Volume 6 Number 1 (2024)
November – April 2025
Page: 79-92

E-ISSN: 2716-0750
P-ISSN: 2715-7997
DOI: 10.37680/amalee.v6i1.6189

Amalee
Indonesian Journal of Community Research and Engagement

Environmental Awareness Assistance Based on Islamic Religious Education with a Gender Perspective for the Coastal Communities of the Musi River, Palembang

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Article history Submitted: 2024/10/12; Revised: 2025/03/21; Accepted: 2025/04/24

Abstract

The Musi River plays an important role in the people's economy on its coast. However, the usefulness of this river is not accompanied by public awareness of environmental preservation. The environment on the coast of this river is polluted by waste or garbage. The purpose of the assistance is to increase environmental awareness based on Islamic Religious Education from a gender perspective for the Musi River, Palembang, and coastal communities. The assistance method used is Asset Based Communities Development (ABCD). The subjects of assistance were 53 people from the coastal communities of the Musi River in Palembang. Data was collected through observation, interviews, documentation, and questionnaires. Assistance was carried out through socialization based on Islamic Religious Education integrated with ecological values from a gender perspective. Data analysis used qualitative and Rasch analysis. The assistance results showed that the Musi River's coastal assets in Palembang are locations and human resources that have a high spirit of mutual cooperation to preserve the environment. Rasch's analysis of the level of understanding of environmental awareness based on Islamic religious education from a gender perspective showed that 31 people were categorized as very high, six people were high, 16 people were moderate, and no one was categorized as low. Religious values about nature as a trust in God, the importance of maintaining cleanliness, and the prohibition of causing damage to the earth are the main foundations in building environmental awareness. Gender roles can maximize the participation of men and women in environmental conservation efforts.

Keywords ABCD (Asset Based Communities Development); Environmental Awareness; Gender; Islamic Religious Education; Musi River Coast

1. INTRODUCTION

The Musi River is the longest in the province of South Sumatra. This river functions as a trade route and the main transportation for the community. The existence of the Musi River divides the city of Palembang into two parts, upstream and downstream, and the two parts are connected by the Ampera Bridge, which is the icon of the city of Palembang standing firmly on the river. This river is rich in biodiversity and can be utilized in improving the community's economy. Unfortunately, the usefulness of this river is not accompanied by public awareness of the urgency of the Musi River. This can be seen from the many houses on the banks of this river that do not care about the surrounding environment, which can cause river pollution (Dinkes Kota Palembang, 2015).

The community's need for the Musi River as a means of meeting daily needs is still said to be high. Most people wash, bathe, defecate, and even wash boats in this river daily. As a result, food waste and animal and human waste also flow into this river, which, of course, directly impacts the poor quality of the Musi River water. The results of Trisnaini et al.'s research (2019) Shows that the river water in the area is included in the bad category due to the dense settlements and the high activity of residents on the banks of the river who do not care about environmental cleanliness.

Islam teaches the importance of protecting the environment, and humans are expected to be good stewards of natural resources. Environmental awareness should continue to be developed because this is a path that must be started for the community's survival in the future so that disasters do not occur that will cause damage due to human behavior. The emergence of environmental awareness will be better if it starts from childhood and is carried out continuously so that habits emerge in humans. Environmental awareness can be achieved through religious strategies and education (Jufri et al., 2018) .

Islamic religious education should be used to form a character that cares about the environment properly and appropriately and focuses on human behavior and habits. Human imperfection in utilizing Islamic information will impact the emergence of a lack of awareness to love and maintain the environment. For this reason, intensive environmental-based religious education is necessary to improve negative behavior quality. Moreover, good religious education can realize positive mental readiness in society. On the other hand, Islamic Education can be seen as a relatively appropriate means of fostering a character that cares about the environment for society. Caring for the environment begins with spiritual guidance for the community by providing information related to environmental cleanliness and

management perspectives in the Qur'an and Hadith, which include planning, implementation, and control.

