

Traditional Knowledge Model Based on Community Empowerment in Stunting Prevention in Bireuen District, Aceh, Indonesia

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Abstract: This study aims to analyze the traditional knowledge model based on community empowerment in stunting prevention efforts in Bireuen Regency. Types of research is qualitative descriptive research. The analysis process begins by listening to the results of the interview in audio form, then transcribing into written data and literary studies collected. The results of this study found that the traditional knowledge model is used in stunting prevention efforts in Bireuen Regency. It can be concluded that traditional knowledge owned by the people of Bireuen Regency has a significant role in efforts to prevent stunting. The traditional knowledge model that has been implemented so far can reduce stunting through strategies for efforts to reduce stunting through several approaches, namely institutions, human resources, and financing. Community knowledge about preventing stunting can be combining local knowledge so that the management of medicinal plants and can produce more effective interventions in overcoming malnutrition.

Key-Words: Model, Traditional, Knowledge, Community, Empowerment, Stunting, Prevention

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1 Introduction

Stunting is still a major problem in national development today [1]. As a health problem, stunting occurs when children experience stunted physical growth and cognitive development due to malnutrition and inadequate care. Presidential Regulation Number 72 of 2021 concerning the Acceleration of Stunting Reduction is a concrete manifestation of government policy in an effort to seriously address stunting. The implementation of the Presidential Regulation has not shown significant results, with the reduction in stunting being slow, far from the annual target set by the government. Based on the results of the 2023 Indonesian Health Survey (SKI) released by the Ministry of Health of the Republic of Indonesia, the achievement of stunting reduction is still relatively less than encouraging, namely 21.5% in 2023. Not only that, but the achievement of local government performance in handling stunting has also not shown satisfactory results. As in Bireuen Regency, the stunting rate increased sharply from 23.4% in 2022 to 32.9% in 2023. This 9.5% increase in the stunting rate indicates a problem in handling stunting in Bireuen Regency [2].

The factors causing the high rate of stunting in Bireuen Regency are also closely related to the availability of access to health services for the community. Currently, the number of health facilities

and infrastructure in Bireuen Regency is quite adequate, consisting of 6 hospitals, 20 health centers, 71 assistant health centers, and 326 village health posts. With a total of 609 villages, the number of village health posts in Bireuen Regency is still very low, which is only 53%. In addition to the availability of health service facilities and infrastructure mentioned above, Integrated Service Posts (Posyandu) are one of the entry points to prevent and overcome stunting. Based on data from the Bireuen Regency Health Office [3], the number of integrated health posts and integrated health posts that are actively carrying out their activities is 631 units. However, the effectiveness of its activities is only 40% it can carry out its functions properly. Posyandu activities also depend heavily on the availability of trained cadres who receive periodic capacity building from the local Health Office and Health Center.

The suboptimal implementation of integrated health posts also has implications for protein consumption to prevent stunting. With abundant fish production, the level of fish consumption in the community is actually met and evenly distributed in the Bireuen Regency area [4]. In addition to the problem of inadequate protein consumption, another problem related to the cause of stunting is the coverage of adolescent girls who receive iron tablets. Although integrated health posts have been encouraged in all villages, the level of coverage of

adolescent girls who receive iron tablets is still not optimal [5].

A number of policies have been implemented by the Bireuen Regency Government in order to accelerate the reduction of stunting. When viewed from the regulatory aspect, the Bireuen Regency Government has had a number of policies to handle stunting before this problem became a national issue, namely through the Bireuen Regent Regulation Number 44 of 2017 concerning Stunting Reduction. Through this policy, the Bireuen Regency Government already has a strategy to reduce stunting through several approaches, namely institutions, human resources, and financing. However, this policy was considered not effective enough to support the acceleration of stunting reduction, which at that time was still at 41%. So, the Regional Government then conducted an evaluation of the policy, which culminated in the birth of a new policy, namely Bireuen Regent Regulation Number 29 of 2020 concerning Integrated Stunting Reduction in Bireuen Regency [6]. However, in Bireuen Regent Regulation Number 44 of 2017, the Bireuen Regency Government at that time had not targeted the percentage of reduction in stunting prevalence that had to be achieved and the determination of targets that only focused on pregnant women; breastfeeding mothers and children under 6 months of age; and breastfeeding mothers and children aged 6-23 months so that it was considered that it would not be able to maximally carry out prevention efforts because not all priority targets were handled. In this regulation, the Bireuen Regency Government also initiated the awarding of awards to the community and/or institutions that care about reducing stunting as an effort to encourage and provide opportunities to play the widest possible role in realizing improvements in the nutritional status of individuals, families, and communities [7].

