

Research Article

Actor Network Composition in Stunting Prevention in Polewali Mandar Regency

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Abstract.

According to Presidential Regulation Number 72 of 2021 about the Acceleration of Stunting Reduction, which is multisectoral, efforts are being made to lower the stunting rates in Polewali Mandar Regency by involving all relevant processes and actors. Network discussion will decide the parties, organizations, and actors. The combination of actors can be interpreted as a network population where they have certain goals and have their respective roles in the network. The network actor composition approach is used to assess the diversity and influence of the number of actors in the network as a major part of the actor composition in network effectiveness. The methods used to compile this research are interviews and surveys of academic literature in the field of public administration relevant to network composition. In addition, efforts were also made to search through various sources, both from official government documents and various news in the mass media, both print and electronic, to describe practices related to network composition. The results show that the stunting prevention program is multisectoral, involving not only government agencies but also nongovernment agencies, mass media, communities, the private sector, and academics. In addition, the diversity of actors involved allows actors to exchange resources as a consequence of their limited resources.

Keywords: network composition, actor network, stunting

1. Introduction

Stunting is a condition of failure to thrive in children under five years of age due to chronic malnutrition, especially in the form of the first 1,000 days of life are characterized by below-standard length or height their age. Stunting not only impacts a child's physical growth, but also affects cognitive development, education levels and productivity in adulthood. Children who are stunted have a higher risk of health problems, reduced learning ability, and reduced earning potential as adults. The consequences of childhood stunting are immediate and long-term and include increased morbidity and mortality, poor child development and learning capacity, increased risk of infections and non-communicable diseases in adulthood, and reduced productivity and economic capability [1].

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Globally, stunting remains a serious public health problem. According to a report by UNICEF, the World Health Organization (WHO), and the World Bank Group, by 2022 it is estimated that around 148 million children under the age of five will be stunted worldwide. Stunting contributes to the intergenerational cycle of poverty and hinders efforts to improve the quality of human resources, especially in developing countries. Therefore, the prevention and control of stunting is one of the top priorities in the global development agenda, including in Sustainable Development Goals (SDGs) point 2, which is to end all forms of malnutrition by 2025.

Polewali Mandar District, located in West Sulawesi Province, is one of the areas that faces serious challenges in stunting prevention efforts. Based on data from the Indonesian Nutrition Status Survey (SSGI) in 2023, the prevalence of stunting in West Sulawesi reached 30.3%, which is one of the highest rates nationally. Polewali Mandar itself, as the district with the largest population in the province, also contributes to the prevalence of stunting cases at 30% and is still very far from the national target of 14% by 2024.

The high stunting rate in Polewali Mandar is influenced by various factors, both direct and indirect. Direct causal factors include inadequate nutritional intake and repeated infections in children, especially during the first 1,000 days of life. Meanwhile, the determinant factors causing the stunting problem in Polewali Mandar District include; first, the targets who have JKN only 68.9% of the 6,267 stunting toddlers, meaning that there are still around 31.1% of stunting toddlers who do not have JKN. Second, targets that have not accessed clean water are 7.8% or around 489 stunted toddlers do not have access to clean water (Polewali Mandar “2023). A study conducted by the Indonesian Ministry of Health in 2022 showed that families with low income levels and limited access to clean water and sanitation facilities have a higher risk of giving birth to stunted children [2].

Third, targets who have a history of helminthiasis are 8.7%, meaning that out of 6,267 stunted toddlers there are 551 toddlers who experience helminthiasis. Fourth, the targets that do not have healthy toilet facilities are 12.1% or around 759 toddlers. Fifth, the number of stunting families who have a very high smoking habit is around 49.4% or as many as 3,096 families who smoke. Sixth, the incidence of stunted children was found to be around 13.6% due to being born to mothers with Chronic Energy Deficiency (CHD) or comorbidities. In addition, cultural and behavioral challenges also influence stunting prevention efforts in Polewali Mandar. Some inappropriate infant and

young child feeding practices, as well as low awareness of the importance of balanced nutrition, are still commonly found in the community.

