
RESEARCH ARTICLE

Strengthening Ecological Citizenship by the “Sebarang Bersatu” Community Forest in Rehabilitation Forest and Land Former Tin Mining: Case Study in Juru Seberang Village, Belitung Regency

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ABSTRACT

Environmental damage due to tin mining, which is not accompanied by environmental preservation in Juru Seberang Village, Belitung Regency, results in drastic changes in physical and chemical properties, including loss of vegetation and potential land degradation which can result in soil erosion, loss of biodiversity, reduced habitat for wild animals and increasing the vulnerability of coastal communities requires strategies to strengthen *Ecological Citizenship* through forest and land rehabilitation. This research uses a qualitative approach with a case study design. Data collection techniques are done through observation, interviews, and documentation studies. Data analysis techniques are carried out by collecting data, reducing data, presenting data, and drawing conclusions. The research results show that the strategy for strengthening ecological citizenship designed by the Sebarang Bersatu Community Forest (HKm) is to provide activities and programs that prioritize educational, conservation, and tourism values. Inhibiting and supporting factors in achieving the strengthening strategy lie in natural factors and community participation.

KEYWORDS

Environmental, Forest, Values, Ecological Citizenship.

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1. Introduction

Environmental problems have now become global problems. Almost all countries in the world prioritize environmental issues in developing policies to guarantee environmental protection and ensure that the lives of future generations will be protected from the dangers of more serious environmental damage (Gusmadi & Samsuri, 2020: 381). Many environmental problems require people to have the knowledge necessary to manage, maintain, and preserve the environment, which is called ecological citizenship. Ecological citizenship is a concept of state life that includes a set of rights and obligations related to the environment. Environmental rights and obligations can be fulfilled by utilizing and protecting the environment and its natural resources responsibly. The concept of ecological citizenship aims to increase people's ecological awareness. With this concept, people not only realize the importance of protecting the environment but also do not engage in behavior that can damage and harm the environment. People's behavior that is less aware of the importance of protecting the environment must be immediately corrected because behavior that does not care about the environment is one of the factors causing environmental damage due to the relationship between people's behavior and the environment. This is in line with Andrew Dobson's research on the relationship between citizenship and the environment, which focuses on the role of citizens in building environmental sustainability (Biagi et al., 2011). Andrew Dobson, in his research, argues that environmental sustainability originates from people's awareness and concern for the environment, characterized by behavior or habits that do not damage the environment. Basically, Ecological

Citizenship is related to strong internal control within citizens who not only have ecological values but also translate these values into environmentally caring behavior, both in public spaces and in their private lives at home (Dobson, 2007).

Historically, Juru Seberang Village was mined by PT Timah in 1948, starting from dredger mines and continuing until 1981. Even though there was a vacuum in tin mining activities, it became active again in 2000 with the rise of unconventional mining, which left dozens of gaping former mining holes that approximately 1000 hectares of unmanaged land and sand islands appear formed from leftover mining material. Tin is used to support human needs, especially in industrial applications. Because of its very important use, tin mining is a large part of the work of the people of the Bangka Belitung Islands. Juru Seberang Village is one of the tin mining locations in Belitung Regency. Tin mining operations in Juru Seberang Village have a real impact on the environment. The impact of tin mining activities primarily results in drastic changes in physical and chemical properties, including loss of vegetation and potential land degradation, which can result in soil erosion, loss of biodiversity, and reduced habitat for wild animals. Other environmental damage is in the form of ex-mining pools or what are usually called pits, where these pools have the potential to cause long-term environmental impacts, especially related to water quality and quantity. Mine hole water contains various heavy metals that can seep into the groundwater system and pollute the surrounding groundwater. After the land was full of mining holes, tin mining areas were cleared in coastal areas, and mining areas encroached on mangrove forests and coastal forests. This environmentally destructive behavior is caused by technological advances and continuous population growth, causing excessive exploitation without any efforts to protect the environment. Land damage due to mining can occur during mining and post-mining activities. Land damage is mostly caused by mining companies that deviate from applicable regulations and carry out exploitation without permits (PETI) by carrying out mining processes illegally and that are not environmentally friendly.

