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An Analysis on High School Student's Concern Towards River in Cimanggung and Its Surrounding

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Abstract

Environmental issues in the river area have received less attention, even though the river plays a big role in people's lives, especially those around it. It is important to know the concern of high school students for the environment because they are the next generation of the region's future development. One of the rivers in the Cimanggung area is the Cimande River. This study aims to analyze the environmental concerns of high school students regarding the river environment in the Cimanggung Area and its surroundings. The research method used was a descriptive qualitative method, with respondents of high school students in the Cimanggung area totaling 139 respondents with an age range of 15-18 years. Data collection techniques by observation, interviews, and literature studies. The instrument used to determine the level of student concern for the environment uses a Liked scale consisting of 25 questions and 5 interview questions. The results showed that the level of student concern was broadly in the good category with an average score of 76.9. The results of observations and interviews show that the waste contained in the river environment is waste from people who pass by, not residents who live around the river area.

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1. INTRODUCTION

A river is a long, continuous stream of water flowing from upstream (source) to downstream (estuary) (Hanafi & Yosananto, 2018). The structure and function of rivers naturally depend on geography and climate, but rivers are vulnerable to natural and human-induced disturbances, ranging from channel engineering to pollution and biological invasion (Sabater, 2008). Rivers are a source of surface water, so they are widely used for various purposes. A river is a large, long stream of water that flows continuously from upstream (source) to downstream (estuary). Based on its longitudinal profile, a river can be divided into three parts: upstream, middle, and downstream (Surtikanti, 2014). In some cases, rivers only flow into the ground before encountering another body of water. Rainwater that falls on land through rivers usually flows into the sea or into a large body of water such as a lake. Rivers consist of several parts, starting from springs that empty into tributaries. Several tributaries join to form the main river. The water flow is usually closest to the lower channel and rocks on the left and right. River basins (DAS) are the point of continuity of all biophysical, hydrological, social, economic, and cultural processes within the scope of scientific, social, economic, and cultural development aspects (Sukowiyono et al., 2018; Batubara et al., 2023). Rivers have functions such as agricultural

irrigation, drinking water sources, for rainwater and wastewater drainage, and have high potential as tourist attractions (Listyaningrum et al., 2017).

The development of the times, population growth, is linear with increasing needs that have an impact on environmental changes, including river environments. As we all know, rivers play a very significant role in supporting community life, especially those living around rivers. River ecology can shape the culture of the surrounding community (Rahmawati, et al., 2019; Batubara, et al., 2023). The most crucial problem related to the river environment is that people living around riverbanks still demonstrate attitudes and behaviors that do not maintain river sustainability, such as throwing garbage into rivers, both solid and liquid waste. According to economists and environmentalists, there is a perception that the carrying capacity of existing resources on this earth is limited. There is a kind of maximum population figure on earth. If the number exceeds the existing natural resources, then the needs of a portion of humanity will not be met because the existing resources are unable to meet the needs of such a large population (Akhirul, 2020).

Geographically, the Cimanggung District is located at an average altitude of 248.25 meters above sea level. Its area is approximately 11,197.01 hectares. Its topography consists of hilly slopes with few expanses. To the north, it borders the Tanjungsari, Pamulihan, and South Sumedang Districts. To the east, it borders South Sumedang District and Garut Regency. To the west, it borders Jatinangor District, and to the south, it borders Bandung Regency and Garut Regency. The rivers surrounding Cimanggung are the Cimande and Citarik rivers, both of which flow into the Citarum River. It is also important to understand the problems occurring in the upstream areas of the Citarum River so that they can form the basis for developing programs that support the Citarum revitalization efforts. (Yunita, 2020). The economic characteristics of the population in the Cimanggung area are not only from the agricultural sector but also from the processing industry sector such as textiles, medicines, and garments. Many processing industry companies are established and operating here. The Cimande River is a sub-watershed of the Citarik River (Hanafi & Yosananto, 2018). The condition of the Cimande River, which flows through the Cimanggung area and its surroundings, is relatively better than the downstream section, towards Rancaekek and its surroundings. Rancaekek is a textile industry area, home to many large textile companies.

Environmental concern is an individual's attitude and actions aimed at improving the condition of the natural environment around them (Narut & Nardi, 2019). Environmental concern is not acquired instantly. It requires habituation, as environmental concern is also formed from habits ingrained since childhood (Qodriyanti, et.al., 2022). Each individual's environmental concern will determine the quality and sustainability of human life. Each individual must realize that how they treat nature is the same as how they treat themselves. Each individual should realize that a balanced ecosystem will create a beautiful and comfortable environment to live in. Humans are the biggest cause of environmental damage (Santika, et.al., 2022).