The Indonesian government has several key policies to address stunting, including Presidential Regulation No. 18/2020 on National Medium-Term Development 2020-2024. This policy contains a Strategic Priority Project (Major Project) which targets a reduction in the prevalence of stunting among children under five to 14% by 2024. In addition, Presidential Regulation No. 72 of 2021 concerning the Acceleration of Stunting Reduction article 10 paragraph (3) explains that in order to implement programs and activities for the Acceleration of Stunting Reduction, Provincial Governments, Regency/City and Village Governments strengthen planning and budgeting, improve the quality of implementation, improve the quality of monitoring, evaluation and reporting, and increase human resource capacity. At the regional level, the latest acceleration of stunting reduction in Polewali Mandar District is outlined in Regent Regulation No. 3 of 2023 which contains annual targets for reducing prevalence, increasing the APBD & APBDes budget, as well as strengthening program assistants and cross-sector coordination.

Local government efforts, such as the implementation of specific and sensitive interventions through cross-sector convergence programs, have been carried out but still face various obstacles at the implementation level, especially related to coordination between agencies and limited resources. With the complexity of problem, stunting prevention in Polewali Mandar District requires a comprehensive and collaborative approach, involving all stakeholders and strengthening networks at the local level.

Overcoming stunting is a multidimensional challenge that requires cross-sector and multi-stakeholder collaboration. In this context, the concept of networking becomes very important to ensure the effectiveness of program implementation in the field. Networks are not the end goal, but rather a means to achieve results through collaboration between public, private and non-profit organizations [3]. Governance networks are an important framework in understanding the interaction between actors in stunting prevention [4]. The diversity and number of actors in the network determine the effectiveness of policy coordination and implementation. As in European cybersecurity research, the actor network approach helps in better understanding what is at stake in cybersecurity, how these systems operate, and how they fail. Although this article focuses on cybersecurity, its underlying ambition is to show concretely how academics can productively utilize the actor network approach [5]. In addition, research in Sambas Regency on stunting analyzed the interaction between policy actors or what is visible

in the policy network, both in the short and long term. The results show that there are two stakeholders or actors who have a dominant role, namely having a large influence but low dependence, and stakeholders or actors who have a dominant influence but high dependence [6].

Clearly distinguishing between actor diversity and actor centrality can strengthen analytical clarity in network governance studies, in line with the theories of Grindle, Provan & Kenis, and Emerson et al [7]. Diversity and centrality are two different dimensions: diversity highlights the spectrum of actors involved, while centrality highlights who is most influential in the network. Centrality analysis helps identify key actors who can accelerate or hinder the collaboration process and the achievement of common goals. Studies show that actor diversity can increase the network's capacity to address cross-sectoral issues, enrich information exchange and strengthen collaborative innovation [8]. By distinguishing between the two, the analysis can be more rigorous in understanding the dynamics of collaboration, potential power imbalances, and opportunities and constraints in network governance.

The regulation issued in the form of a Presidential Regulation emphasizes the need for all stakeholders involved to coordinate in efforts to deal with stunting in Polewali Mandar Regency. Network governance is characterized by a plurality of actors who are interdependent and interact within a negotiated framework to produce public value [9]. This statement emphasizes the importance of actor diversity as well as interdependence and negotiation in network governance, which is particularly relevant in the context of stunting prevention.

