

Analysis of Participatory Development in Implementing Decentralized Waste Management

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Article history

Submitted: 2023/01/24; Revised: 2023/02/18; Accepted: 2023/04/21

Abstract

The Bandung City Government encourages participation through the decentralization of waste management. Unfortunately, the TPS 3R Maleer as one of the pilot waste management sites in Bandung City could not promote equal participation in the implementation of decentralized waste management. This study aims to analyse the application of participatory development in the implementation of decentralization waste management in Maleer Village. Based on qualitative approach and a descriptive type, this study explain the stages, mechanisms, and benefits of participatory development. The results showed that the participatory development in decentralized waste management in Maleer Village lack of the community's participation. The participatory development stage from decision-making, implementation, and utilization has been carried done, however we did not see the community involvement in the evaluation stage. Moreover, the participatory development mechanisms have also been carried out through socialization and education, consultation, collaboration, and empowerment of waste management. Unfortunately, this mechanism has not realized sustainable activities due to the low commitment of the community. We found that the lack of community participation in decentralized waste management in Maleer Village is caused by some reasons. Non-formal evaluation did not run regularly and lack coordination in formal evaluation. Then, the low commitment of the community is caused by the lack of public awareness, limited time, limited capacity, and low community intention in sorting waste.

Keywords



analysis; decentralized waste management; participatory development

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1. INTRODUCTION

Based on the report of the National Waste Management Information System, the amount of daily waste in Indonesia has fluctuated, with an enormous contribution of waste from urban areas (SIPSN, 2021). Solid waste per capita in urban areas has more than doubled the population growth rate as people's incomes have increased (Dethier, 2018). Accordingly, most urban areas focus more on waste management through public services with a relatively high infrastructure, equipment, and human resources budget. This expenditure earns around 80 to 90 percent of the budget, intended only for transportation costs (Kurniawan et al., 2021). Responding to these problems, policy planners often ignore social and ecological goals with a tendency to focus their attention on improving technical quality. Instead of achieving practical technological improvements, participation as a social instrument in waste policy planning has not yet been introduced (Menon, 2022). This is regrettable, considering that public awareness of the environment is a determining factor in the sustainability of waste management.

The social and environmental impacts of the waste problem can be seen in the landslide tragedy that occurred in 2005 at the Landfills (Tempat Pembuangan Akhir (TPS) in Bahasa) Leuwi Gajah, which killed 143 residents and buried 71 houses and two areas in West Bandung Regency and Cimahi City. This is a historic event for public awareness of the importance of waste management (Setianingsih et al., 2022). Responding to these problems, waste management policies have been regulated through Law No. 18 of 2008 about Waste Management. In addition, the policy directions for waste management are also contained in the 2020-2024 National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional (RPJMN) in Bahasa) Infrastructure Target, namely housing with access to well-managed waste.

Normatively the central government delegates its authority in waste management to regional governments. This authority relates to decentralized responsibilities for managing waste from upstream to downstream. However, in practice, the waste management system implemented so far is still centralized, mainly with methods of open dumping (transportation of waste from the source for disposal to the Landfill) (Handoyo, 2021). This happens at the district level, including in the city of Bandung. According to the statement from the Dinas Lingkungan Hidup dan Kebersihan (DLHK), the city of Bandung does not yet have its landfill, so the system open dumping is done by collecting and transporting waste from the Temporary Shelter (Tempat Pembuangan Sampah (TPS) in Bahasa), to the Sarimukti TPA located in Cipatat District, Bandung Regency. The distance of the TPA from the city center, which is 45 km, strongly impacts the high operational costs of waste transportation (Alfian & Phelia, 2021).

In 2021, the city of Bandung is ranked as the most significant waste in West Java, with a total generation of 1.594 tons per day (SIPSN, 2021). The type of waste generated here is dominated by food and leaf waste, about 44.51 percent of the total waste production (BPS, 2021). In addition, in 2023, Bandung produced as much as 1,500 to 1,600 tons of waste per day (Humas Kota Bandung, 2023) and 300 tons of daily waste was not transported due to problems in the landfill. The problem was caused by heavy equipment damage and slippery roads to the landfill, resulting in long queues and delays in transporting waste to the landfill (VOI, 2023).

