



Analysis of CSR Ecological Knowledge and Conservation Behavior Relationships Among Serang Beach Coastal Local Communities

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Abstract: *The marine ecosystem in Serang Beach faces serious threats caused by low public awareness of conserving protected sea turtle species, including green turtles, loggerhead turtles, and hawksbill turtles. This study aims to analyze the relationships between Corporate Social Responsibility (CSR) programs, ecological knowledge, and community conservation behavior, while emphasizing CSR's role in human resource management as a contributor to capacity building among coastal communities in Serang Beach, Blitar Regency. This quantitative correlational research involved 46 purposively selected respondents. Data on ecological knowledge and conservation behavior were collected through questionnaires and analyzed using the Spearman rank correlation test. The results showed significance values of $0.000 < 0.05$ for the relationships between CSR and ecological knowledge, CSR and conservation behavior, and ecological knowledge and conservation behavior. These findings indicate significant positive correlations among the variables. The study concludes that CSR programs play an important role in improving ecological knowledge and shaping pro-environmental behavior. Increased ecological knowledge also reinforces community participation in turtle conservation efforts. Overall, the research highlights the importance of strengthening CSR initiatives as sustainable strategies for empowering coastal communities and supporting long-term marine conservation. Strengthening these programs can encourage better collaboration between local stakeholders, enhance environmental stewardship, and foster more resilient community practices. The study also suggests that consistent CSR engagement can help build a culture of conservation, ensuring that community members develop the skills, motivation, and awareness necessary to protect endangered species. Such efforts contribute to broader ecological sustainability and support regional conservation priorities in the study area today.*

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INTRODUCTION

Marine ecosystems have attracted global attention due to human activities that disrupt their balance. Serang Beach, located in Blitar Regency, has become a breeding area for several protected turtle species such as green turtles (*Chelonia mydas*), olive ridley turtles (*Lepidochelys olivacea*), and hawksbill turtles (*Eretmochelys imbricata*), which are increasingly threatened due to human activities such as consuming turtles and their eggs and trading them, even though these actions are illegal [19]. This phenomenon reflects the low level of conservation knowledge and pro-environmental behavior among coastal

communities (26). Previous conservation and CSR initiatives in coastal areas have often failed to produce sustainable behavioral change because they were implemented in a top-down manner, with limited community involvement and minimal attention to local knowledge and social contexts. As a result, such programs tended to focus on short-term outcomes rather than long-term capacity building and ecological awareness [7].

This problem encouraged the local community to take the initiative in establishing the Segoro Lestari Turtle Conservation Community Institute, which focuses on saving turtle nests through direct community involvement, hatchery monitoring, and conservation education for residents around Serang Beach [12]. The emergence of this community-based conservation initiative highlights the decisive role of local community participation, which has rarely been examined in depth in previous CSR and conservation studies. Along with its development, support has come from PT PLN Nusantara Power Unit Brantas Generation through CSR programs aimed at improving the quality of facilities and infrastructure for turtle conservation [30]. This collaboration demonstrates a shift from conventional CSR approaches toward participatory and sustainability-oriented practices. These efforts align with the principles of the blue economy and the Sustainable Development Goals (SDGs), particularly Goal 14: Life Below Water (UNDP, 2023).

Pro-environmental behavior can be effectively developed through non-formal education that directly engages communities in conservation activities [7]. In this context, Corporate Social Responsibility (CSR) has evolved from a purely philanthropic activity into a strategic managerial approach focused on organizational sustainability and human capacity building. CSR serves as a bridge between companies and communities by enhancing human capacity outside the organization, thereby strengthening the ability of surrounding communities to manage environmental challenges [14]. When communities experience tangible benefits from CSR programs, it fosters positive relationships between companies and communities [3], builds a favorable corporate image, and motivates communities to provide stronger support and participate more actively in social and environmental initiatives [27].

CSR-based ecological education plays a significant role in strengthening environmental knowledge and shaping positive attitudes toward the protection of marine ecosystems (10). Furthermore, CSR functions as a crucial social learning mechanism that translates environmental awareness into concrete conservation practices, as demonstrated by studies on marine conservation and community engagement in various global contexts [16]. However, the effectiveness of CSR in fostering lasting conservation behavior largely depends on the extent to which local communities are actively involved in program planning and implementation.

CSR programs aligned with Green Human Resource Management principles can act as instruments for community capacity building, enabling communities to transition toward more ecologically conscious and sustainability-oriented behaviors [2]. Such programs influence conservation practices by embedding sustainability values within society and fostering new social norms [32]. These norms are reflected in the conservation behavior of coastal communities, such as refraining from hunting or consuming turtles and their eggs, as well as demonstrating increased awareness of the importance of participating in conservation activities [11].