The diversity of actors in the governance network includes government, NGOs, the private sector, communities and academia. Each actor brings different roles, interests and resources to the network. The government, for example, usually has regulatory authority and strategic decision-making, while NGOs often act as advocates and program implementers at the grassroots level. The private sector can contribute through innovation, funding, and efficient program implementation, while local communities are the main source of contextual knowledge and direct beneficiaries of policies. Academics, on the other hand, contribute through research, scientific data, and evidence-based policy evaluation [6]

In addition to the diversity of actors, it is also necessary to pay attention to the number of actors involved in stunting prevention. The number of actors involved in a governance network must be managed proportionally so that common goals can

be achieved effectively. When the number of actors in the network is too large, the potential for conflicts of interest is greater. This is due to the diverse goals, values and expectations of each actor, which can trigger competition, miscommunication and fragmentation in decision-making [4].

In the context of Polewali Mandar Regency, stunting reduction using the actor composition approach provides new insights for the development of cross-sector collaborative strategies, while enriching understanding of the importance of involving various parties in building effective and sustainable network governance. This approach is expected to be a foothold in formulating policies that are more adaptive and responsive to local needs, and encourage the achievement of optimal stunting reduction targets.

2. Methods

The method used to compile this research is a survey of academic literature in the field of public administration relevant to network composition. In addition, efforts were also made to search through various sources both from official government documents and various reports in the mass media both print and electronic to describe practices related to network composition. The data collected was selected, analyzed and described. This research focuses on discussing the composition of actors in stunting prevention in Polewali Mandar District, West Sulawesi.

3. Results and Discussion

3.1. Identification of Tissue Composition in Stunting Countermeasures

Stunting prevention is a multidimensional issue that requires the involvement of various actors in a governance network. Recent literature has identified five main categories of actors that play an important role in stunting prevention and control efforts, namely the central government, local governments, non-governmental organizations (NGOs), the private sector, and communities. The central government plays a role in formulating macro policies, setting national standards, as well as providing funding and coordination across sectors. After the government established stunting as a national priority issue in the 2020-2024 National Medium-Term Development Plan (RPJMN) with a significant reduction target from 24.4% in 2021 to 14% in 2024, the government engaged 19 relevant

Ministries and Institutions to support stunting reduction with a total budget of 34.14 trillion (Kemenko PMK 2022).

Furthermore, the local government is the spearhead in policy implementation, program adjustment to local needs, and supervision of implementation at the field level. In Polewali Mandar Regency itself, to implement the provisions in Article 21 paragraph (1) of Presidential Regulation Number 72 of 2021 concerning the Acceleration of Stunting Reduction, the local government has formed the Stunting Reduction Acceleration Team, which was stipulated through Regent Decree No. 493 of 2022. This decree contains the team's membership composition consisting of a number of local government, non-government, media and academic institutions.

When viewed from a compositional perspective, there are two main elements in network composition consisting of the size and diversity of actors, while the composition of actors in network organizations can also be known through the mapping of actors and relationships that take place in the network. A network has the main characteristic of being loaded with complexity that is substantive, strategic and institutional actors or participants in the network are closely related to the social scale of participating actors. Social scale in the network can occur because the concept of the network contains individuals, groups, organizations and networks within the organization itself.

The discussion of a network will certainly relate to who are the parties, organizations or actors involved in the interaction. Networks can be in the form of individuals or organizations, where according to the research objectives the composition of the network involved, the network in question is an inter-organizational network. While what is meant as network actors are all organizations involved in interactions and relationships in the network. The combination of actors can be interpreted as a network population where they have certain goals and have their respective roles in the network, as an effort to understand the composition of actors involved in efforts to deal with stunting in Polewali Mandar Regency. Meanwhile, actor diversity refers to how diverse the relationships an actor has in the network. Actors who have relationships with different groups or categories are called diverse actors, while actors who only have relationships with the same or similar groups are called homogeneous actors.

In network analysis, these two concepts are important as they will provide information about the roles and positions of actors in the network, as well as the characteristics of the network as a whole. An actor with many relationships or a central actor, for example, can serve as a link between groups in the network, while a diverse actor

can play an important role in connecting different groups effectively. While networks with a combination of central actors and diverse actors allow for effective and efficient exchange of information and resources within network. The following is a Table 1 of actor to network composition key factors

TABLE 1: Network Composition in Stunting Prevention Network Effectiveness in Polewali Mandar Regency.