Bireuen Regency as the locus regency has implemented action 4 by ensuring that the Regulations drafted through Bireuen Regent Regulation Number 29 of 2020 contain the following 6 elements: Village authority in implementing nutritional interventions through the Village Budget, The role of sub-districts in supporting village government, support for mobilization and provision of incentives for Human Development Cadres (KPM), Coordination of the Village Government with related The local bureaucracy (OPDs) and program facilitators or assistants, The role of community institutions like a Integrated Health Post (Posyandu), early childhood education (PAUD), Family Welfare and Empowerment (PKK), etc.,

support for public campaigns and behavior change communication at the village level.

Therefore, in addition to a series of policies, the Bireuen Regency Government also made a series of efforts to accelerate the reduction of stunting through a local wisdom approach. Various local wisdoms that grow and develop in society can be used as innovations in the context of integrating efforts to accelerate the reduction of stunting [8]. There are a number of traditional rituals that grow and develop in Acehese society, including in Bireuen Regency, including peutron aneuk, jak ba tanda, meugang, tulak bala, peusijuek, and mee bu gateng. Local knowledge regarding nutrition, child care, and health practices can serve as a strong foundation in efforts to prevent stunting. Especially when integrated with culturally-based interventions [9].

Communities often possess ancestral knowledge about nutritious food [10], traditional medicine, and child care practices that are suited to their environmental conditions. This knowledge can be a valuable source of information in efforts to prevent stunting [11]. Communities are more likely to trust and follow practices that stem from their local knowledge. By wisely utilizing traditional knowledge and integrating it with scientific interventions, community empowerment can be the key to success in efforts to prevent stunting [12]. This research aims to examine how a traditional knowledge model based on community empowerment can prevent stunting in Bireuen District, Aceh, Indonesia.

2 Literature Review

2.1 Traditional Knowledge

Traditional knowledge is the result of practical thinking. Referring to knowledge, skills, and practices handed down from generation to generation within a community, they often become part of its cultural or spiritual identity. This knowledge encompasses various fields such as art, medicine, agriculture, and others, or indigenous communities, and knowledge passed down from generation to generation. Meanwhile, local or indigenous communities have their own understanding of traditional knowledge. It is a way of life, traditional knowledge is born from the spirit of survival [13].

Traditional knowledge systems in the fields of medicine and healing, biodiversity conservation, the environment, and food and agriculture are well known [14]. From the above understanding, it can be seen that the scope of traditional knowledge is not limited only to the fields of technology or the arts. It also encompasses all fields of human life, such as

medicine and healing, biodiversity conservation, the environment, food, and agriculture. The essence of traditional knowledge is its traditionality. Traditional knowledge is part of a cultural tradition that can be influenced by other cultures.

2.2 Community Empowerment

Substantial empowerment is a process of breaking down the relationship between subject and object. This process emphasizes the subject's recognition of the abilities or powers possessed by the object. From several definitions of empowerment above, it can be concluded that empowerment is an effort or endeavor carried out to develop the abilities and independence of individuals or communities in meeting their needs [15]. Community empowerment is an effort to uplift the dignity and self-worth of disadvantaged communities so that they can overcome their circumstances [16]. Community empowerment is a process within the framework of efforts to strengthen what is commonly referred to as community self-reliance or independence.

In this process, the community is assisted in analyzing the problems faced, assisted in finding alternative solutions to those problems, and guided in strategizing the use of various resources they possess and control, and build strategies to obtain the external resources needed to achieve optimal results. In community empowerment, there is an important goal that is of a sustainable development nature [17]. Community empowerment is one of the ways to build the capacity of the community and empower human resources through mentoring, counseling, and services [18]. Empowerment efforts must be carried out in three directions: creating an environment conducive to the development of capabilities, strengthening potential or abilities, and protecting the community. The empowerment process requires a facilitator with multidisciplinary qualities as part of the accompanying team, which is one of the external factors in the community empowerment process [19].

