

Exploration of the Impact of Religious Activities on Waste Management Behavior: An Analysis of the Understanding of Environmental Ethics

SITI SOEKISWATI, RIZKA RIZKA, ERNA HERAWATI, AZHAR ALAM, ARIEF BUDIONO*,
KELIK WARDIONO

Faculty of Law,
Universitas Muhammadiyah Surakarta,
Jalan Ahmad Yani, Mendungan, Pabelan, Kec. Kartasura, Surakarta, Central Java, 57169,
INDONESIA

**Corresponding Author*

Abstract: - Waste management is a serious problem in Indonesia. The government is unable to handle around 36% of waste problems. These problems demand serious public attention. The concrete form of the public's serious concern is the emergence of ethical environmental behavior in waste management. This research aims to explore the impact of religious observance activities on waste management and its comparison with the behavior of the public. This research used a sociological descriptive qualitative approach with an ethnographic method. This research compared the waste management behaviors of two respondent groups. The first group consists of women who have received mentoring and training in waste management with economic value. The comparison group is women who are members of the *Jamaah Ummahat* Islamic organization of Qur'an recitation in a mosque. The results show that there is consistency and continuity in forming an understanding of environmental ethics in their teachings that is capable of changing environmentally ethical behavior in waste management. The religious sermon material is delivered with effective communication that is easily understood by the *Jamaah Ummahat* members.

Key-Words: - environmental ethics, behavior, waste management, religious event.

Received: April 27, 2022. Revised: November 15, 2023. Accepted: December 13, 2023. Published: January 15, 2024.

1 Introduction

The environment is a place of all elements of life including all artificial materials that support human activities, [1]. Various environmental damages occur due to the lack of public awareness and participation in behavior and ethics toward the environment. The disturbance of balance in the environment due to human's bad ethical behavior towards the environment can lead to natural disasters. Among this inappropriate behavior is improper waste management, resulting in the siltation of rivers and causing floods, [2]. Plastic waste that is carried by rivers in the waters of the earth's surface with its microplastics has a high risk of polluting the environment, and in turn, endangering human health, [3].

Waste management is a subject that still requires substantial attention in numerous countries. For cities in developing nations like Indonesia, one of the toughest challenges is to encourage citizen involvement in the municipal waste management system, [4]. According to the Republic of Indonesia's Ministry of the Environment in 2014,

waste is a potential source of environmental pollution, [5]. Data from the Indonesian Ministry of Health show that 240 cities have faced waste management problems since 2013, [5].

According to data on waste management from the Ministry of Environment and Forestry in 2022, the amount of waste from 232 regencies/cities throughout Indonesia reaches 19,326,673.40 tons/year. The government's efforts to carry out waste management still leave around 34.62% of unmanageable waste, which means that there is still a need to increase waste management awareness in the community, [6].

Waste management is a fundamental problem for the government and society as waste producers. In addition, research by, [7], showed that Indonesians who have health insurance facilities are more likely to behave irresponsibly in waste management. Common habits of clean and healthy living, such as correctly disposing of waste are one of the external factors to prevent environmental damage. It is not easy to manage waste properly, but if it is done

continuously over an extended period, it will create a good habit in society, [8].

Among the ways to pursue environmental ethical behavior is by educating the community, [9]. Environmental ethics education is an effort to change experiences, perspectives, and behavior towards the environment so that humans think, realize, and act considerably and responsibly in resolving environmental problems, [10]. Environmental ethics education aims to form six things, namely awareness, knowledge, attitude (behavior), skills, participation, and evaluation, [11].

Environmental awareness is the first goal of environmental ethics education. Environmental awareness is an effort to involve every citizen in growing and fostering awareness of preserving the environment based on environmental values with the philosophy of peaceful living with the natural environment, [12]. The environment is biocentric as there is life other than humans. So it is ecocentric as all existing elements are the completeness of the means of life systems and regeneration of all creatures, [13]. Ethical awareness of the environment is crucially required to change societal behavior to initiate environmental awareness, [14].

The next goal of environmental ethics education which is expected from the community is participation. Participation is a person's mental and emotional involvement that can encourage contributing and sharing responsibility for environmental ethics, especially in waste management, [15]. Citizen participation is particularly crucial to solving environmental problems, including those linked to waste management, [16]. Household waste, which generally dominates the composition of municipal waste, shows the important role of citizen participation in overcoming waste problems, [17].

According to Naess (in his Deep Ecology concept), awareness and understanding of environmental ethics must be built based on religious/spiritual awareness because the human soul is understood as a pattern of consciousness that belongs to something, [18]. The human soul has interdependence with the cosmos and its Creator, [19]. Islamic ecology is not just about preserving the environment but is very concerned about scientific research activities and upholding social justice. It offers the concept of a spiritual dimension to environmental management issues, [20].

Textually, Islamic teachings have incorporated very strong basic laws of environmental ethics. But at the practical level, there is no evident manifestation. Rules concerning ethics are not only rote (textual) but they must be applied to everyday

facts (contextual). Religious teachings about ethics towards the environment should be realized in Muslims' behavior in daily waste management, [21]. Previous research has revealed that the current available instructional approaches are neither successful nor sufficient to bring about enduring changes in population behavior, [4]. This fact confirms the need for other strategies in instilling an orderly behavior of waste management, including prioritizing the planting of environmental ethics based on Islamic transcendental values in community groups.

Based on the explanation above, changes in environmental ethical behavior in waste management have a high chance of being realized through religious activities that are applied with effective, consistent, and sustainable communication based on transcendental Islam. Desired behavior related to environmental awareness varies among urban people and community groups in various locations and economic classes, [22].

This made researchers interested in undergoing research linked to waste management behavior in general group women of Family Welfare Movement (FWM/*Pemberdayaan Kesejahteraan Keluarga*, abbreviated as PKK in Indonesian), a societal organization that empowers women to participate in Indonesia's development) and a women's Islamic religion organization of Qur'an recitation in a mosque (*Jamaah Ummahat*).

