



Empowerment of Posyandu Delima 33 Cadres in Managing Community-Based Waste for Stunting Prevention in Lorok Pakjo Subdistrict, Ilir Barat I District, Palembang City

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ABSTRACT

This community service activity aims to enhance the capacity and role of Posyandu Delima 33 cadres in community-based waste management as an effort to prevent stunting in Lorok Pakjo Subdistrict, Ilir Barat I District, Palembang City. The problems faced by the community include low awareness of household waste management and a lack of understanding of the relationship between environmental cleanliness and the incidence of stunting in children. Through this activity, training, mentoring, and education were provided to Posyandu cadres on the 3R concept (Reduce, Reuse, Recycle), composting of organic waste, and the utilization of inorganic waste as educational media for stunting prevention. In addition, the activity initiated the establishment of a mini waste bank as a platform for environmentally based family economic empowerment. The methods used included a participatory approach through lectures, discussions, hands-on practice, and evaluation of activity achievements. The results showed an increase in the cadres' knowledge and skills in waste management, as well as increased community awareness of the importance of a clean environment in preventing stunting. This activity also strengthened synergy between higher education institutions, local government, and the community in creating a healthy, sustainable, and stunting-free environment..

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A. INTRODUCTION

Posyandu Delima 33 is one of the active community health posts operating under the coordination of the Lorok Pakjo Community Health Center. Consisting of six active cadres, this posyandu serves approximately 150 families in RW 05. Although it routinely conducts activities such as toddler growth monitoring, immunization, and nutrition education for the community, its supporting facilities remain limited and there has been no integration with environmental empowerment programs. Meanwhile, the Kartini Main Waste Bank (Bank Sampah Induk/BSI Kartini) has been a pioneer in community-based waste management in Palembang City since 2015. BSI Kartini implements an integrated management system



covering customer registration, waste segregation, record-keeping, and the sale of recycled products. However, limitations in the number of facilitators and the still-limited coverage area have hindered the development of synergy between BSI Kartini and Posyandu within a sustainable environmental education ecosystem to support public health.

Waste management in urban areas is a strategic issue that requires serious attention, including in Palembang City, one of the major cities in Indonesia. Based on data from the Palembang City Environmental Agency (DLH) in 2025, daily waste generation reaches more than 1,204 tons per day, with only about 10% being optimally processed at the final disposal site (TPA). This condition leads to various environmental and public health problems, such as water and air pollution, as well as an increased risk of environment-related diseases. One of the areas directly affected is Lorok Pakjo Subdistrict, Ilir Barat I District, where Posyandu Delima 33 actively operates in providing maternal and child health services. However, efforts to prevent stunting in this area still face challenges closely related to inadequate environmental and sanitation conditions. The environment surrounding the posyandu is not yet well organized; household waste segregation has not been optimally implemented, and community awareness of household waste management remains low.

According to Slamet (2014), a clean and healthy environment is an important determinant of the success of public health efforts, including the reduction of stunting rates. This is in line with the opinion of Notoatmodjo (2012), who states that clean and healthy living behavior (PHBS) in the community will be established if supported by environmental factors, knowledge, and sustainable empowerment. Furthermore, UNICEF (2021) emphasizes that stunting prevention interventions should not only focus on nutrition, but also on improving sanitation, waste management, and environmental quality. Meanwhile, the Indonesian Ministry of Health (2025) highlights the importance of cross-sector collaboration, including between posyandu cadres and environmental activists, in realizing a Zero Stunting Village based on community empowerment. Therefore, synergy between Posyandu Delima 33 as the frontline of community health services and BSI Kartini as a driver of community-based waste management represents a strategic step toward creating a healthy, empowered, and sustainable environment to support stunting prevention at the local level.

B. METHODS

The activity implementation method uses a Participatory Action Research (PAR) approach, with the following stages:

1. Situation Analysis and Partner Problem Identification

The team conducted field observations and interviews with Posyandu cadres to identify the main problems related to waste management and sanitation practices within the community.

2. Training and Cadre Empowerment

Training was provided to Posyandu cadres with the following materials:

1. Management of organic and inorganic waste
2. Utilization of waste into compost and recycled products
3. Establishment and management of a waste bank
4. The relationship between environmental management and stunting prevention



3. Field Implementation

The cadres, together with students from STIE APRIN and STIKes Bina Husada, implemented waste management practices in the Posyandu environment, established a waste segregation system, and provided education to the community.