Waste management is a responsibility that needs to be faced by all levels of society, especially the Bandung City Government, as an element of regional waste management. As stated in Bandung City Regional Regulation No. 9 of 2018 concerning Waste Management, that waste management is a mandatory matter for the Regional Government by involving various parties widely and massively, so it needs to be carried out in an integrated and efficient manner from upstream to downstream.

Based on these regulations, the Government of Bandung City seeks to implement decentralized waste management in densely populated areas through various programs such as the Kawasan Bebas Sampah (KBS) Program in 2015 and the Kurangi, Pisahkan, Manfaatkan Program (Kang Pisman) in 2018, and support the sustainability of this program through facilities such as Waste Management Site Reduce, Recycle, Reuse (Tempat Pengolahan Sampah (TPS) 3R in Bahasa), Waste Bank, and other waste management facilities. The delegation of authority for this facility means that the implementation of decentralized waste management needs to be supported through community involvement.

In Bandung City, Maleer Village is one of the dense settlements with a population of 16,586 people in an area of 0.38 Km² and has the highest population density in Batununggal District (BPS, 2021). Implementing decentralized waste management in Maleer Village through the Kang Pisman Program and the availability of TPS 3R has encouraged community involvement in waste management. Since the launch of Kang Pisman, the mindset, actions, and behaviour of the community in Maleer Village have met the expectations of the government. This is shown by public awareness to sort organic, inorganic, and residual waste has been carried out. In addition, TPS 3R in the Maleer Village was also considered close to the ideal criteria for its operational performance and the economic potential of its waste management (Humas Kota Bandung, 2022).

Based on the results of initial research observations, it is known that waste sorting activities have not been carried out at the end of 2022. This is due to uneven participation

in Maleer Village. It was also found that community involvement in waste management is still based on one area. This is supported by the results of previous research, which states that community participation in waste management in Maleer Village has not run massively. People with low-income and high-income economic levels have a lower willingness and awareness to sort and manage waste than people with middle-income economic levels (Tiaraningrum & Pratama, 2022). In addition, Halimah & Machdum (2023) also found Maleer Village did not do the element of proactive actions.

Referring to this phenomenon, this study explains the problem by reviewing the unequal participation in the implementation of decentralized waste management in Maleer Village which is seen through the fulfilment of the stages, mechanisms, and benefits of participatory development carried out. In the context of waste management, participation is a means to restore democratic legitimacy and make policies more efficient, sustainable, and able to empower. The government must encourage a high level of community participation in sorting waste and identify the factors that influence it (Heidari et al., 2018). In this case, efforts to facilitate community waste management participation in implementing decentralized waste management are viewed from a participatory development perspective.

Previous studies have shown that the approach of participatory development is a form of involvement of local communities in development. This is based on local people understanding the better potential, opportunities, barriers, and other sources supporting development in its territory (Novian & Machdum, 2021). The benefits of development participatory, namely realizing sustainable development (Sari et al., 2018), which is decentralized, interactive, and able to meet needs-driven (Bachtiar, 2019). Therefore, in this case, participatory development is seen as an approach to see the extent to which the optimization of community participation in the decentralization of waste management in Maleer Village through the stages (Cohen & Uphoff, 1977), mechanisms and benefits (Rogers et al., 2008) of participatory development.

2. METHODS

This study uses a qualitative approach with a descriptive research type to provide an overview of the research by examining existing data patterns to explain social life (Neuman, 2013). Furthermore, data collection techniques used observation, in-depth interviews (Rubin & Babbie, 2008), and document studies techniques (Creswell, 2009). The research informants are Dinas Lingkungan Hidup dan Kebersihan (DLHK) Bandung City, Regional Facilitators, Batununggal District Government, Maleer Village Government, and Management of TPS 3R and Maleer Village Community.

