

Community Engagement Strategy of Posyandu Lily in Inorganic Waste Management Involving Parents

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Posyandu, Inorganic Waste, Parental Participation

Abstract: Household inorganic waste remains environmental issue that has not been optimally addressed in Depok City. This study aims to describe the strategies employed by Posyandu Lily to encourage parental involvement in inorganic waste management programs. The research used a descriptive qualitative approach, with data collected through semi-structured interviews, routine activity observations, and documentation. The study was conducted over two months and involved five main informants: the head of the Posyandu, the head of the local waste bank, two parents, and one active community member. The findings indicate that Posyandu Lily plays a dual role—as a provider of health services and as a community-based environmental mobilizer. The waste bank operates biweekly, engaging both parents and children in weighing and depositing inorganic waste. Additionally, used cooking oil is collected and processed into soap, integrating environmental education with household economic value. Key supporting factors include proximity, environmental awareness, and direct benefits for families. The main obstacle is the lack of habit in sorting waste at home. The study concludes that Posyandu has the potential to serve as a center for family-based environmental empowerment if waste management activities are structured and inclusive.

Kata Kunci:

Posyandu, Sampah Anorganik, Partisipasi Orang Tua

Abstrak: Sampah anorganik rumah tangga masih menjadi persoalan lingkungan yang belum tertangani secara optimal di Kota Depok. Penelitian ini bertujuan untuk menggambarkan strategi pengelolaan Posyandu Lily dalam mendorong keterlibatan orang tua pada program pengelolaan sampah anorganik. Pendekatan yang digunakan adalah kualitatif deskriptif, dengan teknik pengumpulan data berupa wawancara semi-terstruktur, observasi aktivitas rutin, dan dokumentasi. Penelitian dilakukan selama dua bulan, dengan melibatkan lima informan utama, yaitu ketua Posyandu, ketua bank sampah, dua orang tua, dan satu warga aktif. Hasil penelitian menunjukkan bahwa Posyandu Lily menjalankan peran ganda: sebagai penyedia layanan kesehatan sekaligus agen penggerak lingkungan berbasis keluarga. Kegiatan bank sampah dilaksanakan rutin setiap dua pekan, melibatkan orang tua dan anak-anak dalam proses penimbangan dan penyetoran sampah anorganik. Selain itu, pengumpulan minyak jelantah yang diolah menjadi sabun menjadi contoh integrasi antara edukasi lingkungan dan ekonomi keluarga. Faktor pendukung utama keterlibatan warga adalah kedekatan lokasi, kesadaran lingkungan, serta manfaat langsung yang dirasakan. Hambatan yang ditemukan adalah kurangnya kebiasaan memilah sampah dari rumah. Penelitian ini menyimpulkan bahwa Posyandu memiliki potensi sebagai pusat pemberdayaan lingkungan keluarga jika kegiatan pengelolaan sampah dijalankan secara terstruktur dan partisipatif.

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INTRODUCTION

In community-based initiatives, the level of participation plays a crucial role in determining the effectiveness of the program. Arnstein (1969) as cited in Maleke, 2024 explains that there are eight levels of community participation,



known as the ladder of participation. These levels begin with non-participation, such as manipulation and therapy, where the community is merely positioned as objects without any power. The next stage is tokenism, which includes informing, consultation, and placation. At this stage, communities are given opportunities to receive information and express their aspirations, yet decision-making remains largely dominated by the government. The highest level is citizen power, which includes partnership, delegated power, and citizen control, where the community holds substantial influence and can even fully control the planning, implementation, and evaluation of policies.

Based on this theory, the present study views parental involvement in household waste management not merely as symbolic participation but as part of a broader process of community empowerment. According to Asadiya & Hamid (2024), the process of community empowerment unfolds gradually, beginning with raising awareness through environmental campaigns, building understanding of waste sorting and saving practices, and further utilizing community skills to create a cleaner and healthier environment.

This context becomes increasingly significant when linked to the actual conditions in Depok City. Household waste remains one of the major environmental issues in many urban areas in Indonesia, including Depok. Data from the Ministry of Environment and Forestry (KLHK) show that Java generates 21.2 million tons of waste annually (Paramita et al., 2018). In 2020, West Java contributed approximately 4 million tons per year, with 15.27% of it consisting of plastic waste (KLHK, 2021). In Depok alone, the daily waste generation reaches around 1,250 tons, while the capacity of the Cipayung Final Disposal Site (TPA) is limited to only 750 tons per day. As a result, some waste accumulates in temporary shelters or remains unmanaged (Mustopa & Sulistiyorini, 2022). The composition of waste in Depok consists of 60% organic and 40% inorganic materials such as plastic, paper, glass, and metal. Each resident is estimated to generate 0.5–0.7 kilograms of waste per day (Maesarini et al., 2020). However, the Depok Environmental and Sanitation Office is only able to manage about half of the total volume (Abidin et al., 2021). The imbalance between waste generation and management capacity illustrates an increasing environmental burden that cannot be addressed solely through government intervention.