2.3 Stunting Prevention Program

Stunting is a condition of growth failure in toddlers due to chronic malnutrition, causing the child to be too short for their age. Nutritional deficiencies occur from the time the baby is in the womb and in the early months after birth; stunting conditions only become apparent after the baby reaches two years of age [20]. Foetal growth and the risk of stunting are influenced by the mother's nutritional status before, during, and after pregnancy. The goal of stunting prevention is to guarantee that children grow to their full potential and are shielded from stunted growth brought on by long-term malnutrition. This entails several activities,

including providing for the nutritional requirements of pregnancy, exclusive breastfeeding, proper supplemental feeding, tracking growth and development, and upholding hygienic and healthful living practices. Various efforts have been made to prevent and address nutritional issues in the community [21]. If we regularly and correctly monitor toddler growth, we can prevent the occurrence of chronic stunting in toddlers. Some ways to prevent stunting include preparing for a good marriage, nutrition education, supplementation for pregnant mothers, supplementation for breastfeeding mothers, micronutrient supplementation for toddlers, and encouraging increased outdoor activities for children. Empowerment-based stunting prevention is a holistic and sustainable approach to addressing the stunting issue by actively involving the community and empowering them to create positive changes in their children's health [22].

3 Methods

This research used a qualitative approach with a constructivist paradigm to interpret diverse meanings. The study aims to understand traditional knowledge-based empowerment in preventing stunting. Interviews were conducted with informants at the research location to collect primary data, observations, and document studies. Informants were selected using the key person technique and purposive sampling, targeting individuals who understand the research variables related to the stunting problem in Bireuen Regency and are directly involved. The informants in this study can be seen in Table 1:

Table 1. Key Informants

No.	Informants	Amount
1.	Regional Secretary as Head of the Stunting Reduction Acceleration Team	1
2.	Regional People's Representative Council	1
3.	Head of the related Department/Agency	1
4.	Secretariat of the Stunting Reduction Acceleration Team	1
5.	Sub-district Head and Village Head	1
6.	Head of Health Center	1
7.	Academics	2
8.	Mass media	1
9.	Community	5
10.	Women Figures	1
	Total	15

Source: Created by Authors

Based on Table 1, the number of informants is 15 from stakeholders. The data collected from the above informants includes factors causing the situation. These factors cover conditions, events, and incidents related to policies and traditional knowledge. The focus is on accelerating stunting reduction in Bireuen Regency. This data is required to assess the government's ability to meet regulatory needs. It will help integrate policies and local wisdom to accelerate stunting reduction [23]. Data analysis consists of four stages: data collection, data reduction, data presentation, and finally, drawing conclusions and verification.

4 Results and Discussion

4.1 Model of Traditional Knowledge

As one of the crucial global health problems, stunting requires comprehensive intervention. In various regions of Aceh, including Bireuen Regency, communities have knowledge and practices that have been passed down from generation to generation in terms of health maintenance, including in preventing stunting. Traditional knowledge in the context of preventing stunting is more directed at local understanding of diet, child care patterns, and the use of natural materials that are beneficial for health [24].

According to the study's findings, some Bireuen Regency communities employ natural remedies like katuk or moringa leaves to boost nursing mothers' supply of breast milk, which promotes early childhood development. This demonstrates how traditional knowledge may guarantee proper baby nutrition, which is crucial in avoiding stunting. Communities also frequently incorporate parenting styles that help meet children's nutritional needs from birth. Among them are certain practices in providing complementary foods (MPASI) that prioritize nutritious local food ingredients [25]. Traditional foods such as porridge made from brown rice, sweet potatoes, or corn that contain complex carbohydrates and other nutrients are considered important in reducing the risk of malnutrition that can lead to stunting [26]. Some communities in Bireuen Regency prefer to provide MPASI based on local food ingredients rather than relying on commercial products, which can be more expensive and do not always match local nutritional conditions [27].