Data analysis, in this case, is carried out using coding techniques (Neuman, 2013) by fixing existing concepts or forming new ideas by referring to the data obtained, including 1) open coding, to reduce and pre-label data, 2) axial coding to organizing, connecting codes, and identifying key concepts, and 3) selective coding to select data that will support conceptual categories to be developed and explain the involvement community in the stages, mechanisms, and benefits of participatory development.

3. FINDINGS AND DISCUSSION

Participatory development in implementing decentralized waste management in Maleer Village is included in the induced participation through government encouragement with 'resource decentralization-based development' (Mansuri & Rao, 2013). It is due to the resource authority transfer in the form of waste management facilities (TPS 3R) and assistant staff (Facilitator). This delegation made the decentralization of waste management in Maleer Village can be studied from the perspective of participatory development. Mainly to see the extent to which the community is involved in the stages, mechanisms, and benefits of participatory development carried out. The stages of participatory development in Maleer Village are described below:

3.1 Stages of Participatory Development in Maleer Village

According to Cohen & Uphoff (1977), participation in development is divided into four stages, namely: participation in decision-making, participation in implementation, participation in benefit, and participation in evaluation. Therefore, the stages of participatory development in the Maleer Village, Bandung City, are explained as follows:

Participation in Decision Making

At this stage, the community plays an active role in mapping the environmental problems they face. The community can report issues and reports to the local government (Rukun Tetangga (RT) or Rukun Warga (RW)), DLHK facilitator of Maleer Village, or the Maleer Village Government. It is known that problems in waste management in Maleer Village are related to the lack of public awareness and behaviour towards waste management, the lack of waste management facilities and infrastructure, and limited resources and accessibility of waste transportation. The assessment mapping is delivered as follows:

Table 1. Waste Management Assessment Stage Mapping

No	Problems	Resources owned	Expectations
1	Waste management patterns of hoarding and burning waste in yards	The large type of organic waste has the potential to compost	Increasing the active role of the community in independent waste management
2	Garbage is thrown carelessly and becomes a hotbed of disease	Campaign & counselling on healthy and clean-living behavior	Increased public understanding of waste management system 3R.
3	Lack of waste management infrastructure	The potential area of land, the construction of TPS 3R	Fulfilment of waste management facilities and needs
4	Unaffordable garbage truck transportation services due to accessibility	Use of garbage carts and motors	Fulfilment of waste transportation services

(Source: Maleer Government's Document, 2022)

Participation in Implementation

To overcome the above problems, activity planning is proposed as an alternative step to implement participatory waste management decentralization. Referring to the results of interviews and document reviews, the planning of waste management activities in Maleer Village is as follows; Training on independent waste management through composting and containers in Kelurahan Office; 3R (Reduce, Reuse, Recycle) campaign activities through counselling on healthy and clean-living behaviour and Kang Pisman Program Socialization; Provision of household waste sorting basins and construction of 3R TPS; Strengthening cooperation with donor agencies and DLHK Bandung City.

At this stage, the form of community involvement in the decentralization of waste management can be seen through community activity in implementing the above program, whether it's participation in socialization and education, consultation, submission of opinions in decision-making, and activeness in the implementation of waste management empowerment carried out. In more detail, the mechanism of community involvement in implementing decentralized waste management will be explained in Subchapter 3.2.

Participation in Benefit

Government intervention in implementing decentralization of waste management in Maleer Village has been carried out since 2015 through the Waste Free Area (KBS) Program and strengthened by the Kang Pisman Program in 2019. There is also assistance for TPS 3R facilities by the Ministry of Public Works and Housing (PUPR). Therefore, the picture of community involvement in receiving the benefits of decentralized waste management is conveyed as follows: "Actually, before there was Kang Pisman, they (RW 12) had tried to sort out the waste. Well, after there were activities from the City Government, it was in line, from the beginning assistance was given, even after there was a TPS 3R so it was running at that time" (TPS 3R Manager, 2022).

