GIJLSS
Greenation International Journal of Law and Social Sciences
+62 81210467572 https://research.e-greenation.org/GIJLSS greenation.info@gmail.com
GREENATION RESEARCH

**DOI:** https://doi.org/10.38035/gijlss.v3i2


# Legal Analysis of Cirebon Regency Regional Regulation Policy No. 6 of 2016 for Climate Change and Social Adaptation in Coastal Areas

**Adelia Putri Mahardeka[1], Siwi Wulandari[2], Rosiana Magfirro[3], Alip Rahman[4], Triana Justitia Mahardeka[5]**
[1]Universitas Swadaya Gunung Jati, Jawa Barat, Indonesia, www.adeliaputrim@gmail.com
[2]Universitas Swadaya Gunung Jati, Jawa Barat, Indonesia, siwiwulandari9@gmail.com
[3]Universitas Swadaya Gunung Jati, Jawa Barat, Indonesia, rosianamagfirro25@gmail.com
[4]Universitas Swadaya Gunung Jati, Jawa Barat, Indonesia, alip.rahman@ugj.ac.id
[5]Universitas Swadaya Gunung Jati, Jawa Barat, Indonesia, triana.justitiaa@gmail.com

Corresponding Author: alip.rahman@ugj.ac.id[4]

**Abstract:** The Cirebon Regency is experiencing mounting pressures from climate change, including rising sea levels, coastal erosion, and increased frequency of natural disasters. These phenomena pose significant challenges to the region's socio-economic resilience. This phenomenon of climate change exerts a direct impact on the lives of these communities, manifesting in both ecological and economic dimensions. Consequently, the implementation of effective and adaptive environmental legal policies should serve as the primary mechanism to assist coastal communities in addressing these challenges. Nevertheless, despite the implementation of regulatory frameworks such as Regional Regulation No. 6 of 2016, which governs the Environmental Protection and Management Plan (RPPLH), the execution of this policy remains encumbered by substantial challenges. The primary challenges associated with the implementation of this policy encompass overlapping regulations, inadequate law enforcement, and the absence of active community participation in the policy formulation process. Moreover, despite the fact that this Regional Regulation governs climate change mitigation and adaptation initiatives, there are still lacunae in more specific regulations pertaining to the social adaptation of coastal communities. Consequently, extant policies have not adequately ensured the optimal protection of coastal communities. The objective of this study is to assess the efficacy of environmental legal policies, particularly those outlined in Regional Regulation No. 6 of 2016, in facilitating the social adaptation of coastal communities to climate change. The present study utilizes a qualitative approach, incorporating case studies and in-depth interviews with affected communities, government officials, and environmental policy experts. To assess the consistency between existing policies and real conditions in the field, additional data were obtained through analysis of related legal documents. The findings of the study suggest a substantial discrepancy between the policies governed by Regional Regulation No. 6 of 2016 and the actual circumstances on the ground. The identified gaps pertained primarily to inter-agency coordination, resource

allocation, and community access to environmental justice. Moreover, despite the fact that the regulations address climate change, the absence of rigorous law enforcement and the dearth of initiatives to empower coastal communities serve as significant impediments to the efficacy of this policy. Consequently, there is an imperative to recalibrate environmental legal policies, rendering them more adaptive, ecologically just, and capable of catering to the distinct requirements of coastal communities, encompassing social, economic, and environmental justice dimensions. This study confirms that, in order to achieve coastal community resilience to climate change, improvements to Regional Regulation No. 6 of 2016 are needed. These improvements should include more detailed regulations on social adaptation and climate change mitigation, as well as strengthen more consistent and coordinated law enforcement. This reform is imperative to ensure the sustainability of environmental management that is both equitable and beneficial to coastal communities.

**Keyword:** Ecological Justice, Policy effectiveness, Coastal community resilience, Law enforcement, Social adaptation to climate change

## INTRODUCTION

Climate change represents a global challenge that impacts the environment, as well as the social and economic lives of communities, particularly those in coastal areas. As an archipelagic nation with a considerable coastline, Indonesia is particularly susceptible to the adverse effects of climate change. Coastal regions, including Cirebon, are confronted with a multitude of pressing concerns arising from climate change, including rising sea levels, coastal erosion, extreme weather events, and increasingly intense natural disasters. Coastal communities, the economic viability of which is contingent on fisheries, agriculture, and tourism, are among the most vulnerable groups to climate change. In the context of environmental challenges, legal policies emerge as a pivotal instrument to facilitate social adaptation processes, mitigate vulnerability, and ensure the sustainability of livelihoods.