In this situation, alternative strategies that directly involve the community are required. A community-based approach emerges as a relevant and sustainable solution, as it not only reduces the city's waste burden but also fosters environmental awareness among residents. One example of such an approach can be seen in the activities of Posyandu. While Posyandu is generally known as a center for maternal and child health services, it has the potential to expand its role into environmental and social education. Posyandu Lily in Komplek Pesona Pamulang RW 15, Depok, provides a clear example. The Posyandu collaborates with Bank Sampah Lily, which has been integrated into its routine activities. Through bi-monthly waste weighing and recording, parents who participate in Posyandu are encouraged to sort and deposit their waste, especially plastic waste. In this way, health services can run in tandem with household-based environmental action.

The next stage of empowerment is reflected in the community's ability to process waste into products with economic value. This aligns with the practices carried out through the Bank Sampah Lily program. The program not only facilitates household waste management through a savings system but also creates opportunities for residents to recycle waste into creative products such as soap. These products can be used for daily needs or marketed, thereby contributing to family income while simultaneously reducing environmental pressure.

Through this focus, the study is expected to contribute both academically and practically. Academically, it addresses a gap in the literature concerning the extended social roles of Posyandu in urban communities. Practically, it provides relevant insights for Posyandu organizers and local governments in designing family-centered environmental empowerment programs. The model developed by Posyandu Lily may serve as a reference for similar initiatives in other urban areas facing challenges in waste management.

METHOD

This study employed a qualitative approach using a descriptive method. This approach was selected to gain an in-depth understanding of parental involvement in inorganic waste management at Posyandu Lily. The design aimed to describe the social practices observed in the field and to understand the

perspectives of Posyandu administrators within their cultural and local environmental context.

The research subjects consisted of Posyandu managers, the head of the RW 15 Bank Sampah, and parents who actively participated in Posyandu Lily activities located in Komplek Pesona Pamulang, RW 15, Depok City. Data collection was conducted over a two-month period, from May to June 2025, using semi-structured interviews with three key informants: the head of Posyandu Lily, the head of Bank Sampah RW 15, and a parent of a Posyandu participant. Additional data were gathered through observation of routine activities over two weeks and documentation, including photographs of the activities and records of waste weighing outcomes.

The data were analysis followed the interactive model of Miles and Huberman (1994), which consists of three main stages: (1) data reduction, involving verbatim transcription of interviews and the selection of relevant field notes; (2) data display, by organizing the findings into matrices and thematic charts to visualize categories such as supporting factors, inhibiting factors, and forms of parental participation; and (3) conclusion drawing/verification, by identifying recurring patterns and confirming them through triangulation with documentation and observation. These stages were complemented by thematic coding to ensure that the emerging categories genuinely reflected the participants' perspectives and the context of Posyandu Lily.

RESULTS AND DISCUSSION

Results

The findings of this study reveal that Posyandu Lily plays a broad role not only in maternal and child health services but also as a driver of community-based environmental action through its inorganic waste management program. This initiative is carried out in collaboration with Bank Sampah Lily, located in RW 15, Pondok Petir Subdistrict, Bojongsari District, Depok City. The bank sampah program includes the collection, weighing, and recording of non-organic waste such as plastic, paper, and glass, as well as the gathering of used cooking oil from households.



Figure 1. Collection of inorganic waste at Bank Sampah Lily

This image shows a pile of inorganic waste successfully collected by parents and residents of Komplek Pesona Pamulang RW 15. The collected items include plastic bottles, wrappers, and cardboard neatly arranged by type. The organized appearance of the waste indicates that sorting was already done at the household level. This documentation reflects the growing awareness of residents in supporting family-based environmental initiatives.

The waste collection is conducted regularly on the first and third weeks of each month, with active participation from Posyandu parents. They bring inorganic waste from home to be weighed and recorded on-site. According to the head of Posyandu Lily, Yuniawati Fajriah, S.Pd., *“We care deeply and actively participate in collecting non-organic waste for Bank Sampah Lily.”* This participation is clearly seen in the waste weighing sessions held in the Posyandu yard, where residents bring plastic waste, bottles, or paper to be weighed and recorded.



