Ecopedagogy of Island Communities: Conception, Planning to Action in Building Environmental Awareness in Kelapa Island and Harapan Island, Administrative District Kepulauan Seribu-DKI Jakarta

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Abstract.
This study intends to examine the conception, planning, and action in building environmental awareness in Kelapa Island and Harapan Island, Administrative District Kepulauan Seribu, DKI Jakarta. Methodologically, this study is based on a critical paradigm and a qualitative approach. The study was conducted in May–June 2023. Data collection techniques were observation and in-depth interviews. Whereas, the data analysis technique was interpretive phenomenological analysis. The study results show that: (i) education is the main focus of building environmental awareness; (ii) environmental awareness has been instilled in children from an early age through informal, formal, and non-formal education. In the context of informal and non-formal education, parents play an active role in instilling environmental awareness values. Furthermore, in formal education planting environmental awareness is socialized through the learning curriculum; (iii) conception and planning of environmental awareness in the community is carried out continuously and sustainably; and (iv) concrete actions to build community environmental awareness are carried out with various campaigns, movements and routine actions carried out by multi-stakeholders to create environmental sustainability on the Kelapa Island and Harapan Island, Administrative District Kepulauan Seribu-DKI Jakarta.

Keywords: ecopedagogy, environmental conception and action, Thousand Islands

1. Introduction

The population distribution in the Kepulauan Seribu Regency is more concentrated in North Kepulauan Seribu District. This can be seen from the population numbers in North Kepulauan Seribu District, which is approximately 15,076 people, while in South Kepulauan Seribu District, the population is 9,860 people. According to the Indonesian National Standard (SNI) No. 03-1733 of 2004 regarding the Procedures for Urban Housing and Environmental Planning, Pulau Panggang Village is classified as
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a highly dense area. Additionally, based on data from the Tourism and Culture Office of the Thousand Islands, the number of tourists on islands with larger populations is higher compared to uninhabited islands. In 2015, 96.06% of tourists visited inhabited islands, while in 2016, the number reached 84.8%. The higher number of tourists visiting inhabited islands is due to better facilities, infrastructure, and easy transportation access to those islands. Moreover, accommodation prices on inhabited islands are generally cheaper than on uninhabited islands. In 2016, the number of tourists to inhabited islands was as follows: 1) Untung Jawa Island = 252,669 people, 2) Tidung Island = 146,351 people, 3) Pari Island = 116,107 people, 4) Pramuka Island = 88,527 people, 5) Harapan Island = 86,106 people, 6) Kelapa Island = 35,364 people, and other inhabited islands = 17,392 people [1].

The communities of North Kepulauan Seribu have distinct kinship patterns due to the presence of several ethnic groups. The arrival of the Mandar and Bugis communities in the region is influenced by their culture’s strong dependence on the sea as a source of livelihood. Meanwhile, the presence of the Betawi community, originating from the North Tangerang area, is related to the geographical proximity to the Thousand Islands. The isolated conditions of the islands from the mainland and city center lead to intermarriage among island residents with different cultural and ethnic backgrounds. Each ethnic group brings its own culture, and this interaction continues to this day. As a result, the majority of the Kepulauan Seribu community does not differentiate themselves based on their ethnic identity. They consider themselves as “orang pulo,” referring to the inhabitants of the Kepulauan Seribu whose ancestors come from various ethnic groups. They are not certain about their exact ethnic origins.

The predominant kinship system adopted by most of the communities in the Kepulauan Seribu is patrilineal, following the male lineage. This system is influenced by the ethnic groups present in the region. Additionally, Islam, which is the majority religion, also influences the kinship system. The majority of residents in North Kepulauan Seribu District practice Islam, giving religious leaders a relatively high position in the community. Religious leaders are respected by the community, especially in religious matters. Apart from religious leaders, an individual's social status in the community is also assessed based on other social assets obtained through achievements such as education, economy, and politics.