Cirebon, a city situated on the north coast of Java, is encountering substantial repercussions from climate change. According to data from the Meteorology, Climatology, and Geophysics Agency (BMKG), coastal areas around Cirebon have experienced an average annual temperature increase of approximately 0.2°C–0.4°C per decade over the past 30 years. This temperature increase is associated with an increase in the frequency of El Niño and La Niña phenomena, which impact rainfall patterns and droughts in coastal areas. Moreover, data from the Ministry of Environment and Forestry (KLHK) indicates that over the past decade, the rate of abrasion along the north coast of Java, including Cirebon, has increased significantly. Current estimates indicate that the coastal region of Cirebon is undergoing a rate of coastal erosion that ranges from 2 to 3 meters per year in certain areas. This phenomenon poses a significant threat to the stability of coastal settlements and agricultural land. Another impact is rising sea levels, which threaten low-lying coastal areas, potentially damaging vital infrastructure and endangering the livelihoods of communities that depend on fisheries and agriculture.

The government of Indonesia has promulgated a series of legal policies aimed at addressing climate change and its impacts on coastal communities. These include Law No. 32 of 2009 concerning Environmental Protection and Management, Law No. 1 of 2014 Amendment to Law No. 27 of 2007 concerning Management of Coastal Areas and Small Islands, and greenhouse gas emission reduction policies contained in the Nationally Determined Contribution (NDC).

However, regional regulations have been established in accordance with Law No. 32 of 2009 concerning Environmental Protection and Management, as evidenced by Cirebon

Regency Regional Regulation No. 6 of 2016 concerning Environmental Protection and Management. This regulatory framework signifies the region's dedication to environmental sustainability as an integral component of sustainable development. The articles in this regulation underscore the significance of climate change mitigation and adaptation efforts, including the control of greenhouse gas emissions, the preservation of green areas, sustainable water resource management, and the utilization of renewable energy. Moreover, the involvement of the community, the business sector, and other relevant stakeholders is also governed as part of a collective strategy in addressing climate change. The following text is intended to provide a comprehensive overview of the subject matter.

However, the implementation of this policy at the regional level, including Cirebon, is often hindered by several factors. These include a lack of coordination between local governments, inadequate outreach to the community, and limited resources for effective policy implementation.

Moreover, the involvement of coastal communities in policy planning and implementation is frequently inadequate, leading to adaptation efforts that are ineffective. Despite the existence of environmental legal policies, these policies frequently fail to address the specific needs of coastal communities, which are characterized by unique lifestyles and economic activities. Therefore, it is imperative to assess the efficacy of prevailing environmental legal policies in facilitating social adaptation in coastal communities in Cirebon and to identify impediments to their implementation.

The discordance between national policies and their implementation at the regional level has been identified as a contributing factor to the exacerbation of the situation. Local governments frequently encounter obstacles in their efforts to obtain the financial resources and other materials necessary to implement climate adaptation programs. Additionally, the absence of binding regulations concerning coastal area management constitutes a significant challenge in addressing issues of abrasion and sea level rise. Moreover, the utilization of legal approaches grounded in community participation remains constrained, leading to policies that frequently diverge from the actual requirements on the ground (Law No.1 of 2014).

Coastal communities in Cirebon also face economic and social challenges in addressing climate change. The heavy dependence on dwindling natural resources, a consequence of climate change, has resulted in reduced incomes for many fishing and farming families. This impact is exacerbated by a lack of access to adaptive technologies that could help them survive increasingly uncertain environmental conditions. Consequently, environmental legal policies ought to prioritize not only mitigation of climate change but also the provision of adequate resources and technologies to coastal communities for adaptation.

The objective of this research is to explore and analyze the extent to which environmental legal policies can assist coastal communities in Cirebon in adapting to climate change and reducing their vulnerability. The primary objective of the research is to evaluate the extent to which current policies are adequately responsive to the needs of coastal communities and to identify challenges in their implementation. The objective of this research is to provide concrete recommendations for improving environmental legal policies to make them more adaptive to climate change. To this end, the research first examines existing obstacles.

