

Cleaning School Buildings and Introducing Waste Management to Improve the Quality of Settlements

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Abstract: Kalisongo Village is located in Malang Regency with a topography consisting of 60% undulating plains and 40% hilly undulating plains, with increasingly steep slopes to the west. The main focus of this community service activity is to improve the quality of settlements by enhancing waste management systems by providing trash bins and cleaning school facilities to support the comfort of kindergarten students. In Kalisongo Village, the condition of the Dharma Wanita Persatuan 1 Kalisongo kindergarten school building is quite concerning due to its location in an alley and the impact of the pandemic on the quality of school facilities. The residential area in Kalisongo Village already has a waste transportation system to the Supit Urang landfill, with waste being collected by designated personnel from each household. Residents place their waste in front of their houses without trash bins, often leading to scattered waste, affecting the cleanliness and aesthetics of the environment. This community service was carried out using the Participatory Action Research (PAR) method, involving activities to improve and enhance learning facilities for kindergarten students and increase awareness of household waste management through socialization and the placement of trash bins in each household. This aimed to boost residents' enthusiasm for managing waste and maintaining a clean environment. The activity was conducted from September to December 2022 and successfully improved the cleanliness and comfort for Dharma Wanita Persatuan 1 Kalisongo kindergarten students and the residents of Kalisongo Village. This is evidenced by the enthusiasm of the 38 kindergarten students welcoming a cleaner school building and the active participation of residents in waste management introduction and the distribution of 30 trash bins to village residents.

Keywords: cleaning; kalisongo village; school building; waste management

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INTRODUCTION

The expansion of cities, including Malang City, has led to widening residential areas. The population density

in Malang City reaches 5,808 people/km², making it one of the five most densely populated cities in East Java (Agustina & Herwangi, 2023). The

high population density in Malang City has caused the spread of residents to Malang Regency, including Kalisongo Village. Administratively, Kalisongo Village is part of the regency area, with infrastructure development under the governance of the Regent. Geographically, Kalisongo Village borders densely populated urban areas and the central area of Malang City, resulting in many settlements inhabited by people who are active in Malang City. As a residential area, a region must not only provide land but also be supported by facilities and infrastructure that enhance the quality of life for its residents.

Health requirements must support a suitable residential area (Sari et al., 2020). The quality of a residential area is supported by health, safety, and comfort provided through the facilities and infrastructure of the settlement. The availability of clean water, a waste disposal system, and social services are essential for achieving a healthy settlement (Krieger & Higgins, 2002). Cleanliness and health, particularly in the form of solid waste management as a byproduct of household activities, significantly affect the quality of a residential area. In Kalisongo Village, a system for transporting waste to the Supit Urang landfill is already in place. The waste is collected from each household by designated personnel and placed in front of the houses without trash bins, often leading to scattered waste, affecting the environment's cleanliness and aesthetics. This community service activity includes raising awareness about household waste management through socialization and placing trash bins in each household, aiming to increase residents' enthusiasm for managing waste and maintaining a clean environment.

Awareness about household waste management is raised through socialization and placing trash bins in

each household to increase residents' enthusiasm for managing waste and maintaining environmental cleanliness. Activities to empower housewives in Kalisongo Village can be developed by providing insights into waste management and environmental greening techniques, hoping that housewives can develop their potential.

Aside from the environmental issues in Kalisongo Village, the local neighbourhood administrators also complained about the poor condition of the Dharma Wanita Persatuan 1 Kalisongo kindergarten school building. The school building's location in an alley and the impact of the pandemic on the quality of school facilities contribute to this concern. The inability to conduct online learning for kindergarten resulted in the school building being neglected and unmaintained. As the pandemic gradually transitions to an endemic phase, school activities have started to be conducted in person. However, the suboptimal condition of the building hampers the comfort of teachers and students.

This community service activity also includes renovating the Dharma Wanita Persatuan 1 Kalisongo kindergarten school building to improve and enhance learning facilities for kindergarten students. By fulfilling the learning facility requirements conducted by the community service team, the quality of teaching and learning activities for teachers and students at Dharma Wanita Persatuan 1 Kalisongo kindergarten will likely increase.