Residents of North Kepulauan Seribu District have to endure issues such as water scarcity, the threat of tornadoes, and the accumulation of waste in residential areas. Almost all inhabited islands in the district face these problems, except for Sabira Island, which does not have water scarcity. Efforts are being made by various parties
to address these issues. To alleviate water scarcity, the local government and other organizations have built groundwater distillation plants using Reverse Osmosis (RO) systems in residential areas. However, residents still find it insufficient because the RO plants can only convert brackish groundwater into fresh water. During the dry season, the groundwater level decreases, and it becomes saltier. In such conditions, the distilled water from the RO plants remains brackish and cannot become fresh. Waste management remains an unsolved social problem in this area. The tourism activities during weekends contribute significantly to the waste generation in the district. Some efforts have been made to address this issue, including the establishment of waste treatment facilities by the Kepulauan Seribu Marine National Park (TNKS) on Pramuka Island. Unfortunately, the waste treatment facility has not yet become a solution to this waste problem. The waste treatment capacity is not sufficient to accommodate all the waste on the island, especially considering the additional waste from tourism activities. With the rapid development of the tourism industry, some residents are concerned about the negative influences on their younger generation. The arrival of tourists, accompanied by negative influences such as drugs and free lifestyles, can threaten the overall societal values and norms [2].

Based on the various environmental, social, and economic conditions in Kelapa Island and Harapan Island, we recognize the importance of an eco-pedagogic approach as a solution to future environmental issues. Therefore, this research will focus on the following objectives: (i) Explaining education as the primary focus in building environmental awareness; (ii) Describing environmental awareness through instilling a love for the environment from an early age through informal, formal, and non-formal education; (iii) Developing concepts and plans for continuous and sustainable environmental awareness among the communities of Kelapa Island and Harapan Island; (iv) Describing the actions taken by the communities of Kelapa Island and Harapan Island in fostering environmental awareness. The aim is to emphasize the significance of education and highlight the role of early environmental education in nurturing a sense of responsibility and care for the environment. By implementing continuous and sustainable awareness initiatives, we aim to empower the communities of Kelapa Island and Harapan Island to actively participate in environmental preservation and conservation efforts.

### 2. Literature Review

Grigorov and Fleuri [3] describe eco-pedagogy as a movement that arises from real-life issues and acts as a response to the perspective of the modern paradigm that places
humans as the dominant beings in the world. The emergence of eco-pedagogy can be traced back to the First Earth Summit conference held in Rio de Janeiro, Brazil, in 1992. This conference brought together world leaders, academics, and environmental activists. It marked the initiation of an integrated project for the establishment of a new civilization, known as the Earth paradigm, which contrasts the anthropocentric paradigm that positions humans as the rulers of the Earth. Eco-pedagogy is built upon the ecocentric or Earth paradigm, which recognizes nature as the central focus. It is often referred to as Earth Pedagogy, emphasizing the Earth as a living entity [4].

The concept of eco-pedagogy or ecological pedagogy is an approach in education that focuses on learning about the environment and sustainability. This concept acknowledges the interconnectedness of the environment and humans and argues that education should promote understanding, appreciation, and responsibility towards the natural environment. Eco-pedagogy aims to transform how we learn and teach to align with the principles of sustainability. Another perspective suggests that eco-pedagogy is an environmental pedagogy rooted in critical and popular pedagogy theories and philosophies [5],[6]. In fact, Misiaszek and Torres [7] connect eco-pedagogy with Freirean thinking. This is related to the goal of eco-pedagogy, which teaches the critical relationship between human actions towards the environment and social conflict as a step towards ending oppression [8]. Eco-pedagogy is driven by the understanding that environmental issues result from unjust social, economic, and political interactions, and a critical approach is needed to uncover and address the root causes of these problems [9]. In this context, eco-pedagogy can provide a critical understanding of the impact of human actions on the environment, as well as analyze how these actions can lead to environmental harm and social conflict. Through this understanding, it is hoped to create educational tools that motivate and empower individuals to take collective action to address environmental injustices and achieve social justice. Therefore, the eco-pedagogy approach emphasizes the importance of dialogue, participation, and contextual understanding in learning. In practice, students are encouraged to actively participate in the learning process, ask critical questions, identify environmental problems, and work together to find sustainable solutions.