Mangrove forests are protected forest areas. Referring to Law of the Republic of Indonesia Number 41 of 1999 concerning Forestry, "Protected forests are forest areas that have the main function of protecting life support systems to regulate water management, prevent flooding, control erosion, prevent seawater intrusion, and maintain soil fertility." However, in reality, the function of protected forests as guardians of natural balance has not been realized properly. The occurrence of environmental damage, apart from being caused by natural factors, is also caused by the low awareness of citizens regarding efforts to preserve the environment with the aim of sustaining life now and in the future (Sari, Samsuri & Wahidin, 2020, 88). The loss of mangrove forests and coastal forests contributes disproportionately to carbon emissions and increases the vulnerability of coastal residents, so Forest and Land Rehabilitation (RHL) activities are needed. Forest and Land Rehabilitation (RHL) is an effort to restore, maintain, and improve the function of forests and land in order to increase their carrying capacity, productivity, and role in maintaining life support systems, so it is very important and must be improved so that critical land in Juru Seberang Village, Belitung Regency starting to decrease. The definition of forest rehabilitation is contained in Law Number 41 of 1999 concerning Forestry. Article 40 states that forest and land rehabilitation is intended to restore, maintain, and improve the function of forests and land so that their carrying capacity, productivity, and role in supporting life support systems are maintained. Furthermore, Article 41 of Law Number 41 of 1999 concerning Forestry determines that forest and land rehabilitation is carried out through reforestation, reforestation, maintenance, plant enrichment, or the application of vegetative and civil technical soil conservation on critical and unproductive land.

Ecological citizenship is an idea that encourages humans to grow within themselves a sense of belonging to nature and the environment so that they can be involved in protecting their environment. Citizens have ecological rights regulated by law to participate in environmental conservation efforts (Prasetyo & Budimansyah, 2016, 177). As citizens who understand ecological citizenship, they will prioritize responsibility for their environment and be able to protect and manage it wisely. Concern for the environment can be demonstrated by wisely using natural resources, processing natural resources properly, and not over-exploring natural resources without thinking about the negative impacts that will occur just because of profit alone. Selfish attitudes and excessive consumption of natural resources will be reduced if humans are aware of the importance of environmental sustainability and the dangers of natural damage (Silfiana & Samsuri, 2019, 128).

Collective participation and responsibility for environmental protection is the responsibility of all levels of society. As citizens, we have the right and responsibility to protect nature and the environment (Prasetyo & Dasim, 2016). Preserving nature and the environment is very important because citizens are very dependent on nature to meet their needs and sustain their lives in a sustainable manner. (Mariyani, 2017, p. 10; Jannah, 2018, p. 15). In Syahri's (2013) study, citizen participation activities can be driven by strengthening volunteer organizations that love the environment. This participation can be done by providing the dimensions of knowledge, skills, and character values that care about the environment so that sensitivity to protect the environment is achieved. (Gusmadi, 2018, p. 107). Indonesian citizens have rights and obligations in protecting and managing the environment. In Law Number 32 of 2009 concerning Environmental Protection and Management, article 65, paragraph (4) states that "Every person has the right to play a role in environmental management in accordance with statutory regulations." Apart from having rights in environmental management, citizens also have the right to a healthy living environment as contained in Law Number 32 of Article 65, paragraph (1), which states, "Everyone has the right to a good and healthy living environment as part of their human

rights. man". Apart from having rights, Indonesian citizens are also obliged to maintain the preservation of environmental functions as regulated in Article 67, which states that "Everyone is obliged to maintain the preservation of environmental functions and control environmental pollution and/or damage".

Based on other research conducted by Athiyah Hanifah on Strengthening Ecological Citizenship by Perum Perhutani in Forest Village Communities in the Management and Utilization of Protected Forests (Case Study in Lengkong Village, Garung District, Wonosobo Regency), several programs were carried out, namely tree planting, security patrols, socialization and discussions with the community, and forestry partnership cooperation. Inhibiting factors come from outside parties, village communities, and the Perum Perhutani itself. Meanwhile, the supporting factor is that there is good communication with related parties.