Education is a means of instilling environmental awareness (Fitriati et al., 2019). Providing environmental awareness education to students as the next generation is crucial. Environmental education needs to be taught to students from early childhood through higher education. Environmental awareness, especially regarding river conservation, should be instilled in children who are still in their golden age (Fahlevi, 2020; Batubara et al., 2023). Children are the leaders of the future. They are human beings who have the right to the earth we are borrowing, so they must be involved in caring for the earth as their home (Hidayah, 2018). High school age is the optimal age for environmental education where students can be guided, mentored, and educated to carry out tasks according to their commitments and responsibilities, so that the process of forming an environmentally conscious character will be more effective. Education is a conscious and planned effort to provide stimuli to students to gain insight and the ultimate goal is to form an awareness of the importance of protecting the environment (Tanyid, 2014; Smith, 2019;

Fahlevi, 2020). It is important to know the concern of high school students for the environment because they are the successors for the development of the region for future generations. When the environment is damaged, human activities will be disrupted. For this reason, an attitude of environmental concern is needed from each individual, especially students (Qodriyanti, et.al., 2022). Humans are the determinants of ecosystem balance. As creatures on earth who are given a mandate by God Almighty, humans must be responsible for managing the earth and are prohibited from causing damage (Putri, et.al., 2022)

The author of this study is interested in analyzing the concern of high school students (SMA) towards the river environment in the Cimanggung area and its surroundings because this must be done as a preventive action. The Cimande River from the upstream, middle and downstream has different qualities. The Cimanggung area is the upstream and middle part of the Cimande River. The increasingly deteriorating river quality downstream should not also occur in the middle and upstream parts. So this study according to the author has a novelty where the focus of the research is the concern of high school students towards the river environment, usually most research is on the general public. and this study also focuses on the river environment. So the problem can be formulated as follows: what is the category of environmental care attitudes of high school students towards the river environment in the Cimanggung area and its surroundings?

2. METHOD

The method used in this study is a qualitative descriptive method with the aim of analyzing the level of concern of high school students towards the river environment in the Cimanggung area and its surroundings. The sampling technique used was a purposive sampling technique, and obtained respondents of 139 high school students who are residents living in the Cimande River area and its surroundings. The environmental care attitude instrument used a Likert scale questionnaire consisting of 25 questions related to student concern towards the river environment and five interview questions. The instrument had previously been validated by experts. Data collection techniques were through observation, interviews and literature studies. The completed instrument was then processed using the environmental care attitude score processing indicator formula (SPL) as follows:

Skor SPL = (skor yang didapat : skor maksimal) X 100

From the results of these calculations, we can then determine the criteria for students' environmental care attitudes based on the criteria determined by Mahita (2018).

Table 1. Criteria of environmental Care Attitude

No.	Score	Criteria
1	< 60	Poor
2	60 – 70	Fair
3	>70-80	Good
4	>80	Excellent

Source: Mahita (2018)

3. RESULTS AND DISCUSSIONS

This study analyzes high school students' concern for the river environment in the Cimanggung area and its surroundings. Of the total 139 respondents, there were 114 female respondents (82%) and 25 male respondents (18%). The age range of respondents was between 15-18 years old, which is the age of high school students in general. Respondents came from various family economic backgrounds with parental income ranging from less than Rp500,000

to Rp5,000,000 per month (figure 1) and parental education levels ranging from no schooling to master's level (figure 2). The results of data processing based on the SPL (Environmental Care Score) formula, obtained that the level of high school students' concern for the river environment in the Cimanggung area and its surroundings can be categorized as follows:

Tabel 2. Results of Environmental Concern Criteria for High School Students

Score	Criteria	Number of Respondent
< 60	Poor	3 (2,1 %)
60-70	Fair	12 (8,6 %)
70-80	Good	90 (64,7 %)
>80	Excellent	34 (24,6 %)
Average		**76,9**