In line with this explanation, facilitators from DLHK, the Maleer Village Government, and the Batununggal District Government confirmed that RW 12 Maleer has a high level of participation in implementing waste management, so it brings a lot of government assistance. Still, it is also emphasized that this benefit has not even been used throughout the Maleer area. This makes implementing decentralized waste management in Maleer need to be analyzed more deeply through the perspective of participatory development mechanisms.

Participation in Evaluation

Evaluation is aimed at assessing the achievement of the results of implementing the previously planned program. Community involvement in this stage can be seen through providing community critics to the local government as a form of preventive supervision and community participation in the Rembuk Warga Tahunan (RWT) as a form of repressive control. It is known that in Maleer Village, this stage is not going well because facilitators and some regional parties only carry out the state of evaluation of the implementation of decentralized waste management. Residents tend to be reluctant to give input on problems they do not face directly, except for the RW 12 community, which has solid community institutions accompanied by encouragement from the figure of the RW Head so that public concern for the environment is more developed.

The form of an evaluation is still dominated by repressive formal supervision through RWT Meetings. Non-formal evaluation is carried out by facilitators and RT parties through monitoring and re-education to the community that has not been carried out every year. It is also known that community involvement in RWT is not carried out optimally. Invitation letters have been distributed throughout the RT, but not all representatives came to attend the meeting. This is due to time constraints and a lack of coordination between communities and governments.

3.2 *Participatory Development Mechanism in Implementing Decentralized Waste Management in Maleer Village*

Socialization and Education on Waste Management

In this case, the step of sharing information (Rogers et al., 2008) is realized through socialization and education on waste management. Socialization has been carried out structurally in the regions. It is a form of one-way information delivery with a formal approach. It is also supported by the provision of informal door-to-door waste management education, dissemination of information through social media, and the acronym Kang Pisman to facilitate public understanding of implementing zero waste in the region. According to Ife (in Jaya & Machdum, 2021), in the stage of public awareness, they can be made aware that they play an active role in the change process. Although not yet perfectly and planned, providing education to the community is the starting point in helping to instil a sustainable development society that considers ecological aspects. From this statement, the government's efforts in facilitating participation through education are also realized through the Kang Pisman School as an educational institution for waste management in Bandung City.

Consultation through Facilitators and Institutions

The form of consultation facilitation provided by DLHK Bandung City to build community participation and facilitate the implementation of decentralized waste management in the region is realized through the presence of assistants. In Maleer Village, this effort has been recognized through the presence of two facilitators. Management of TPS 3R Saling Asih II often consulted with the facilitator to discuss waste management techniques. This consultation is carried out online or in person by visiting facilitators. In practice, this consultation was carried out in two directions to avoid communication only concentrated in the scope of stakeholders, thus enabling the exchange of information between the government and the public. In addition to the presence of assistant staff, government institutions also carried out openness steps for waste management consultations. Parties of the DLHK Government acknowledged this, including the Batununggal District Government and the Maleer Village Government, who were research informants. Therefore, it can be concluded that to foster participation in waste management in the community, the decentralization of waste management has also facilitated consultation through two-way discussions (Rogers et al., 2008). It is realized through the presence of facilitators and open consultation from government institutions in the region.

Collaborative Waste Management by Government and Community

Implementing decentralization to build participation in waste management has supported collaborative steps in formulating and implementing regional policies. It is realized through the involvement of stakeholders (government and community) in policy mapping, planning, and implementation. Specifically, community involvement is described as follows in Figure 1.