Gender perspective can influence how people view and interact with the environment. According to Lynne, gender has an important role in overcoming environmental problems. The role of gender in overcoming environmental problems can be seen in the harmonious social relations between men and women in a family and the role of the community environment in overcoming damaged environments. Sharing roles between men and women must always be communicated well for every situation and condition so that it does not harm both parties (Febriani, 2017) . The awareness of both parties to share roles pleasantly will create a harmonious and happy relationship that impacts high awareness of the environment.

Several previous studies have shown that the negative response or low level of public concern towards the current river situation, even the aspect of gender harmony in sharing roles, is still very concerning (Herlita et al., 2023). The theory based on the Qur'an has a formula for implementing gender-aware education. The steps in question are as follows: *first,* seeing the universe as evidence of the greatness of Allah SWT *("Aql);* the process of observing nature *(Tadabbur*); being grateful for all the gifts and gifts of Allah *(Tasyakkur*); using all your mind to be creative in utilizing the environment (*ulul albab*); Glorifying and appreciating the Creator of the Universe *(taskhir*); leader of the Universe *(khalifah*); glorifying humans and the universe (*takrim).* The role, in this case, sees humans as *ulil albab, ulil abshar,* and *ulin nuha* (Yatim, 2019). To implement this concept, there needs to be assistance in managing the environment taught by Islam and then viewed from a gender perspective where the community on the coast of the Musi River is expected to achieve inclusive and equitable environmental sustainability in sharing roles.

2. METHODS

The method used in mentoring is Asset Based Community Development (ABCD). This method prioritizes utilizing assets and potential owned by a local area (Kristanto & Putri, 2021). The steps of asset-based empowerment in mentoring are first to define the topic. Second, discover potential assets. Third, dream by exploring the hopes and dreams of the community. Fourth, design a mentoring framework. Fifth is destiny, namely, activities based on asset utilization (Dureau, 2013).

Community service activities were carried out in June-September 2024. The subjects of assistance were the coastal community of the Musi River located on Jl. KH Azhari 4 Ulu Laut Lorong Hijriyah RT 18 RW 05 Kel 3-4 Ulu, Seberang Ulu 1 District,

Palembang City, totaling 53 people consisting of 16 men and 37 women. Data was collected through observation, interviews, documentation, and questionnaires from RT heads, religious figures, community members, and documents (such as books, archives, and reports) to obtain information relevant to the research.

Assistance was carried out through socialization based on Islamic Religious Education integrated with ecological values from a gender perspective. Data analysis used qualitative and Rasch analysis. Rasch is an analysis tool that can test the validity (validity) and reliability of research instruments, even testing the suitability of persons and items simultaneously (Sumintono & Widhiarso, 2015). Quantitative analysis using Rasch was carried out on observation and questionnaire data. The analysis was carried out using minister software.

3. FINDINGS AND DISCUSSION

3.1. Potential Coastal Assets of the Musi River

The mentoring results show that the Musi River's coastal assets in Palembang are locations and human resources with a high spirit of cooperation to preserve the environment. The Musi River has a rich and diverse ecosystem, which is a source of life for coastal communities (Figure 1). However, in recent decades, the Musi River environment has faced various challenges, such as water pollution and erosion, which can threaten the livelihoods of local communities. For this reason, the coastal area should be handled specifically so that this area can be enjoyed sustainably by future generations.

Figure 1. Environmental conditions on the coast of the Musi River

Environmental problems are difficult issues that occur on the path of the sustainability of life on earth and are the result of human behavior that is indifferent to the environment, which causes environmental pollution. Discarded plastic waste will spread to aquatic and coastal environments (Vlachogianni et al., 2020). Waste that

enters the river will be carried by rain, and then the flow will be carried to the sea (Muhsin et al., 2021). According to Primyastanto et al. (2010), there are several reasons why people are not friendly to the environment around them, namely the weak knowledge of the community regarding coastal area policies, low levels of education, community character traits, and pressure on the cost of living. Weak knowledge will have implications for the attitudes and willingness of individuals to behave pro-environmentally (Kollmuss & Agyeman, 2002).