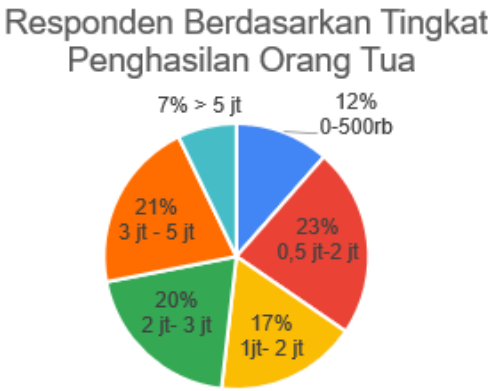
High school students' awareness of the river environment in the Cimanggung area and its surroundings was categorized as "good" with an average score of 76.9. Respondents already had knowledge about the importance of rivers for human life, such as as a source of clean water, agricultural irrigation, and habitat for aquatic ecosystems. Respondents were already aware of the impacts of river pollution. They mentioned a decline in water quality, the death of aquatic biota, and the risk of disease for residents if the river is polluted. Participation in river environmental conservation activities, although still low, at least some respondents had been involved in activities related to river environmental awareness, such as planting trees around the river area, cleaning up waste in the river, and being involved in the Citarum Harum program. The Cimande River flows into the Citarum River. This Citarum Harum program has had a positive impact on the river environment in Bandung and its surroundings, including the Cimande River, although it has not yet fully revitalized all parts of the river. At least residents living around the Cimande River are aware that the river must be protected. Based on the author's observations, the condition of the upstream and middle reaches of the Cimande River is still relatively polluted. The garbage found in the upstream and middle parts of the river is certainly garbage from the waste of residents who pass through the river when they are going to the market or doing activities, usually they deliberately throw garbage into the river, while local residents do not do that. Various efforts have been made by residents to prevent residents who pass through the Cimande River from throwing garbage into the river, such as by putting up announcements containing curses for residents who like to throw garbage into the river, but it seems not very effective because in fact there is still garbage from the waste in the Cimande River. The results of the analysis of the condition of the Cimande River based on the author's observations are presented in the following table 3:

Table 3. Results of Analysis of Cimande River Conditions

River section	Pollutant Load Carrying Capacity	Source of pollution
Upstream	Quite good	Agriculture, domestic waste
Middle	Poor	Agriculture, domestic waste, home industry
Downstream	Very poor	Agriculture, domestic waste, home industry, textile industry

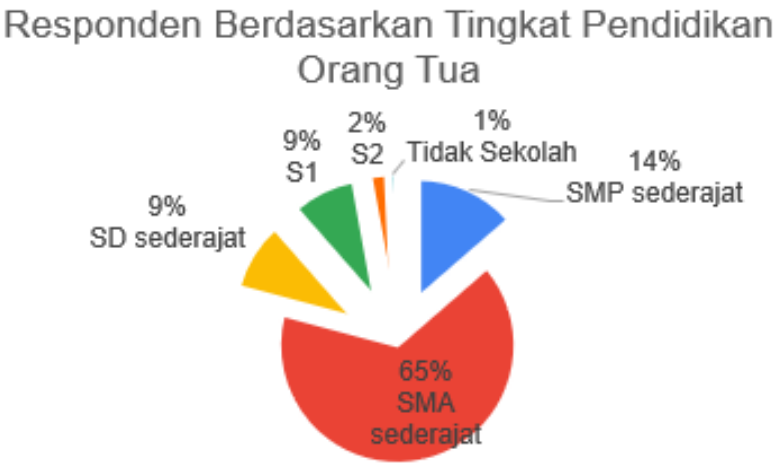
Table 3 shows the results of the observations regarding the condition of the Cimande River in the upstream, middle, and downstream parts. Our environment is dynamic, continually

changing and evolving due to the competing demands of society (Jasmine, 2023). Based on the results of observations, the condition of the Cimande River from the upstream has been polluted in the form of waste from the agricultural sector and domestic waste due to the presence of residential areas. In the middle section, the condition of the water has begun to decline due to the increasing sources of pollution other than the agricultural sector, domestic waste, coupled with the presence of many home industries and increasingly dense residential areas. In the downstream section, the condition worsens because this downstream section is no longer in the Cimanggung area but has become part of the Rancaekek area, where, as we all know, there are many textile industries. The color of the water in this downstream section is somewhat black and smelly. Based on interviews with residents around the downstream, this color is the result of textile industry waste, usually dumped at night.



Gambar 1. Percentage diagram of respondents based on parental income level

Figure 1 shows the percentage of respondents based on their parents' income. 72% of respondents had parents with lower-middle incomes. This indicates that even though they come from modest economic backgrounds, they already have a strong environmental awareness. This is in line with Hidayah's (2018) research, which reports that environmental awareness is proportional to welfare and education levels. However, Indonesia is an exception.