Through this perspective, we conclude that an eco-pedagogic approach seeks to integrate ecological thinking and sustainability principles into the entire educational curriculum and experience, not just in subjects traditionally related to the environment. There are several main principles underlying eco-pedagogy:
1. Eco-pedagogy encourages direct engagement with nature and real-life experiences with the natural environment. Students are invited to learn through observation, exploration, and active participation in activities related to the environment.

2. Eco-pedagogy teaches students about ecosystems and the complexity of relationships between living organisms and their environment. This involves understanding natural cycles, food chains, biodiversity, and other ecological interactions.

3. Eco-pedagogy emphasizes the importance of sustainability and provides an understanding of global environmental issues such as climate change, pollution, deforestation, and resource scarcity. Students are encouraged to consider the impact of their actions on the environment and explore ways to reduce their ecological footprint.

4. Eco-pedagogy develops the skills and attitudes necessary for sustainable living. This includes skills such as problem-solving, critical thinking, teamwork, social justice, and creativity in seeking solutions to environmental issues.

5. Eco-pedagogy encourages collaboration among students, teachers, schools, and the local community. Collaborating with environmental organizations, governments, and the general public can help strengthen ecological education and involve students in real-life, sustainable projects.

By implementing the concept of eco-pedagogy, it is hoped that students can develop awareness and concern for the environment and become committed agents of change in building a sustainable society. Eco-pedagogy can be rooted in philosophical values, as mentioned by Yasida [10]. According to Yunansah and Herlambang [11], eco-pedagogy is an approach that aims to cultivate ecological awareness and serves as a critical reflection on environmental conditions that do not align with desired outcomes, with the ultimate goal of creating a better life. Initially, ecopedagogy emerged as an educational pedagogy to support sustainable development, also known as education for sustainable development (4). Eco-pedagogy encompasses the idea of learning to interpret objects or living beings and their environment in a sustainable manner with a focus on sustainability.

### 3. Methodology

Methodologically, this research adopts a critical paradigm through a qualitative approach. The critical paradigm is a theoretical framework that aims to analyze and power...
structures, social inequalities, and dominant ideologies [12]. Its objective is to uncover assumptions and hidden structures that perpetuate injustice and oppression, with the goal of promoting social transformation and emancipation. Within this critical paradigm, the study utilizes a qualitative approach, focusing on understanding subjective experiences, meanings, and individual interpretations within their social and cultural contexts [13]. The study was conducted during May-June 2023, employing data collection techniques such as observation and in-depth interviews. Meanwhile, the data analysis technique employed was interpretive phenomenological analysis. By adopting a critical paradigm and employing qualitative methods, this research aims to critically examine investigated topics, explore social and environmental issues, and give voice to marginalized perspectives. It seeks to uncover underlying power dynamics, identify social injustices, and generate knowledge that can contribute to transformative change and social justice.

4. Discussion

4.1. Education as main focus in building environmental awareness

Education plays a significant role in shaping environmental awareness in society. When education becomes the primary focus in building environmental awareness, individuals are given the opportunity to learn, understand, and internalize sustainable environmental values [14]. This is important because the current environmental challenges require collaboration and collective action from all members of society. Based on your findings, there are at least five dimensions highlighting the importance of education in building environmental awareness: (i) providing understanding and knowledge; (ii) built interconnection awareness; (iii) behavior change; (iv) active community engagement; and (v) serving as a foundation for sustainable development.