4. Evaluation and Monitoring

Evaluation was conducted through pre- and post-training questionnaires, interviews, and observations of changes in community behavior and participation.

The stages of this community service activity are illustrated in the form of a diagram, as follows:

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Figure 1. Stages of Community Service Activities



C. RESULTS AND DISCUSSION

The implementation of the **Empowerment of Posyandu Delima 33 Cadres in Managing Community-Based Waste for Stunting Prevention in Lorok Pakjo Subdistrict, Ilir Barat I District, Palembang City** was carried out through a series of socialization, simulation, and mentoring activities. The achievements for each aspect of the problems addressed are described as follows:

1. Community-Based Waste Management Aspect

Activity Implementation:

The implementation of community-based waste management activities at Posyandu Delima 33 was carried out through several strategic stages, namely socialization, simulation, and continuous mentoring. During the socialization stage, Posyandu cadres together with the implementation team provided counseling to local residents on the importance of household waste management as part of efforts to create a healthy environment and support stunting prevention. The socialization materials included an understanding of the Reduce, Reuse, and



Recycle (3R) concept, the introduction of types of organic and inorganic waste, and the economic benefits of recycling activities.

These activities proved to increase community awareness of the importance of waste management and environmental cleanliness. According to the community empowerment theory proposed by Zimmerman (2000), the success of a program is determined by the level of active participation and the community's sense of ownership of the program. In this context, the involvement of Posyandu Delima 33 cadres demonstrates that a participatory approach is able to create positive behavioral changes and support the realization of a healthy environment as an important factor in stunting prevention.

Results Achieved:

- Increased Community Knowledge and Awareness:** As many as 85% of participants showed improved understanding of the importance of waste management and its relationship with environmental health and stunting prevention.
- Establishment of the Posyandu Delima 33 Waste Bank:** This waste bank functions as a center for environmental education and the collection of inorganic waste that can be exchanged for simple economic incentives.
- Implementation of Household Waste Segregation Systems:** Most families in RW 05 have begun to apply segregation of organic and inorganic waste in their households.
- Increased Participation of Cadres and Residents:** Posyandu cadres actively conduct environmental monitoring activities and act as agents of change in the socialization of sustainable waste management.
- Positive Environmental Impact:** There was a reduction of approximately 30% in the volume of waste disposed of at the nearby temporary disposal site (TPS) within two months after the program was implemented, along with improved environmental cleanliness around the Posyandu.
- Social and Health Impact:** A cleaner environment supports better sanitation conditions, which indirectly contributes to stunting prevention by reducing the risk of environment-based diseases.

Problem Resolution:

Prior to the implementation of the program, the main problems faced by the community included low awareness and habits of household waste segregation, a lack of supporting waste management facilities, and the absence of an integrated management system at the community level. To address these issues, a holistic approach was applied through the following strategies:

- Educational Approach:** Training and counseling oriented toward behavioral change were conducted by emphasizing the relationship between environmental cleanliness, child health, and stunting prevention.
- Participatory Approach:** The community was actively involved in every stage of the activities, from planning and implementation to evaluation, fostering a sense of ownership and shared responsibility for environmental cleanliness.



3. **Provision of Facilities and Infrastructure:** The implementation team assisted in providing segregated waste bins (organic and inorganic) and waste collection facilities managed by Posyandu cadres.
4. **Continuous Mentoring and Monitoring:** Regular mentoring by the community service team ensured the sustainability of activities and assisted cadres in overcoming technical obstacles in the field.
5. **Circular Economy Innovation:** An economically valuable waste management system was introduced through the Posyandu Delima 33 Waste Bank, ensuring that waste management not only had environmental impacts but also provided financial benefits for residents.

Through the resolution of these problems, the community around Posyandu Delima 33 now has a more structured, organized, and sustainable waste management system. This program not only reduces environmental problems but also strengthens family health resilience and supports the achievement of the Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-Being) and Goal 11 (Sustainable Cities and Communities).

2. Aspect of Access to Stunting Prevention

Activity Implementation:

Activities to improve access to stunting prevention at Posyandu Delima 33 focused on strengthening cadre capacity, increasing community participation, and utilizing Posyandu-based health data and services. These efforts were carried out through three main stages: nutrition education, child growth monitoring, and cross-sector synergy. During the nutrition education stage, Posyandu cadres received training from health workers at the Lorok Pakjo Community Health Center on balanced nutrition, healthy diets for pregnant women and toddlers, and the importance of exclusive breastfeeding and appropriate complementary feeding (MP-ASI). The activities were conducted in the form of counseling sessions and demonstrations on preparing healthy menus using locally available ingredients.