The contribution of this study is that this research analyzes which waste management and processing methods are suitable for Muslim ladies. It provides information on what type of waste management makes them interested. This research maps out the interest in the management of waste processing. Through this research, after such information is found, the waste processing management can be suited to the subject. So far, compared to other research, the researcher found patterns of waste management in religious communities that cannot be found in any previous research. Other research mapped out waste processing management in non-religious communities. Meanwhile, there has not been research on waste processing among religious women. These findings can provide better illustration and it can inspire further research.

The researchers compared the two to explore the impact of religious activities that have Islamic transcendental ideals. The research aims to fill in the current gaps about the influence of Islamic transcendental ideals in waste management behavior. This research is also expected to contribute a more comprehensive approach by involving Islamic transcendental values regarding

environmental ethics to create behavioral changes for better waste management.

1.1 State of the Art

Waste management is a management effort with various approaches and procedures designed and implemented to identify, control, and handle various wastes. It avoids environmental impacts as much as possible by considering both direct effects (such as emissions) and indirect effects on the environment such as depletion of natural resources, [23]. Waste management behavior is a manifestation of how a person is ethical towards their environment.

Theoretically, the more favorable consequence one expects a behavior can result in, the more intention one may have to perform the behavior, and hence, the more likely he or she would perform the behavior, [24]. Interventions should target people's behavior control over waste management practices so that they can gain confidence in their ability to overcome external barriers, and then take action. Environmental knowledge also offers an important cognitive basis for developing moral motives in waste management behavior, [25].

PKK stands for *Pemberdayaan Kesejahteraan Keluarga* (Family Welfare Empowerment/FWM), a community organization that empowers women to participate in the development in Indonesia, [26]. The definition of *jamaah* (congregation) according to KBBI (*Kamus Besar Bahasa Indonesia/The Great Indonesian Dictionary*), [27], is a group of worshipping people. It also means a large crowd or the public. Etymologically, *jamaah* (congregation) means "gathering", for example, the market *jamaah*/congregation is a gathering of people in the market. The term *ummahat* comes from Arabic, meaning "mothers". Therefore, the term *jamaah ummahat* means "the gathering of mothers".

2 Method

This research used ethnography comprising in-depth descriptions, investigations based on participant observations, data collection and evaluation of documents, interviews, and interactions with the investigated informants, [28]. This research examined changes in environmental ethical behavior in waste management based on an understanding of environmental ethics, in other words this is also sociologic methods, [29]. In this research there are two social groups, namely the women of the Family Welfare Movement in the village and the women who attend the Qur'an recital classes in SF mosque (*Jamaah Ummahat*).

The researcher created a complex description, examined words, reported detailed views of the respondents, and conducted the research in a natural setting, [30]. Researchers conducted documentation and analysis of the culture formed by the behavior that became the habit of a community group, the women of the FWM group, and the women of the *Jamaah Ummahat* organization of the SF mosque. This research placed a greater emphasis on meaning and it was bound by value in community behavior, [31]. This ethnographic study approach required long-term fieldwork, integration of local events, interactions between parties, and sociocultural patterns that evolve, [32], [33].

Besides the ethnography method, there is the normative descriptive method. However, the researcher chose the former, namely the ethnographic method. The choosing of the normative research method will influence the results, as it cannot map out the behavior and empirical facts in waste management from the respondents. Research with the normative type is not suitable for this research.

Researchers observed the behavior of people in their environment and interacted with them. The researchers also tried to understand their language and interpretation of the management of the waste they produce, [34]. Researchers contacted and interacted with people associated with waste management to seek to understand and investigate their ideas and experiences. This was carried out to obtain the information/data needed that were empirically related to waste management behavior.

This research was conducted in Jetis village. The researcher chose Jetis village as the research location as it has a traditional market which is found next to Daleman River. The area is also next to a market in Babatan Village, Wonosari District, Klaten Regency. The Daleman River is a landfill for waste by the people of these two villages, namely Jetis and Babatan. These conditions result in the silting of the river which is prone to causing floods when the water current is high. The majority of the Jetis village population is Muslim. This village has several mosques where people, especially women, regularly attend religious recitations, namely SY mosque, SF mosque, Al F mosque, Al B mosque, and Al I mosque.

The location and the typology of the respondents were suitable for the ethnographic method and the qualitative approach. This method was a field research method. The data were collected through direct observation and participation in the activities of the two studied groups.

The researchers conducted systematic observation and recording of the studied symptoms. This method also known as sociologic methods. [35]. The observation was conducted undercover and naturally during the research, [36]. Observation data is supported by direct interviews with several members of the studied group, [37]. The researchers conducted interviews with group members, namely the women who were members of the FWM and SF mosque attendees, especially the women who are members of the Qur'an recitation organization (*Jamaah Ummahat*). In addition to interviews, the researchers documented the process by taking photographs, the sociologic method was carried out with several considerations, Firstly, it is carried out when facing a double reality, in this case, the behavior formed in the group of women in FWM and that in the group of women of the *Jamaah Ummahat* religious recitation group of the SF mosque. Second, this method presents a direct relationship between researchers and respondents. Third, this method is more sensitive and adaptable to the sharpening of many combined influences as well as to the value patterns encountered, namely the transcendental values that underlie ethics towards the environment. Then, environmental ethics shape the behavior of a group of people in managing the waste they produce, which is not only measured by pre and post-tests. But it is also measured from the results of observations during joint activities and interviews, [38].

There are four characteristics of research according to, [39], namely: natural, descriptive data (non-numbers), inductive data analysis, and "meaning" which are very important. Researchers observed the behavior of the two groups without conditioning and any orders or sanctions against their behavior in waste management. Social phenomena often cannot be understood based on what someone says and does. All person's words and actions often have a certain meaning. To identify the significance of each action, it is explored using qualitative approaches, with in-depth interview techniques and participation observation in the sense that the researcher is involved in the activities of the two groups studied, [40].

The type of qualitative research used in this study is ethnography, which focuses on giving an overview and making interpretations of a culture and social group, namely the group of women of the FWM community and the women of the *Jamaah Ummahat* community of the SF mosque with different backgrounds, [40]. Observations and primary interviews in the field were carried out by

researchers over a relatively long period, namely ten months, from March 2022 to December 2022.