Education provides understanding and knowledge related to the necessary knowledge and understanding of environmental issues such as climate change, biodiversity loss, pollution, and excessive use of natural resources. With good knowledge, individuals can comprehend the impact of human activities on the environment and the importance of environmental protection. In practice, the communities in Kelapa Island and Harapan Island are starting to realize that the environment is a community asset that can be economically utilized. Therefore, the environment is not merely seen as a place of residence but as a regional asset that must be preserved for its economic and ecological sustainability. Moreover, from this perception, communities are beginning
to realize that such actions cannot be done partially and individually. In this context, the community eventually recognizes the importance of interconnection among fellow community members. The built interconnection awareness, whether direct or indirect, establishes a connection between the community, the environment, and its ecosystem. This demonstrates that education causally influences individuals’ awareness that their actions have far-reaching consequences for the overall life of others. By understanding this interconnection, individuals tend to make more responsible decisions regarding the environment. Based on the findings, this interconnection awareness is represented through diverse organizational groups that synergistically work together to solve environmental problems in Kelapa Island and Harapan Island, such as tourism awareness groups, waste management organizations, and various other environmentally concerned organizations. With the establishment of this interconnection awareness, changes in community behavior unfold as they begin to recognize their roles in preserving the environmental balance.

**Behavioral changes** driven by environmental education stimulate more sustainable behaviors. With the understanding gained through education, individuals can alter their lifestyles to be more environmentally friendly. This may include reducing energy consumption, using more sustainable transportation, recycling, waste reduction, and choosing environmentally friendly products. One notable example of behavioral change among the communities in Kelapa Island and Harapan Island can be seen from the increasing use of electric vehicles in their daily activities. This indicates that here, it can be understood that the ecological shift in community behavior is formed through continuous education that encourages community involvement in preserving the environment. Meanwhile, environmental education can foster *active community engagement*, as observed in the practical lives of the communities in Kelapa Island and Harapan Island, manifested through individual awareness as change agents and active participation in environmental initiatives. Community involvement is crucial in creating collective awareness and strengthening the movement for environmental protection. From a critical perspective, the practices occurring in the communities of Kelapa Island and Harapan Island have shown an understanding of sustainable development. Thus, it can be stated that *environmental education creates a foundation for future sustainable development*. By prioritizing education in the development agenda, we can ensure that future generations have a profound understanding of environmental issues and are prepared to address them. Education can also drive the innovation and sustainable solutions needed to effectively tackle environmental problems. To further emphasize
that education is the primary focus in building environmental awareness, refer to Figure 1.

![Diagram of the environmental awareness process](Source: Analysis Results, 2023)

**Figure 1**: Education as Main Focus in Building Environmental Awareness in Kelapa Island and Harapan Island. (Source: Analysis Results, 2023).

By making education the primary focus in building environmental awareness, based on our findings, it can shape individuals who care about the environment, are capable of making sustainable decisions, and contribute to environmental protection and restoration efforts. Holistic and inclusive education about the environment will play a key role in creating a sustainable future for future generations.

4.2. Environmental awareness through education informal, formal, and non-formal

Environmental awareness is the individual or collective consciousness of the importance of preserving and protecting the natural environment. To enhance environmental awareness, education plays a crucial role. Education can be delivered through various means, including informal, formal, and non-formal education. Based on the research findings, we observed that informal education, in the context of environmental awareness among the community in Kelapa Island and Harapan Island, is carried out by parents. Parents provide education by explaining the significance of preserving the environment for the sustainability of life and as an asset to the community, including its role as a tourist destination. This is done not only by families with higher economic status but also by economically disadvantaged families. However, their approaches may differ in practice. For example, affluent families lead by example for their children, as they believe it can shape their behavior towards waste management. On the other hand, in economically disadvantaged families, internalizing environmental awareness is achieved by providing an understanding that proper waste disposal serves two functions: cleanliness and potential income generation. By separating the types of waste, they can sell the collected plastic waste as an additional source of livelihood.
On the other hand, we also found that internalizing environmental awareness is carried out through formal education. Formal education refers to structured and officially regulated education systems, such as schools. In the context of environmental awareness, formal education can be delivered through a curriculum that includes environmental subjects, such as environmental science, nature conservation, or ecology. Formal education also involves structured teaching and assessment, including teacher training to prepare them for teaching environmental issues to students. Through formal education, students can gain a deep understanding of environmental issues and the importance of individual and collective actions. According to a teacher informant, students are taught to differentiate types of waste and sort them before disposing them in designated bins. Additionally, students are accustomed to classroom duties after school, which are carried out regularly every day. Apart from these activities, there are also learning materials related to turning waste into classroom ornaments, crafts, and utilizing plastic waste as flower pots (see Figure 2).