Figure 2. Inorganic waste handover and weighing process

This image shows parents and residents weighing plastic waste and used cooking oil using a floor scale. Beside them, a bank sampah staff member records the weight and type of waste in the official weighing logbook. Although done manually, the process is organized and systematic. This reflects the transparency and accountability embedded in waste management practices.

Interestingly, the activity also involves children who accompany their parents. Children are not merely observers but actively participate in handing over and weighing the collected waste. This creates valuable learning opportunities and fosters environmental awareness from an early age. As a result, the bank sampah initiative serves as a family-centered educational platform.



Figure 3. Children weighing waste with their parents

This photo captures children helping their parents place plastic bottles on the scale. The children appear enthusiastic and engaged in the process. Their direct involvement illustrates how environmental values can be introduced in fun and practical ways. Such experiences nurture responsibility and care for the environment from a young age.

In addition to collecting solid waste, Posyandu Lily has implemented a used cooking oil collection program in which oil is not discarded but collected and processed into liquid soap for household use. This program is carried out in collaboration with the local PKK (Family Welfare Movement) and has become one of the flagship initiatives at the subdistrict level. The head of Posyandu remarked, *“We previously educated the community on how to recycle used cooking oil into soap, and it worked. Now, cooking oil collection has become one of the leading PKK programs in our area.”*



Figure 4. Used cooking oil collection across subdistricts in Depok City

This image displays bottles of used cooking oil gathered from residents across various subdistricts in Depok. It shows community members handing over oil in reused plastic containers into large collection bins. The participation captured here reflects the program's strong community outreach and acceptance. It also demonstrates the collective responsibility in managing household liquid waste.

The impact of this initiative is evident in municipal-level data. Bojongsari District has recorded the highest volume of collected used cooking oil among all districts in Depok City. This achievement highlights the effectiveness of community-based approaches in household waste reduction. Quantitative data supports the idea that active family participation can drive measurable environmental change.

Table 1. Used Cooking Oil Collection Rankings by District in Depok City

No	Subdistrict	Amount
1	Bojongsari	2.092 Liter
2	Pancoran Mas	1.888 Liter
3	Cilodong	1.276 Liter
4	Sawangan	1.048 Liter
5	Cinere	1.040 Liter
6	Tapos	556 Liter
7	Sukmajaya	494 Liter
8	Cimanggis	451 Liter
9	Cipayung	393 Liter
10	Limo	293 Liter

Source: Subdistrict-level data across Depok City

Beyond collection, the inorganic waste is also repurposed into creative, useful items such as crafts and household goods. These recycled products are showcased during environmental exhibitions and local bazaars. Such displays aim to raise awareness and educate the public about upcycling possibilities. They also demonstrate the creativity and resourcefulness of the community.



Figure 5. Recycled products made from inorganic waste

This image shows handmade items like tissue boxes, decorative jars, and multipurpose containers made from plastic bottles and paper waste. The products are neatly arranged for display, attracting attention at exhibitions. Their presence illustrates that waste materials can be turned into valuable, functional objects. The activity also helps spark ideas for small-scale home businesses.

Another notable output of the program is bar soap made from used cooking oil. The soap-making process is facilitated by Posyandu cadres and involves local residents. These products are featured in environmental events as examples of successful household waste repurposing. It is also a symbol of hands-on collaboration between citizens and local institutions.



Figure 6. Soap products made from recycled used cooking oil

This image showcases bar soaps in various molded shapes, all made by residents using processed used cooking oil. The soaps are presented with attractive packaging and display creativity in design. They reflect the success of skill-based training and community involvement. This initiative promotes sustainability while enhancing practical knowledge among residents.

Discussion

The findings of this study indicate that the community-based waste management approach implemented at Posyandu Lily has successfully fostered active participation from residents in sorting and collecting inorganic waste. This activity has evolved beyond a routine monthly initiative and has become internalized in the daily habits of residents, particularly among parents of Posyandu participants. They voluntarily bring non-organic waste to the collection point, which is then recorded in the Bank Sampah Lily's savings system. This finding aligns with Auliya et al. (2020), who argued that the role of non-governmental organizations is not to directly empower individuals, but rather to create supportive social conditions that enable individuals and groups to empower themselves. In this context, Posyandu Lily functions not only as a healthcare service provider but also as a facilitator of family-based environmental initiatives.