3 Results

This ethnographic research was conducted on two groups. The first group was the general group, consisting of 15 women who were members of the FWM community in J village. These women have high school, vocational, diploma, and bachelor's degree education levels. The second group is women who attend the Qur'an teaching at the SF mosque (*Jamaah Ummahat*). Researchers provided interventions in the form of mentoring and training in waste management into goods of economic value, with the hope that it would affect the participants' behavior. Mentoring and training were carried out with the facilitator team for three consecutive months.

During the mentoring and training stage, stimulant tools and materials were given to create products of economic value from household waste. Organic household waste, like pieces of fresh fruit and vegetable peels, can be made into eco-enzymes or compost by fermenting Biowash which is commonly called one-minute finished compost. If the organic matter is a bit rotten, regular compost can be made by adding a fermented place for at least 2 weeks. Inorganic waste like plastic packaging, grocery bags, and bottles can be made into Eco-bricks, commonly called plastic bricks. Meanwhile, waste in the form of cooking oil can be made into washing soap for kitchen utensils or room cleaning.

In addition, all participants were taught about the correct behavior in waste management and the impact of waste on the environment. Specific teaching material on behavior towards waste management was presented twice: at the beginning session and the end of observation, with an interval of six months.

The interval of six months was the waiting period needed to test the seriousness of the participants. During the mentoring and training provided by the facilitator team, the researchers observed the behavior and progress of the FWM women in J village towards waste management. From a total of 15 members who participated, only 3 people took serious concerns about the waste management behavior, namely Mrs. Rb (elementary school teacher), Mrs. E (kindergarten teacher), and Mrs. Sm (elementary school teacher). Other participants did not take the mentoring and training seriously without stimulus.

Finding this, the researchers offered stimulants by giving honorariums to each FWM woman who

was willing to teach the knowledge and skills from mentoring and training programs to the community surrounding their home. It was hoped that by giving the honorariums, their behavior in managing waste would improve. It was also hoped to encourage their engagement in the program and motivate them to become role models in their neighborhood.

The next stimulus was that the researchers gave one thousand rupiahs per gram for each Eco-brick they made. Apart from the “selling Eco-bricks” stimulus, they also had the right to freely use the Eco-bricks. So, they used the bricks to decorate the village in celebrating the Indonesian Independence on August 17th in J village. It was hoped that this activity may provide benefits by increasing the skills of participants. Therefore, they can make eco-bricks and utilize or sell them. Meanwhile, the incentive only acted as a stimulus.

Researchers found a slight change in behaviors. Residents who were taught by some FWM women actively made Eco-bricks. Mrs. R, the chief of the Family Welfare Movement of Ng Hamlet (RT 02/RW 05) said that the women around them competed to collect plastic waste after being taught about waste management by the FWM group to make Eco-bricks. Later, it was discovered that the behavioral change in women of the FWM group towards plastic waste was due to the “selling Eco-bricks” stimulus.

The sales of Eco-bricks generated additional income for the family. Participants had a high interest as it is easy to do and is prospective. The incentive of 1000 rupiahs (USD 0.064) for every eco-brick is far from attractive. But the making of eco-bricks is deemed as interesting as “bricks” are highly needed and the prospects are great.

The researchers also provided training on making soap from cooking oil waste to the women of FWM. However, their knowledge and skills did not improve and were not taught to other people as they had to buy reagent materials. The high cost was an obstacle in the waste management of cooking oil waste. It is different from eco-bricks that do not require a great amount of capital, unlike the activity of making soap that requires reagents to cook the oil waste and turn it into soap. Participants were more interested in collecting oil waste from their households and directly selling it if anyone was interested.

The researchers made eco-enzymes that were developed together with FWM members during training. The eco-enzyme products were used for diverse benefits. However, when followed up, it was shown that the knowledge and skills they obtained were not practiced and improved. The reason was,

once again, it was costly because they had to use cane brown sugar to activate the process. Such a result was predicted, considering that the participants were housewives who had minimum income. Thus, the cost needed to make brown sugar was not in their budget allocation.

Through further observation, it was known that the knowledge and skills in making compost using several types of waste through waste separation were abandoned. This was due to the cost and the complexity of this activity. The participants preferred to directly throw waste in the trash bag and pay IDR 30,000.00 per month for transport service to landfills. Alternatively, they burn the trash in the garden behind their house. Paying 30,000 rupiahs (USD 1.92) a month (1000 rupiahs/USD 0.064 a day) is certainly very cheap and economical compared to processing waste into compost which is certainly difficult to sell.

Then, the researchers tried to provide stimulants again to increase motivation. The researchers visited PH village, Bantul, Yogyakarta in June 2022. PH Village is a role model village for waste management. Its Village-Owned Enterprise won the best national income in 2021. In an interview with the Head of PH Village, to raise the awareness of its citizens, the village government's serious efforts were crucially needed. They were crucial both to awakening residents' behavior and to providing various waste management facilities. This requires rather large funds, so the Village-Owned Enterprise tried to make profits from their waste management to finance these activities.

However, according to the researchers' observations during the visit, it turned out that the behavior of the PH village residents was different from what was expected. There were still scattered trash cans which the local authority also recognized. This condition lowered the motivation of the members of the FWM in J village. Some of them even said,

“...those who won the award of the best national Village Owned Enterprise on waste management are still like that. Then what do you expect of our village? How can we do that...”

This quote was conveyed by Mrs. Y, who was the chief of the FWM working group in J village. This statement was approved by Mrs. Sm and Mrs. R in an interview on November 12th, 2022. This disappointment was highly reasonable considering that this village was the best village for waste processing on a national scale.

At the same time, while conducting the research, the researcher made observations on the teaching attendees of the mosque community, especially the

Jamaah Ummahat community at the SF mosque, J village. The researcher took part in the teaching activity with the *Jamaah Ummahat*.