Changes in individual behavior, especially in coastal communities, are assisted in improving this service so that the use of the sea and natural resources can be carried out sustainably (Veronica & Calvano, 2020). Changes are made by in-depth socialization of Islamic religious values and gender roles in environmental conservation (Figure 2). Change is only possible if there is an increase in public knowledge, understanding, and awareness from an early age. With this assistance, the community is encouraged to independently manage waste in their residential environment and dispose of it in a final disposal site, not in the environment (Figure 3). The facilitator also provides trash bins for each community and spreads communication messages through posters about environmental conservation. According to Portman et al. (2019), one way that can be done to reduce the behavior of littering is to build infrastructure in the form of trash bins. This is in line with what was conveyed by Cingolani et al. (2016), that persuasive communication through messages in design, brochures, and bulletin boards can be used as a means of education for environmental management as an intervention action.

Figure 2. Accompaniment of Islamic religious values and gender roles in environmental conservation

Figure 3. Waste management in environmental conservation efforts

The Environmental Awareness Service Based on Islamic Religious Education with a Gender Perspective on the Musi River Coast, Palembang, is unique compared to previous services. The Islamic value-based approach and women's empowerment provide new contributions to the community service program. However, challenges in implementation remain, which require adaptive strategies and cross-sector collaboration to ensure sustainability.

3.2. Rasch Analysis of Community Environmental Awareness Measurement

Environmental awareness is an understanding of environmental issues and a moral responsibility to protect nature. Environmental awareness shapes individuals' ecological awareness, influencing their attitudes and behaviors toward the environment (Iryna et al., 2023). Understanding environmental awareness is essential in addressing ecological challenges and cultivating sustainable behavior.

Environmental awareness mentoring for the coastal community of the Musi River in Palembang involved 53 people. The subjects of this mentoring became the main focus of the community service process. The mentoring subjects provided data or information needed to answer the service questions. The demographics of community service subjects on the Musi River coast in Palembang are explained in Table 1.

Table 1. Demographic Survey of Community Service Subjects

	Variables	Percentage
Gender	Man	30.19%
	Woman	69.81%
Age	23-32	13.21%
	33-42	22.64%
	43-52	32.08%
	53-62	24.53%
	63-73	7.55%
Work	Housewife	66.04%
	Trade	9.43%
	Laborer	22.64%
	Self-employed	1.89%
Education	No school	1.89%
	Elementary school	58.49%
	Junior High School	22.64%
	Senior High School	16.98%

A demographic survey of community service subjects showed that men and women were involved. The age of the assisted subjects ranged from 23-73 years. Homemakers dominated the occupation of female subjects. At the same time, men worked as laborers, self-employed, and traders. Furthermore, information on education level showed that a small portion of the population did not complete basic education and was dominated by elementary school education.

The results of environmental awareness assistance based on Islamic religious education with a gender perspective in the coastal community of the Musi River were analyzed using the Rasch model. The Rasch model is one of the items in the Item Response Theory (IRT), which measures individuals' abilities or latent characteristics based on their responses to a series of items or questions. The Rasch model in this assistance provides an overview of the community's answers about environmental awareness based on Islamic religious education and a gender perspective.

The results of the Rasch analysis of the community's environmental awareness based on Islamic religious education from a gender perspective on 53 respondents on items and persons are displayed in the statistical summary (Table 2). The statistical summary provides insight into the data's suitability to the model, ensuring the measurement's objectivity. The statistical summary helps assess the level of agreement between the observed data and the Rasch model, which is essential for maintaining the objectivity of the measurement (Karabatsos, 2000). The statistical summary includes various metrics such as separation, reliability, and fit index, which

collectively provide information about the reliability of the measurement (Bond & Fox, 2007).