METHOD

The community service was carried out using the Participatory Action Research (PAR) method, which focuses on community empowerment to achieve beneficial change. The PAR method can be used in community service activities as a learning tool to address problems and needs within the community (Afandi

et al., 2022). In the community service activities conducted, the PAR study approach was implemented through community participation and problem-solving, ensuring that the activities' outcomes meet the community's targets and needs. The approach through participation and problem-solving is part of the six types of PAR method approaches: formative, system improvement, problem-solving, model analysis, participation, and critical awareness (Muhtarom, 2018).

This series of community service activities was carried out from September to December 2022, with the main activities consisting of: (1) training on household waste management, (2) the creation and distribution of temporary trash bins in Kalisongo Village, and (3) the renovation of the Dharma Wanita Persatuan 1 Kalisongo kindergarten school building. These three activities resulted from discussions with the administrators of RT 07 RW 01 in Kalisongo Village as part of the social preparation steps. This initial step in the PAR method is crucial for understanding and engaging with existing community institutions (Rahmat & Mirnawati, 2020).

Based on discussions with the administrators of RT 07 RW 01 in Kalisongo Village, the main problems faced by the community were identified as waste management and the condition of the school building, which needed immediate resolution. The implementation team then designed three activities to address the community's problems, using methods tailored to the scope of activities, with diverse targets and evaluation processes.

In the training on household waste management, the demonstration method, which involves showing the steps involved in waste processing, was used. The demonstration teaching method is very effective in helping learners

understand practical concepts (Sompie, 2021).

Initial household waste processing activities continued with the community service team creating trash bins, which were then distributed to the community. The trash bins were made from tire rubber, with a diameter of 40 cm and a height of 50 cm. These bins are to be placed in front of residents' houses so that while waiting for the waste to be collected, it can be placed in them and not disturb the surrounding environment.

The next activity was conducted at the Dharma Wanita Persatuan 1 Kalisongo kindergarten building, beginning with cleaning and painting the faded walls. This activity is a form of building maintenance that the community can continuously carry out. Further building maintenance can be conducted periodically or conditionally based on emergencies, depending on the level of damage to the building (Junianto et al., 2023).

The series of activities concluded with an evaluation with partner representatives to assess the success and achievement of the activities' goals in improving the quality of settlements in Kalisongo Village. The evaluation was carried out through observations and interviews with the administrators of RT 07 and RW 01 in Kalisongo Village, covering the suitability of the implementation time, the achievement of activity targets, and changes in the quality of settlements based on the activities conducted. This community service evaluation was performed to understand the response of the target implementation to the team, which can serve as a basis for improving future community service programs (Sari, 2022).

RESULT AND DISCUSSION

This community service was conducted in the RT 07 RW 01 neighbourhood of Kalisongo Village, Dau District, Malang

City, East Java. For the community service to succeed and meet its objectives, the preparation stage began with discussions with the administrators of RT 07 RW 01 in Kalisongo Village to identify the problems faced by the community. It was found that waste management and the condition of the kindergarten building were crucial issues that needed to be addressed immediately. Subsequently, the service team collected primary data and relevant theoretical references and purchased the necessary materials.

The data used for this community service project was obtained through direct observation of the sources, including the waste management and environmental conditions in Kalisongo Village, the need for painting and cleaning the school building, and other supporting data for the community service activities. The results of the literature review served as the basis for implementing the service and were used as material for further discussions with the administrators of RT 07 RW 01 in Kalisongo Village.

In this activity, a discussion on scheduling the series of activities was also conducted, starting with the introduction of waste management, the distribution of trash bins, and the renovation of the Dharma Wanita Persatuan 1 Kalisongo kindergarten building.

The first activity with the residents was a socialization on managing domestic waste. Domestic waste originates from residential areas or housing (Aji, 2019). In residential areas, household activities produce organic and inorganic waste (Abusamah & Wahjoerini, 2023). The current waste system in Kalisongo Village involves residents placing their waste in front of their houses. It is then collected by a mobile trash bin and taken to a temporary disposal site (TPS), and

finally, it is taken to the Supit Urang landfill (TPA).

