local governments, Community Health Centers (Puskesmas), cadres, and the community. However, this trend also indicates that program achievements have not yet fully stabilized, as the 2024 figures are still relatively high compared to 2022. Thus, the pandemic experience emphasizes the importance of building more resilient, adaptive, and sustainable program governance so that nutrition services, toddler monitoring, and 1,000 HPK interventions continue despite health crises or other social disruptions.

Based on this trend, the presentation of stunting reduction in Jayawijaya Regency should not only describe changes in prevalence, but also examine how the program is implemented through a policy implementation framework. In this study, the implementation of the stunting reduction program is analyzed using Grindle’s policy implementation perspective, which explains that implementation

outcomes are shaped by the content of policy and the context of implementation, including affected interests, types of benefits, expected change, implementing actors, resources, institutional characteristics, and compliance of target groups (Grindle, 1980). This perspective is also strengthened by Grindle's more recent work, which emphasizes that policy effectiveness depends on the capacity of state institutions, the quality of bureaucratic performance, political support, and the ability of public agencies to sustain effective service delivery within complex governance environments (Grindle, 2023). Referring to this framework, the analysis in this study focuses on three key indicators: the content of policy, the policy implementers, and the policy impact. The content of policy refers to the extent to which program objectives, target groups, intervention design, and resource allocation are clearly formulated to address stunting. The policy implementers refer to the roles, capacity, coordination, and commitment of local government institutions, health workers, Posyandu cadres, and community actors in carrying out the program. Meanwhile, policy impact refers to the extent to which the program produces changes in child nutrition status, community awareness, service access, and the reduction of stunting prevalence. Therefore, the following presentation examines the implementation of the stunting reduction program in Jayawijaya Regency by focusing on policy content, policy implementers, and policy impact.

3.1.1. Policy Content

In the results of the Implementation of the Stunting Reduction Program in Wamena City District, the policy content aspect serves as a starting point for understanding whether the stunting reduction program has been designed according to local needs and is able to address child nutrition issues effectively. Referring to Grindle (1980), the policy content includes the interests of the target group, the types of benefits provided, the degree of expected change, the location of decision-making, program implementers, and the resources involved in the implementation process. In the context of Wamena City, the interests of the target group refer to the needs of pregnant women, infants, toddlers, families at risk of stunting, and communities requiring access to nutrition services, growth monitoring, health education, and food support. Meanwhile, decision-making and the resources involved are related to the extent to which the local government, Health Office, Community Health Centers, Bappeda, district government, Posyandu cadres, and community partners are able to set priorities, allocate budgets, provide implementing personnel, and organize cross-sector coordination. Policy implementers are also an important indicator because the success of the program depends heavily on the capacity of local actors to translate national policies into services accessible to the community. This is in line with findings that accelerating stunting reduction requires multisectoral coordination, local government involvement, and the integration of specific and sensitive nutrition interventions (Bhutta et al., 2013; Ruel & Alderman, 2013; Sufri et al., 2024). Therefore, to understand how policy content is translated into program implementation practices in Wamena City, the following section presents interview excerpts from informants directly involved in the implementation of the stunting reduction program.

The target group interest indicator demonstrates the extent to which the stunting reduction policy effectively addresses the needs of pregnant women, toddlers, families at risk of stunting, and the

community receiving services. While the program is perceived as a critical need by target families, its implementation still faces limitations in access and household capacity.

“For us as parents, the stunting program is important because it helps us understand child growth, nutrition, and the need to bring children regularly to Posyandu. However, sometimes the advice given by health workers is difficult to apply because nutritious food is not always affordable, and we also have to think about transportation costs to access health services.” (INF15, Mother/Parent of a Stunted Toddler)

This statement demonstrates that the target group's interests lie not only in receiving information, but also in the families' ability to implement program recommendations in their daily lives. The same sentiment is evident from the perspective of Posyandu cadres, who see that target families need more ongoing support.

“The families we assist actually need continuous guidance, not only one-time counseling. Some mothers understand the message after we explain it several times, but others still consider short children as normal or hereditary. This means the program must be closer to the daily problems of families, especially food access, parenting practices, and regular child monitoring.” (INF09, Posyandu Cadre)

Beyond the interests of target groups, policy content can also be seen in how program decisions are made and the extent to which resources are involved. At the regional planning level, decision-making requires data integration, budgeting, and cross-sector coordination to ensure programs are not fragmented.

“In planning the stunting reduction program, the main challenge is ensuring that data from the health sector, village government, and other agencies are connected. Budget decisions must follow the real needs in the field, but coordination between sectors is not always easy. Stunting cannot be handled only by the Health Office because it also involves sanitation, food security, education, and social protection.” (INF02, Official of the Regional Development Planning Agency/Bappeda)

The quote emphasizes that program decision-making requires a cross-sectoral approach and cannot be limited to health interventions alone. From the Health Office's perspective, resource challenges are evident in the need for implementing personnel, facilities, and operational support to reach target families.

“The policy direction is already clear, but implementation depends on the availability of resources. We need sufficient health workers, nutrition officers, Posyandu cadres, equipment, and operational funds. Without adequate resources, activities such as growth monitoring, nutrition education, and home visits cannot be conducted optimally in all target areas.” (INF01, Official of the Jayawijaya Regency Health Office)

Policy implementation indicators emphasize the role of actors who translate policies into concrete actions on the ground. In the context of Wamena City, the Community Health Center (Puskesmas) is one of the main implementers, linking regional policies with direct services to the community.

“At the Puskesmas level, we are responsible for translating the program into concrete services, such as child weighing, height measurement, nutrition counseling, maternal and child health services, and reporting. The difficulty is that the program requires intensive follow-up, while the number of staff and service time are limited.” (INF04, Head of Community Health Center/Puskesmas)

Statements from community health centers (Puskesmas) indicate that the capacity of policy implementers is crucial for the sustainability of services. At the technical level, nutrition officers also play a crucial role, dealing directly with toddler data, family education, and monitoring children who require intervention.

“As nutrition officers, we have to identify children at risk, provide counseling to mothers, coordinate with cadres, and report the data to the health system. However, implementation in the field is not always simple because some families are difficult to reach, some do not come regularly to Posyandu, and follow-up visits require time and operational support.” (INF05, Nutrition Officer at Puskesmas)

Overall, these six quotes demonstrate that the policy content of the stunting reduction program in Wamena City must be interpreted through three interrelated dimensions. The interests of target groups emphasize the need for families to have easily accessible services tailored to their socio-economic conditions. Decision-making and resource allocation highlight the importance of cross-sectoral coordination, data integration, budget allocation, and staff and facility support. Meanwhile, policy implementation demonstrates that program success depends heavily on the capacity of community health centers (Puskesmas), nutrition officers, Posyandu (Integrated Health Post) cadres, and local actors to translate policies into concrete services at the community level.

Interview findings indicate that the policy content in the implementation of the stunting reduction program in Wamena City can be understood through three main indicators, namely the interests of the target group, the decision-making and resources involved, and the policy implementers. These three indicators show that the success of the program depends not only on the existence of national or regional policies, but also on the extent to which the policy addresses the needs of target families, is supported by adequate decisions and resources, and is implemented by implementing actors who have good capacity and coordination. Based on the table of research informants, interview data involved elements of the local government, Bappeda, the Health Office, Community Health Centers, nutrition officers, Posyandu cadres, and families of stunted toddlers as parties directly related to the stunting reduction program in Wamena City. Interpretations of the interview findings are presented in the following table.