Additionally, this research will examine the roles of local governments, non-governmental organizations, and coastal communities themselves in supporting the effectiveness of environmental policies. In the context of decentralization, local governments assume a strategic role in translating national policies into local implementation. However, in many cases, a lack of capacity and resources often results in suboptimal policy implementation. Therefore, the objective of this research is to underscore the significance of synergy among various actors in ensuring the efficacy of environmental policies.

It is hypothesized that, in the long term, the results of this research will contribute to the development of more effective and adaptive legal policies to address future climate change, particularly for coastal areas in Indonesia. A methodology founded upon the principles of ecological justice and the engagement of communities can facilitate the establishment of more inclusive and sustainable environmental policies. These policies are essential for ensuring the socio-economic resilience of coastal communities in the face of the adverse impacts of climate change.

## METHOD

This research employs a qualitative approach, utilizing a case study method to assess the efficacy of environmental legal policies in facilitating the social adaptation of Cirebon's coastal communities to the repercussions of climate change. This approach was selected to facilitate a comprehensive examination of the interplay between environmental legal policies and the socio-economic responses exhibited by coastal communities in the face of climate change. This research employs a descriptive and analytical approach, wherein the collected data will undergo meticulous scrutiny to elucidate the operational dynamics of environmental legal policies within the context of social adaptation of Cirebon's coastal communities. The research was conducted in the coastal area of Cirebon, which is the primary focus of this study, given its vulnerability to the impacts of climate change, including sea level rise, coastal erosion, and natural disasters. This research will adhere to the principles of research ethics, including maintaining the confidentiality of informants' identities, obtaining written consent before interviews, and ensuring that the data obtained are used exclusively for research purposes. It is hypothesized that this approach and method will provide a comprehensive picture of the effectiveness of environmental legal policies in addressing the challenges of climate change in Cirebon's coastal areas. Furthermore, it is expected that the research will provide recommendations for improving policies that are more adaptive and inclusive.

## RESULTS AND DISCUSSION

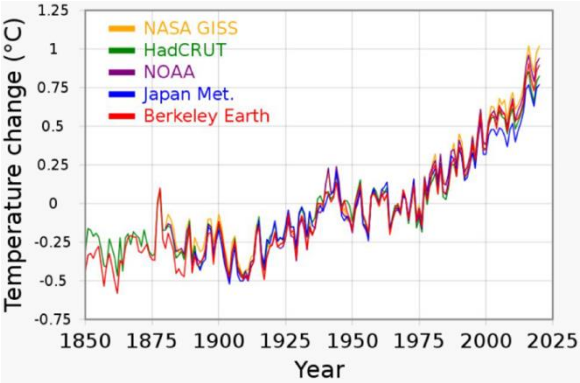
### The Importance of Environmental Legal Policy in Addressing Climate Change in Coastal Communities

The phenomenon of global climate change exerts a profound influence on diverse facets of human existence, encompassing the realms of social, economic, and environmental well-being. These impacts can be particularly significant in coastal areas, which are highly vulnerable to climate change. Coastal communities, which are economically dependent on fisheries, agriculture, and tourism, are confronted with grave threats due to rising global temperatures, rising sea levels, changing weather patterns, and increasingly frequent natural disasters.

This phenomenon has had a significant impact on coastal communities that depend on fisheries, agriculture, and tourism for their livelihoods, and they are now feeling the impact directly. A notable example is Cirebon, a coastal region with considerable economic potential but considerable vulnerability to the impacts of climate change. The phenomenon of sea level rise, a consequence of global warming, poses a significant threat to coastal regions, exacerbating the issue of coastal erosion and thereby increasing the risk of increasingly frequent tidal flooding. Furthermore, other regions in proximity to Cirebon are susceptible to droughts resulting from increasingly erratic rainfall patterns. These patterns have the potential to adversely affect agricultural crops and result in water scarcity (Santoso, 2025).

These extreme and unpredictable weather changes directly impact key economic sectors in coastal communities. In the fisheries sector, rising sea temperatures and worsening pollution are damaging marine ecosystems that support various fish species. Prolonged

exposure to inclement weather conditions, including high winds and stormy weather, poses a significant threat to the safety of fishermen and can result in the impairment of their fishing equipment. In the agricultural sector, precipitation variability leads to crop failures and food security concerns. In a similar vein, the tourism sector, which is dependent on natural attractions to a considerable extent, experiences a decline in tourist numbers and damage to existing natural tourist areas in the event of unstable weather conditions (Ministry of Environment and Forestry of the Republic of Indonesia, 2021).