Two types of teaching were attended by the *Jamaah Ummahat* where researchers can take part in the activities as well, namely the Sunday morning teaching for general participants, on Monday morning from 6.30 to 8.00 AM, and the An-Nisaa teaching especially for the women on Wednesday afternoon from 3.30 to 5.00 PM. Researchers have taken part in a joint study by the *Jamaah Ummahat* of the SF mosque since April 2022. It was the same time as the implementation of waste management mentoring and training for the FWM group in J village.

There were differences between the two groups. The researchers found that during the activity, the *Jamaah Ummahat* members were very disciplined in participating in the session about managing waste or food packages. Each Sunday morning session was attended by 250 to 300 adults and children. Snacks, sweet hot tea (on dish glass), and breakfast (on dishes/bowl dishes) were served. Snacks were served wrapped in plastic and small boxes.

After there was the mentoring and training on waste management, they changed them into washable small plastic plates (saucers). The drinking water was also originally served in disposable cups, but they were later replaced with non-disposable cups or glasses. Drinking glasses for Qur'an learning were kept in the kitchen of the SF mosque and are presented in Figure 1.



Fig. 1: Drinking glasses for Qur'an learning were kept in the kitchen of the SF mosque

Mentoring and training on behavior relating to waste management and cleanliness were delivered multiple times, both during the Sunday morning teaching and the An-Nisaa teaching. Researchers attended 8 courses; most of the lessons were about cleanliness and waste management.

The researcher conducted six interviews with six different *Jamaah Ummahat* members and four times with the mosque administrator. According to one of the *Jamaah Ummahat* members, Mrs. Shr (60 years old, owner of a beauty salon), they often received lessons about cleanliness in the SF mosque. Personally, Mrs. Shr is the coordinator of the Logistic Division who is responsible for the serving of snacks and meals for attendees and managing the waste. Apart from Mrs. Shr, the researcher also asked the chairperson of the mosque administrator, Mr. Hm (28 years old, doctor) about hygiene and morals towards the environment and health. From the interviews, it was known that the material was delivered several times by several scholars as part of the study material related to the morals of a Muslim.

Researchers more often attend Sunday morning lessons where more people join. At the Wednesday afternoon lessons, the attendees were only women, and there were around 100 to 120 people from different age groups. The researcher asked one of the attendees, Mrs. M (50 years old, a hairdresser for women), about what happens if an attendee litters. During an interview with Mrs. M on November 15th, 2022, she said that if an attendee fails to clean up their trash or litter, another attendee will remind them. The researcher asked the administrator of the mosque, Mr. Wd (58 years old, caretaker of the mosque) and he gave a similar answer. As the person who is responsible for keeping the mosque clean, he usually kindly reminds the attendees to maintain cleanliness. If he couldn't do so, then other attendees would participate in cleaning up. In line with this answer, from an interview with Mrs. Skr (61 years old, soup seller) at the An-Nisaa class on an afternoon on November 18th, 2022, researchers asked the same thing. She answered that waste management in the mosque area is a shared responsibility of all attendees. They remind and recommend each other on the right behavior towards waste to maintain the cleanliness of the mosque, as added by Mrs. A (58 years old, grocery seller).

On another occasion, the researcher asked how to remind people who litter. Mrs. Yl (46 years, tailor, in an interview on November 18th, 2022) answered that they will be reminded that they must maintain cleanliness as the scholars said in their teaching that cleanliness is a part of faith. Mrs. Yn (52 years old, State Civil Apparatus, laboratory worker at a health center, an interview on November 18th, 2022) stated that cleaning up trash is rewarded if the intention is to seek the pleasure of Allah. On the other hand, littering, according to scholars, is a minor sin. If someone continues doing minor sins, they will

become bigger sins, said Mrs. Yn. The researcher heard about what Mrs. Yn said from a scholar who taught the Sunday morning class, namely *ustadz* (teacher) Hsn.

The researcher observed that at the back of the south side of the SF mosque, there was a little kitchen and a place for washing dishes for the meals that were served. After the teaching programs (Qur'an recitation), the mosque becomes clean again from waste. All waste was collected and they were sorted into two: organic and inorganic waste. Organic waste can be used for compost. Then, the inorganic (plastic) and organic paper waste were collected and burned by the mosque caretaker, at the mosque's waste burning site after the attendees returned home. Organic waste such as food residues/rice was collected and brought by some attendees to feed livestock (poultry) or fish at home. Organic and inorganic waste bins in the courtyard of the SF mosque are presented in Figure 2.



Fig. 2: Organic and inorganic waste bins in the courtyard of the SF mosque

The principle is that the cleanliness of the mosque is a shared responsibility. Thus, before leaving the place, attendees must ensure that the place is clean. If there are new attendees who are not used to this, other attendees will remind them of this principle. The mosque cleaning officers are only responsible for cleaning the mosque during events or preparation. In an interview on November 6th, 2022 with the administrator of the mosque, Mr. R (36 years), it was found that the SF mosque is also often used for marriage events (*walimatul 'ursy*). There is no fee to rent the place, but the event organizer must be responsible for the cleanliness of the mosque after the event is held. The same thing is also applied during the month of Ramadan when the mosque is used for *iktikaf* (where the congregation stays in the mosque to do extra worship). The cleanliness and tidiness of the mosque must be

considered. If not, the administrator of the mosque will not hesitate to kindly remind the attendees to take care of the cleanliness.

Researchers also observed the cleanliness of the toilet area and ablution area of the SF mosque. The result showed that these places were exceptionally clean even though the location of the mosque is on the edge of a major road and is often used by people as a transit area. In an interview on November 18th, 2022 with the caretaker of the mosque, Mr. Srj (63 years, a military veteran), the SF mosque is a place of prayer and transit (bathing, relieving oneself, or defecation) for traders in the Daleman market and Babatan market, who come from out of town. Some came from Tawangmangu, southern Klaten, Ampel-Boyolali, and southern Sukoharjo. They come before dawn to drop their goods to the market and then pray at the mosque. According to Mr. Srj, there was even a husband of Babatan market traders, who came from Ampel-Boyolali. This man regularly attends Sunday morning classes while waiting for his wife to finish selling beef.