Table 2
Findings on Policy Content in the Implementation of the Stunting Reduction Program

Policy Content Indicator	Stakeholder Category	Main Finding
Target Group Interests	Mother/Parent of a Stunted Toddler	The program is considered important by target families, but household economic constraints limit the implementation of health recommendations.
	Posyandu Cadre	Families require continuous assistance and repeated education to understand and respond to stunting risks.
Decision-Making and Resources Involved	Official of the Regional Development Planning Agency/Bappeda	Decision-making requires integrated data, cross-sector coordination, and budget alignment with field needs.
	Official of the Jayawijaya Regency Health Office	Policy implementation is constrained by limited human resources, equipment, and operational funds.
Policy Implementers	Head of Community Health Center/Puskesmas	Puskesmas plays a central role in translating policy into direct services, but faces capacity limitations.
	Nutrition Officer at Puskesmas	Nutrition officers carry out technical implementation, but face barriers in outreach, attendance, and follow-up.

The table shows that the content of policy in the stunting reduction program must be understood as a combination of target group needs, decision-making mechanisms, resource allocation, and the capacity of implementers. The interests of target groups reveal that families need not only information, but also accessible services and support to overcome economic and geographic barriers. Decision-making and resources indicate that the program requires integrated data, cross-sector planning, adequate budget allocation, and operational support. Meanwhile, the role of policy implementers shows that Puskesmas, nutrition officers, and Posyandu cadres are central actors who determine whether the policy can be translated into effective services at the community level.

Indicators of target group interests indicate that the policy for the stunting reduction program in Wamena City has targeted the appropriate groups: pregnant women, infants, toddlers, families at risk of stunting, and households with limited access to nutrition and health services. However, interview excerpts from parents of toddlers and Posyandu (Integrated Health Post) cadres indicate that the interests of target groups are not simply understood as the need to receive counseling or attend Posyandu, but also encompass more practical needs, such as access to nutritious food, transportation costs, ongoing support, and an understanding of the local cultural context. According to Grindle (1980), the success of policy implementation is greatly influenced by the extent to which the policy content considers the interests of affected groups. This finding aligns with Beal et al. (2018), who assert that stunting in Indonesia is influenced by multidimensional factors, including maternal education, household

economic status, feeding practices, sanitation, and access to health services. Therefore, stunting reduction policies in Wamena City need to ensure that interventions are not only informative but also responsive to the socio-economic barriers faced by target families.

Regarding decision-making and resource involvement, interview findings indicate that program implementation requires data integration, cross-sectoral coordination, and resource allocation appropriate to field needs. Statements from informants from the Regional Development Planning Agency (Bappeda) and the Health Office indicate that stunting cannot be addressed by the health sector alone, as its root causes are intertwined with sanitation, food security, education, social protection, and access to basic services. This aligns with Ruel and Alderman (2013), who explained that accelerating improvements in maternal and child nutrition requires a combination of nutrition-specific and nutrition-sensitive interventions involving multiple sectors. A study by Sufri et al. (2024) in Indonesia also demonstrated that stunting convergence policies require intersectoral coordination, data-driven planning, and consistent resource support to achieve better implementation outcomes. Therefore, decision-making in the stunting program in Wamena City must be directed at strengthening inter-agency coordination mechanisms, unifying target databases, and providing adequate budgets, health workers, cadres, measurement tools, and operational costs.

Meanwhile, policy implementation indicators show that Community Health Centers (Puskesmas), nutrition officers, midwives, and Integrated Health Post (Posyandu) cadres are the primary actors determining whether policy content can be translated into concrete services at the community level. Quotes from Puskesmas heads and nutrition officers indicate that policy implementers face significant technical burdens, ranging from measuring children's weight and height, nutrition counseling, data collection, home visits, and program reporting. However, limited staff, service time, operational support, and difficulty reaching families who do not regularly attend Posyandu are significant barriers to implementation. Simbolon et al. (2024) demonstrated that implementing accelerated stunting reduction at the regional level requires a strong role for policy implementers, resource support, and inter-actor coordination for the program to run effectively. Therefore, the success of the stunting program in Wamena City depends heavily on strengthening the capacity of policy implementers, particularly through training, clear role allocation, increased operational support, and strengthened working relationships between Community Health Centers (Puskesmas), Integrated Health Post (Posyandu) cadres, the district government, and target families.

3.1.2. Policy Context

In the Implementation of the Stunting Reduction Program in Wamena City District, the policy context aspect is important to explain how stunting reduction policies are implemented within local social, political, bureaucratic, and institutional spaces. According to Grindle (1980), the success of policy implementation is determined not only by the policy content but also by the implementation context, which includes the power, interests, and strategies of actors, the characteristics of institutions and authorities, and the compliance and responsiveness of implementers and target groups. In the context of Wamena City, indicators of power, interests, and strategies of actors relate to how the Health Office,

Bappeda, Community Health Centers, district governments, Posyandu cadres, community leaders, and target families use their authority, resources, and coordination strategies to support the program. The characteristics of institutions and authorities reflect the capacity of the regional bureaucracy, leadership commitment, flexibility of cross-sector coordination, and the ability of local institutions to adapt national policies to the socio-geographical conditions of Jayawijaya. Meanwhile, compliance and responsiveness indicate the extent to which policy implementers carry out programs according to policy directives, as well as the extent to which the government and health services are able to respond to community needs, geographical barriers, low nutritional literacy, and limited access to services. This perspective aligns with studies of stunting implementation in Indonesia, which emphasize that program effectiveness is strongly influenced by actor coordination, institutional capacity, resource support, and policy responsiveness to local needs (Simbolon et al., 2024; Tanumiharja & Yogopriyatno, 2025). Therefore, to understand how the policy environment influences the implementation of the stunting reduction program in Wamena City, the following section presents interview excerpts from informants' interviews regarding the power, interests, and strategies of actors; the characteristics of institutions and authorities; and compliance and responsiveness in program implementation.

Indicators of actor power, interests, and strategies show how stakeholders use their authority, resources, and coordination strategies to direct the implementation of stunting reduction programs. In the context of Wamena City, the role of the Health Office is crucial because this institution has the technical authority to coordinate nutrition services, toddler monitoring, and public health intervention.

"The Health Office has the authority to coordinate technical health interventions, but the success of the stunting program depends on how well we can bring other sectors into the same agenda. Our strategy is to strengthen coordination with Community Health Centers (Puskesmas), district government, Integrated Health Service Posts (Posyandu) cadres, and planning agencies so that stunting is not treated solely as a health problem, but as a shared development issue." (INF01, Official of the Jayawijaya Regency Health Office)

This statement demonstrates that actor power is not only related to formal authority but also the ability to develop collaborative strategies. At the planning level, the Regional Development Planning Agency (Bappeda) has a strategic interest in ensuring that the stunting program is included in the regional development agenda and receives budget support that aligns with field needs.

"From a planning perspective, our goal is to ensure that stunting reduction is included in regional development priorities. The challenge is aligning the interests of different agencies because each sector has its own program and budget logic. Therefore, our strategy is to use data as the basis for coordination, so that decisions are not made separately but directed toward the same target households." (INF02, Official of the Regional Development Planning Agency/Bappeda)

Indicators of the characteristics of institutions and authorities relate to bureaucratic capacity, leadership patterns, institutional flexibility, and the ability of local governments to adapt national policies to local

conditions. At the district level, program implementation is greatly influenced by the local government's ability to connect policy instructions with the social conditions of the community.