A specific complaint in the current waste management system in Kalisongo Village is the accumulation of waste when the mobile trash collection service is not operational or is full. As a result, waste hung on fences or placed in front of houses remains there until it is collected the next day, which disrupts the view and cleanliness of the air and environment.

According to Law No. 18 of 2008 on waste management, waste should be sorted at the source. This law was the basis for the introduction of waste management activities. Training and socialization on household waste management were conducted by introducing and sorting different types of waste based on environmental awareness.

The socialization of household waste sorting was carried out by demonstrating the separation of organic and inorganic waste. Waste sorting is the initial step in understanding the subsequent waste management process (Prasetyo et al., 2023), which involves separating waste that can still be utilized from waste that needs to be directly disposed of at the TPS or TPA. Food waste, which often produces unpleasant odours, is separated from other types of waste that will be taken to the TPS and TPA.

After the socialization, the team made trash bins to distribute to the Kalisongo Village residents. These trash bins are intended as temporary waste storage for later transport to the TPS or TPA. Trash bins implement waste sorting (Mahadewi et al., 2022). Thirty trash bins were made, each with a diameter of 40 cm and a height of 50 cm, sized to fit the space needed to place the trash bins in front of residents' houses.



Figure 1 (a) Making trash bins to be distributed to residents, and (b) Trash bins ready to be distributed to the Residents of Kalisongo Village

Alongside making trash bins, painting and cleaning activities were also carried out at the Dharma Wanita Persatuan 1 Kalisongo kindergarten building due to the building's uncomfortable conditions for teaching and learning activities. The painting activity included several stages of preparation and surface repair before repainting. These stages began with cleaning the surface of dust, dirt, and plaster splashes using a scraper and sandpaper to ensure a smooth painting result.

During the cleaning stage, any cracks and uneven areas were identified. These areas were filled with putty and then sanded smooth (Sukmawan, 2020). After drying, the wall surface was smoothed with sandpaper and cleaned to remove any remaining dust. The initial layer of paint was a thin, diluted emulsion wall paint to ensure the base colour adhered and provided optimal results (Ariansyah et al., 2022). The emulsion wall paint was diluted with

30% clean water for highly absorbent surfaces. The surface was simply cleaned of dust and dirt for wall areas where the old paint was still in good condition and adhered well, and cracks and uneven areas were repaired with putty.

The old paint needed to be scraped entirely off for wall surfaces where the old paint was in poor condition, easily peeling or had stains. The wall surface was then sanded and cleaned of dust and dirt. Wall areas with mold and mildew required repairing the wall condition first and replacing the plaster with waterproof plaster (Figure 2). Moldy walls were due to being in damp areas caused by groundwater seepage, damaged water gutters, and broken tiles (Beiano, 2017). In the field, moldy walls were caused by groundwater seepage and the wall's location as part of the building's exterior, often exposed to rain.



Figure 2 (a) Cleaning the environment and (b) Painting process at the dharma wanita persatuan 1 kalisongo kindergarten

After the painting and cleaning processes were completed, there was direct interaction with the young students of the kindergarten to review and welcome the more comfortable school building together (Figure 3). With these improvements, it is hoped that the students will be more enthusiastic and that this will support their achievements and the learning process within the school environment.



Figure 3 The team interacting with kindergarten students welcoming the improved building

To conclude the series of service activities, the completed trash bins were distributed to the residents of Kalisongo Village (Figure 4).



Figure 4 Distribution of trash bins to residents as temporary storage

The team distributing the trash bins to 30 households also conducted socialization on waste separation and using the provided bins. This aimed to ensure residents no longer burned waste and that separated waste could be temporarily stored in the trash bins, ready for transport to the TPS

(temporary disposal site) and TPA (final disposal site).

CONCLUSION

Based on the description and results of this service program, there was an increase in knowledge among the residents of Kalisongo Village through training and introduction of household waste management methods. This has enabled waste generation to be managed so that it does not disrupt the view and environment. Residents have been able to use the provided trash bins, ensuring waste is no longer scattered randomly. Through the cleaning and renovating the Dharma Wanita Persatuan 1 Kalisongo kindergarten building, teaching and learning activities have become more active. This is evident from the enthusiasm and spirit of the students as they enter the cleaner and tidier school building.

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