

## 3R Training as an Educational Tool to Change Perceptions and Attitudes Towards Waste Management

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**Abstract.** *The waste management training in Johorejo Village aims to increase public awareness and knowledge, especially PKK women to know about the importance of waste management based on the 3R (Reduce, Reuse, Recycle) principle. The type of research used is a descriptive qualitative approach with data collection through interviews and observations. The subjects of this study are all Johorejo residents. This activity includes the delivery of materials, mentoring, and evaluation. The material presented included waste management, 3R principles, identification of types of waste, and the dangers of indiscriminate waste disposal. The results of the training showed an increase in participants' understanding of waste hazards and a change in attitudes that are more concerned about the environment. Participants began to practice the 3R principles and plan further activities such as the creation of a waste bank and a recycling program in the village. The training proved to be effective in raising environmental awareness among participants, with relevant and practical methods, so that they were better prepared to manage waste responsibly.*

**Keywords:** 3R, Perception, Waste Management.

**Abstrak.** Pelatihan pengelolaan sampah di Desa Johorejo bertujuan untuk meningkatkan kesadaran dan pengetahuan masyarakat khususnya ibu-ibu PKK agar mengetahui pentingnya pengelolaan sampah berdasarkan prinsip 3R (Reduce, Reuse, Recycle). Jenis penelitian yang digunakan adalah pendekatan kualitatif deskriptif dengan pengumpulan data melalui wawancara dan observasi. Subjek penelitian ini adalah seluruh warga Johorejo. Kegiatan ini meliputi penyampaian materi, pendampingan, dan evaluasi. Materi yang disampaikan antara lain pengelolaan sampah, prinsip 3R, identifikasi jenis-jenis sampah, dan bahaya pembuangan sampah sembarangan. Hasil dari pelatihan ini menunjukkan adanya peningkatan pemahaman peserta mengenai bahaya sampah dan perubahan sikap yang lebih peduli terhadap lingkungan. Peserta mulai mempraktekkan prinsip 3R dan merencanakan kegiatan lebih lanjut seperti pembuatan bank sampah dan program daur ulang di desa. Pelatihan ini terbukti efektif dalam meningkatkan kesadaran lingkungan di antara para peserta, dengan metode yang relevan dan praktis, sehingga mereka lebih siap untuk mengelola sampah secara bertanggung jawab.

**Kata kunci:** 3R, Persepsi, Pengelolaan Sampah.

### 1. INTRODUCTION

In the era of increasingly complex globalization, environmental problems are one of the challenges that must be faced by modern society. One of the most important aspects in maintaining environmental balance is waste management. According to Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management, waste is waste left over from daily human activities and/or natural processes in solid form. This waste is produced by humans every time they carry out daily activities, both in households, industries, and other activities. This law also emphasizes that waste is a national problem, so its management needs to be carried out comprehensively and integrated, from upstream to downstream in order to provide economic benefits, be healthy for the community, and be safe for the environment, and can change people's behavior (Dobiki, 2018).

The problem of waste management is a big challenge, especially in Indonesia. Waste can be understood as the result of human life activities. It is undeniable that as long as life activities continue, garbage will always be there. Along with population growth and economic development, the volume of waste produced continues to increase. An increase in the volume of waste that is not balanced with proper management will cause environmental damage and pollution. Based on population projections conducted by BPS, Indonesia's population in 2025 will rise to 284.83 million people from 238.52 million people in 2010. It is estimated that each household from the population in Indonesia can produce as much waste as 0.52 kg/person/day (BPS, 2017 in Indrawan, 2019). Therefore, a good waste management system must be implemented, waste management refers to all activities carried out to handle waste from generated to final disposal (Suryani, 2014). This activity includes various stages, such as collection, selection, processing, and waste disposal. Considering that waste has great potential to cause environmental disturbances such as water, soil, and air pollution, as well as negative impacts on health and socio-economic aspects.