The findings of Suarta et al. (2022) [28] indicate that CSR programs positively impact socio-economic conditions, community aspirations, and participation. Nevertheless, these studies have not specifically addressed the relationship between CSR implementation,

ecological knowledge, and behavioral change in turtle conservation. This gap suggests that the role of CSR as a tool for sustainable community capacity building particularly in environmentally vulnerable coastal areas remains underexplored. The integration of the Green Human Resource Management approach with corporate responsibility, as emphasized in Stakeholder Theory, offers a new framework to explain how CSR can facilitate the development of ecological knowledge and conservation behavior among coastal communities [5][15].

Based on this background, this study aims to examine the relationship between CSR implementation and the ecological knowledge of coastal communities at Serang Beach in turtle conservation; the relationship between CSR implementation and conservation behavior among coastal communities; and the correlation between ecological knowledge and conservation behavior within the coastal communities of Serang Beach.

RESEARCH METHODS

This study employs a correlational quantitative approach to examine the relationships between the implementation of Corporate Social Responsibility (CSR) in the form of a turtle conservation program, ecological knowledge about turtles, and community conservation behavior in protecting turtles and their eggs in the Serang Beach area. This method was chosen because it allows for describing the study object and measuring relationships between variables [22].

The sampling technique employed in this study was purposive sampling. Sekaran and Bougie (2016) state that the number of suitable samples in a study range from more than 30 to 500 samples [25]. The number of samples collected in this research amounted to 46 respondents. These respondents were deliberately selected based on specific criteria relevant to the objectives of the study, namely individuals who are directly involved in activities within the turtle nesting area along the Serang Beach coastline and who have previously participated in turtle conservation efforts.

The profiles of the respondents consisted of several key community groups, including local community leaders, fishermen, coastal traders, and members of community-based conservation groups operating in the Serang Beach area. Community leaders were included due to their role in decision-making and mobilizing local participation in conservation activities. Fishermen were selected because of their frequent interaction with the coastal and marine environment, which directly influences turtle habitats. Coastal traders were involved as they represent economic actors whose activities are closely linked to beach utilization. In addition, members of local conservation groups were included because of their active participation in protecting turtles and their nesting sites. The inclusion of these diverse respondent profiles was intended to capture a comprehensive representation of community roles and perspectives related to turtle conservation, thereby strengthening the validity of the correlation analysis.

The primary data type was obtained through the distribution of questionnaires to these respondents. Data collection was carried out by means of filling out a questionnaire that utilized a Likert scale (1–5), which was designed to measure people's perceptions of CSR, their level of ecological knowledge, and their conservation behavior. Non-participatory field observations were also conducted simultaneously with the implementation of data collection in order to ensure the presence of conservation activities and confirm the community's involvement in turtle conservation. The purpose of these

observations was specifically to verify the primary data obtained through the questionnaires, not to serve as secondary data [20].

Data processing was carried out using the Software Statistical Package for the Social Sciences (SPSS) version 23. The data analysis in this study goes through 4 stages. The first stage is the data validity test. The validity test uses the product-moment correlation coefficient, as follows [18]

$$r_{xy} = \frac{N \Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\{N \Sigma X^2 - (\Sigma X)^2\} \{N \Sigma Y^2 - (\Sigma Y)^2\}}}$$

With:

r_{xy} = validity coefficient (correlation *product moment*)

N = number of test takers

At a significance level of 5% ($\alpha = 0.05$), a questionnaire item is considered valid using product-moment analysis, where the calculated r value must be greater than the r table value based on the degree of freedom ($df = n - 2$) [31]. High validity indicates that the questionnaire items are appropriate as benchmarks for the variables studied and can be used in the next stage of analysis.

The second stage is a reliability test, which is used to measure the questionnaire's reliability and consistency by testing the instrument repeatedly so that it can be declared as reliable when the instrument produces consistent results [9]. The reliability test in this study uses the Alpha formula, which is presented as follows [29].

$$r_{nn'} = \left(\frac{k}{k - 1} \right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right)$$

With:

$r_{nn'}$ = test reliability

k = the number of question items

σ_b^2 = total grain variance

σ_t^2 = variant total

The determination of reliability categories is based on the results of calculating the reliability coefficient using the formula. Sumardi (2021) [29] stated that the reliability coefficient value in the range of 0.80–1.00 indicates very high reliability, the range of 0.60–0.79 represents high reliability, the range of 0.40–0.59 falls within the medium reliability category, 0.20–0.39 corresponds to the low reliability category, and 0.00–0.19 indicates very low or unreliable reliability.