![Recycling plastic bottle waste into flower pots](image)

(Classroom ornaments from processed waste)

(Decorations from plastic waste)

(Source: Research Documentation, 2023)

**Figure 2:**

According our informant, such practices are carried out to cultivate students' innovative abilities in solving environmental problems. This simultaneously demonstrates that the eco-pedagogy skills of teachers can create solutions and alternatives in preserving the sustainability of the environment in Kelapa Island and Harapan Island.

Regarding non-formal education, it encompasses activities organized outside the scope of formal education but with educational objectives. This can include workshops, seminars, training programs, or group activities focused on environmental issues. Environmental organizations and NGOs often organize non-formal activities to enhance public awareness and understanding of the environment. In the community of Kelapa Island and Harapan Island, environmental groups frequently hold workshops on waste management, training programs on renewable energy, or awareness campaigns regarding the importance of environmental conservation. Therefore, we conclude that non-formal education can provide opportunities for interactive learning, sharing experiences, and participating in concrete actions related to environmental issues. In the effort to enhance environmental awareness, it is important to integrate these three types of
education holistically. Informal, formal, and non-formal education complement each other and create opportunities for individuals and communities to learn and participate in environmental preservation.

4.3. Conception and planning in awareness of environmental

Good conception and planning is an important step in making people aware of the importance of the environment and how to maintain and protect it. The following are some conceptions and plans that can be carried out in an effort to raise environmental awareness in the community. Situation analysis, a thorough analysis of the current environmental situation, including environmental problems faced and their impact on society. This helps in understanding the existing challenges and identifying key focuses that need to be made aware of in the community. Identification of awareness targets can be done by identifying community groups which are the main targets in environmental awareness efforts. These groups can be diverse, such as students, families, local communities, or certain industries. Tailoring the communication approach and awareness activities to the characteristics and needs of the target audience will be more effective.

Setting clear goals regarding the importance of the environment and the urgency of carrying out sustainability actions. Goals must be prepared with due regard to the cultural context and local values so that they are more acceptable and understandable to the community. The media and communication channels also need attention. Therefore, media and communication channels are chosen effectively to convey messages to the public. This can include print media, electronic media, social media, websites, exhibitions, seminars and community meetings. Using a combination of various communication channels can reach a wider audience. The development of this education and training program is carried out by providing education and training programs that focus on environmental issues. These programs can cover basic knowledge, practical skills, and ongoing behavior change. Involving the community in the program development and implementation process will increase their involvement.

Multistakeholder cooperation also has an important role, namely building partnerships and collaboration with various related parties, such as the government, educational institutions, non-governmental organizations, businesses, and local communities. This collaboration expands the reach and effectiveness of environmental awareness efforts. Impact evaluation and measurement: Carry out regular evaluations and measurements to monitor the impact of environmental awareness efforts. This helps in evaluating the success of the implemented program and identifying areas that need to
be improved or adjusted. To be able to clarify the conception and planning in raising environmental awareness in the people on Kelapa Island and Harapan Island, it can be seen in Figure 3, as follows:

![Conception and Planning Awareness of Environmental](image)

**Figure 3**: Conception and Planning Awareness of Environmental. (Source: Analysis Results, 2023).

Careful conception and planning in environmental awareness to the community is very important to achieve effective and sustainable results. By actively involving the community and providing ongoing support, environmental awareness can increase and the community can be involved in concrete actions to safeguard and protect our environment.