The Ministry of Environment and Forestry said that the number of increase in waste piles in Indonesia has reached 175,000 tons/day or the equivalent of 64 million tons/year. This means that there is an increase in waste production every year and requires good management. Based on the results of a study in 2012, the pattern of waste management in Indonesia is as follows: transported and stockpiled in landfills (69%), buried (10%), composted and recycled (7%), incinerated (5%), and the rest unmanaged (7%). Currently, more than 90% of districts/cities in Indonesia are still using *the open dumping* system or even burned (Mintarsih, 2015 in Arisona, 2018). Based on this data, sustainable solutions and approaches related to waste management are needed. One strategy that can be done is by applying the 3R concept (*Reduce*, *Reuse*, and *Recycle*). The 3R concept not only focuses on the technical aspects of waste management, but also on changing the perception and attitude of individuals and communities in dealing with environmental issues.

However, the application of the 3R concept cannot be done easily without understanding and awareness from the community. If waste management does not involve the participation of the community as the waste producer itself, then the role of the government as a waste service provider becomes increasingly difficult. Improper waste management will have an impact on public health, economic conditions, and the high cost of environmental management and environmental hygiene infrastructure (Arti, et al., 2024). This is in line with Wulandari (2014) that the implementation of 3R activities in the community is still constrained, especially by the lack of public awareness to sort waste

(Indrawan, 2019). Therefore, 3R training has emerged as an effective educational tool to change people's perspectives and behaviors towards waste management. The introduction and application of the 3R concept is one of the approaches in waste management, especially household waste. This training not only aims to convey information, but also to raise awareness about the importance of reduce, reuse, and recycle waste. Thus, individuals and communities can play an active role in protecting the environment and reducing the negative impact of daily activities.

In connection with these problems, Johorejo Village also faces similar challenges in terms of waste management. Like many other villages in Indonesia, Johorejo has also experienced an increase in the volume of waste in line with population growth and economic activity. The current waste management system in Johorejo village has not been able to overcome the problem effectively, with most of the waste still being burned and disposed of in landfills without further treatment. Therefore, a new approach involving active participation from all levels of society is urgently needed. The 3R training in Johorejo Village is expected to be the first step in changing people's perceptions and attitudes towards waste management, as well as encouraging the implementation of environmentally friendly practices in daily life.

Therefore, this study will focus on the role of 3R training in Johorejo village as an educational tool to change perceptions and attitudes towards waste management in the Johorejo village community. Through this concept, the community is expected not only to throw away waste, but also to reuse it. Now is the time for the community to change the view that waste is something useless, into something that can be reused. Simple waste management, such as separating organic and inorganic waste, is an important first step in the application of the 3R concept (Trisnawati & Khasanah, 2020).

By understanding the 3R concept, it is hoped that the people of Johorejo village can gain a deeper understanding of the impact of waste on the environment and health, waste management, and learn about various practical methods to apply the 3R principles in daily life. And the application of the 3R (Reduce, Reuse, Recycle) principle not only helps reduce the volume of waste produced, but also provides economic benefits for the people of Johorejo Village. Residents can reuse items that are still suitable for use or even turn them into products with selling value. In addition, through continuous education and training programs, it is hoped that community awareness and participation in preserving the environment will increase, thereby creating a cleaner, healthier, and more comfortable village environment to live in.

## **2. METHOD**

This study uses a qualitative research approach. Qualitative research is research that originates from an inductive mindset based on participatory objective observation of a social phenomenon or phenomenon. (Amiruddin, 1998). While this type of research is descriptive with the aim of directly understanding the community's perception of waste management after participating in the 3R (Reduce, Reuse, Recycle) training. In this study, the researcher will describe the activities according to the data and facts obtained during the training process.

Data were collected through two main techniques, namely interviews and observations. Interviews were conducted with several PKK women who participated in the training. The interview questions were focused on their understanding of the 3R concept before and after the training, as well as whether the training affected their real actions in waste management on a daily basis. In addition, observations were made during the training to record the participants' interactions, responses to the material presented, and practical implementation carried out during the training session. Observations were also made after the training to see changes in behavior in waste management in the environment around the Johorejo Village Hall. The data obtained from interviews and observations were then analyzed descriptively to provide a clear picture of the impact of the 3R training on the perception and attitude of the people of Johorejo Village towards waste management.