The results of this study also show that the sustainability of this traditional knowledge can enrich community knowledge about stunting prevention by combining local knowledge so that the management of medicinal plants can produce more effective interventions in overcoming malnutrition. Although traditional knowledge in stunting prevention has

great potential, there are several challenges that need to be considered. One of them is the degradation of traditional knowledge caused by changes in lifestyle and globalization. Many young generations prefer modern lifestyles and often abandon traditional practices that were once effective [28]. One of the main challenges is the low appreciation of traditional knowledge of the community in Bireuen Regency among the younger generation and the difficulty in aligning traditional knowledge with modern science. The following is a picture of a traditional model in stunting prevention carried out in Bireuen Regency Figure 1 (Appendix).

The framework in Figure 1 (Appendix) shows that traditional knowledge plays a central role in shaping a sustainable stunting prevention system in Bireuen Regency, Aceh. This approach places a strong emphasis on combining locally passed-down traditional knowledge with community education, local food management, and mother and child health practices. Here, traditional knowledge includes environmental management, herbal medical practices, maternity and child health, and dietary aspects. These elements are interrelated and provide a cohesive sociocultural framework that promotes public health.

In the early stages, the Bireuen community's healthy living practices were mostly based on traditional knowledge about nutrition and maternal-child health. Complementary feeding and exclusive breastfeeding practices are supported by local values, such as the usage of traditional locally obtained foods (local crops and shellfish), such as saltwater fish, moringa leaves, sweet potatoes, and produce from community gardens. Mothers in Aceh frequently use traditional techniques to prepare wholesome meals for babies and toddlers using readily available, reasonably priced local foods.

Additionally, the prevention of illnesses like diarrhoea and gastrointestinal infections, which are indirect causes of stunting, is greatly aided by herbal medicine practices and awareness of water hygiene and sanitation. In addition to lowering reliance on contemporary chemical medications, the use of traditional herbal treatments and indigenous-based cleanliness practices helps preserve the resilience of mothers' and children's bodies. Subsequently, sustainable farming and harvesting practices emerged as a crucial link between the aspects of local food security and nutrition.

The Bireuen people depend on agricultural methods that have been handed down through the generations, including the use of natural organic fertilisers, intercropping, and traditional rice field water management. This strategy protects the

environment and the sustainability of household food supplies while guaranteeing the year-round supply of wholesome meals. The framework also highlights the need for community education in raising public awareness and understanding of child health and nutrition. This education often takes place through traditional practices and oral communication (sharing of knowledge through oral tradition and practice), such as customary meetings, religious studies, and community social activities.

Values on the significance of diet for expectant mothers, newborn care, and illness prevention are passed down through this unofficial route, guaranteeing the survival and applicability of local knowledge.

Overall, this connection architecture shows that the blending of traditional knowledge and contemporary scientific methods is the foundation for stunting prevention in Bireuen Regency. In order to create food security and public health, every element from intergenerational knowledge transfer to local dietary habits, herbal medicine, environmental hygiene, and sustainable agriculture forms a mutually beneficial social ecosystem. In addition to enhancing the efficacy of government initiatives, this local wisdom-based strategy encourages community ownership of stunting prevention initiatives. This model thus indicates that the cultural background and local knowledge systems that have long been a part of Aceh society are inextricably linked to stunting prevention measures in Bireuen. This research is also supported by findings in Peru, which implemented a multisectoral model utilizing local wisdom [28].

Through a multi-sectoral intervention package (health, sanitation, and social), pro-poor policies, and food/social programs, Peru was able to drastically reduce the prevalence of stunting. The Peruvian case study highlights that access to local food, economic empowerment initiatives, and technical interventions, rather than merely clinical nutrition programs, improved nutritional status. This illustrates the effectiveness of a strategy that incorporates regional knowledge (traditional foods, farming methods) into an all-encompassing national policy framework. However, it is challenging to isolate the impact of local knowledge alone because improvements in the economy and public services also have a significant impact on Peru's decline in stunting.

4.2 Community Empowerment

Given that stunting is not simply a health problem but also has an impact on the community's knowledge, economics, and culture, community empowerment is crucial to attempts to reduce stunting in Aceh. Through empowerment, the community, particularly

expectant moms, nursing mothers, and families with young children, becomes more aware of the significance of exclusive breastfeeding, healthcare during pregnancy, balanced nutrition, and appropriate supplemental feeding practices. This empowerment is achieved in Aceh through a number of initiatives, including training Posyandu cadres, enhancing the role of communities in utilising Village Funds for nutrition programs, and creating family nutrition gardens.