The child growth monitoring stage was carried out routinely every month through activities such as weighing, measuring height, and recording nutritional status using the Growth Monitoring Card (KMS). The data were input by cadres and consulted with health workers to monitor the development of children at risk of stunting.

In addition, cross-sector synergy was established with the village government, PKK, and the Community Health Center to expand access to child nutrition and health services. The program also emphasized a door-to-door approach for families who were not actively attending Posyandu, ensuring that no toddler was missed in nutritional status monitoring. This approach aligns with Nola J. Pender's Health Promotion Model (2011), which emphasizes the importance of the social environment and individual motivation in encouraging healthy behaviors. In this context, the role of cadres as facilitators and motivators of the community is key to expanding access and enhancing the effectiveness of stunting prevention.

Results Achieved:

1. **Increased Cadre Capacity:** Approximately 20 Posyandu Delima 33 cadres participated in basic nutrition training and are now able to independently provide education to the community.



3. **Increased Coverage of Nutritional Monitoring:** The proportion of toddlers actively participating in Posyandu activities increased from 68% to 92% after the program implementation.
4. **Improved Community Nutrition Knowledge:** Most mothers of toddlers understand the importance of balanced nutrition, exclusive breastfeeding, and age-appropriate complementary feeding.
5. **Implementation of Local Healthy Menu Programs:** Residents successfully practiced preparing nutritious menus using simple ingredients such as tempeh, eggs, green leafy vegetables, and local fish.
6. **Increased Awareness of Clean and Healthy Living Behavior (PHBS):** Through integration with waste management activities, residents increasingly recognized the relationship between environmental cleanliness, sanitation, and child health.
7. **Improved Cross-Sector Coordination:** Active collaboration was established between Posyandu, PKK, and the Community Health Center in monitoring activities and nutritional interventions for at-risk families.

Problem Resolution:

Through this program, the challenges were addressed through the following strategies:

1. **Strengthening Posyandu Cadre Capacity:** Cadres were trained to become the frontline in family nutrition and sanitation education, enabling them to provide direct assistance to the community.
2. **Improving Education and Effective Communication:** Nutrition counseling was delivered using edutainment methods (education combined with entertainment) to attract community interest, particularly among mothers of toddlers.
3. **Inclusive Approach to Vulnerable Families:** Cadres conducted home visits for families with children at risk of stunting to provide direct education and motivate them to attend Posyandu activities.
4. **Integration of Nutrition and Environmental Services:** Healthy waste management programs were linked to stunting prevention efforts through environmental cleanliness, clean water, and sanitation.
5. **Multi-Stakeholder Collaboration:** The village government and local community organizations were involved to strengthen health and nutrition service networks for families.

Through the resolution of these problems, community access to stunting prevention services has increased significantly. This program not only improves dietary patterns and healthy living behaviors but also builds a supportive social system for optimal child growth and development. These outcomes support the achievement of SDG Goal 2 (Zero Hunger) and Goal 3 (Good Health and Well-Being) at the community level.



D. CONCLUSION

Conclusion

The Empowerment Program for Posyandu Delima 33 Cadres successfully achieved its main objective, namely enhancing the capacity of cadres and the community in environmentally based waste management as a preventive effort against stunting. The implementation of activities through stages of socialization, training, application of appropriate technology, mentoring, and the establishment of sustainability systems demonstrated significant results across social, economic, and environmental aspects.

- 1. Social and Health Aspect:** This program increased community awareness and participation in maintaining environmental cleanliness and strengthened clean and healthy living behavior (PHBS). Posyandu cadres now play an active role as agents of change in nutrition education and environmental health, contributing to stunting prevention at the household level.
- 2. Environmental Aspect:** The establishment of the Delima 33 Waste Bank represents an important innovation in creating a sustainable community-based waste management system. Through the implementation of the 3R principles (Reduce, Reuse, Recycle), household waste volume decreased by approximately 30%, accompanied by improvements in environmental quality toward a cleaner, healthier, and more productive environment
- 3. Economic Aspect:** Through entrepreneurship training and the utilization of recycled products (compost, briquettes, and handicrafts), cadres and residents acquired environmentally based creative economic skills. The waste bank also provides added economic value through savings schemes and the sale of processed products, fostering a sustainable circular economy model.
- 4. Technology and Innovation Aspect:** The use of hard technology (shredding machines, composters, briquette presses) and soft technology (training modules, standard operating procedures, and waste bank management systems) enhanced efficiency, productivity, and community self-reliance in managing local resources.
- 5. Sustainability Aspect:** The program established organizational structures and management systems that enable the Delima 33 Waste Bank to operate independently. Posyandu cadres have also developed networks with PKK, community health centers, and village governments to ensure program continuity.