This research was carried out in Johorejo Village, with the main location at the Johorejo Village Hall on July 7, 2024 in the form of holding a training. With the 3R training, it is hoped that it can be an effective educational tool to change people's perceptions and attitudes towards waste management. However, the success of this training is not yet fully understood, especially in the context of real changes at the individual and community levels. Therefore, this study was conducted to explore the extent to which 3R training can affect changes in people's perceptions and attitudes, as well as to identify the factors that support or hinder such changes. Thus, the results of this study are expected to make a real contribution to efforts to increase the effectiveness of environmental education programs, especially in the context of community-based waste management. This research is also expected to provide input for the village government and other related parties in designing a more effective strategy to manage waste in Johorejo Village and the surrounding area.

## **3. RESULTS AND DISCUSSION**

### Implementation of Activities

The implementation of training activities includes material delivery, mentoring, and evaluation. The material presented included waste management, the 3R principle (Reduce, Reuse, Recycle), types of waste, waste identification, and the dangers of indiscriminate waste disposal. The participants who attended were the women of Johorejo Village, with the support of PKK women in delivering the material. Through this training, it is hoped that village communities will be able to identify organic, inorganic, and B3 (Hazardous and Toxic Materials) waste, and understand the dangers of littering, so that they can determine the right waste and waste management actions based on the 3R principles. Organic waste (*degradable*) is different from inorganic waste (*undegradable*) which is distinguished based on the speed and slowness of the decomposition process. Organic waste is a type of waste that decays quickly because it has a high water content (Ekawandi and Kusuma, 2018). Febriadi said that organic waste can come from food scraps, leftover vegetables and fruit peels, leftover fish and meat, as well as garden waste such as grass, leaves, and twigs. Meanwhile, inorganic waste is waste that is very difficult to decompose and cannot be recomposed, for example, paper, wood, fabric, glass, metal, plastic, rubber and soil (Febriadi, 2019).



**Photo 1.** 3R Material Delivery

In the first stage, participants were given material about the waste management process through the 3R principle. The waste treatment process through the 3R principle involves measures to reduce waste (Reduce), reuse (Reuse), and recycle (Recycle) to minimize environmental impact. With the existence of Law No. 18/2008 on Waste Management, it is necessary to manage waste to the maximum. Waste management efforts can be carried out by Reuse, Reduce, and Recycle (3 R) is an activity to treat waste by, reusing, reducing and recycling.

1. Reuse: i.e. reuse waste directly, either for the same function or other functions.
2. Reduce: that is, reducing everything that causes waste.
3. Recycle: i.e. reusing waste after undergoing the Processing process. (Subekti, 2010)

First, waste is reduced by reducing the consumption of materials that produce waste. Then, items that can still be reused are selected and reused. Finally, waste that cannot be reused is processed by recycling into new useful materials, thereby reducing the amount of waste that must be disposed of in the environment. According to Tjokrokusumo (1995) there are three types of waste treatment, namely physical treatment, chemical treatment, and biological treatment. And the development of this waste treatment method and process continues to develop and diverse. It consists of primary processing, secondary processing, and tertiary processing. These processing processes can be applied in their entirety, in the form of a combination of several processes or only one of them adapted to the needs. For household waste, it can be treated based on the classification and type of waste

In the second stage, participants were asked to identify the types of waste that can be recycled and group the waste based on its type. The training evaluation was carried out through a question and answer session to measure participants' understanding of the material that had been presented, with the aim of obtaining constructive input related to training and understanding of the material.

#### **4. RESULTS AND EVALUATION OF ACTIVITIES**

After receiving socialization about the negative impacts of waste, participants who previously did not understand the dangers of waste now become more aware of the risk of soil, water, and ecosystem damage due to indiscriminate waste disposal. This awareness is very important, considering that the majority of the residents of Johorejo Village work as farmers who depend on soil fertility and water quality. The negative impact of waste is starting from respiratory disorders, the existence of infectious diseases, environmental pollution or it can also be called an increase in disease sources (Supraptini, 2002).