Throughout the researcher's observations in the cooking area, ablution area, and toilet, there were written reminders to maintain cleanliness, supplemented by evidence in the form of *hadith* (sayings or actions of Prophet Muhammad). Including a reminder not to be wasteful in using water. Reminder inscriptions are also found on cupboards where prayer objects, *mukenas* (dresses worn by women for praying), and/or sarongs are put, as well as where the Quran is placed. They remind people to put these items back neatly. A reminder posted on the wall of the SF mosque's toilet, reminding people to clean well after relieving themselves is presented in Figure 3. The categorization of waste management behaviour during observational activities is presented in Table 1. Similarly, the categorization of motivations that underlie the action of the interview is presented in Table 2.



Fig. 3: A reminder was posted on the wall of the SF mosque's toilet, reminding people to clean well after relieving themselves.

Table 1. Categorization of waste management behavior during observational activities.

Women of Family Welfare Movement of J Village	Women of <i>Jamaah Ummahat</i> Community of SF Mosque
Consumable preparations	
They use snack boxes and plastic (for practical reasons) and they use glass bottled water.	They use snack plates (saucers), the glasses to drink hot tea are reusable, and they use reusable dishes/bowls that are rewashed before use.
Activity waste	
The waste is immediately wrapped into one, put in the Village Hall trash, and transported to the landfill.	The waste is separated. Organic waste becomes animal feed, and inorganic waste goes to the trash and is burned in the mosque's incinerator.
Waste clean-up after the activity	
Janitor's responsibility	Shared responsibility

Table 2. Categorization of motivations that underlie the action of the interview

Women of Family Welfare Movement of J Village	Women of <i>Jamaah Ummahat</i> of SF Mosque
Cleaning up trash after the activity	
1. The spirit that the FWM cadres must set an example (interview with Mrs. E, 62 years old, kindergarten teacher) 2. Embarrassment when seen as unclean by fellow cadres (interview with Mrs. Slr, a market trader) 3. No need to clean up, there are already cleaning service providers (interview with Mrs. Sm, a housewife)	The spirit that cleanliness is part of faith (interview with Mrs. Yl, 46 years old, tailor) and cleanliness is the responsibility of all congregation (interview with Mrs. Skr, 61 years, <i>Soto</i> /traditional chicken soup seller)
The motivation for the action	
Cleaning up trash is part of maintaining health.	Cleaning up trash is part of maintaining health and getting a reward from Allah
Warning for littering violators	
They are reminded to take care of the environment due to shared obligations	They are reminded to protect the environment with shared obligations and remember about sins when littering. They are reminded that Muslims have responsibility for the environment.

4 Discussion

Researchers tried to test cognitive-related data in the form of pre and post-tests for the two groups. These tests showed different results. The average result on the pre-test of 15 women from the FWM group in J village was 60. Meanwhile, on average post-test result was 75. For the *Jamaah Ummahat* community of SF Mosque, the researcher distributed the same questions to 30 attendees who had attended Qur'an recitation for at least one year. The results showed that the average score was 85. This illustrates that behavior is not exactly formed by knowledge and/or economic motivation.

Mentoring and training on waste management by creating products with economic value were not enough to motivate the community to change their behavior towards waste. The various stimulants given failed to change the behavior of the FWM women. This was in line with the research of, [41], which showed that temporary counseling and assistance provided to FWM groups only provided temporary changes in attitude (behavior). Falah's research focused on local wisdom and community education through counseling. Research by, [42], also showed that there was no significant influence between the level of knowledge and environmentally friendly behavior, including waste management behavior, [42].

According to, [43], the urge to act is not only determined by environmental factors. But it is also influenced by mental processes. The relationship between mental processes and environmental factors will form a reciprocal pattern, i.e., they influence each other. Thus, there is a desire to preserve the environment with proper waste management.

It is also known as the triadic reciprocity. Reciprocal determinism is a model composed of three factors that influence behavior: the individual (including how they think and feel), their environment, and the behavior itself, [44]. According to Bandura, not only does the environment influence a person's thinking, but their subsequent behavior influences their environment, [45]. In other words, the environment influences how a person thinks and feels, which in turn influences their behavior, which impacts the environment, and so on, [46].

The three components that influence each other in the formation of behavior are knowledge, attitude, and behavior. The interaction of these three components forms a reciprocal pattern or mutual influence, where knowledge will give birth to feelings, and from feelings, the urge to act is born. This is what is called a complete action. The habit of maintaining the environment, because one likes

and understands environmental sustainability based on divine concepts, is an example of a complete action. This action will last a long time. So that wherever the person is, he or she will undergo the same action, [47].

Efforts that can improve people's awareness are consistent awareness with a divine motive, a transcendental/divinity base which is the basis of action. Materials are offered that can enhance awareness of everyone's duty for each of their respective acts for environmental cleanliness, which was directed by the Creator. This is in line with the God-Spot invention concept which states that every human being has a sense of divinity in his/her brain, [48]. When that point is stimulated, the sense of God will be activated. That's how the transcendental base plays a role in changing a person's behavior in waste management or in exhibiting good ethics towards the environment. It is not just about soulless environmental cleanliness and its impact on humanity.

Natural resources and the environment are God's gifts that must be utilized for the good of society, [49]. In utilizing natural resources and the environment, both of which are gifts from God, one must always prioritize ethics and morality which are the core of the transcendentalist philosophy, [49].

Indonesia still lacks laws that carefully govern environmental preservation, [50]. Therefore, the active role of the community in educating each other instilling a spirit of environmental awareness, and relying on religious values will have a positive impact on environmental sustainability, [51], including waste management. Law enforcement in regulating waste management behavior can be implemented both preventively or repressively. Law enforcement that focuses on prevention over prosecution is considered more humanitarian, considering the difficulties of altering the culture of society in addressing waste, [52].

The author recommends that future research focus on waste management that may generate financial incentives for housewives. After conducting this research, it was known that the making of eco-bricks provides concrete incentives, as eco-bricks are needed by many people, meaning that the market is clear. The making of eco-bricks relatively does not require money. Thus, it is highly economic. Such training is interesting for housewives and ladies who join recitation classes in the mosque.