Research regarding the study of strengthening and forming civic character behavior that is ecologically based and environmentally conscious is necessary so that people can understand the environment around where they live. The lack of awareness to preserve the environment or the ecological crisis is the responsibility of citizens together with the government to increase behavior that is aware and caring for the environment. Strengthening ecological citizenship can foster awareness of attitudes and behavior toward the environment, which will later lead to a growing sense of belonging to the environment so that in protecting, managing, and preserving the environment, it will focus on more accountable behavior. This research is related to one of the PPKn studies, which focuses on aspects of the rights and obligations of citizens towards their environment.

2. Methodology

The research method used in this study is qualitative research using a case study approach strategy, which focuses on only one phenomenon that is selected, and the researcher wants to understand it in depth by ignoring other phenomena (Sukmadinata, 2012). Determining the research subjects used a purposive sampling technique consisting of the Chair, Deputy Chair, and members of the Seberang Bersatu Community Forest Group (HKm), as well as the local community, with the aim of gathering the information needed by researchers. The purposive sampling technique is a research technique of selecting and deciding on individuals and places to research because they can specifically provide an understanding of problems and phenomena related to research (Creswell, 2015). Data collection uses observation, interviews, and documentation. To test the credibility of the data using source triangulation, technique triangulation, and time triangulation. Research data was analyzed using a qualitative interactive model. Activities carried out in data analysis are the process of data collection, data reduction, data presentation, and drawing conclusions (Miles & Huberman, 1992)

3. Results and Discussion

The problems discussed in this research are related to strengthening Ecological Citizenship and the formation of ecologically based and environmentally insightful civic character behavior through the Seberang Bersatu Community Forest (HKm) group in rehabilitating forests and former tin mining land in Juru Seberang Village, Belitung Regency. Environmentally destructive behavior occurs due to technological developments, the continuing increase in human population resulting in excessive exploitation and deviation from applicable regulations, and mining without permits that carries out illegal mining processes that are not environmentally friendly. The aim of this analysis is, of course, to be used as a reference, and it is hoped that it will be able to present information related to environmental-based movements in efforts to care for the environment.

Ecological problems regarding tin mining in Juru Seberang Village, Belitung Regency, have different impacts depending on the methods and technology used when carrying out mining activities. Severe land damage is caused by deviant mining that does not comply with regulations and mining without permits and is not environmentally friendly. Tin mining activities have negative effects, especially damage to ecosystems on land, coastal areas, and forest ecosystems. Human attitudes and behavior have given rise to policies and lifestyles that destroy the environment, including human life. Environmental damage shows that the environmental management system has failed to create environmentally sound development (Keraf: 2014: 67), so it is necessary to strengthen ecological citizenship and the formation of ecologically based and environmentally sound civic character behavior. The lack of awareness to preserve the environment or the ecological crisis is the responsibility of citizens together with the government to increase behavior that is aware and caring for the environment. Indonesian citizens have rights and obligations to preserve nature. The natural conservation rights of Indonesian citizens are contained in Law (UU) Number 32 of 2009 concerning Environmental Protection and Management. Preserving nature and the environment is very important because to meet their needs and sustain their lives in a sustainable manner, citizens are very dependent on nature (Mariyani et al., 2017: 10).

Environmental damage resulting from tin mining, which is not accompanied by environmental conservation, shows that society must have the knowledge to manage, maintain, and preserve the environment, which is known as Ecological Citizenship. Ecological citizenship is a new idea that seeks to form citizens' awareness in forming a complete human being involved in protecting the environment. The term "Ecological Citizenship" was first used in 1990 by environmental institutions in Canada (Deane Curtin in Engin F ISin, 2002). The concept of Ecological Citizenship aims to increase people's ecological awareness. With this concept, people

not only realize the importance of protecting the environment but also do not engage in behavior that could damage the environment. The idea of establishing ecological citizenship is very important to restoring citizens' responsibility towards their ecology. Ecological citizenship also includes an understanding of ecological issues, as well as the rights and responsibilities of citizens regarding environmental issues. Not only that, Ecological Citizenship also includes efforts to overcome environmental problems as well as to promote positive and sustainable human interaction with the surrounding environment (Clarke & Agyeman, 2011:1775; Latta, 2007:18). Ecological Citizenship is the attitude or ethics of citizens who are imbued with a sense of concern and responsibility for the environment and strive to manage, maintain, protect and preserve the environment. Andrew Dobson, in his research, said that environmental sustainability arises from citizens' awareness and concern for the environment, which is characterized by behaviors or habits that do not damage the environment. Basically, Ecological Citizenship is related to strong internal control within citizens who not only have ecological values but also translate these values into environmentally caring behavior, both in public spaces and in their private lives at home (Dobson, 2007).