Key Facor	Dimension	Government	Non- Government	Communities Affected by Stunting
Network Composition	Size/Number of Actors	Large number of large and flexible actors	A little and not very effective	Actors involve the community Affected by stunting
	Diversity of Actors	High Diversity	High Diversity	High Diversity

Source : data processing 2025

Based on the key factors used to see the effectiveness of the actor network in handling stunting in Polewali Mandar Regency, using size indicators and diversity indicators to see the effectiveness of the actor network composition network as part of stunting prevention efforts.

3.2. Size Analysis of Actors in the Network

This actor size variable will discuss the results of research on the size or number of actors involved in stunting prevention efforts in Polewali Mandar Regency. The key factor network actor composition approach is used to assess the diversity and influence of the number of actors in the network as a major part of the composition of actors in the effectiveness of the stunting prevention network. In network organizations there is no ideal number of actors in a network organization, the size or size of the number of actors involved depends on the needs and goals of the organization [4]. , there are several things that can be considered in determining the number of members or actors in a network organization, including:

- a. Complexity of the problem: the more complex the problem, the more cross-sector actors need to be involved. Overcoming stunting is a very complex issue, because it involves various interrelated causal factors, from health, social, economic, educational, to environmental aspects. This complexity requires the involvement of many actors with different roles, expertise and resources so that the interventions carried out can run comprehensively and effectively.

b. Resource needs: stunting prevention requires a variety of resources, including financial, human, knowledge, technology and social networks. The complexity of these resource needs is one of the main considerations in determining the number and diversity of actors involved in the stunting response network.

c. Program objectives and scale: Reducing the prevalence of stunting is closely related to the scale and objectives of the program. Based on the scale, stunting prevention requires actors at the national, regional and local levels, allowing many actors to be involved.

Based on considerations in deciding on the number of actors, researchers have identified the number of actors involved in accelerating stunting reduction in Polewali Mandar District as follows;

TABLE 2: Membership of the Stunting Reduction Acceleration Team in 2022.

Local Government	Community of People	NGO	Media	Academics
Bappeda, Health, Social, PUPR, Population Control Family Planning Women's Empowerment and Child Protection, Balitbangren, Settlement and Land, Statistical Information Communication and Signage, Central Bureau of Statistics	Polewali Mandar Genre and IPeKb Forum	-	Radar West Sulawesi	Stikes Bina Generasi, Institut Agama Islam DDI and Akper YPPP Wonomulyo

Source: Polman 2022 Stunting Prevention Team Decree

Based on Table 2, the number of actors involved in stunting prevention in Polewali Mandar Regency is very adequate in terms of numbers, especially actors from the government. Even every Regional Apparatus Organization (OPD) that is not technical in nature can be involved if needed. When viewed from the Decree of the Stunting Reduction Acceleration Team, the number of OPDs involved include the Health Office, Social Service, Agriculture and Food Security Office, Fisheries and Marine Service, Public Works and Spatial Planning Office, Housing, Settlement and Land Office, Population Control, Family Planning, Women's Empowerment and Child Protection Office, Education and Culture Office, Communication, Information, Statistics and Standardization Office. Furthermore, academics were also included in the team, including the YPPP Wonomulyo Nursing Academy, Bina Generasi College of Health Sciences and the Polewali Mandar DDI Islamic Institute. In addition, the community of Forum Genre, IPeKB Polewali Mandar and Radar Sulbar Media were also involved in stunting prevention.

The involvement of various parties is one solution to the limitations of the Polewali Mandar government as the person in charge of very complex stunting prevention activities. In a network organization, it is important to have a sufficient number of

actors to achieve goals, but also not too many to easily coordinate activities and make decisions. While in general there is no specific number of organizations that may be appropriate for each form of governance, some previous studies have shown more effective results if the number of network organization members is less than six to eight organizations [4].