Other waste management training that requires a large budget, such as the processing of oil waste, seems to be uneconomic as there is a need to buy reagents. Therefore, a unit that collects and buys

waste from the housewives and processes it should be provided. Household oil waste processing is profitable if it reaches a certain volume (that is almost impossible to be reached in a matter of months by the oil waste of one household)

The support of various communities including Qur'an recital groups which have advantages in transcendental (religious) values related to environmental ethics is urgently needed in environmental preservation. The activities and active participation of various community groups can inspire other communities to care more about waste management, [53].

The researchers carried out various efforts to influence behavior in waste management, including offering mentoring and training in processing trash into assorted items of economic worth, training on fermenting organic waste into eco-enzymes, creating compost from organic waste, making eco-bricks from plastic waste, and making soap from cooking oil waste. The stimulus is in the form of honorariums that are given to those who influence the community on waste management behavior. These attempts were not able to generate the intended results. On the other hand, the continuous and consistent delivery of materials on waste management in the form of classes that were presented with effective communication proved to affect the attendees' God-spot area. This can raise awareness of God in daily life which can be noticed in changes in the people's conduct in waste management. They also formed the habit of reminding and advising each other about the right behavior towards waste.

Religion-based changes in the environmental ethics behavior in waste management which occurred among the attendees of the SF mosque can hopefully become an inspiration for this country's waste management efforts. Religions such as Islam always teach cleanliness and good waste management. But in reality, this religious teaching is not applied by the female congregation in the SF Mosque. Therefore, many people still litter and they lack good waste management. The incompliance with this religious teaching is ironic as the environment that should be clean becomes dirty and full of pollution. There should be positive changes to apply the teaching to preserve the environment and not carry out destructive actions such as littering. Such changes are religion-based changes in environmental ethics.

5 Conclusion

Efforts have been made by researchers by providing assistance and training in processing waste into various kinds of goods of economic value, such as training and assistance in fermenting organic waste into eco-enzymes, making compost from organic waste, eco-bricks from plastic waste, and making soap from used cooking oil waste. Unfortunately, such efforts have not been able to create positive behavioral changes in waste management in a group of FWM cadres in Jetis village.

Waste management materials were delivered continuously/consistently with effective communication that is easy to understand to the SF mosque's *ummahat* congregation. Such efforts were able to influence the God-spot area of the congregation. This fosters awareness of God's role in their daily actions. This condition caused changes in the congregation's behavior in managing waste. They formed the behavior of reminding and advising each other about waste management. Changes happened in environmental ethics behavior in waste management based on God's awareness. It was formed by the consistent delivery of material and the condition where worshippers constantly remind each other.

Acknowledgement:

The authors would like to thank Universitas Muhammadiyah Surakarta, Indonesia.

References:

- [1] S. A. Keraf, *Environmental Ethics (Etika Lingkungan Hidup)*, Jakarta: PT Kompas Media Nusantara, 2010.
- [2] K. Wardiono, K. Dimiyati, S. Sapto Nugroho, H. Santoso W. Nugroho, J. R. Acob, A. Budiono, Philosophy, Law, and Ethics of handling Covid-19 Pandemic in Indonesia, *Open Access Macedonian Journal of Medical Sciences*, Vol. 9, 2021, pp.1104-1108. DOI: 10.3889/oamjms.2021.7107
- [3] A. Rosatto, M. Z. F. Arlindo, M. S. de Morais, T. D. de Souza, and C. S. Ogradowski, Microplastic in Aquatic Systems: A Review of Occurrence, Monitoring and Potential Environmental Risks, *Journal Environmental Advance*, Vol. 13, 2023.
- [4] A. Ghazali, J. H. Tjakraatmadja, S. Sunarti, and E. Y. D. Pratiwi, Resident-based Learning Model for Sustainable Resident Participation

- in Municipal Solid Waste Management Program, *Global Journal of Environmental Science and Management*, Vol. 7, No. 4, 2021, pp.599-624, DOI: 10.22034/gjesm.2021.04.08
- [5] A. Absori, T. Hernanda, A. Fitriadi Azhari, K. Wardiono, A. Budiono, Analysis of the Issues on Bengawan Solo River Basin Management Policies, *WSEAS Transactions on Environment and Development*, Vol. 19, 2023, pp.25-32, <https://doi.org/10.37394/232015.2023.19.3>
- [6] A. Absori, S. Sapto Nugroho, A. Budiono, E. Ellyani, S. Nurani Syahida, M. Fadlillah, Indonesia as an ecocratic country: The state's responsibility and the people's participation in preserving and in managing the environment quality, *Quality-Access to Success*, Vol. 21, No. 179, 2020, pp.140-143.
- [7] B. Y. Gitaharie, R. Nasrudin, A. P. A. Bonita, L. A. M. Putri, M. A. Rohman, and D. Handayani, Is there an ex-ante moral hazard on Indonesia's health insurance? An impact analysis on household waste management behavior, *PloS One*, Vol. 17, No. 12, 2022, pp.1-21, DOI: 10.1371/journal.pone.0276521.
- [8] Perkumienė, D. Atalay, A. Safaa, L. Grigienė, J. Sustainable Waste Management for Clean and Safe Environments in the Recreation and Tourism Sector: A Case Study of Lithuania, Turkey and Morocco. *Recycling*, Vol. 8, No. 56. <https://doi.org/10.3390/recycling8040056>
- [9] W. Yuspin, K. Wardiono, Islamic banking trajectories of Indonesia: Dealing with the present and shaping the future, *International Journal of Economic Research*, Vol. 14, No. 16, 2017, pp.29-42.
- [10] A. M. Hudha, Husamah, and A. Rahardjanto, *Environmental Ethics: Theory and Practice (Etika Lingkungan: Teori dan Praktik Pembelajarannya)*, Malang: Penerbit Universitas Muhammadiyah Malang, 2019.
- [11] P. Utomo, Environmental Science Learning Using Gumuk as a Source of Learning (Pembelajaran Pengetahuan Lingkungan Menggunakan Gumuk Sebagai Sumber Belajar), *Journal of Biology and Biological Learning (Jurnal Biologi dan Pembelajaran Biologi)*, Vol. 1, No. 1, 2016, pp.14-28.
- [12] Lehtonen, T., & Heikkurinen, P, Sufficiency and Sustainability: Conceptual Analysis and Ethical Considerations for Sustainable