"At the district level, we often become the bridge between government programs and the community. The policy may come from the regency or national level, but implementation must consider local conditions, including distance, community habits, and the availability of cadres. Strong leadership is needed so that coordination does not stop at meetings, but continues in real-world activities." (INF03, Head or Official of Wamena City District)

This quote demonstrates that the characteristics of local institutions determine the extent to which policies can be adaptively translated. At the Community Health Center (Puskesmas) level, institutional characteristics are evident in the health service organization's ability to manage personnel, schedules, data, and field activities despite limited resources.

"Our institution is expected to implement many activities at once: maternal health services, immunization, nutrition counseling, growth monitoring, and reporting. The structure is clear, but in practice, we need flexibility because field conditions often change. If leadership and coordination are strong, the team can respond faster, but when resources are limited, the workload becomes very heavy." (INF04, Head of Community Health Center/Puskesmas)

Compliance and responsiveness indicators describe the extent to which policy implementers follow program directives and their ability to respond to community needs. At the technical level, nutrition officers demonstrate compliance through measurement, recording, counseling, and reporting, but their responsiveness is greatly influenced by operational support and the conditions of target families.

"We follow the program procedures by measuring children, recording their growth, providing counseling, and reporting the data. However, responsiveness requires more than following procedures. Some children need repeated follow-ups, and some families need home visits because they rarely come to the Posyandu. For that, we need time, transportation support, and coordination with the cadres."(INF05, Nutrition Officer at the Community Health Center)

This statement demonstrates that administrative compliance is insufficient without the ability to respond to the specific needs of families. From the perspective of Posyandu cadres, responsiveness is demonstrated through close relationships with the community and the ability to repeatedly explain health messages according to the family's circumstances.

"As cadres, we try to follow the schedule and assist health workers during Posyandu activities. But in the community, we also have to respond to families who do not fully understand stunting. Sometimes we need to visit them, explain again, and persuade them to bring their children for weighing. The challenge is that not all families respond immediately, so we must be patient and continue approaching them." (INF10, Posyandu Cadre)

These quotes demonstrate that the policy environment for implementing the stunting reduction program in Wamena City is influenced by power relations and actor strategies, the capacity of local institutions, and the compliance and responsiveness of implementers at the field level. The Health Office and Bappeda play a role in establishing policy direction and allocating resources, the district government and Community Health Centers (Puskesmas) translate the policy into institutional work, while nutrition officers and Posyandu cadres are key actors in ensuring the program reaches target families.

Findings regarding the policy environment indicate that the implementation of the stunting reduction program in Wamena City is determined not only by program design, but also by the relationships between actors, the characteristics of implementing institutions, and their compliance and responsiveness to community needs. Within Grindle's framework, the implementation context encompasses how actors' power, interests, and strategies operate within the policy process; how institutional and authority characteristics influence implementation capacity; and how implementers and target groups demonstrate compliance and responsiveness to policy. In the case of Wamena City, this context is evident through the roles of the Health Office, Regional Development Planning Agency (Bappeda), district government, Community Health Centers (Puskesmas), nutrition officers, and Integrated Health Post (Posyandu) cadres in coordinating the program, adapting services to field conditions, and responding to social, geographic, and institutional barriers. Therefore, the following interpretation of interview findings demonstrates how the policy environment influences the effectiveness of stunting reduction program implementation at the local level.

Table 3
Findings on Policy Context in the Implementation of the Stunting Reduction Program

Policy Context Indicator	Stakeholder Category	Main Finding
Power, Interests, and Strategies of Actors	Official of the Jayawijaya Regency Health Office	The Health Office uses its technical authority to coordinate health interventions and encourage cross-sector collaboration.
	Official of the Regional Development Planning Agency/Bappeda	Bappeda plays a strategic role in aligning planning, budgeting, and cross-sector priorities.
Institutional and Regime Characteristics	Head or Official of Wamena Kota District	District-level institutions act as intermediaries between policy direction and community realities.
	Head of Community Health Center/Puskesmas	Puskesmas has a clear institutional mandate but faces workload and resource constraints.
Compliance and Responsiveness	Nutrition Officer at Puskesmas	Nutrition officers comply with technical procedures but need operational support to respond to specific household needs.
	Posyandu Cadre	Posyandu cadres show compliance through routine activities and responsiveness through direct community engagement.

The table shows that the policy environment for the stunting reduction program in Wamena City is shaped by the interaction between actor authority, institutional capacity, and implementer responses to community conditions. The Health Office and Bappeda play strategic roles in coordination and planning, while district governments and Community Health Centers (Puskesmas) serve as the link between policy and technical implementation. At the level closest to the community, nutrition officers and Posyandu (Integrated Service Post) cadres determine whether the policy effectively reaches target families. Thus, program effectiveness depends heavily on the policy environment's ability to foster coordination, institutional flexibility, procedural compliance, and responsiveness to local needs.

Analysis of indicators of power, interests, and actor strategies indicates that the implementation of the stunting reduction program in Wamena City relies heavily on the ability of local actors to transform formal authority into effective coordination. The Health Office has technical authority to direct nutrition interventions, child growth monitoring, and maternal-child health services, while the Regional Development Planning Agency (Bappeda) holds a strategic position in ensuring that stunting issues are incorporated into regional development planning and budgeting. However, interview findings indicate that each actor also brings its own sectoral interests, making data-driven strategies and alignment of household targets crucial to prevent program fragmentation. Within Grindle's framework, the implementation context is strongly influenced by the configuration of power, interests, and strategies of

actors involved in the policy process (Grindle, 1980). This aligns with Afandi et al. (2023), who demonstrated that collaboration in stunting interventions at the local level often occurs within the framework of government mandates, but its effectiveness is determined by actors' ability to foster collective action, not simply by meeting formal coordination forums. Therefore, actor strategies in Wamena City need to be directed at integrating cross-sectoral interests so that stunting is understood as a shared development agenda, not solely a health sector concern.

Regarding the characteristics of institutions and authorities, interview findings indicate that program success is heavily influenced by local bureaucratic capacity, leadership, institutional flexibility, and the ability of implementing organizations to adapt national policies to the realities of Jayawijaya. The district government acts as a bridge between district policies and the community, while the Community Health Center (Puskesmas) is the primary institution that translates the program into concrete services, such as toddler assessments, nutrition counseling, maternal-child services, data reporting, and family support. Despite the institutional structure in place, program implementation still faces limited staffing, high workloads, and the need to adapt to the geographic and social conditions of the community. Grindle (2023) emphasized that policy effectiveness is closely related to the capacity of state institutions, the quality of the bureaucracy, political support, and the ability of public institutions to maintain service performance within a complex governance context. In Indonesia's decentralized context, Sasmito et al. (2025) also emphasized that strengthening institutional synergy is necessary to ensure that stunting governance does not cease to be a pattern of parallel work but develops into a more operational and sustainable partnership. Therefore, institutional characteristics in Wamena City need to be strengthened through cross-sectoral leadership, clear role allocation, and resource support to ensure consistent policy implementation at the primary service level.

Regarding compliance and responsiveness indicators, interview results showed that nutrition officers and Posyandu cadres had implemented program procedures, such as height and weight measurements, growth recording, nutrition counseling, data reporting, and Posyandu services. However, administrative compliance alone is not sufficient to ensure program effectiveness without responsiveness to the specific needs of target families. Some families require home visits, repeated education, persuasive approaches, and access support because not all parents understand stunting or are able to attend Posyandu regularly. Thomas and Grindle (1990) emphasized that once a policy decision is made, successful implementation is largely determined by how implementing actors adjust actions, respond to obstacles, and maintain commitment to policy changes. In the context of stunting interventions at the local level, Khuzaimah et al. (2024) demonstrated that collaborative governance can be a dynamic and responsive model when local governments, health services, and community actors are able to work together to address community needs. Similarly, Hamka and Ibrahim (2025) emphasized that innovative multisectoral collaboration can accelerate stunting reduction when local governments play an active role in mobilizing actors, resources, and policy responses. Thus, responsiveness in the stunting program in Wamena City needs to be realized through services closer to target families, strengthening cadres, home visits, and community feedback mechanisms.