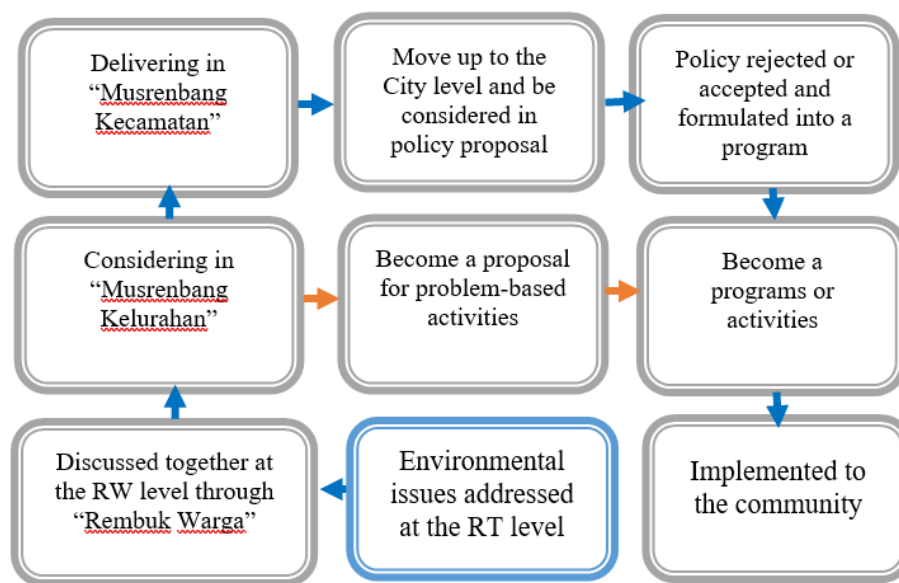


Figure 1. Community Involvement in Formulating Policy

(Source: Interview result, 2022)

The chart above shows community involvement in waste management policy formulation through community meetings (Rembuk Warga) and Development Planning Deliberations (Musrenbang). Once identified, the problems compiled in the policy proposals are formulated and ratified to become a policy. After the existence of this policy, they launched a program that was socialized structurally to the regions. Therefore, in this case, the form of direct community involvement in collaborative waste management lies in making practical community decisions in program implementation.

Furthermore, the involvement of the government in decentralized waste management involves intervention from various parties, such as assistance in the construction of a Communal Wastewater Treatment Plant (IPAL) from the Ministry of Public Works and Housing (PUPR), assistance with TPS 3R facilities from Citarum Harum, and assistance with waste management tools from DLHK Bandung City. Referring to this, collaborative decision-making in implementing decentralized waste management in Maleer is realized through community and government cooperation in building Waste-Free Area (KBS). This is also done through joint implementation by communities, NGOs, and local governments in Maleer Village.

Facilitating Empowerment Waste Management

Decentralization of waste management also plays a vital role in promoting community empowerment. According to Rogers et al. (2008), facilitating empowerment is the most profound step to realizing societal participatory development. In Maleer Village, this effort can be seen through the authority transfer for infrastructure facilities in waste management. The authority transfer for waste management was realized through the development of the TPS 3R facility intended to support the implementation of waste management in dense urban settlements in Bandung City. This also makes waste management in Maleer Village more developed. Furthermore, to support the implementation of waste management is also supported by the availability of waste management tools as described below in Figure 2.



Figure 2. Waste Management Tool Assistance

(Source: Research Documentation, 2022)

Waste management tools such as biodigesters, compost sieving machines, compost chopping machines, garbage cans, and waste transport motors are assistance provided collaboratively by the government. This authority transfer is also supported through the availability of workers who are TPS 3R administrators. Based on the results of the interviews, it is known that DLHK's efforts to build participation in waste management in Maleer Village were realized through the appointment of five members of the ten administrators of TPS 3R Saling Asih II as employees of DLHK with a salary facility of Rp3,500,000/month, Social Security Agency (BPJS) for Health, and BPJS for Employment. This delegation is even supported by community capacity-building involving knowledge transfer and experiential learning.

3.3 *The Benefits of Participation in Decentralized Waste Management*

Increase Motivation to Sort, Process, and Utilize Waste

One benefit of participatory development is developing a sense of ownership and motivation to maintain development activities (Rogers et al., 2008). This has been achieved from the community's involvement in implementing and good progress in waste management in Maleer Village. The socialization and education carried out have motivated the realization of community enthusiasm to sort waste from home, process waste at TPS 3R and yards, and utilize waste into economically valuable products such as compost, bacterial house (media to filter wastewater), liquid fertilizer, maggot, chicken and catfish cultivation. Along the way, the enthusiasm for waste management at TPS RW 12 had a positive impact through ease of assistance from the government. This was acknowledged by the research informant, who said that the excellent progress of one of the RWs in Maleer Village had set an example for other regions and brought a lot of waste management assistance from the Ministry, Province, and City Government.