In addition, the approach based on local wisdom and Islamic values also strengthens the program's effectiveness because it is more easily accepted by the local community [29].

Stunting prevention can be implemented more sustainably, from the family level to the village government structure, with the community's growing awareness and active involvement. Thus, the key to producing a generation of Acehnese who are healthy and free from stunting is community empowerment.

Community empowerment is the key to creating sustainable social change, including efforts to prevent stunting. The results of this study show that in Bireuen District, empowerment does not only mean providing one-way training or education, but also involving the community as the main active actors in designing, implementing, and evaluating stunting prevention strategies in accordance with the local values, norms, and capacities they possess. This concept aligns with the empowerment theory, according to Laverack & Wallerstein, which emphasizes that empowerment is a process of enhancing collective capacity to make decisions and control factors that affect their lives, including child health. The community of Bireuen District has a solid social structure and is rich in the value of cooperation [30]. This social capital becomes an important asset in community strengthening. In the context of stunting prevention, empowerment begins with the formation of toddler mother groups, training of posyandu cadres, and the establishment of backyard farmer groups based on local nutrition.

Nutrition and healthy behaviour lessons are also spread through citizens' active engagement in forums, including study groups, village meetings, and religious gatherings. Instead of just receiving top-down programs, this gives the community a place to debate, assess, and decide on health practices that are appropriate for their situation. Additionally, community empowerment boosts local capacity and promotes independence in Bireuen District. For instance, teaching housewives how to prepare healthful foods using regional products like bananas, catfish, and moringa leaves can boost local

food security and family economies while simultaneously giving them new skills.

In comparison to methods that are solely medical or technical, community-based interventions created via active community involvement and local capacity building are more successful in lowering stunting rates. The community's sense of ownership and trust in the program is just as important to its success as the sophistication of the materials or interventions. [31].

Empowerment also creates a social learning process that strengthens community cohesion.

An environment that encourages behavioural change is established when women exchange healthy food recipes, learn from each other's experiences, or see positive improvements in the kids around them. This is not the same as top-down interventions, which frequently fail to produce long-lasting change and lose local context. As a result, it is crucial that the Bireuen District government and the stunting program's implementing organisations serve as both facilitators and aid providers, setting up venues for discussion and community involvement.

Furthermore, the empowerment approach also recognizes the critical role of community leaders, traditional leaders, and religious figures in shaping public opinion and social norms. In Bireuen District, Aceh, religious scholars and *teungku dayah* have strong moral legitimacy and can bridge modern health science with local values. By empowering these figures as agents of change, nutrition and health messages can be conveyed in a way that is more accepted by the community. This also reinforces the principle of community-driven development, where solutions emerge from within the community, not just from outside.

Therefore, in the context of preventing stunting, community empowerment serves as the primary basis for significant and long-lasting social transformation rather than just a supplementary tactic. Communities that are empowered will be able to recognise their own issues, create locally based solutions, and sustain programs on their own. This is in line with the asset-based community development (ABCD) approach, which emphasizes strengthening local potential as the main capital for development, including in public health [32].

However, because of the impact of modernisation and the absence of organised cultural transmission, younger generations typically have a lower level of awareness. Most people understand that traditional knowledge is essential to their cultural identity and must be conserved. However, the preservation of traditional knowledge is hampered by the absence of

institutional recognition, recording, and integration with contemporary healthcare initiatives.

4.3 Stunting Prevention Efforts by the Government and the Community

Stunting is a serious nutritional problem and can affect children's physical and mental development. As a result, initiatives to avoid stunting involve both the community and the government. Particularly in rural areas, the government is crucial to the provision of quality healthcare services. Maternal health examinations, dietary supplements, and growth and development monitoring are all part of this program. According to research, pregnant mothers can lower their child's risk of stunting by getting frequent checkups and taking supplements like folic acid [33]. The community can also actively participate by educating people about the value of a balanced diet, particularly with regard to children's eating habits.

As the family's main decision-makers, mothers should be taught the value of nourishing meals and exclusive breastfeeding [34]. According to research, a child's growth and development are greatly impacted by the provision of nutritious foods, including fruits, vegetables, and animal protein. The Bireuen District Government has taken the following actions to prevent stunting: developing local policies; establishing a collaborative commitment between local governments, villages, and community elements to fully support consistent and sustainable efforts to accelerate the reduction of stunting; holding annual stunting discussions; developing a data management system and publishing the results of stunting reduction performance; and strengthening coordination with ministries/agencies, provinces, villages, and other parties involved in the implementation of convergence/integration actions to reduce stunting.