The third stage is descriptive analysis. This technique calculates the minimum (min), maximum (max), average (mean), and standard deviation values for each variable, including public perception of the implementation of Corporate Social Responsibility (CSR), ecological knowledge, and conservation behavior. The average value serves as an indicator of the general tendency of respondents' perceptions of the statements provided. Meanwhile, the standard deviation indicates the distribution of data by measuring the

diversity of respondents' answers to each statement within each variable [18][8]. The purpose of this analysis is to provide an overview of the empirical condition of the community in turtle conservation in the Serang Beach area.

The fourth stage is correlation analysis, which is tested using the spearman rank. The spearman rank analysis was applied in this study because the sample size was below 50 respondents and the data were in the form of an ordinal scale [4]. This test is helpful for measuring both the degree of correlation and the direction of the relationship between the variables examined [21]. The formulas used in the Spearman Rank test are as follows [8].

$$r_s = 1 - \frac{6 \sum D_i^2}{n(n^2 - 1)}$$

With:

D_i = difference from the first rank pair

n = number of rank pairs

The purpose of this analysis is to determine the correlation between the implementation of CSR, ecological knowledge, and community conservation behavior in Serang Beach.

RESULTS AND DISCUSSION

Based on the results of the data analysis, the validity and reliability testing of the research instruments demonstrate that the instruments possess adequate accuracy and consistency. These findings suggest that the instruments are capable of measuring the intended constructs effectively, thereby ensuring that the data collected provide a sound basis for further analysis and interpretation in addressing the research objectives.

Table 1. Results of the Validity Test of Research Instruments

Variable	Item	Pearson Cor	Itself.	Information
Ecological Knowledge (Y1)	Y1.1	0,570	0,000	Valid
	Y1.2	0,700	0,000	Valid
	Y1.3	0,601	0,000	Valid
	Y1.4	0,673	0,000	Valid
	Y1.5	0,588	0,000	Valid
	Y1.6	0,686	0,000	Valid
	Y1.7	0,621	0,000	Valid
	Y1.8	0,445	0,002	Valid

	Y1.9	0,418	0,004	Valid
	Y1.10	0,497	0,000	Valid
	Y1.11	0,367	0,012	Valid
	Y1.12	0,606	0,000	Valid
Conservation (Y2)	Behavior Y2.1	0,551	0,000	Valid
	Y2.2	0,568	0,000	Valid
	Y2.3	0,478	0,001	Valid
	Y2.4	0,634	0,000	Valid
	Y2.5	0,519	0,000	Valid
	Y2.6	0,578	0,000	Valid
	Y2.7	0,592	0,000	Valid
	Y2.8	0,666	0,000	Valid
	Y2.9	0,748	0,000	Valid
	Y2.10	0,725	0,000	Valid
	Y2.11	0,677	0,000	Valid
	Y2.12	0,604	0,000	Valid
CSR (X)	X1	0,566	0,000	Valid
	X2	0,496	0,000	Valid
	X3	0,688	0,000	Valid
	X4	0,437	0,002	Valid
	X5	0,640	0,000	Valid
	X6	0,497	0,000	Valid

X7	0,358	0,015	Valid
X8	0,470	0,001	Valid
X9	0,626	0,000	Valid
X10	0,723	0,000	Valid
X11	0,659	0,000	Valid
X12	0,760	0,000	Valid

(Source: Processed Data, 2025)

The analysis of the validity test presented in Table 1 provides evidence that all question items for variables X1, X2, and Y are valid. Referring to Utami (2023), the r-value of the table is determined based on the degree of freedom ($df = 46-2 = 44$) so that the r-value of the table is 0.2907. Each item shows a Pearson correlation coefficient of > 0.2907 and a significance value of < 0.05 , proving that the items are valid and ready for use.

Table 2. Results of the Reliability Test of Research Instruments

Variable	Cronbach's Alpha	Information
Ecological Knowledge (Y1)	0,739	Reliable
Conservation Behavior (Y2)	0,751	Reliable
CSR (X)	0,745	Reliable

(Source: Processed Data, 2025)

The results of the reliability test in Table 2 indicate that all variables studied have met the set reliability criteria. *Cronbach's Alpha* value was greater than 0.60 for each variable, confirming that all questionnaire items were reliable and consistent. Referring to Sumardi (2021), [29] the category of reliability coefficient values in the range of 0.60 - 0.79, including high reliability, is proven for each variable (Y1, Y2, and X) as indicated by *Cronbach's Alpha* values with a high reliability category.