In rehabilitating forests and former tin mining land in Juru Seberang Village, Belitung Regency, a strategy for strengthening Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group is needed. Land management and utilization are carried out by providing activities and programs that prioritize educational, conservation, and tourism values. Former tin mining land is used as a tourist area based on mangrove ecosystems and as an area for ecosystem rehabilitation and carbon sequencing efforts.

Table 1. Land Use of HKm Seberang Bersatu (Source: HKm Seberang Bersatu)

Zoning Name	Information	Area (Ha)	Amount
Utilization Zone 1	<i>Belitung Mangrove Park, Gusong Bugis Beach, Silfishery, Pangangan, Camping Ground, Jogging Track, Mini Zoo, Sunset Cafe, Children's Rides, River Tracks, Culinary, Workshop Area, Firefly Park, Family Gathering Area, Entertainment Stage.</i>	112.1	474, 54
Utilization Zone 2	<i>Agroforestry and Silvopastural</i>	106.79	
Zone Utilization 3	<i>Yatch Dock, Marina, Maritime Industry, Port, Silfishery.</i>	183, 22	
Zone Utilization 4	<i>Campground, Integrated Resort Area Development.</i>	72.41	
Protected Zone 1	<i>Mangroves, Gelam Forests and Swamps</i>	82.94	283, 21
Protected Zone 2	<i>Gelam Forest and Swamp</i>	72.48	
Protected Zone 3	<i>Mangrove forest</i>	41.44	
Protected Zone 4	<i>PDAM Raw Water Source</i>	22.53	
Protected Zone 5	<i>Water Catchment and Absorption Zone</i>	10.95	
Protected Zone 6	<i>Water Catchment and Absorption Zone</i>	15.04	
Protected Zone 7	<i>Mangrove forest</i>	37.38	
Amount		757.3	757.3

Tin mining activities, which cause loss of biodiversity and increase the vulnerability of coastal residents, require efforts by Seberang Bersatu Community Forest (HKm) group to reduce the impact of these activities by rehabilitating mangrove forests and utilizing existing tin mining land. The strategy for strengthening Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group is to rehabilitate forests and former tin mining land in Juru Seberang Village, Belitung Regency, namely by conducting outreach to the people of Belitung Regency, especially the people of Juru Seberang Village, which aims to raise awareness. The community's mindset is to always protect the environment, care more about the environment, and create the Belitung Mangrove Park area.

3.1 Socialization to the Community

Socialization is one of the strategies carried out by HKm Seberang Bersatu in the strategy of strengthening Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group in rehabilitating forests and former tin mining land in Juru Seberang Village, Belitung Regency. Socialization regarding the prohibition of illegal tin mining continues to be carried out by the Seberang Bersatu Community Forest (HKm). This outreach is continuously carried out because Juru Seberang Village is mostly a protected forest area and is also a tourist area. The aim of socialization refers to the process of individual interaction to learn habits, attitudes, and values. Socialization helps in the maintenance and preservation of social values and norms. Outreach was carried out to the

people of Belitung Regency, especially the people of Juru Seberang Village, which aimed to raise awareness of the people's mindset to always protect the environment and care more about the environment.