- Organisation. *Environmental Values*, Vol. 31, No. 5, 2022, pp.599-618.
<https://doi.org/10.3197/096327121X16328186623878>
- [13] Neolaka, Environmental Awareness (Kesadaran Lingkungan), *Jakarta: Rineka Cipta*, 2008.
- [14] O. W. Osawe, G. Grilli, and J. Curtis, Community Funded Behavioural Change Initiatives: Water Quality in Ireland, *Journal of Environmental Development*, Vol. 47, 2023.
- [15] N. I. Sagita, People's Participation in the District Performance endidikan in Bandung City (Partisipasi Warga Masyarakat dalam Penilaian Kinerja Kecamatan di Kota Bandung), *Journal of Environmental Education and Sustainable Development (Jurnal Pendidikan Lingkungan Dan Pembangunan Berkelanjutan)*, Vol. 16, No. 2, 2016, pp.101-114.
- [16] S. Sunarti, R. S. Y. Zebua, J. H. Tjakraatmadja, A. Ghazali, B. Rahardyan, K. Koeswinarno, S. Suradi, N. Nurhayu, and R. H. A. Ansyah, Social learning activities to improve community engagement in waste management program, *Global Journal of Environmental Science and Management*, Vol. 9, No. 3, 2023, pp.403-426, DOI: 10.22035/gjesm.2023.03.04.
- [17] R. S. Y. Zebua and Sunarti, The Implementation of Character Building to Improve Resident Participation in Waste Management, *IOP Conference Series: Earth and Environmental Science*, Vol. 810, No. 1, 2021, doi: 10.1088/1755-1315/810/1/012025.
- [18] N. Ekawati, Deep Ecology as a Basis for Handling Illegal Logging in Indonesia ("Deep Ecology" sebagai Dasar Mengatasi Illegal Logging di Indonesia), *Yogyakarta: Fakultas Filsafat UGM*, 2009.
- [19] S. Wibowo, K. Dimiyati, Absori, K. Wardiono, T. M. Ramon, and A. Budiono, Islamic Nomocracy: from the Perspectives of Indonesia, Spain and Russia, *Legality*, Vol. 31, No. 1, 2023, DOI: 10.22219/ljih.v31i1.25358.
- [20] Sukarsono, Islamic Ecology in Conservation Practice and Conservation Education in Indonesia (Ekologi Islam dalam Praktek Konservasi dan Pendidikan Konservasi di Indonesia), *Malang: UMM Press*, 2016.
- [21] T. M. Sudarwati, Implementation of Environmental Education Policy at State Senior High School 11 Semarang Towards Adiwiyata School (Implementasi Kebijakan Pendidikan Lingkungan Hidup Sekolah Menengah Atas Negeri 11 Semarang Menuju Sekolah Adiwiyata), *Universitas Diponegoro Semarang*, 2012.
- [22] A. Brotosusilo and D. Handayani, Dataset on waste management behaviors of urban citizens in large cities of Indonesia, *Data in Brief*, Vol. 32, 2020, DOI: 10.1016/j.dib.2020.106053.
- [23] D. A. Vallero and V. Shulman, Introduction to Waste Management, *InWaste: A Handbook for Management*, No. 1 2019, DOI: 10.1016/B978-0-12-815060-3.00001-3.
- [24] A. Budiono, W. Yuspin, S. S. Nurani, F. Fairuzzaman, S. W. A. Pradnyawan, and S. D. Sari, The Anglo-Saxon System of Common Law and the Development of the Legal System in Indonesia, *WSEAS Transactions on Systems*, Vol. 22, 2023, pp.207-213, <https://doi.org/10.37394/23202.2023.22.21>.
- [25] L. Wu, Y. Zhu, and J. Zhai, Understanding Waste Management Behavior Among University Students in China: Environmental Knowledge, Personal Norms, and the Theory of Planned Behavior, *Frontiers in Psychology*, 2022.
- [26] G. G. Giantika, I. W. Utomo, A. Munanjar, and S. Susilowati, Public Speaking for the Cibubur Village Family Welfare Development Team, Jakarta to Support Presentations (Public Speaking bagi Tim Penggerak Pembinaan Kesejahteraan Keluarga Kelurahan Cibubur Jakarta untuk Menunjang Presentasi), *Journal of Community Service and Empowerment Innovation (Jurnal Inovasi Pengabdian Dan Pemberdayaan Masyarakat)*, Vol. 3, No. 1, 2023, pp.383-392.
- [27] Language Development and Development Agency (Badan Pengembangan dan Pembinaan Bahasa), *The Great Indonesian Dictionary (Kamus Besar Bahasa Indonesia)*, KBBI Daring, 2022.
- [28] N. S. Utami, Nanik Prasetyoningsih, Arief Hidayat, Nikmatul Huda, Suteki, Retno Saraswati, and Arief Budiono, Equality of the Political Rights of People with Mental Disorders (PWMD) in General Elections,

Indian Journal of Forensic Medicine and Toxicology, Vol. 13, No. 4, 2019, pp.1571-1575.