Table 2**.** *Summary Statistic Results*

	Person		**Item**
Separation	2.10		4.18
Reliability	0.82		0.95
Cronbach's alpha		0.84	
Raw variance explained by measures		46.7%	

** $p < 0.01$

The summary statistic results show that the separation value of a person is 2.10 and item 4.18. Separation is an important metric that assesses the ability of question items to differentiate between different levels of respondent ability. Item separation measures how well the question item can differentiate between individuals with different abilities. A higher separation index indicates better discrimination between question items (Fitrah et al., 2024). So, the service results show that item and person separation value is categorized as good. According to Linacre (2007), a separation index of more than 2 is categorized as good.

Person reliability and *item reliability* values of the measurement results were 0.82 and 0.95. *Person reliability* refers to the consistency of individual responses to test items, indicating how well the test can distinguish between different ability levels among respondents. This reliability is important to ensure that the assessment accurately reflects the individual's true abilities (Jowinis & Siew, (2024). The *person reliability* value of the measurement results is 0.82, which is categorized as sufficient. Meanwhile, *item reliability* is an important aspect that assesses the consistency and dependability of the measurement instrument. This item evaluates how well the items in a test measure the underlying construct, ensuring that the results are stable across contexts and populations (Bintang & Suprananto, 2024). *The item reliability* value of the measurement results is 0.95, which is categorized as excellent. According to Bond & Fox (2007) , the Criteria for *reliability* values are $P < 0.67$ (weak), $0.67 \leq P < 0.80$ (sufficient), $0.81 \leq P < 0.90$ (good), $0.91 \leq P < 0.94$ (very good), and $P \geq 0.94$ (exceptional).

Cronbach's alpha is an important statistic for assessing the internal consistency of measurement instruments, especially when analyzed through the Rasch model. This model provides a robust framework for evaluating the reliability and validity of test items, ensuring that they effectively measure the intended construct (Salsabila et al., 2022). The *Cronbach Alpha value* of the analysis results was 0.84, with a very good and

consistent category. According to Bond & Fox (2007), The best and most acceptable Cronbach Alpha (α) value is 0.71-0.99.

Measures, explaining the raw variance, is an important aspect for understanding how well the model captures the underlying traits being measured. This variance reflects the proportion of the total variance in observed scores that can be attributed to the latent traits, which provides insight into the reliability and validity of the measurement (Tesio et al., 2023). The raw variance the measured value explains is 55.9% (good). So, the instrument construction used tests the community's environmental awareness.

The summary (logit) value is an important metric for understanding the relationship between item difficulty and respondent ability (Table 3). This value is obtained from the logit transformation, which allows for comparing different scales and assessing latent traits. The Rasch model uses logit to express the probability of a correct response based on item difficulty and respondent ability. This transformation facilitates a linear relationship between these variables (Burevtsev et al., 2020). Logit provides a standard way to interpret data, making it easier to compare results across assessments or populations (Fitria et al., 2022).

Table 3. Summary (Logit) Value of Person and Item

		Person	**Item**
Measures (logit)	N	53	25
	Mean	0.58	0.58
	SD	1.70	2.86
	SE, standard error	0.65	0.54
Mean Square Outfit	Mean	1.14	1.30
	SD	1.73	1.34

The person in this study is the coastal community of the Musi River. The number of persons analyzed was 53, consisting of 16 men and 37 women. The number of items is 25 statements that discuss environmental awareness based on Islamic religious education from a gender perspective for the coastal community of the Musi River in Palembang.

A person measure is a statistical approach used to measure a person's abilities or traits based on their responses to a series of items. This method converts raw scores into linear measurements, allowing a more accurate assessment of *a person's latent characteristics* (Tesio et al., 2023). *Person measure* shows the average value of respondents in the instrument (Sumintono & Widhiarso (2015) . The value of person measure and item measure is 0.58. According to Sumintono & Widhiarso (2015) , the average logit value of more than 0.00 indicates that the person's ability is higher than

the level of difficulty of the item. Hence, people are more dominant in answering correctly on some items.