3.2 Establishment of Belitung Mangrove Park (BMP)

Juru Seberang Community Forest (HKm) has very low carbon stocks. This is because the area where tin mining is located in Juru Seberang Village produces the lowest carbon stocks; this shows that mining activities have a negative impact on the forest ecosystem. Therefore, HKm Seberang Bersatu, together with the TERANGI Foundation, developed the Belitung Mangrove Park (BMP). In developing the Belitung Mangrove Park (BMP) program, the first step was to carry out an initial survey to map the location and determine the baseline carbon estimate in the HKm of Juru Seberang Village. The aim of this program is to reduce the impact of climate change on the ecosystem and community of Juru Seberang Village through mangrove rehabilitation and increase community participation in supporting the management of marine conservation areas. Belitung Mangrove Park (BMP) is a mangrove tourist park area that will be used sustainably as an ecotourism destination, education, source of livelihood, and carbon sequestration in the future. The facilities in the Belitung Mangrove Park Tourist Area include Mangrove Tracks, Observation Towers, River Cruisers, Canoes, Ponds, a Fishing Terrace, a Tourist Information Center, an Education House, a Restaurant, a Shelter, and a Sunset Pier. Land management and utilization are carried out by providing activities and programs that prioritize educational, conservation, and tourism values. Former tin mining land is used as a tourist area based on mangrove ecosystems and as an area for ecosystem rehabilitation and carbon sequencing efforts. The activities carried out in the Belitung Mangrove Park (BMP) area include:

3.3 Forest Rehabilitation

Activities carried out at Belitung Mangrove Park (BMP) include forest rehabilitation activities carried out by planting plants. The location where plants will be planted is determined based on the carbon stock model, namely by selecting areas that have low carbon stocks. The plants planted were 15,000 local forest seeds with a total area of land planted of 1.5 Ha. When planting, the plants chosen are plants that quickly build an ecosystem so that they can immediately become a habitat for other living creatures. The types of plants planted are very diverse, such as *Nypa Fruticans*, *Terminalia Cattapa*, *Rhizophora Apiculata*, *R. Muncronate*, and *Bruguiera Gymnorhiza*.

3.4 Carrying out Sylvofishery

The strategy for strengthening ecological citizenship that can be carried out by HKm Seberang Bersatu is by conducting Sylvofishery. Sylvofishery is cultivated by utilizing former tin mining holes or what are called kolongs in the Belitung Mangrove Park area. The Seberang Bersatu Community Forest Group (HKm) turned these holes into fish and crab ponds. This pond, which is used as a pond, will become one of the tourist attractions that tourists can enjoy. Activities that tourists can do in the pond area include releasing fish seeds, harvesting crabs, fishing for fish, and feeding the fish. Apart from carrying out these activities, tourists will also receive education and information about how to manage them, learn about the types of fish and crabs in the pond, and learn how to carry out environmentally friendly fishing.

3.5 Education and Natural Schools

Every activity at Belitung Mangrove Park includes an educational aspect. This is done to support conservation efforts. Education is provided to the community involved in the Nature School program and also to tourists who come. The educational activities provided to the community are provided by speakers who are trained and are members of the Seberang Bersatu Community Forest (HKm) group who have knowledge about mangroves and other ecosystems in the Seberang Bersatu HKm area. Meanwhile, education for tourists is presented in the form of fun activities such as planting and observing mangroves, observing shorebirds, feeding and catching fish, crabs, and bamboo shells.

The program mentioned above is a process that must be carried out in order to achieve a society that is aware of the importance of managing, maintaining, and preserving the environment. Community participation in preserving the environment must be equipped with the provision of knowledge and skills that will later shape community behavior or habits in preserving the environment and in realizing ecological citizenship. With this program, the community can have:

- (1) Environmental knowledge (Environmental Knowledge) is an expression of experience and knowledge related to nature that creates and makes improvements for environmental sustainability both individually and in organizations.
- (2) The community has environmental skills, where the community can identify, prevent and overcome environmental problems.
- (3) Society has environmental ethics (Environmental Attitudes), a set of values and feelings towards the environment, and motivation to play an active role in improving and developing ecology.