- [29] M. Hammersley and P. Atkinson, *Ethnography: Principles in Practice*, Routledge, Vol. 15, No. 3, 1986.
- [30] Aspers, P., Corte, U. What is Qualitative in Qualitative Research. *Qual Sociol* Vol. 42, 2019, 139–160
<https://doi.org/10.1007/s11133-019-9413-7>
- [31] H. Wijaya, *Spradley Model Qualitative Data Analysis (Ethnography) (Analisis Data Kualitatif Model Spradley (Etnografi))*, Sekolah Tinggi Theologia Jaffray, 2018.
- [32] S. Larsson, Ethnography in action. How ethnography was established in Swedish educational research, *Ethnography and Education*, Vol. 1, No. 2, 2006, pp.177-195, DOI: 10.1080/17457820600715406.
- [33] D. Beach, Identifying and comparing Scandinavian ethnography: Comparisons and influences, *Ethnography and Education*, Vol. 5, No. 1, 2010, pp.49-63, DOI: 10.1080/17457821003768455.
- [34] Iskandar, *Qualitative Research Methodology (Metodologi Penelitian Kualitatif)*, Jakarta: Galung Persada Press, 2009.
- [35] Brown, C., & Lloyd, K, Qualitative methods in psychiatric research, *Advances in Psychiatric Treatment*, Vol. 7. No. 5, 2001, 350-356. doi:10.1192/apt.7.5.350
- [36] S. Arikunto, *Research Procedures, A Practical Approach (Prosedur Penelitian Suatu Pendekatan Praktik)*, Jakarta: Rineka Cipta, 2010.
- [37] Arief Budiono, Yogi Prasetyo, Kelik Wardiono, Wardah Yuspin, Khudzaiyah Dimiyati, Dewi Iriani, Legal Conscience and the Pressure of the Formal Law System, *Wisdom*, Vol. 22, No. 2, 2022, pp.223-233, DOI: 10.24234/wisdom.v22i2.790
- [38] Moleong. L. J, *Qualitative Research Methodology (Metode Penelitian Kualitatif)*, Bandung: Remaja Rosdakarya Press, 2000.
- [39] Bogdan, R.C. & Biklen, S.K. *Qualitative Research for Education: An Introduction to Theory and Methods*. 5th Edition, Boston: Allyn & Bacon, 2007
- [40] E. Mardiyanto, *Qualitative Research: Theory, Application, and Exemplary Proposals (Penelitian Kualitatif: Teori dan Aplikasi Disertai Contoh Proposal)*, Yogyakarta: UPN Veteran Yogyakarta Press, 2020.
- [41] M. Falah, *Environmental Ethics Education Based on Local Wisdom in PKK Groups in Sumbersari Village, Sumbersari District, Jember Regency (Pendidikan Etika Lingkungan Berbasis Kearifan Lokal pada Kelompok PKK di Kelurahan Sumbersari Kecamatan Sumbersari Kabupaten Jember)*, Jember: Universitas Jember, 2020.
- [42] Y. Septian, R. Mamat, and S. Lili, Eco-Friendly Behavior of High School Students in Bandung City (Perilaku Ramah Lingkungan Peserta Didik SMA di Kota Bandung), *Journal of Geography Education (Jurnal Pendidikan Geografi)*, 2016.
- [43] Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* Vol. 50, 1991, 179–211. doi: 10.1016/0749-5978(91)90020-T
- [44] B. F. Skinner, “A behavioral analysis of value judgments,” in *The Biopsychology of Development*, Academic Press, E. Tobach, L. R. Aronson, and E. Shaw, Eds. 1971, pp.543-551.
- [45] A. Bandura, *Social Learning Theory*, United Kingdom: Prentice Hall, 1977.
- [46] E. Sarin and S. S. Lunsford, How female community health workers navigate work challenges and why there are still gaps in their performance: a look at female community health workers in maternal and child health in two Indian districts through a reciprocal determinism framework, *Human Resources Health*, Vol. 15, No. 1, 2017, p.44.
- [47] Muhaimin, *Developing Ecological Awareness (Membangun Kecerdasan Ekologis)*, Bandung: Alfabeta, 2015.
- [48] Danah Zohar and I. Marshal, *Spiritual Capital: Empowering SQ in the Business Sector (Spiritual Capital: Memberdayakan SQ di Dunia Bisnis)*, Bandung: PT. Mizan Pustaka, 2005.
- [49] H. Turmudi and M. Iksan, Village Development: Transcendental-Based Natural Resources and Environment Utilization Policy, *Journal of Transcendental Law*, Vol. 4, No. 2, 2023, pp.124-133, DOI: 10.23917/jtl.v4i2.18876.
- [50] T. Hernanda and U. Giyono, *Environmental Legal Protection of Rivers in the Perspective*

of Sustainable Development, *Journal of Jurisprudence (Jurnal Jurisprudence)*, Vol. 11, No. 1, 2022, pp.100-113.

- [51] Pratama A, Kamarubiani. N, Shantini. Y, & Heryanto, Community Empowerment in Waste Management: A Meta Synthesis. Conference: First Transnational Webinar on Adult and Continuing Education, 2021, DOI: 10.2991/assehr.k.210508.015.
- [52] F. I. Febriansyah, A. W. Yudistiya, and Surjanti, The Indonesian Journal of Legal Thought (IJLETH) Online, *The Indonesian Journal of Legal Thought*, Vol. 2, No. 1, 2022, pp.26-34.
- [53] G. Anggasta and W. Widiastuti, Environmental Conservation Ethics carried out by the Environmental Lovers Community in Bali (Etika Pelestarian Lingkungan yang dilakukan oleh Komunitas Pecinta Lingkungan Di Bali), *Sinektika: Architectural Journal (Sinektika: Jurnal Arsitektur)*, Vol. 19, No. 1, 2022, pp.82-90, DOI: 10.23917/sinektika.v19i1.16679.

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

- Siti Soekiswati: Conceived the research, provided an original idea of the study, and provided materials and data for the research.
- Azhar Alam and Erna Herawati: Designed the methods, selected research data, analyzed and interpreted the data, and wrote the paper.
- Rizka Rizka and Arief Budiono: Analyzed the data, provided a description, wrote the paper, and reviewed the paper.

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

This article was funded by the Integrated Tridharma Grant of Universitas Muhammadiyah Surakarta, Indonesia.

Conflict of Interest

The authors have no conflict of interest to declare.

Creative Commons Attribution License 4.0 (Attribution 4.0 International, CC BY 4.0)

This article is published under the terms of the Creative Commons Attribution License 4.0

https://creativecommons.org/licenses/by/4.0/deed.en_US