3.1.3. Policy Impact

In the presentation of findings on the Implementation of the Stunting Reduction Program in Wamena Kota District, the impact of policy is important for assessing whether the program has produced meaningful changes for target communities. Policy impact refers not only to the reduction of stunting prevalence, but also to changes in community knowledge, service access, child growth monitoring practices, maternal awareness, household nutrition behavior, and the acceptance of program interventions by families and local actors. In this study, the impact of policy is examined through two indicators: policy impact on the community and change and acceptance within the community. The first indicator focuses on how the program affects families, mothers, toddlers, Posyandu participation, and access to nutrition and health services, while the second indicator examines whether communities understand, accept, and gradually adopt recommended practices such as regular child weighing, balanced nutrition, exclusive breastfeeding, maternal health checks, and participation in Posyandu activities. This perspective is consistent with evidence that effective stunting reduction requires not only nutrition-specific interventions, but also changes in caregiving practices, community participation, food access, sanitation, and sustained behavior change at the household level (Bhutta et al., 2013; Ruel & Alderman, 2013; Beal et al., 2018). Therefore, to understand the extent to which the stunting reduction program has affected community life in Wamena Kota, the following section presents interview excerpts related to policy impact, community change, and public acceptance of the program.

The first indicator shows how the stunting reduction program affects community access to health information, child growth monitoring, and maternal-child health services. From the perspective of health-service providers, the program has encouraged families to become more aware of the importance of regular monitoring, although the intensity of its impact still depends on community participation and service coverage.

“Since the stunting reduction program has been strengthened, more families have started to understand the importance of weighing and measuring their children regularly. Mothers are also more familiar with nutrition counseling and maternal-child health services. However, the impact is not the same in all communities because some families still live far from service points and do not always come to Posyandu.” (INF04, Head of Community Health Center/Puskesmas)

This statement indicates that the program has created positive effects at the service level, particularly by increasing public exposure to health and nutrition interventions. However, the impact of the policy is also experienced differently by target families, especially those facing economic and access-related barriers.

“The program helps us because we receive information about child nutrition, food, and the need to check our child’s growth. Before, I did not really understand why children had to be measured regularly, but now I know it is important. The difficulty is that sometimes we cannot always provide the food recommended by health workers because of limited money.” (INF16, Mother/Parent of a Stunted Toddler)

The second indicator concerns whether the community has begun to accept the program and change its behavior in response to stunting prevention messages. At the community level, Posyandu cadres observe that acceptance is gradually increasing, although it requires repeated communication and close assistance.

“At first, some parents did not pay much attention to stunting because they thought short children were normal or inherited from the family. But after repeated counseling and Posyandu activities, some mothers have started to bring their children more regularly for weighing and measurement. The change is slow, but we can see that families are beginning to accept the message.” (INF10, Posyandu Cadre)

This gradual acceptance suggests that behavioral change requires trust-building between program implementers and the community. The role of local leaders is also important because community acceptance is often shaped by cultural values, social influence, and the credibility of those who deliver the message.

“People are more willing to listen when the message is delivered not only by health workers, but also by community leaders, religious leaders, or customary figures. In our community, acceptance depends on trust. If the program is explained in a way that fits local conditions, people are more open to participating and supporting efforts to prevent stunting.” (INF12, Community/Customary Leader)

Community impact indicators for the policy indicate that the stunting reduction program in Wamena City has had an initial impact on improving community access to nutrition information, maternal-child health services, and toddler growth and development monitoring. Quotes from the Head of the Community Health Center (Puskesmas) and parents of toddlers indicate that families are beginning to understand the importance of weighing, height measurement, nutrition counseling, and regular attendance at the Integrated Health Post (Posyandu). This impact is crucial because stunting cannot be addressed solely through supplementary feeding; it requires a service system capable of reaching pregnant women, infants, toddlers, and at-risk families sustainably. Bhutta et al. (2013) emphasized that effective nutrition interventions include maternal and child health services, infant and young child feeding counseling, supplementation, and disease prevention. However, interview findings also revealed that the policy's impact is not evenly distributed, as some families still face economic constraints, distance to services, and limited access to nutritious food. This finding aligns with Beal et al. (2018), who explain that the determinants of stunting in Indonesia are related to household factors, maternal education, sanitation, health services, and family economic status.

Regarding indicators of change and community acceptance, interview results indicate that community acceptance of the program is occurring gradually. Some families who previously viewed stunting as a hereditary factor are beginning to understand that stunting is related to chronic nutritional issues, parenting patterns, maternal health, and child growth monitoring. This change indicates that the program is beginning to influence how the community interprets child growth and the importance of early preventive measures. However, behavioral change does not occur automatically after outreach, as it requires repeated communication, trust in cadres and health workers, and support from community

leaders. Ruel and Alderman (2013) emphasize that nutrition-sensitive interventions, including education, social protection, sanitation, and food security, are crucial to accelerating improvements in maternal and child nutrition. Dibley et al. (2020) also demonstrate that community-based behavior change interventions, including through Integrated Health Posts (Posyandu), are crucial for improving maternal and child nutrition practices in Indonesia. Therefore, community acceptance in Wamena City needs to be strengthened through repeated, contextualized educational approaches involving trusted local actors.

Overall, the impact of the stunting reduction program policy in Wamena City can be understood as beginning to be visible, but still requires strengthening to become a sustainable social change. On the one hand, the program has increased family awareness, strengthened the role of Posyandu (Integrated Health Post), and encouraged community involvement in monitoring toddler growth. On the other hand, community acceptance is still influenced by economic conditions, cultural values, distance from services, and trust in implementing actors. Yusriadi et al. (2024) emphasized that stunting prevention in rural Indonesia requires a community-based approach that can encourage acceptance of nutritious diets and change family behavior. Kusuma et al. (2025) also showed that community-based health education and social mobilization can strengthen stunting prevention behaviors, especially when the community is actively involved in the change process. Therefore, the policy impact in Wamena City must be expanded beyond simply increasing knowledge to changing household practices, increasing attendance at Posyandu (Integrated Health Post), improving children's consumption patterns, and collective acceptance that stunting prevention is a shared responsibility between the government, health services, cadres, community leaders, and families.

3.2. Challenges in the Implementation of the Stunting Reduction Program

The implementation of the stunting reduction program in Jayawijaya Regency faces several challenges that affect the consistency, coverage, and sustainability of program delivery. Although the local government has carried out various interventions through health services, Posyandu activities, nutrition education, and cross-sector coordination, these efforts are still constrained by limited human resources, inadequate facilities, geographical barriers, budget limitations, and uneven community understanding of stunting prevention. These challenges are particularly important in the context of Jayawijaya because program implementation must reach communities with diverse social, cultural, and spatial conditions. Therefore, the analysis of implementation challenges needs to be grounded not only in program documents and statistical trends, but also in the experiences of actors directly involved in the field. The following interview data illustrate how these challenges are perceived by policy implementers and community-level stakeholders in the stunting reduction program.

The first challenge concerns the limited capacity of health facilities and frontline workers to provide continuous services across all target areas. Although the program has been implemented through Puskesmas and Posyandu activities, the number of personnel and supporting facilities remains insufficient to ensure regular monitoring and follow-up for all children at risk of stunting.