Table 3. Descriptive Statistical Results

Variable	N	Min	Max	Mean	Hours of deviation
Ecological Knowledge (Y1)	46	41	60	52,74	5,162
Conservation Behavior (Y2)	46	43	60	55,20	5,005

CSR (X)	46	42	60	53,17	4,855
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(Source: Processed Data, 2025)

The results of the descriptive analysis of the ecological knowledge variable (Y1) showed the participation of 46 respondents. The score distribution ranges from a minimum value of 41 to a maximum value of 60. On average, respondents' scores were at a score of 52.74. This figure indicates that the ecological knowledge of respondents, in general, is relatively high compared to the maximum score [13]. These results support the findings of Frame et al. (2021) that community-based conservation education increases community ecological knowledge and awareness. In addition, the standard deviation value of 5.162 indicates that the distribution of data among respondents is quite diverse, although not too far from the average value, which is still within reasonable limits [18][8]. All of these results reinforce the importance of ocean literacy for people living directly adjacent to the sea in achieving the Sustainable Development Goals (SDGs) [7].

The conservation behavior variable (Y2) involved 46 respondents with the lowest score of 43 and the highest score of 60. This variable recorded the highest mean value between the other variables, which was at 55.20, indicating that the conservation behavior of respondents was relatively high [13]. This high average indicates the success of the program in encouraging conservation behavior, as well as reinforcing the research results of Santori et al. (2021) [23], which show that there is a positive impact on increasing ecological knowledge on changes in community conservation behavior. A standard deviation value of 5.005 indicates a similar data consistency to the previous variable, which means the majority of respondents' scores are around the mean value.

The CSR implementation variable (X) was measured from 46 respondents with a score range between 42 as the minimum and 60 as the maximum. The average score for the perception or implementation of CSR was recorded at 53.17. This figure puts the CSR variable at a reasonable level, slightly above the average of ecological knowledge [13]. With a standard deviation of 4.855, the CSR variable showed the smallest score spread between the three variables. This implies that respondents' assessments or perceptions of CSR aspects tend to be more homogeneous or more uniform than those of the other variables [18][8]. These results show that the implementation of CSR is considered positive by the community. This strengthens the view of Dmytriyev et al. (2021) [5] in stakeholder theory that effective CSR is one that responds quickly to the social and ecological needs of the community.

Overall, the three variables resulted in standard deviation values that were relatively lower than the mean value for each variable. This indicates that the data distribution is relatively homogeneous. So that the average value can be represented as the general tendency of the respondents [13].

Table 4. Summary of Spearman Rank Test Results

Variable	Correlation Coeff	Itself.	Information
X, Y1	0,739	0,000	Positive

X, Y2	0,745	0,000	Positive
Y1, Y2	0,665	0,000	Positive

(Source: Processed Data, 2025)

For the number of respondents (n) of 46 respondents and a significance level of 5%, a significance value of $0.000 < 0.05$ was obtained, which showed a significant correlation between variables. Table 4 showed that the results of the spearman rank correlation test for the variable studied, namely that there was a positive relationship between the CSR variable (X) and the Ecological Knowledge variable (Y1), with the value of the calculated correlation coefficient $r = 0.739 > r_{table} = 0.2907$. This positive relationship is in line with the principles of green human resource management where socio-environmental programs become a forum for human capacity development so that CSR plays a role as a medium for ecological knowledge transfer [15], and strengthens the view that CSR has developed into a strategic instrument in community capacity building in accordance with stakeholder theory [5].

The correlation between the CSR variable (X) and the Conservation Behavior variable (Y2) is positive, with the value of the calculated correlation coefficient $r = 0.745 > r_{table} = 0.2907$. This positive relationship is an indicator that the CSR program instills sustainability values, which are transmitted through community involvement in conservation activities to minimize destructive behaviors, such as hunting and the consumption of turtles and their eggs. These results support the research of Alzaidi & Iyanna (2022), [2] who stated that environmentally conscious behavior can be influenced by sustainability values transferred through organizational activities to the community. These values are then embedded and become societal behavior [32]. This shows that the better the public's perception of the implementation of CSR, the more people participate in social activities [27]. CSR is a driver of change in conservation behavior in the community, in accordance with the principle of stakeholder theory that views the community as an active partner in environmental sustainability [5]