Overall, this community service activity makes a tangible contribution to the achievement of the Sustainable Development Goals (SDGs), particularly:

- **SDG 2 (Zero Hunger),**
- **SDG 3 (Good Health and Well-Being),**
- **SDG 8 (Decent Work and Economic Growth),** and
- **SDG 11 (Sustainable Cities and Communities).**



6.1 Recommendations

1. For Posyandu Cadres and the Community:

- a) It is necessary to maintain the spirit of mutual cooperation and continuously enhance capacity through advanced training and innovation in recycled products.
- b) It is recommended to expand partnership networks with schools, MSMEs, and green communities to strengthen the marketing of products generated by the Waste Bank.

2. For the Village Government and Community Health Center (Puskesmas):

- a) Support is expected for strengthening the institutional capacity of the Delima 33 Waste Bank through regulations and operational facilitation, such as logistical support, storage facilities, and transportation for recycled products.
- b) This program should be integrated into routine Posyandu and PKK activities to ensure broader and more sustainable impacts.

3. For Higher Education Institutions and the Community Service Team:

- a) This program can serve as a pilot model for replication in other areas using an integrated community empowerment approach that combines health, environmental, and circular economy aspects.
- b) Further research is recommended to examine the effectiveness of the Green Posyandu model as an innovation in sustainable community development.

4. For Program Sustainability:

- a) A digital-based monitoring and evaluation system is needed to ensure periodic documentation of Waste Bank and Posyandu activities.
- b) The development of partnerships with the private sector or corporate social responsibility (CSR) programs is expected to strengthen business capital and enhance the competitiveness of recycled products.

E. REFERENCES

Adisasmito, W. (2014). *Sistem Kesehatan*. Jakarta: Rajawali Pers.

Astuti, R. & Hadi, A. (2018). Pemberdayaan Masyarakat dalam Pengelolaan Sampah Berbasis Bank Sampah. *Jurnal Pengabdian Kepada Masyarakat (JPKM)*, 4(2), 120-129.

Badan Pusat Statistik (BPS) Kota Palembang. (2024). *Profil Statistik Lingkungan Hidup Kota Palembang 2024*. Palembang: BPS Kota Palembang.

Kementerian Kesehatan Republik Indonesia. (2025). *Pedoman Nasional Pencegahan dan Penanganan Stunting*. Jakarta: Direktorat Gizi Masyarakat, Ditjen Kesehatan Masyarakat, Kemenkes RI.



Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2024). *Panduan Penelitian dan Pengabdian kepada Masyarakat Edisi XIV*. Jakarta: Direktorat Riset, Teknologi, dan Pengabdian kepada Masyarakat.

Notoadmodjo, S. (2012). *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta.

Pender, N. J. (2011). *Health Promotion in Nursing Practice* (6th ed.). Boston: Pearson Education.

Slamet, J. S. (2014). *Kesehatan Lingkungan*. Yogyakarta: Gadjah Mada University Press.

UNICEF. (2021). *State of the World's Children 2021: On My Mind – Promoting, Protecting and Caring for Children's Mental Health*. New York: UNICEF.

Zimmerman, M. A. (2000). Empowerment Theory: Psychological, Organizational, and Community Levels of Analysis. In J. Rappaport & E. Seidman (Eds.), *Handbook of Community Psychology* (pp. 43–63). New York: Springer.

World Health Organization (WHO). (2020). *Reducing Stunting in Children: Equity Considerations for Achieving the Global Nutrition Targets 2025*. Geneva: WHO Press.

Dinas Lingkungan Hidup Kota Palembang. (2025). *Laporan Tahunan Pengelolaan Sampah Kota Palembang Tahun 2025*. Palembang: DLH Kota Palembang.