“The main difficulty is that the workload is not balanced with the number of health workers available. We have to conduct growth monitoring, provide nutrition counseling, collect data, and follow up with families, but the personnel and facilities are still limited. As a result, some activities cannot be carried out as intensively as expected.” (INF04, Head of Community Health Center/Puskesmas)

This limitation at the health-service level is closely related to the technical challenges faced by nutrition officers in the field. They are required not only to record and monitor child growth, but also to provide education, identify risk factors, and coordinate with cadres and families.

“In the field, we often find children who need continuous monitoring, but follow-up is not always easy. Some families live far from health service points, and sometimes they do not come regularly to Posyandu. We also face limitations in equipment, supplementary feeding support, and operational funds for outreach activities.” (INF05, Nutrition Officer at Puskesmas)

Beyond institutional and technical constraints, community-level implementation is also affected by limited public understanding of stunting prevention. Posyandu cadres play an important role as the closest actors to families, but they often encounter difficulties in explaining nutrition messages in ways that are easily accepted by the community.

“Many parents still think that a short child is only a matter of heredity, not a nutrition problem. We have explained the importance of balanced food, exclusive breastfeeding, and regular weighing, but not all families understand or practice it. Sometimes cultural habits and economic conditions make it difficult for families to follow the advice given.” (INF10, Posyandu Cadre)

The experiences of target families show that the challenge is not only about information, but also about household capacity to access nutritious food and health services. This indicates that stunting reduction in Jayawijaya requires an approach that combines health education with broader support for household welfare, food access, and service accessibility.

“We know that children need nutritious food, but sometimes it is difficult to provide it every day. The price of food is not always affordable, and going to health services also takes time and transport costs. We want our children to grow well, but our household situation makes it difficult to follow all the recommendations.” (INF15, Mother/Parent of a Stunted Toddler)

Taken together, these interview excerpts show that the main challenges in implementing the stunting reduction program are interconnected. Limited health personnel and facilities affect service coverage, while geographical barriers and household economic constraints reduce community access to nutrition interventions. At the same time, weak nutrition literacy and sociocultural perceptions influence how families understand and respond to stunting prevention messages. Therefore, strengthening the program requires not only improving health-service capacity, but also developing adaptive communication, community assistance, and cross-sector support for vulnerable households.

The interview findings indicate that the challenges in implementing the stunting reduction program in Jayawijaya Regency are not caused by a single factor, but by the interaction between institutional, technical, geographical, sociocultural, and household-level constraints. From the perspective of policy implementers, the main obstacles relate to limited human resources, inadequate facilities, insufficient operational support, and difficulties in conducting continuous monitoring. Meanwhile, from the perspective of community-level actors and target households, the challenges are reflected in low nutrition literacy, cultural perceptions about child growth, limited access to nutritious food, and transportation barriers to health services. These findings are consistent with the research draft, which identifies limited human resources, lack of nutrition education, and geographical challenges as major barriers to the implementation of the stunting reduction program in Wamena Kota District, Jayawijaya Regency. The interpretation of these interview findings is presented in the following table.

Table. Findings on Challenges in the Implementation of the Stunting Reduction Program

Stakeholder Category	Main Challenge Identified	Interpretation
Head of Community Health Center/Puskesmas	Limited health workers and facilities	The implementation of the program is constrained by institutional capacity. The limited number of health personnel affects the intensity of monitoring, counseling, and follow-up services for children at risk of stunting.
Nutrition Officer at Puskesmas	Geographical barriers, limited equipment, and operational funding	Technical implementation is affected by distance, mobility constraints, and limited program resources. These barriers reduce service coverage and make continuous child growth monitoring difficult.
Posyandu Cadre	Low nutrition literacy and sociocultural perceptions	Community understanding of stunting remains uneven. Cultural beliefs and limited knowledge influence how families interpret nutrition messages and respond to prevention efforts.
Mother/Parent of a Stunted Toddler	Household economic constraints and limited access to services	Target households face practical barriers in applying health recommendations. Food affordability and transportation costs affect the ability of families to access nutritious food and health services consistently.

Overall, the table shows that the implementation challenges occur across multiple levels of governance and community life. At the institutional level, limited personnel, facilities, and operational resources weaken the capacity of health services to deliver continuous interventions. At the community level, low nutrition literacy, cultural perceptions, economic limitations, and access barriers reduce household participation in stunting prevention. Therefore, strengthening the stunting reduction program in Jayawijaya requires not only improving health-service capacity, but also developing culturally adaptive communication, expanding outreach services, and integrating nutrition interventions with broader social and economic support for vulnerable families.

The challenges of implementing the stunting reduction program in Jayawijaya Regency are multi-layered and interconnected, encompassing institutional capacity, technical service capabilities, geographic conditions, community nutritional literacy, and household economic constraints. Statements from the Head of the Community Health Center (Puskesmas) indicate that the primary issue at the primary service level is the imbalance between workload and the availability of health workers. Health workers must not only provide routine services but also conduct growth and development monitoring, nutrition counseling, data recording, home visits, and cross-actor coordination. This situation suggests that program success is not solely determined by the existence of regulations or formal programs, but is highly dependent on the capacity of the implementing organization at the level closest to the community. This finding aligns with Ginting et al. (2023), who found that limited human resources, coordination, and service capacity at Puskesmas are key barriers to community-based stunting interventions in Indonesia. In the Jayawijaya context, these limitations are further complicated by the Puskesmas' need to serve areas with difficult geographic and social characteristics, necessitating stronger institutional support, including additional staff, ongoing training, and adequate operational support.

Nutrition officers clarified that implementation challenges lie not only at the policy level but also in the technical processes of implementation in the field. Nutrition officers face difficulties in continuously monitoring children at risk of stunting because some families live far from health service points and do not regularly attend Posyandu (Integrated Health Posts). This obstacle highlights a gap between the program design, which requires intensive monitoring, and the reality on the ground, which is constrained by distance, transportation costs, limited facilities, and minimal operational support. Zaleha and Idris (2022) emphasized that geographic conditions, limited resources, and suboptimal implementation in the regions are factors that can weaken the effectiveness of stunting programs in Indonesia. In the case of Jayawijaya, the highland geography and the spread of settlements can hinder service continuity, particularly for home visits, toddler monitoring, and nutritional interventions. Therefore, program implementation needs to consider a mobile service approach, strengthening community-level cadres, and utilizing target data to ensure high-risk families remain monitored even when they are far from service centers.

Statements from Posyandu (Integrated Health Post) cadres indicate that implementation challenges are also related to nutritional literacy and the community's social construct regarding stunting. Some parents still perceive stunting as solely hereditary, rather than as a symptom of chronic nutritional problems that can be prevented through adequate nutrition, sanitation, parenting, and health services. This perception can reduce the urgency for families to attend Posyandu (Integrated Health Post) counseling sessions, improve their children's diets, or regularly monitor their growth and development. Beal et al. (2018) explain that the determinants of stunting in Indonesia include not only biological factors but also maternal education, nutritional knowledge, feeding practices, sanitation, and access to health services. Therefore, the low level of community understanding in Jayawijaya is not simply a matter of information but also relates to patterns of knowledge, habits, socioeconomic conditions, and cultural acceptance of health messages. This suggests that the program's communication strategy

needs to be more culturally adaptive, using accessible language, involving community leaders, and positioning Posyandu cadres as liaisons between the health system and target households.