The results of this training include several important aspects. **First**, there is an increase in the knowledge of the people of Johorejo Village about the dangers of waste to the environment and health. Waste is a leftover product of a human business or activity. Waste can also be interpreted as substances or waste materials produced from a production process, both industrial and domestic (household or commonly called waste). Waste can be in the form of piles of used goods, leftover animal waste, plants, vegetables and others (Latar, 2016). After the waste management training, the knowledge of the people of Johorejo

Village about the impact of waste on the environment and health increased. Those who used to be less aware now understand that waste that is disposed of carelessly can pollute the soil, water, and air. Organic waste that is not managed properly can produce methane gas, while plastic waste can damage ecosystems and take a long time to decompose.

The community is also increasingly aware that waste can be a source of disease. The accumulated waste can be a breeding ground for disease vectors such as mosquitoes and rats, which can spread a variety of diseases. In addition, hazardous wastes such as medical and industrial waste can cause serious health problems such as respiratory disorders and cancer. With this better knowledge, the residents of Johorejo Village are now more careful in managing waste. They began to implement measures to reduce waste production, such as reducing the use of single-use plastics and utilizing items that can still be used. This awareness is expected to create a healthier and safer environment in their village.

**Second**, there was a change in attitude and concern among the trainees, After participating in the waste management training, the people of Johorejo Village showed a significant change in attitude towards the environment. If previously many residents did not care about the way they disposed of waste, now they are more aware of the negative impact of indiscriminate waste disposal. This awareness is growing along with the new understanding that waste, both organic and inorganic, has the potential to be recycled and repurposed. As a result, people began to apply the 3R (Reduce, Reuse, Recycle) principles in their daily lives, such as sorting waste at home and utilizing organic waste to make compost. Compost is organic materials that have undergone a weathering process due to the interaction between microorganisms or decaying bacteria that work in the organic material, so the use of compost fertilizer should be at the time of seeding or seedling preparation. (Natalia, et al, 2021)

This change in attitude is also reflected in the increase in people's concern for the condition of their surrounding environment. Residents who previously ignored it are now more active in maintaining the cleanliness of the village and supporting collective efforts for better waste management. PKK women, who are an important part of the dissemination of information from the training, play an active role in educating neighbors and families about the importance of sustainable waste management. As a result, there has not only been an improvement in terms of environmental cleanliness, but also more concerned about maintaining the health and sustainability of their village ecosystem. The attitude to maintain health includes several aspects, namely attitudes related to infectious and non-

communicable diseases, attitudes related to factors related to health, such as garbage, waste, attitudes towards health services and attitudes to avoid accidents (Ediana, et al., 2018).

**Third**, as a follow-up to the waste management training, PKK women in Johorejo Village plan to hold more concrete follow-up activities, such as the creation of a waste bank and recycling program. This waste bank is expected to be an effective solution in managing inorganic waste, where residents can deposit waste that has been sorted to be exchanged for economic incentives. In addition to helping reduce the volume of waste wasted, this initiative can also increase public awareness of the importance of waste sorting and provide added value through processing and recycling. The role of waste banks has become important with the issuance of Government Regulation (PP) Number 81 of 2012 concerning the Processing of Household Waste and Similar Household Waste (Suryani, 2014).

The planned recycling program will also focus on reusing valuable materials, such as plastics, paper, and metals. PKK women will work with relevant parties to provide additional training to residents on simple but effective recycling techniques. With this activity, it is hoped that there will not only be a reduction in waste that pollutes the environment, but also create new economic opportunities for villagers through recycled products. This is an important step in realizing a cleaner, healthier, and more sustainable village. This training has proven to be effective in increasing awareness and knowledge of PKK women in Johorejo Village regarding waste management, because the material is delivered in a relevant and practical way. The socialization methods used, such as live presentations and discussions, succeeded in helping participants understand the material better.

## **5. CONCLUSION**

The waste management training in Johorejo Village involving PKK women succeeded in increasing public knowledge and awareness about the importance of waste management according to the 3R (Reduce, Reuse, Recycle) principle. This activity includes the delivery of materials, waste identification, and evaluation of participants' understanding. Through this training, participants became more aware of the types of waste, waste hazards, and how to manage it appropriately to minimize environmental impacts.

In addition to increasing understanding, this training also succeeded in changing the attitude of residents to be more concerned about the environment, where previously less concerned about waste management, became more aware of the dangers of indiscriminate waste disposal and the importance of minimizing waste production and recycling. The PKK



women involved began to take the initiative to implement waste management at home, disseminate information to their families and the surrounding community, and plan follow-up programs such as waste banks and recycling in Johorejo village. This activity shows the effectiveness of the socialization method used to increase awareness and build the character of caring for the environment of Johorejo villagers.