The correlation between the Ecological Knowledge variable (Y1) and the Conservation Behavior variable (Y2) is positive, with the value of the calculated correlation coefficient $r = 0.665 > r_{table} = 0.2907$. The positive relationship between ecological knowledge and conservation behavior indicates that environmental education can have a direct impact on encouraging conservation action. These results support the research results of Santori et al. (2021) [23] and Hofman et al. (2020) [11], which emphasize that ecological knowledge is an important factor in the formation of conservation behavior. The positive relationship between the two variables also indicates that the benefits of CSR in supporting environmental education in accordance with the goals of CSR as one of the social learning instruments and Segoro Lestari Turtle Conservation plays a role as an implementer of marine ecosystem education and turtle conservation which has a tangible impact on the level of ecological knowledge of coastal communities.

Despite the significant positive correlations identified among CSR implementation, ecological knowledge, and conservation behavior, threats to sea turtles at Serang Beach persist, as highlighted in the abstract. This condition indicates that improvements in knowledge and attitudes do not automatically eliminate environmentally harmful practices. One of the underlying factors contributing to the continuation of turtle hunting

and egg poaching is economic pressure experienced by segments of the coastal community. For some residents, turtle eggs and turtles are still perceived as accessible sources of income or subsistence, particularly when alternative livelihoods are limited. This finding aligns with previous studies suggesting that conservation behavior is often constrained by socio-economic realities, where immediate economic needs may outweigh long-term ecological considerations. Although CSR programs and conservation education have succeeded in raising awareness and fostering positive attitudes toward turtle conservation, these efforts have not yet fully addressed structural economic dependencies. Therefore, the persistence of threats suggests that conservation-oriented CSR initiatives need to be complemented by sustainable livelihood programs, such as eco-tourism development, skills training, or income diversification, to reduce economic incentives for illegal hunting and egg poaching. This highlights the importance of integrating ecological education with socio-economic empowerment to ensure that positive behavioral changes are not only understood conceptually but are also viable in practice.

The results of this study have functional managerial implications for conservation management companies and institutions run by local communities, that it is important for companies and conservation institutions to design more structured environmental education-based CSR programs in order to be able to improve ecological knowledge and community conservation behavior effectively and efficiently, as well as make CSR part of the sustainable resource development strategy (Green Human Resource Management) for the community. Turtle conservation institutions can also strengthen the socialization and management of coastal resources by increasingly involving the community in their activities. CSR synergy with the community can be an effective model in preserving a sustainable environment.

CONCLUSION

This study demonstrates that Corporate Social Responsibility (CSR) implementation is significantly and positively correlated with ecological knowledge and conservation behavior among coastal communities in Serang Beach. The findings confirm that CSR-based conservation programs function not only as philanthropic activities but also as effective instruments for community capacity building through the transfer of ecological knowledge and the internalization of pro-environmental values. Increased ecological knowledge is shown to reinforce conservation behavior, indicating that environmental education plays a critical role in shaping community participation in turtle conservation efforts.

However, despite the presence of positive correlations, threats to sea turtles, such as hunting and egg poaching have not been entirely eliminated. This highlights an important practical limitation: improvements in knowledge and attitudes do not always translate into fully sustainable behavior change. Economic dependence on coastal resources and limited alternative livelihood options remains significant constraints that may compel certain community members to continue environmentally harmful practices. These findings suggest that conservation-oriented CSR programs must move beyond awareness-building and incorporate socio-economic empowerment strategies to address the root causes of persistent threats.

Overall, this study contributes to the literature by emphasizing CSR as a socio-ecological intervention that integrates principles of Green Human Resource Management and stakeholder theory in a community context. The results underscore the importance of

aligning environmental education with sustainable livelihood development to ensure long-term conservation outcomes. Strengthening CSR programs through integrated educational and economic approaches can enhance community resilience and support more effective protection of endangered marine species.

Future research is recommended to adopt mixed-method or qualitative approaches to explore in greater depth the economic motivations and livelihood dynamics that influence conservation behavior in coastal communities. In addition, longitudinal studies are needed to assess the long-term effectiveness of CSR programs in sustaining behavior change beyond short-term awareness outcomes. Further studies could also examine the role of alternative livelihood initiatives, such as community-based ecotourism or income diversification programs as mediating variables between CSR implementation and conservation behavior. Expanding the sample size and comparative studies across different coastal regions would also provide a more comprehensive understanding of how contextual socio-economic factors shape the success of conservation-oriented CSR initiatives.

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