A statement from a parent of a stunted toddler suggests that the target group does not always fail to follow health recommendations due to a lack of willpower, but rather due to economic constraints and access. Families recognize that children need nutritious food, but their ability to provide nutritious food regularly is influenced by food prices, household income, distance to health services, and transportation costs. This finding is important because stunting programs often emphasize behavioral change, yet behavioral change is difficult to achieve if families lack the resources to implement the recommendations. Ruel and Alderman (2013) emphasized that nutrition-sensitive interventions such as food security, social protection, access to clean water and sanitation, education, and family economic empowerment play a crucial role in accelerating improvements in maternal and child nutrition. In the Jayawijaya context, nutrition education needs to be linked to concrete support for food access, social assistance, improved basic services, and economic empowerment of vulnerable families. In other words, stunting reduction programs cannot rely solely on counseling but must be linked to policies that address structural household barriers.

The challenges of implementing the stunting reduction program in Jayawijaya Regency cannot be understood in isolation. Limited health workers and facilities weaken service capacity, geographical barriers reduce program reach, low nutritional literacy impacts community acceptance, and household economic constraints hinder the implementation of health recommendations. These findings align with Syafrawati et al. (2023), who emphasized that accelerating stunting reduction at the district level is influenced by the capacity of implementing actors, coordination, resources, leadership, and local social and institutional conditions. Therefore, the direction of program improvement in Jayawijaya must emphasize more integrative and sustainable governance, namely strengthening the capacity of Community Health Centers (Puskesmas) and cadres, improving data-based monitoring systems, expanding services to reach remote areas, and integrating nutrition interventions with family socio-economic support. Such an approach is crucial because stunting is not only a child health issue but also an indicator of the local government's ability to provide inclusive, responsive, and adaptive public services to the local characteristics of Highlands Papua.

Policy Directions for Sustainable Governance of Stunting Reduction

The formulation of policy directions for sustainable governance of stunting reduction in Jayawijaya needs to be grounded in the main findings of this study: program implementation has shown progress, but it is still constrained by limited human resources, uneven nutrition literacy, geographical barriers, weak service continuity, and the need for stronger cross-sector coordination. The manuscript shows that the stunting reduction program in Wamena Kota is implemented through nutrition education, child growth monitoring, maternal and child health services, supplementary feeding, Posyandu activities, and coordination among the Health Office, Puskesmas, district government, cadres, and local stakeholders. However, sustainable governance requires more than program continuation; it requires an institutional

system that can maintain coordination, resources, accountability, and community participation over time. Evidence from nutrition governance emphasizes that stunting reduction is more effective when nutrition-specific interventions are integrated with nutrition-sensitive policies, including sanitation, food security, social protection, education, and community empowerment (Bhutta et al., 2013; Ruel & Alderman, 2013). Therefore, policy directions for Jayawijaya should focus on strengthening local government capacity to translate national stunting policy into locally adaptive, culturally relevant, and accessible services for families in highland Papua.

In this context, sustainable governance should be understood as the ability of local institutions to coordinate actors, allocate resources, use data, respond to community needs, and sustain program implementation despite social, geographic, and economic constraints. Recent studies on stunting governance in Indonesia show that multisectoral collaboration, institutional synergy, local government leadership, and integrated data systems are decisive factors in accelerating stunting reduction at the local level (Afandi et al., 2023; Sasmito et al., 2025; Sufri et al., 2024). For Jayawijaya, this means that policy directions must address not only health-service delivery but also the broader governance environment that shapes household access to nutritious food, transportation, sanitation, health information, and routine growth monitoring. The experience of fluctuating stunting prevalence during and after the COVID-19 pandemic also indicates the need for a more resilient system that can maintain Posyandu services, outreach activities, and household assistance during crisis conditions (Ntambara & Chu, 2021; Wenang et al., 2022). Based on these considerations, the following policy directions are proposed to strengthen the sustainability, responsiveness, and local effectiveness of the stunting reduction program in Jayawijaya Regency.

Stunting reduction in Jayawijaya cannot be understood solely as a technical health issue, but as a governance issue involving multiple actors, resources, and social conditions. Key findings, such as limited health workers, geographical barriers, low nutritional literacy, weak cross-sectoral coordination, and family economic constraints, demonstrate that stunting programs require a more comprehensive approach. Therefore, the first important policy direction is to strengthen multisectoral coordination between the Health Office, the Regional Development Planning Agency (Bappeda), district governments, community health centers (Puskesmas), integrated health posts (Posyandu), cadres, community leaders, and target families. This coordination is necessary so that each institution does not work in isolation but moves with the same data, targets, and objectives. This aligns with the findings of Afandi et al. (2023) that collaboration in stunting interventions at the local level needs to be built as a participatory and shared process, not simply an administrative obligation of the government. Sasmito et al. (2025) also emphasized that strengthening institutional synergy is crucial for shifting stunting governance from a parallel work pattern to a more operational and sustainable partnership.

In addition to coordination, it is crucial to emphasize strengthening service capacity at the field level. In Jayawijaya, the geographic conditions and distribution of settlements make it difficult for many families to access health services. Therefore, programs need to be more adaptive through mobile services, home visits, strengthening cadres, and operational support for community health centers (Puskesmas) and

integrated health posts (Posyandu). This policy direction is crucial because stunting is influenced by many interrelated factors, such as maternal education, family economic status, feeding practices, sanitation, access to health services, and the availability of nutritious food (Beal et al., 2018). Therefore, improving community nutrition literacy must be carried out repeatedly, simply, and in accordance with the local cultural context. Occasional counseling is not sufficient to change family behavior, especially if families still face financial, transportation, and food access constraints. Therefore, specific nutrition interventions such as growth monitoring, maternal-child services, and nutrition counseling must work alongside nutrition-sensitive interventions such as food security, sanitation, social protection, and family empowerment (Bhutta et al., 2013; Ruel and Alderman 2013).

Policy directions for optimizing this program must also address the importance of resilient and sustainable governance. The COVID-19 pandemic has shown that integrated health service posts (Posyandu), child growth monitoring, nutrition education, and home visits can be disrupted when the service system is inadequately prepared for a crisis. Therefore, the stunting reduction program in Jayawijaya requires a robust data-driven monitoring system, regular evaluation mechanisms, community feedback, and long-term policy commitments. Ntambara and Chu (2021) explain that the pandemic increased the risk of child malnutrition due to disruptions to health services, food access, and social protection. In this context, program sustainability not only means continuing to operate but also adapting to changing circumstances, reaching the most vulnerable families, and maintaining the quality of services at the community level. With the policy directions shown in the chart, stunting reduction in Jayawijaya is expected to result not only in lower prevalence rates but also in strengthening community participation, improving household practices, expanding access to services, and building a governance system that is more responsive to local needs.

Discussion

The stunting reduction program in Wamena Kota District should be understood as a governance effort rather than merely a health-sector intervention. The program has involved nutrition education, child growth monitoring, maternal and child health services, supplementary feeding, Posyandu activities, and coordination among local government institutions, health services, cadres, and community stakeholders. Even so, the continuation of these activities depends on whether local institutions are able to maintain coordination, allocate resources, and ensure that services reach families living in difficult geographic and socio-economic conditions. In Jayawijaya, stunting is closely linked to household vulnerability, access to nutritious food, maternal health, transportation barriers, and uneven public understanding of child growth. This confirms that stunting reduction requires not only technical nutrition interventions, but also political commitment, institutional capacity, knowledge systems, and adequate resources to translate policy into results on the ground (Gillespie et al., 2013).