Source: id.wikipedia.org/wiki/Scientific consensus on climate change

Consequently, the implementation of suitable and efficacious environmental legal policies is imperative for the preservation of coastal ecosystems and the communities that depend on them. A compelling environmental legal policy for addressing the impacts of climate change is ecosystem-based coastal area management. Coastal areas play a vital role in maintaining ecosystem balance and supporting the lives of coastal communities. Coastal ecosystems, including mangroves, coral reefs, and mangrove forests, function as natural barriers against the impacts of climate change. These impacts include coastal erosion, tidal flooding, and seawater intrusion, which are caused by rising sea levels.

At the national level, Indonesia has established several environmental legal policies related to coastal management and climate change, such as Law No. 32 of 2009 concerning Environmental Protection and Management and (Law No. 32 of 2009) Law No. 1 of 2014, an amendment to Law No. 27 of 2007 concerning Management of Coastal Areas and Small Islands. Indonesia has also ratified the Kyoto Protocol and the Paris Agreement, which commit countries to reducing greenhouse gas emissions and adapting to climate change (Law No. 1 of 2014).

At the regional level, Cirebon Regency has established various environmental legal policies related to climate change adaptation and mitigation. For example, Regional Regulation No. 6 of 2016 is a derivative of Law No. 32 of 2009 concerning environmental protection and management. However, this regulation does not specifically discuss coastal areas. Nevertheless, the coast is one of the areas for climate change adaptation and mitigation.

While these policies establish a definitive legal framework for environmental management, their implementation in coastal areas frequently encounters various challenges. A significant challenge that must be addressed is the absence of coordination among government agencies at both the central and regional levels. For instance, while regulations pertaining to coastal protection are in place, their implementation is frequently impeded by a paucity of trained personnel and constrained budgets. In Cirebon, as in many other coastal regions, there is frequently an overlap in authority between local and central governments with regard to coastal management. This overlap can impede the effectiveness of policies designed to regulate activities in these areas.

The rehabilitation and protection of these ecosystems can serve as a mitigating factor against the adverse impacts of climate change on coastal regions. For instance, mangroves have the capacity to sequester carbon, stabilize coastlines, and provide vital habitat for various marine species. Healthy coral reefs also serve a crucial function in coastal protection, mitigating the impact of large waves and storms (Santoso. 2023). Therefore, the implementation of legal policies that encourage the rehabilitation of mangrove and coral reef ecosystems is imperative for enhancing the resilience of coastal regions to the impacts of climate change (Ministry of Environment and Forestry of the Republic of Indonesia, 2018).

However, the implementation of ecosystem-based management policies often faces significant challenges. A significant number of policies are not wholly accepted or comprehended by coastal communities, who at times perceive these policies as impeding their livelihoods. For instance, policies aimed at safeguarding mangroves through the prohibition of their destruction without the provision of adequate economic alternatives have the potential to engender resistance from communities that are dependent on these natural resources. Therefore, it is imperative for the government to engage communities in the formulation and execution of ecosystem-based coastal management policies (Decree of the Minister of Environment and Forestry No. 23 of 2017). Community empowerment in natural resource management and education about the benefits of ecosystems are essential (Bappenas, 2020). In addition to ecosystem-based coastal management, environmental legal policies are also crucial for the sustainable management of natural resources.

The management of water, agriculture, and energy, with an emphasis on sustainability, has been identified as a pivotal strategy for enhancing the resilience of coastal communities in the face of the adverse effects of climate change. Unpredictable rainfall patterns resulting from climate change can give rise to either droughts or floods, which can be particularly deleterious to coastal communities, especially those reliant on agriculture and fisheries. Consequently, the implementation of sustainable natural resource management policies is imperative to mitigate the impacts of climate change. Water resources play a pivotal role in the lives of coastal communities, serving as a fundamental source for daily necessities and sustaining the agricultural sector. Climate change has the potential to induce variability in precipitation patterns, resulting in the occurrence of either droughts or floods (BPPT, 2018). Consequently, the implementation of sustainable water management policies is imperative to ensure a reliable and sustainable water supply for coastal communities.