From the results of this study, it was found that first, the role of the District Government is to ensure that the Stunting Forum in the district is a follow-up to the cross-village activity proposals generated in the village Stunting Forum or other village planning meetings, and is held twice a year. Second, to formulate priority activities to prevent and address stunting between villages.

Third, to promote prejudice toward the stunting issue among cross-sector actors at the district and inter-village levels, and to make sure that the district stunting debates take place before the *musrenbangcam* (district development planning meeting). To guarantee that low-income families have access to wholesome food, the district administration can offer subsidies or other forms of support. The community and the government must

work closely together to prevent stunting. While the community must actively contribute to upholding hygienic eating practices, maintaining a clean environment, and guaranteeing appropriate nutritional monitoring for children, the government must offer helpful programs and policies. Stunting rates can be considerably decreased with effective implementation and widespread awareness. The Bireuen District Government has established several policy packages to address and reduce stunting cases. The Bireuen Regency Government has established a number of policy packages to address and reduce cases of stunting, including the provision of local food ingredients for healthy and nutritious food intake, as well as interventions for adolescents or prospective brides through health checks and consultations.

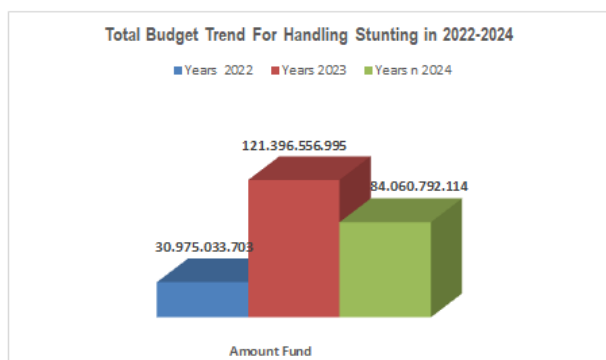


Fig. 2: Total Budget Trend For Handling Stunting in Rupiah's Years 2022-2024
Source: Created by Authors

Figure 2 illustrates how a number of intricate elements may contribute to variations in the budget for addressing stunting in Bireuen Regency between 2022 and 2024. In general, there was a small decline in 2024 after a significant growth in 2022 and 2023. This indicates that the largest funding allocation for stunting prevention during the previous three years peaked in 2023. The government's strong commitment to bolstering stunting intervention programs is demonstrated by the notable increase in 2023. The successful execution of the national policy for accelerating the elimination of stunting (2021–2024) and the need for increased funding for cross-sectoral integration encompassing health, education, agriculture, and sanitation are among the contributing factors. In order to meet the national stunting prevalence target of 14% by 2024, performance-based budgeting is being used.

The budget decrease in 2024 is due to several factors, including program optimization and efficiency, where activities are already more focused

and measurable based on the results of the previous year's evaluation. Shifting the budget focus to the consolidation and consolidation of results stage (no longer large-scale expansion).

National fiscal policy has tightened, especially post-pandemic, with a focus on economic recovery. It indicates a continued strong long-term commitment. Overall, this budget policy indicates a positive and strategic direction in supporting Indonesia's human development goals of a healthy and productive population. From a local wisdom perspective, the sharp increase in budget allocation in 2023 and its continued high level in 2024 reflect efforts to strengthen fiscal and socio-cultural synergy.

The stunting reduction program is now based on local values that prioritise the community as the primary change agent, rather than just being technocratic. This strategy turns stunting policy into a social movement with a cultural foundation in addition to health measures.