Multisectoral coordination remains a key requirement for improving program effectiveness. Stunting cannot be addressed only by the health sector because its causes are also related to sanitation, food security, education, social protection, poverty, and local development planning. The Health Office may

lead technical nutrition interventions, but Bappeda, district government, village actors, education services, sanitation programs, and community organizations must also work within the same target framework. Without integrated planning and shared data, each sector may continue to run its own activities without clear convergence at the household level. Bennett et al. (2018) explain that multisectoral action for health is often difficult because each sector has different mandates, incentives, authority, and accountability systems. For this reason, stunting governance in Jayawijaya needs a stronger coordinating mechanism that can connect planning, budgeting, implementation, monitoring, and community feedback.

The role of frontline workers is central to the success of program implementation. Puskesmas staff, nutrition officers, midwives, and Posyandu cadres are responsible for measuring child growth, providing nutrition counseling, recording data, conducting home visits, and following up with families at risk. These responsibilities are demanding, especially when the number of personnel, facilities, transportation support, and operational funds are limited. In remote areas, cadres and community health workers often become the closest point of contact between families and the health system. Gilmore and McAuliffe (2013) show that community health workers can improve maternal and child health outcomes when they receive adequate training, supervision, supplies, and integration into formal health services. Strengthening frontline capacity in Jayawijaya is therefore essential for ensuring that stunting services are not concentrated only around health facilities, but also reach households that are geographically and economically vulnerable.

Community acceptance also determines whether the program can produce sustainable change. Some families have started to recognize the importance of weighing, height measurement, nutrition counseling, and regular Posyandu attendance, but changes in household behavior occur gradually. Parents may understand the advice given by health workers, but still struggle to provide nutritious food, pay transportation costs, or change long-standing assumptions that short stature is mainly hereditary. Hossain et al. (2017) emphasize that effective stunting reduction in low- and middle-income countries requires context-specific intervention packages that combine nutrition-specific and nutrition-sensitive actions. In Jayawijaya, this means that education should be accompanied by practical support for food access, culturally appropriate communication, involvement of trusted local leaders, and continuous assistance for families with stunted children.

Sustainable governance also requires actors who can connect institutions, programs, and communities. Formal policy direction from the national or district level must be translated into practices that fit the social and geographic realities of Wamena Kota. This requires actors who can bridge sectoral boundaries, such as planning officials, district leaders, Puskesmas heads, nutrition officers, Posyandu cadres, customary leaders, religious leaders, and community partners. Pelletier et al. (2018) describe these actors as boundary-spanning actors who help multisectoral nutrition systems function by linking institutions, mediating coordination problems, and supporting implementation across organizational boundaries. In Jayawijaya, this bridging role is especially important because policy messages and

service delivery must be adapted to local language, trust relations, settlement patterns, and community norms.

A sustainable stunting reduction system in Jayawijaya must be resilient, adaptive, and supported by reliable data. The fluctuation of stunting prevalence during 2020–2025 shows that program performance can be affected by health crises, service disruption, and uneven recovery after the pandemic. Service continuity, routine monitoring, household follow-up, and community-level reporting need to remain active even during crisis conditions. Fox et al. (2022) argue that multisectoral nutrition platforms require strong metagovernance because collaboration can become fragmented when authority, incentives, and accountability are unclear. For Jayawijaya, this means that long-term stunting reduction depends on integrated target data, regular monitoring, clear responsibility across sectors, stable budget commitment, and mechanisms for community feedback. These elements are needed so that stunting reduction becomes a sustained public responsibility, not only a temporary program activity.

Conclusion

The stunting reduction program in Wamena Kota District, Jayawijaya Regency, is not only a health intervention but also a governance agenda that requires coordination, institutional capacity, and community participation. The program has been implemented through nutrition education, child growth monitoring, maternal and child health services, supplementary feeding, Posyandu activities, and coordination among the Health Office, Puskesmas, district government, cadres, and community stakeholders. However, the effectiveness of the program depends on how far these activities can be sustained, integrated, and adapted to the local conditions of Jayawijaya. Stunting reduction in this context requires a governance system that is able to connect policy design, resource allocation, service delivery, and household-level behavioral change.

The implementation of the program still faces several interconnected challenges. Limited health workers, inadequate facilities, geographic barriers, weak nutrition literacy, household economic constraints, and fragmented cross-sector coordination affect the consistency and coverage of services. These challenges show that reducing stunting cannot rely only on counseling, growth monitoring, or supplementary feeding. It also requires stronger support for food access, transportation, sanitation, maternal health, social protection, and culturally appropriate communication. Therefore, the success of stunting reduction in Jayawijaya depends on the ability of local government institutions and community actors to work together in a more integrated, responsive, and sustained manner.

The policy direction should emphasize sustainable governance through multisectoral coordination, strengthening frontline service capacity, expanding outreach to remote communities, improving community nutrition literacy, integrating nutrition-specific and nutrition-sensitive interventions, and building data-driven monitoring and evaluation. These directions are important to ensure that stunting reduction becomes a long-term public responsibility rather than a temporary program activity. A more sustainable approach should place families and communities at the center of intervention, while

ensuring that local institutions have the authority, resources, and commitment to maintain service continuity. In this way, stunting reduction in Jayawijaya can contribute not only to lowering prevalence rates, but also to improving child health, household resilience, and the quality of human development in the Papua Highlands.

Limitations

The research has several limitations. First, the research was conducted in Wamena Kota District, so the results may not fully represent all districts in Jayawijaya Regency or other areas of the Papua Highlands with different geographic and social conditions. Second, the analysis relies primarily on qualitative data from selected informants, which provides rich contextual understanding but does not allow statistical generalization. Third, the stunting prevalence data used in the analysis were processed from available local figures and may be affected by differences in measurement coverage, reporting systems, and data quality across years. Fourth, interviews with target families may not capture all household experiences, especially those living in more remote areas or those with limited access to health services. Despite these limitations, the research provides important insights into how sustainable governance can strengthen stunting reduction programs in a geographically challenging and institutionally complex setting.

Declarations

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Consent to Participate declaration

Informed consent was obtained from all participants prior to their involvement in the research. Each participant was informed about the purpose of the study, the voluntary nature of participation, the confidentiality of their responses, and their right to withdraw from the research at any stage without any consequences. Only participants who agreed to take part in the interviews and field data collection were included in the study.

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Clinical trial number

Not applicable.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Author contributions

Nur Aedah served as the principal investigator and was responsible for the overall conception, design, and coordination of the research. She led the study from the initial planning stage to the completion of the manuscript, including formulating the research focus, supervising the research process, coordinating the team, and preparing the main draft of the manuscript. M. Zaenul Muttaqin contributed to the data analysis process by organizing, interpreting, and synthesizing the interview, observation, and documentation data into relevant analytical themes. Usman Idris contributed to the field research by conducting data collection, supporting field observations, carrying out interviews with relevant stakeholders, and documenting the implementation of the stunting reduction program in Wamena Kota District. All authors contributed to the review of the manuscript, approved the final version, and agreed to be accountable for the content of the work.

Ethical declaration:

Ethical approval for this study was granted by the Research Ethics Committee of the Faculty of Social and Political Sciences, Cenderawasih University, under the chairmanship of Dr. Marlina Flassy (Approval Number: 5367A/UN20.1.3/DT/2025, 22 August 2025). All research procedures were conducted in accordance with the ethical standards, principles, and guidelines established by the committee. Written informed consent was obtained from all participants prior to their involvement in the study.