## REFERENCES

- Aminuddin. (1998). *Mengenal Keragaman Paradigma Dan Strategi Penelitian Kualitatif Dalam Bahasa Dan Sastra*. (Malang: Fpbs Hip Malang).
- Anih, S. S. (2014). Peran Bank Sampah Dalam Efektivitas Pengelolaan Sampah (Studi Kasus Bank Sampah Malang). *Aspirasi: Jurnal Masalah-Masalah Sosial*, 5(1), 71-84.
- Arief, M. L. (2016). *Pengolahan Limbah Industri*. (Yogyakarta: Cv Andi Offset)
- Arisona, R. D. (2018). Pengelolaan Sampah 3r (Reduce, Reuse, Recycle) Pada Pembelajaran Ips Untuk Menumbuhkan Karakter Peduli Lingkungan. *Al Ulya: Jurnal Pendidikan Islam*, 3(1), 39-51.
- Arti, E. D. S., Herniwanti, H., & Rahayu, E. P. (2024). Faktor Yang Berhubungan Dengan Perilaku Masyarakat Dalam Pengelolaan Sampah Rumah Tangga Dengan Metode 3r Di Wilayah Kerja Puskesmas Tambusai. *Prepotif: Jurnal Kesehatan Masyarakat*, 8(1), 786-798.
- Dina, E., Fitria, F., & Yuniliza. (2018). Analisis Pengolahan Sampah Reduce, Reuse, Recycle (3r) Pada Masyarakat Di Kota Payakumbuh. *Jurnal Endurance*, 3(2), 238-246.
- Dobiki, J. (2018). Analisis Ketersediaan Prasarana Persampahan Di Pulau Kumo Dan Pulau Kakara Di Kabupaten Halmahera Utara. *Spasial*, 5(2), 220-228.
- Ihsan, F. (2019). Pemanfaatan Sampah Organik Dan Anorganik Untuk Mendukung Go Green Concept Di Sekolah. *Abdimas: Papua Journal Of Community Service*, 1(1), 32-39.
- Indrawan, A. S. (2019). *Pengelolaan Sampah Secara Reduce, Reuse, Dan Recycle (3r) Pada Masyarakat Di Fukuoka Seibu Plaza, Jepang* (Doctoral Dissertation, Universitas Hasanuddin).
- Mintarsih, Tuti Hendrawati. 2015. Rangkaian Hlh 2015 Dialog Penanganan Sampah Plastik,. (Online). [Http://Www.Menlh.Go.Id/Rangkaian-Hlh2015dialog-Penanganan-Sampah-Plastik/](http://Www.Menlh.Go.Id/Rangkaian-Hlh2015dialog-Penanganan-Sampah-Plastik/).
- Nunik, E., & Arini, A. K. (2018). Pengomposan Sampah Organik (Kubis Dan Kulit Pisang) Dengan Menggunakan Em4. *Jurnal Tedc*, 12(1), 38-43.

- Sri, A. N., Anif, S., & Imadudin, M. (2021). Manufacturing Program For Composting Fertilizer To Increase Quantity Of Harvest Result And Rat Retractor For Farmers. *Journal Of Empowerment*, 2(2), 223-229.
- Suprptini. (2002). Pengaruh Limbah Industri Terhadap Lingkungan Di Indonesia. *Media Penelitian Dan Pengembangan Kesehatan*, 12(2), 10-19.
- Suryani, A. S. (2014). Peran Bank Sampah Dalam Efektivitas Pengelolaan Sampah (Studi Kasus Bank Sampah Malang). *Aspirasi: Jurnal Masalah-Masalah Sosial*, 5(1), 71-84.
- Trisnawati, O.R, & Khasanah, N (2020). Penyuluhan Pengelolaan Sampah Dengan Konsep 3r Dalam Mengurangi Limbah Rumah Tangga. *Cakrawala Jurnal Manajemen Pendidikan Islam Dan Studi Sosial*, 4(2), 30-41.