Streamlining the Implementation of 3R Waste Management

The implementation of consultation is essential in supporting the smooth implementation of decentralized waste management in Maleer Village. Although in practice, these benefits are only obtained by residents who consult and receive re-education from the facilitators. Based on information from the community and the 3R TPS Management, the presence of facilitators provides many benefits for the smooth implementation of waste management. Facilitators are residents who live in Maleer Village and are appointed as part of DLHK because of their diligence and concern for the environment. In addition, the community also often conducts waste management consultations with educated Village Government officials. According to the interview results, the community who worked on the talk was given solutions, instructions, and assistance with tools such as Lodong Sesa Dapur (Losedu), liquid fertilizer, or other devices supporting the implementation of waste management from home. It aligns with one of the benefits of participatory development (Rogers et al., 2008), which is expediting the implementation of activities with mutual understanding and agreement about the steps that must be taken to achieve the goal.

Collaboration has not Supported Community Commitment

Through decentralized waste management, the Government has opened up public space to be involved in constructing waste management facilities in Maleer Village. The benefits of participatory development are strengthening local ownership and

community commitment based on beneficiaries' and program initiators' main interests and need (Rogers et al., 2008). Community involvement in collaborative waste management is essential in strengthening a sense of ownership. Although in this case, the importance of belonging to working together to build waste management facilities and collaboration between the community and the government in planning and implementing decentralization of waste management has not supported the realization of a strong community commitment to sorting waste. It was found that waste sorting commitments were carried out in RW 12, followed by RW 11 and RW 09, which only ran until mid-2022.

The unsustainable implementation of waste sorting activities is caused by low community commitment. From the community side, this is due to inadequate public awareness and desire, time constraints, limited capacity, and reasons that complicate waste sorting. While on the government side, the uneven and unsustainable waste management participation is based on differences in the response of each RW. The Head of RWs is vital in supporting decentralized waste management implementation in their area. The government prioritizes its interventions to areas considered responsive and willing to be actively involved. This is done to avoid providing ineffective assistance and only spending the waste management budget.

Increasing Human and Social Capital from Empowerment

The mechanism to facilitate empowerment in the implementation of decentralized waste management has been carried out through the delegation of authority of the waste management tools, workers, and along with waste management infrastructure (TPS 3R) that have a positive impact on the development of social capital and the acquisition of economic benefits (Susanti et al., 2021), specifically in RW 12. Therefore, waste management training in the community describes human capacity development and the formation of the *Saling Asih II* Community from non-governmental groups, also describing the development of institutional capacity for social capital for waste management. This aligns with the benefit of participatory development to increase social capital by uniting groups and increasing technical management capacity through practical learning (Rogers et al., 2008).

4. CONCLUSION

We found that the implementation of decentralized waste management in Maleer Village has not fully support community's participation in waste management. The activities to sort waste are only carried out by three of the twelve RWs in Maleer Village. Unfortunately, at the end of 2022, the process of transporting disaggregated

waste in the three RWs was also no longer existed. Whereas, the delegation of waste management authority through government intervention has fulfilled the mechanisms of participatory development through socialization and education, consultation, collaboration, and facilitating the empowerment of waste management.

Based on to Rogers's perspective, the phenomenon of the unsustainability of waste management activities is caused by the non-fulfilment of one of the benefits of participatory development, namely increased community commitment. It happens because of the low will of the community and reasons such as limited time, limited capacity, and other reasons that consider waste sorting as complicated. In addition, viewed from the participatory development stage, this is also caused by evaluation stage that did not engage with community involvement in monitoring development.

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