Standard deviation is an important measure of the variability of ability estimates across persons. This measure reflects the estimate's precision, which can be affected by various factors, including item parameters and test length. The standard deviation is affected by the accuracy of the item difficulty parameters. When only estimates are available, the variance is adjusted by a term inversely proportional to the number of persons and the test length (Mislevy, 1992). This adjustment suggests that larger sample sizes and longer tests produce more reliable ability estimates, thereby reducing the standard deviation of these estimates. The results showed that the person's standard deviation was 1.70, and the item was 2.86. This suggests that there is a distribution of item difficulty levels.

Item difficulty refers to how difficult an item is for respondents to answer correctly (Table 4). The difficulty of environmental awareness items in the Rasch model can be understood through various learning processes. The Rasch model effectively evaluates how different groups of people perceive and respond to environmental awareness items.

Table 4. Difficulty Level of Environmental Awareness Items

Degree of Difficulty			
Very High **LVP > +3.62**	**High** **+3.62 > LVP > +0.00**	**Moderate** **+0.00 > LVP > -3.62**	**Low** **LVP < -3.62**
9	13, 18	2, 3, 5, 6, 8, 12, 16, 19, 22	1, 4, 7, 10, 11, 14, 15, 17, 20, 21, 23, 24, 25

Based on the level of difficulty of the environmental awareness items based on Islamic religious education from a gender perspective, it shows that 1 question item is categorized as very difficult, two items are difficult, nine items are moderate, and 13 items are categorized as easy. An item is declared more difficult if the item is more difficult to answer correctly. Only individuals with high ability have a high probability of answering correctly. At the same time, easier items are easier to answer correctly. Individuals with low ability also have a greater probability of answering correctly.

The level of environmental awareness of society can be analyzed effectively using the Rasch model. This model provides a framework for measuring a person's understanding of environmental awareness.

Table 5. Level of people's understanding of environmental awareness

Degree of Difficulty			
Very High	**High**	**Moderate**	**Low**
LVP > +2.10	**+2.10 > LVP > +0.00**	**+0.00 > LVP > -2.10**	**LVP < -2.10**
1, 3, 4, 5, 6, 9, 10, 12, 14, 16, 17, 19, 20, 22, 26, 27, 28, 31, 32, 34, 35, 36, 37, 38, 40, 41, 44, 46, 47, 48, 52	7, 21, 24, 29, 43, 51	2, 8, 11, 13, 15, 18, 23, 25, 30, 33, 39, 42, 45, 49, 50, 53	-

Based on Table 5, the level of understanding of environmental awareness based on Islamic religious education from a gender perspective shows that 31 people are categorized as very high, six people are high, 16 people are moderate, and no one is categorized as low. This shows that many research subjects have high abilities and a high probability of answering statements/items correctly.

Melnyk & Podorozhnyi (2023) stated that personal responsibility, social values, and practical skills significantly influence environmental awareness. Lack of awareness can lead to indifference to environmental issues, highlighting the need for targeted educational interventions (Sanjaya et al., 2023). Thus, although environmental awareness is increasingly recognized as essential for sustainable development, challenges remain in ensuring that individuals, especially young people, engage meaningfully with local environmental issues.

4. CONCLUSION

The study results show that Islamic religious education is important in increasing public awareness regarding protecting the environment. Religious values such as responsibility for nature as a mandate from Allah, the importance of maintaining cleanliness, and the prohibition of causing damage to the earth are the main foundations in building environmental awareness. Men and women have different but complementary roles in environmental management. Assistance that takes gender roles into account can maximize the participation of both parties in environmental conservation efforts.

The results of the Rasch analysis measuring the level of environmental awareness based on Islamic religious education from a gender perspective showed that 31 people were categorized as very high, six people were high, 16 people were moderate, and no one was categorized as low. This shows that many research subjects have high abilities and a high probability of answering statements/items correctly.

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