Community support for the bank sampah program is evident, particularly due to the accessibility of the waste collection system and the consistency of its schedule. This supports the findings of Kholisussa'di (2019), who emphasized that ease of access to waste management facilities plays a significant role in increasing public participation. Posyandu Lily utilizes the opportunity of routine gatherings between mothers and children during healthcare services to simultaneously integrate environmental education and action. This strategy proves effective because the activities are embedded in a familiar context rather than being introduced as a separate or additional program. The success of this initiative depends not only on the formal structure of the Posyandu but also on the residents' openness to new practices that offer tangible benefits. These elements can be identified as supporting factors that enhance participation and strengthen the sustainability of the program.

Notably, the involvement of young children in the bank sampah activities has become a distinct strength of the program. Children are invited to actively weigh and deposit inorganic waste alongside their parents. This pattern reflects a character education strategy focused on habituation and role modeling. This supports the findings of Biantoro and Istiqlal (2025), who emphasized that moral education regarding environmental cleanliness is most effectively instilled through real-life habits and exemplary behavior

from one's surroundings. By involving children directly, Posyandu Lily has successfully built a foundational awareness of environmental responsibility from an early age—an approach that is rarely incorporated into other community waste management strategies. As a result, Posyandu emerges not only as a center for physical health services but also as a platform for moral and environmentally-conscious habit formation.

The used cooking oil (*jelantah*) collection program implemented at Posyandu Lily also exemplifies the success of a family-based approach. Oil that was previously discarded is now collected and processed into household soap by the community with the support of Bank Sampah Lily facilitators. This initiative generates not only environmental benefits but also economic value through the resulting products. The fact that Bojongsari District recorded the highest amount of used oil collection in Depok reinforces the notion that integrated local approaches can yield significant results. This is consistent with the study by Budiyo et al. (2022), which found that educational campaigns and socialization efforts directed at housewives positively influence behavioral changes in oil waste management, particularly when supported by an organized collection system and tangible household benefits.

The inorganic waste collected by Posyandu Lily residents is not left idle but instead transformed into creative products such as handicrafts, which are exhibited at community bazaars. This demonstrates that the initiative is not solely focused on reducing waste volume but also on empowering residents economically. Such activities strongly support the findings of Khairunisa and Sufiyanto (2023), who revealed that converting waste into value-added products has both financial and environmental benefits—it contributes to household income while fostering a clean, healthy, and comfortable neighborhood environment. Additionally, these activities nurture creativity and entrepreneurial potential at the household level. The overall impacts of the program can therefore be seen in three dimensions: environmental improvements through waste reduction, economic empowerment through savings and product innovation, and social benefits through strengthened awareness and community solidarity.

Nevertheless, behavioral change remains a significant challenge. One interviewee admitted to not being accustomed to sorting waste, citing laziness as the primary reason. This illustrates that community participation is not always seamless, particularly when habitual behavior and a strong system of accountability have yet to be established. These issues represent important inhibiting factors that limit the program's broader effectiveness. This finding diverges from overly optimistic views on one-directional environmental education and instead supports the perspective of Emy et al. (2023), who argued that the sustainability of bank sampah programs depends not only on internal structures such as schedules or staff, but also on the level of trust and active engagement of residents as bank members. The greater the trust in the system and its benefits, the more likely consistent participation becomes.

In conclusion, this discussion reveals that the findings of this study largely support previous theories and research regarding the importance of community-based approaches, family participation, and economic empowerment in inorganic waste management. However, the novelty of this research lies in the combination of early childhood education and the integration of bank sampah activities into routine Posyandu programs. This model has not been widely explored in previous studies and therefore offers new contributions to the practice of family-centered waste management. The involvement of children, the creative reuse of waste, and the strengthening of trust within the bank sampah system are three key factors for success that warrant further development.

CONCLUSION

This study concludes that the mutual involvement between Posyandu Lily and the Bank Sampah Lily has successfully encouraged parental participation in managing inorganic waste at the community level. By embedding waste collection into routine Posyandu activities and involving both parents and young children, the program has not only increased environmental awareness but also fostered early character building through lived environmental practices. The integration of oil waste management and creative recycling into household routines demonstrates a model of

community-based circular economy that goes beyond technical waste handling. This research advances current knowledge by offering a practical example of how early childhood institutions, often overlooked in environmental discourse, can serve as key agents in building sustainable environmental behavior. Scientifically, it supports the idea that family-centered environmental education can be both socially and economically impactful when linked with grassroots institutions. Future research may further examine the long-term behavioral changes among families involved in such programs or test this model's adaptability in other urban and semi-urban contexts with varying social dynamics.

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