### 4.4. Actions to build community environmental awareness

There are many real actions that can be taken to build environmental awareness in society. Based on the results of our interviews, it is evident that environmental awareness on Kelapa Island and Harapan Island is reflected in the actions of the community in properly handling waste, such as sorting and disposing of garbage according to its type, namely organic and inorganic waste. This demonstrates an understanding of the importance of proper waste management to protect the environment. However, according to one of our informants, environmental awareness is not only related to cleanliness but also to the well-being of the community. This indicates that environmental awareness goes beyond individual actions and involves thinking about the environmental impact on social welfare.

In practice, we have identified several important tangible actions in shaping environmental awareness in the communities of Kelapa Island and Harapan Island: (i)
campaigns and education; (ii) community work projects; (iii) reforestation programs; (iv) reduction of plastic usage; (v) energy conservation; (vi) supporting eco-friendly products; and (vii) collaborating with the government and other organizations. Campaigns and education are conducted by community organizations focused on the environment. These activities involve distributing pamphlets and posters, organizing community forums for discussions, and utilizing social media to educate the public about environmental issues. Additionally, every Friday, the government and the community engage in environmental clean-up activities through community work projects. These activities organize the cleaning of beaches and public parks from both community and tourist-related waste. Reforestation programs are carried out by various parties, including environmental organizations and the community. Interestingly, we found that schools on Kelapa Island and Harapan Island have their own curriculum for such programs. Students are encouraged by the schools to participate in mangrove planting. According to one of our informants who is a teacher, this is intentionally done to cultivate environmental awareness from an early age.

Community actions in shaping environmental awareness are not limited to cleaning polluted areas but also include prevention, such as reducing plastic usage. According to an informant, reducing the use of single-use plastics is an important step in building environmental awareness. This is put into practice by bringing reusable shopping bags, using refillable water bottles, and avoiding the use of plastic straws. In terms of waste management, there are groups in the Kelapa Island and Harapan Island communities that actively engage in recycling. Plastic waste is collected, processed, and transformed into handicrafts such as bags, fashion accessories, hats, and various other items. Regarding energy conservation, as mentioned earlier, the community has started to transition from fossil fuel-powered motorcycles to energy-efficient electric bikes. According to one of the informants, the environmentally driven community takes advantage of the trend-following characteristic of the Kelapa Island and Harapan Island communities to promote electric vehicles. This has proven effective as, based on our observations, fossil fuel vehicles are less common compared to electric vehicles in the daily lives of the community. This indirectly represents a tangible action in shaping environmental awareness by supporting eco-friendly products.

Furthermore, the community also recognizes that building comprehensive environmental awareness requires collaboration among various elements, including the government and environmental organizations. Uniting efforts with the local government and other environmental organizations can strengthen tangible actions in building environmental awareness in the community. By working together, larger activities can
be organized, better environmental policies can be established, and the resulting impact can be enhanced. Changing community environmental awareness takes time and consistent effort. It is important to continuously encourage and educate the public about the importance of environmental conservation to create long-term positive change. This is where eco-pedagogy is needed to complement the acceleration of sustainable development in Indonesia.

5. Conclusion

Education is a primary focus in efforts to build environmental awareness. Environmental consciousness is instilled in children from an early age through informal, formal, and non-formal education. In informal and non-formal education, the role of parents is crucial in imparting values of environmental care. Additionally, formal education also socializes the importance of environmental awareness through the curriculum. The conception and planning to enhance environmental awareness in society are carried out continuously. Concrete actions to build environmental awareness are implemented through various campaigns, movements, and regular activities involving multiple stakeholders. This aims to create environmental sustainability in Kelapa Island and Island Harapan, as well as the Administrative District of Kepulauan Seribu-DKI Jakarta.

By involving the community in tangible actions, it is expected that environmental awareness will increase. Through campaigns, movements, and regular activities, it is hoped that the community will understand the importance of preserving the environment and take sustainable actions to protect natural resources. Moreover, this also demonstrates that eco-pedagogy plays a significant role in internalizing environmental awareness within the community. Thus, these efforts can contribute to creating environmental sustainability in Kelapa Island and Harapan Island, as well as the entire Administrative District of Kepulauan Seribu-DKI Jakarta.

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