5 Conclusions

The Bireuen Regency's traditional wisdom plays an important part in attempts to avoid stunting. According to the study's findings, parental styles, cultural views, information availability, and community strength are all strongly associated with stunting in Bireuen. In this regard, it has been demonstrated that traditional knowledge, such as regional food processing techniques, the usage of family medicinal plants, and child-rearing practices in Acehese customs, is still alive and used in society even though it hasn't been fully integrated into official policy. In addition to protecting cultural heritage, the use of traditional knowledge models in stunting prevention revitalises it as a contextual solution to challenging nutritional issues. Using a methodical, inclusive, and collaborative approach. Community empowerment is also a local strength that has an impact on reducing stunting rates and improving the quality of life for the nation's children. Policies related to traditional knowledge in the effort to prevent stunting are an important strategy that integrates local cultural values with modern health approaches. Local governments play a strategic role in preserving and empowering this traditional knowledge through various policies, including regulations for the protection and recognition of traditional knowledge, especially that related to maternal and child health.

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APPENDIX

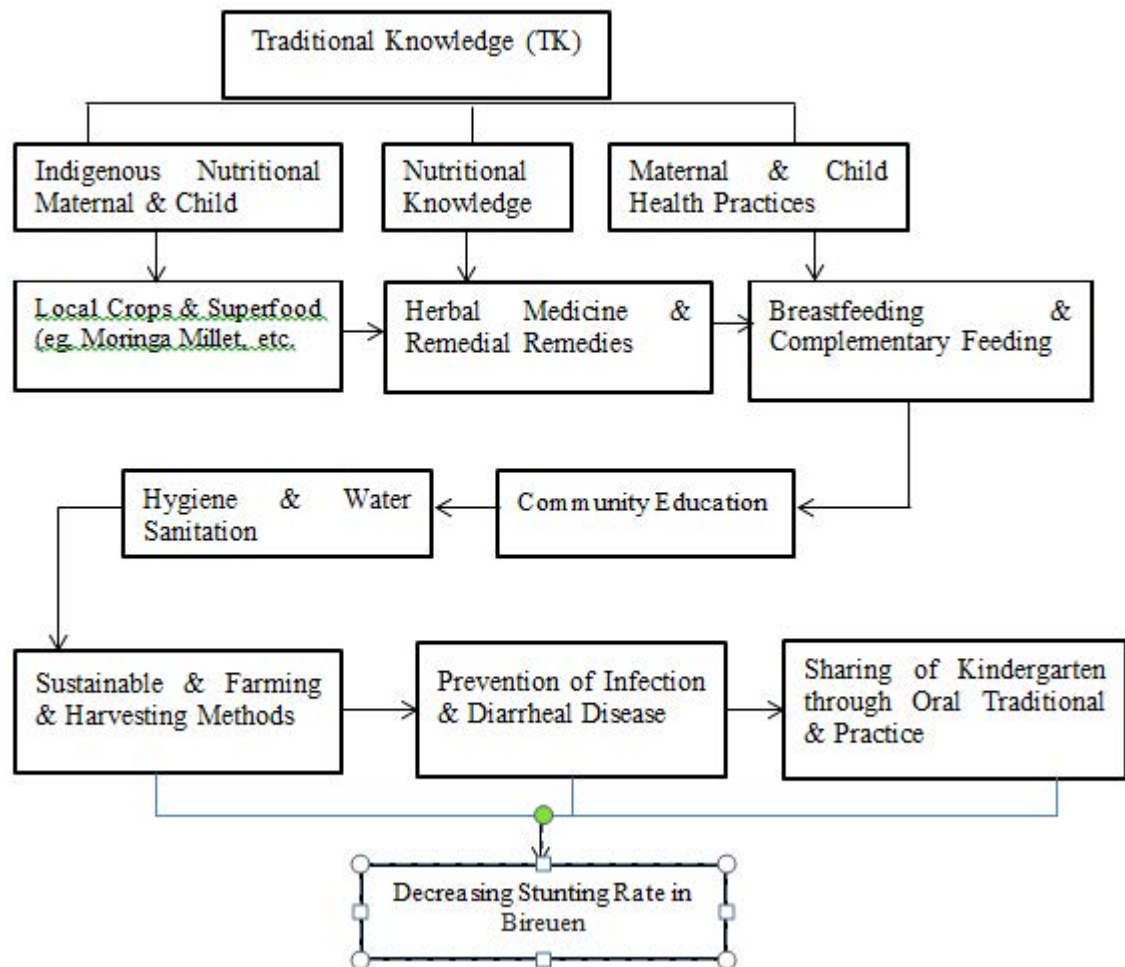


Fig. 1: Model of Traditional Knowledge to Prevent Stunting
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