Gambar 2. Percentage Diagram of Respondents Based on Parental Education Level

Figure 2 shows the number of respondents based on their parents' education level. 89% of their parents' education background only reached secondary level, only 11% had a higher education background. This is also in line with Hidayah's (2018) writing, which states that education level does not guarantee a person's concern for the environment. This data is parental

education data. The author assumes that students' environmental concern is a reflection of the education they receive in their family and school environments. Environmental concern and caring attitudes can be developed effectively through schools, one of which is through science subjects (Putri, 2022). Environmental education is a significant topic addressed at various educational levels globally. It is considered one of the most effective solutions for preventing environmental damage (Ali, et.al., 2023).

Interview questions related to efforts to preserve the river environment. Most respondents answered by not throwing garbage into the river. So that in the future, in learning about environmental pollution, students can be invited to review literature and write essays on solutions to environmental problems, especially river environments. I, as an educator, will also introduce what ectoenzymes are because most students do not yet know what ectoenzymes are. In the classroom learning process, it is important to provide knowledge related to bioindicators that can be used to measure whether a river is polluted or not. It is important to instill in students an understanding of the enormous role of rivers in supporting life.

The analysis of students' awareness of the river environment showed a score of 76.9, categorized as good. This doesn't mean we should be satisfied with this. Efforts to improve this are still needed, particularly in terms of active participation in river conservation activities. Student awareness of the environment can be fostered through school greening programs (Nugroho et al., 2020). One way to address human behavior that is less concerned about the environment is to change it through education, namely by implementing activities of field trip (Yulianti, et al., 2014). Research in Greece on the attitudes of secondary school students towards environmental issues found that the more aware students were of environmental issues, the greater their desire to participate in environmental education programs (Zachariou, et.al, 2020). River conservation management is a human effort to manage the relationship between the River Basin (DAS) environment and the behavior of the people living around it through their various activities. The goal of this river management is to achieve a sustainable river ecosystem and increase the benefits of the river for community life in the long term (Biati, et.al., 2023). Good scientific literacy skills will improve environmental care character in students, so it is hoped that students can become individuals who care about environmental sustainability in their homes (Mursalin & Setiaji, 2021). Collaboration between schools, local governments and environmental organizations in river environmental conservation efforts can be a recommended solution packaged in the form of Community Service activities.

The results of this study are certainly far from perfect, with many shortcomings in its implementation. The limited research area means the results cannot be generalized to represent the level of awareness of high school students in other regions. The sample size also needs to be increased to ensure more representative results and high validity. This will allow future research to analyze the factors influencing students' levels of awareness of river environments. The data generated in this study will serve as a reference for future research.

4. CONCLUSION

This study shows that high school students' awareness of the river environment in the Cimanggung area and its surroundings is in the "good" category, with an average score of 76.9 based on the Environmental Awareness Score (SPL). The majority of respondents recognize the importance of rivers as a source of water, irrigation, and habitat for aquatic biota, and understand the negative impacts of river pollution on health and the environment. Despite coming from lower-middle economic and educational backgrounds, students still demonstrate an attitude of concern for the environment, reflecting the significant role of education at school and the social environment in shaping this character.

However, students' active participation in real-world river conservation activities remains relatively low. Some students participate in activities such as tree planting and trash cleanup, but

these efforts have not been implemented on a large scale and sustained basis. Furthermore, observations of the Cimande River indicate increasing levels of pollution from upstream to downstream, primarily caused by agricultural, domestic, and industrial waste, particularly the textile industry in the downstream area.

Data also shows that social factors such as parental income and education do not always correlate with students' environmental awareness, as explained by Hidayah (2018). Therefore, the role of environmental education through schools is crucial in instilling values of river awareness. Approaches such as scientific literacy, introduction to ecoenzymes, and the use of bioindicators need to be enhanced in learning. Activities such as field trips, essay assignments, and school greening programs can be effective learning strategies.

This study also emphasizes the importance of collaboration between schools, communities, local governments, and environmental organizations in designing river conservation programs. Despite limitations in scope and number of respondents, the results of this study can serve as a starting point for further studies on the factors influencing students' concern for river environments and for designing more effective and long-term educational interventions.

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It is hoped that the results of this study can provide a positive contribution in efforts to increase environmental awareness among students and serve as a reference for future research and policies.

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