Consent to Publish

Not applicable. This study does not involve any identifiable personal data.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Figures

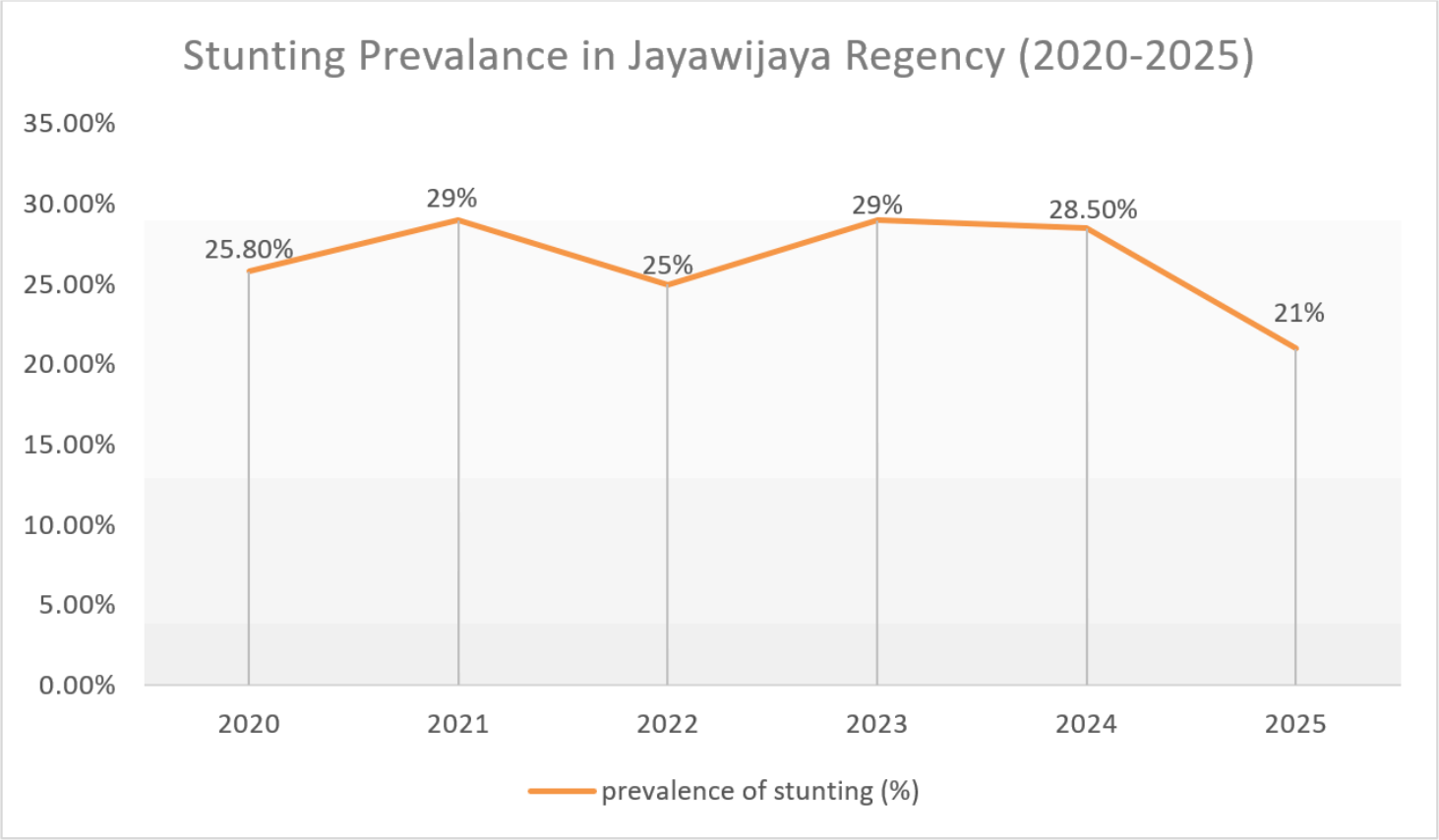


Figure 1

Prevalence of Stunting in Jayawijaya Regency 2020–2025

Sources: Figure 1. processed from various sources by researchers, 2025

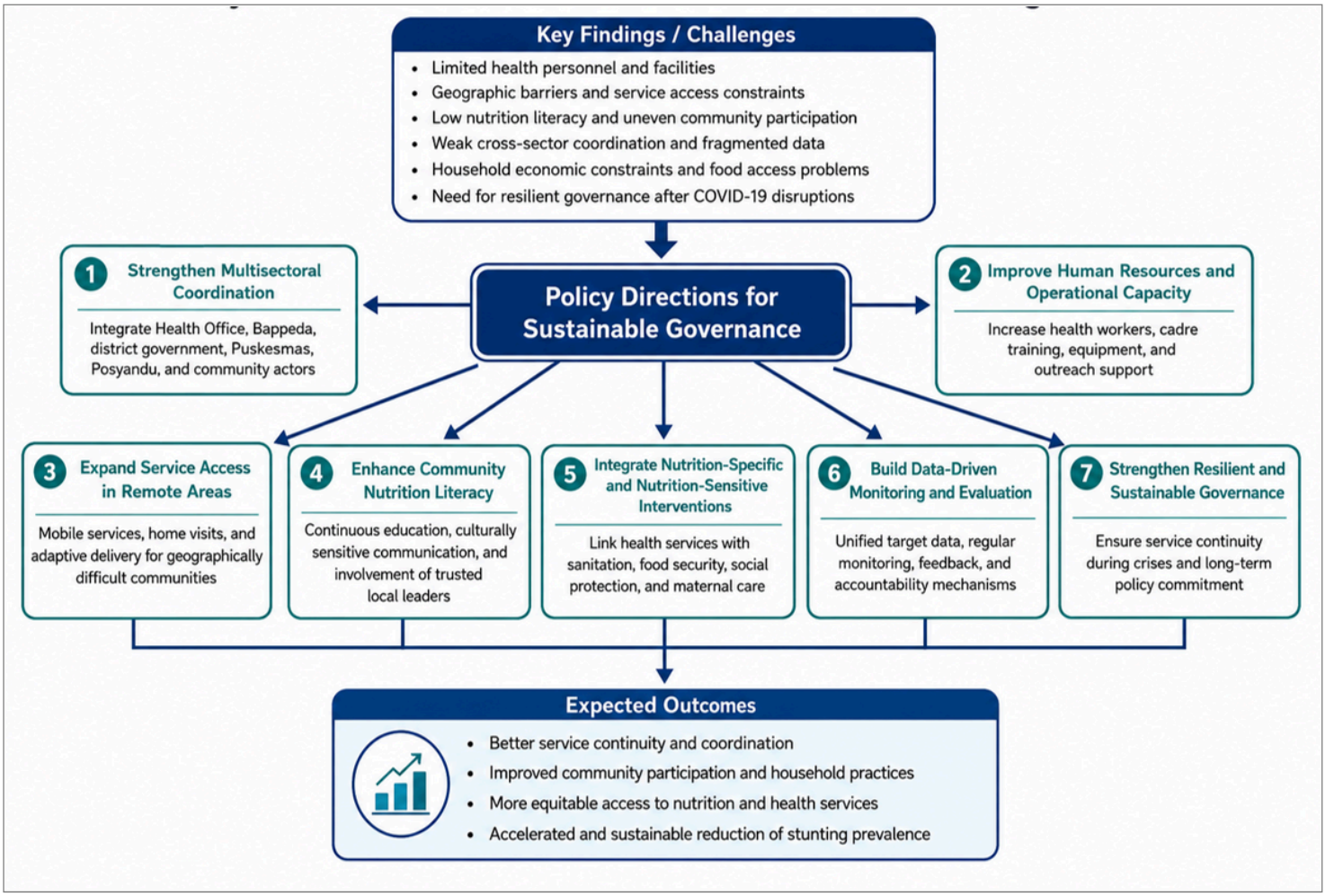


Figure 2

Policy Directions for Sustainable Governance of Stunting Reduction