The discovery of the number of actors can then be analyzed through Social Network Analysis (SNA) which is useful for mapping and visualizing the relationship between actors in the network. With SNA, key actors (central actors) who have a major influence in the network and the level of connection (density) between actors can be identified [9]. According to the results of tracing actors in the network, the Health Office was identified as a key actor in handling stunting. The main reason for this finding is that the Health Office has the capacity to coordinate various parties including the education sector, agriculture and village government. In addition, it has direct access to the community through the puskesmas and posyandu network, can reach out directly to the community, provide education and conduct evidence-based interventions at the grassroots level. In terms of budget, the ceiling of the Health Office reaches Rp 91,306,829,723, - and is the highest ceiling when compared to other level institutions. Therefore, it can be concluded that the Health Office is a key actor in stunting prevention in Polewali Mandar Regency because it has a strategic role in policy formulation, intervention implementation, capacity building, and cross-sector coordination which greatly determines the success of efforts to prevent and reduce stunting in the community.

3.3. Significance of Actor Diversity

A network organization is a form of organization consisting of a number of actors or entities, both individuals, groups, and institutions that are interconnected and work together in a relatively flexible structure to achieve common goals. In the context of stunting prevention, actor diversity refers to the diversity of types, resources and roles played by various entities involved in recovery efforts.

The results show that the dimensions of the diversity of actors involved as participants in the stunting prevention network are very diverse. This can be seen from the Stunting Reduction Acceleration Team which was established through Regent Decree No. 493 of 2022. The following are the results of stakeholder mapping based on their interests and resources in stunting prevention in Polewali Mandar Regency in the following Table 3:

TABLE 3: Stakeholder Mapping.

Stakeholder	Interest	Resource
Central government	Implementation of tasks and functions	Authority, budget, and regulations
Local government	Guidance, supervision, and coordination	Authority, legitimacy, regulation, personnel
NGO	Advocacy and assistance	Volunteer
Education Institutions	Research and community service	Research institute and team of experts
Communities affected by stunting	Meeting nutritional needs, providing quality health services, and providing information and education related to stunting	Aspirations information and

Source : data processing 2025

The Actor Network Model is a form of an existing network of actors and is distinguished by the number of actors in the network who have their respective roles and duties. When viewed from the approach and involvement of the existing actor network, it can be ascertained that the organizational network for stunting prevention in Polewali Mandar District has not implemented the Pentahelix model. The Pentahelix model commonly abbreviated as ABCGM (Academician, Business, Community, Government and Mass/Media) has not been fully fulfilled because there is no involvement of the private sector in handling stunting.

When analyzed through Social Network Analysis (SNA), the connectivity (density) between actors in stunting prevention without involving the private sector is generally low. This can be seen from the lack of innovation, alternative funding and logistical support from the private sector. However, even if the private sector is not involved, collaboration can still run by optimizing the role of the other four elements. One of them is by optimizing the role of the cadre community, strengthening education through the media and encouraging academics to be active in applied research and training.

4. Conclusion

The results of the analysis show that the network organization in stunting prevention in Polewali Mandar Regency in terms of number is categorized as “very large”. This is reflected in the number of actors involved, ranging from the central and local governments, various technical agencies, non-governmental organizations, local communities, academics to the mass media. This diverse and significant number of actors reflects

the high level of cross-sector collaboration in the area. In addition, the large number of actors also indicates a collective awareness that stunting is a multidimensional issue that requires comprehensive and integrated handling. However, the large number of network organizations has not yet implemented the Penta Helix model because the private sector has not yet contributed to stunting prevention in Polewali Mandar District. Concrete policy recommendations such as incentives for CSR participation and structured MoUs with local businesses can provide actionable added value to increase private sector involvement in cross-sector collaboration, particularly within the Penta Helix framework.

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