(4) Increased participation (Environmental Participation), where the community has a sensitivity to environmental problems and has environmental concern by participating in pro-environmental actions (WWF Malaysia, 2008:8)

Inhibitors and Supporters of Seberang Community Forestry (HKm) Unite to achieve the strategy of Strengthening Ecological Citizenship in rehabilitating former Tin Mining Forests and Land in Juru Seberang Village, Belitung Regency. In achieving the strategy of strengthening Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group in rehabilitating forests and former tin mining land in Juru Seberang Village, there are several inhibiting and supporting factors. Success in a program or activity does not always run smoothly without obstacles or challenges. Dobson has identified inhibiting factors in the development of Ecological Citizenship, namely behavior that only cares about itself, will not always protect or defend public goods such as the environment, citizenship is always a matter of balancing rights and responsibilities, and humans use the environment for the sake of sustaining life but sometimes often forgetting responsibility in preserving the carrying capacity of the environment (Andrew Dobson, 2007:283). Public awareness is a form of strengthening ecological citizenship where people are obliged to protect the environment and preserve the environment. The inhibiting factors in achieving the strategy of strengthening Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group in rehabilitating forests and former tin mining land in Juru Seberang Village, Belitung Regency, namely from natural factors during the seeding and planting process are obstacles, namely related to Weather conditions in Belitung are difficult to predict. Even though planting occurs during the rainy season, natural conditions are unpredictable; where when planting is carried out, the rain often does not fall, causing many seedlings to die, as well as the ebb and flow of sea levels, which can cause the loss of plants because they dissolve in the water. Unstable community participation is one of the inhibiting factors, as the community is less active in increasing knowledge and skills related to forest and land management and utilization.

Apart from the inhibiting factors, the Seberang Bersatu Community Forest (HKm) group feels several supporting factors in achieving the strategy of strengthening Ecological Citizenship in rehabilitating forests and former tin mining land in Juru Seberang Village, Belitung Regency, namely Establishing good communication between Community Forest (HKm) groups) Seberang Bersatu with related parties, Assistance from village communities and outside the village in the form of funds, personnel or tools to work in implementing the program, and Support from related parties from the Indonesian Coral Reef Foundation, ICCTF, Regional Government, Bappeda, Forestry Service, Department of Maritime Affairs and Fisheries, Department of Cooperatives and Small and Medium Enterprises, and Department of Tourism as well as other elements of society such as Gapabel and academics.

5. Conclusion

Environmental damage resulting from tin mining which is not accompanied by environmental conservation in Juru Seberang Village which causes loss of biodiversity and increases the vulnerability of coastal residents, requires a strategy to strengthen Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group, namely by conducting outreach to the community Belitung Regency, especially the people of Juru Seberang Village, aims to raise awareness of the community's mindset to always protect the environment and care more about the environment and to form the Belitung Mangrove Park area. Belitung Mangrove Park (BMP) is a mangrove tourist park area that will be used sustainably as an ecotourism destination, education, source of livelihood, and carbon sequestration in the future. The activities contained in the Belitung Mangrove Park program include forest rehabilitation, which is carried out by planting local forest seeds, sylvofishery, and education and nature schools. This program is carried out to achieve a society that is aware of the importance of managing, maintaining, and preserving the environment. Community participation in preserving the environment must be equipped with the provision of knowledge and skills that will later shape community behavior or habits in preserving the environment and in realizing ecological citizenship (Ecological Citizenship). With this program, people can gain knowledge about the environment (Environmental knowledge), Environmental Skills (Environmental skills), People can have environmental behavior (Environmental Attitudes), and environmental participation (Environmental Participation).

In achieving the strategy of strengthening Ecological Citizenship through the Seberang Bersatu Community Forest (HKm) group in rehabilitating forests and former tin mining land in Juru Seberang Village, there are several influencing factors. Success in a program or activity does not always run smoothly without obstacles or challenges. These inhibiting factors come from natural factors and unstable community participation. Apart from the inhibiting factors, the Seberang Bersatu Community Forest (HKm) group felt several supporting factors in achieving the strategy of strengthening Ecological Citizenship in rehabilitating forests and former tin mining land in Juru Seberang Village, Belitung Regency, namely the establishment of good communication between the Community Forest (HKm) group. Seberang Bersatu with the Indonesian Coral Reef Foundation (TERANGI), assistance from village and non-village communities in the form of funds, personnel or tools to work in implementing the program, and support from related parties such as ICCTF, Regional Government, Bappeda, Forestry Service, Department Maritime Affairs and Fisheries, the Department of Cooperatives and Small and Medium Enterprises, and the Department of Tourism as well as other elements of society such as Gapabel and academics.

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