Effective water management strategies encompass the preservation of water resources, the enhancement of water use efficiency, and the implementation of effective drainage management to mitigate the risk of flooding. This policy should also include efficient irrigation technologies in the agricultural sector, as well as water quality management that can reduce pollution from industrial waste or waste dumped into the sea. The implementation of effective water management policies in coastal communities is instrumental in adapting to the effects of climate change, thereby reducing dependence on unstable water supplies.

The agricultural sector in coastal regions is particularly susceptible to the adverse effects of climate change, particularly those associated with variable rainfall patterns and increasing temperatures. To address this issue, the implementation of environmentally friendly agricultural management policies is imperative. These policies encompass the implementation of efficient and sustainable agricultural technologies, including organic farming, agroforestry, and the utilization of climate-resilient crop varieties. In addition, these policies should promote the implementation of optimal soil management practices to prevent land degradation, a phenomenon that frequently occurs as a result of the excessive use of fertilizers and pesticides (Ministry of Agriculture of the Republic of Indonesia, 2020).

The implementation of environmentally friendly agricultural policies has the potential to enhance food security in coastal communities while concurrently mitigating adverse

environmental impacts. For instance, agricultural practices that prioritize biodiversity can enhance ecosystem resilience to external disturbances, including natural disasters and climate change. The implementation of this policy will contribute to the realization of sustainable development goals, particularly those related to climate change. The phenomenon of climate change is attributable to the escalating emissions of greenhouse gases, a major contributor of which is the combustion of fossil fuels. Consequently, environmental legal policies that promote the development of renewable energy sources are imperative for mitigating the impacts of climate change. The utilization of renewable energy sources, including solar, wind, and biomass, has the potential to mitigate reliance on fossil fuels, which are a major contributor to environmental degradation.

In the context of coastal regions, the utilization of renewable energy sources assumes significant importance. To illustrate, solar energy has the potential to satisfy the energy demands of coastal communities, which are frequently constrained by traditional energy supplies. Moreover, the development of renewable energy sources has the potential to generate new opportunities for coastal communities to establish sustainable local economies. Therefore, policies that encourage the development of renewable energy in coastal areas require serious government attention (Ministry of Energy and Mineral Resources of the Republic of Indonesia, 2022).

Despite the pertinence of prevailing environmental legal policies in the context of climate change management, their implementation is frequently impeded at the local level. A significant challenge that must be addressed is the absence of coordination among government agencies at various levels, including central and regional entities. For instance, policies pertaining to coastal management frequently intersect with the jurisdiction of regional and central governments, impeding the execution of these policies. Moreover, the dearth of community participation in environmental management represents a significant impediment. Coastal communities are frequently not engaged in policy planning and implementation, despite being the most impacted by climate change.

Therefore, it is imperative for the government to engage communities in every stage of policymaking, from planning to evaluation. The empowerment of coastal communities through education and training on the importance of sustainable natural resource management has been demonstrated to increase the effectiveness of environmental legal policies.

**Cirebon Regency Regional Regulation Policy No. 6 of 2016 Concerning Climate Change and Social Adaptation Issues for Coastal Areas**

The state of Indonesia, in accordance with its legal framework, places a significant emphasis on the state's responsibility to ensure the well-being of its citizens. This commitment is reflected in the state's active engagement in various sectors, with the primary objective being the enhancement of the general welfare of the population. The state is responsible for ensuring the well-being of its citizens. It is evident that all economic and developmental initiatives are intended to actualize the national objectives and principles that have been established for the benefit of all citizens. The responsibility inherent in this state is one of the obligations that the government has as a task to carry out government functions. This responsibility is an inherent aspect of the authority and power in question. In the face of the escalating challenges posed by climate change, the state is obligated to safeguard and enhance the well-being of its citizens, particularly the most vulnerable populations, such as coastal communities (fishermen, fish farmers, and coastal residents). These communities are heavily reliant on their natural resources for subsistence, yet they encounter income fluctuations due to weather unpredictability and land erosion. Consequently, there is a necessity for initiatives aimed at addressing these issues. One concrete effort in overcoming this problem is through policies outlined in Regional Regulations (Perda), such as Cirebon

Regency Regional Regulation Number 6 of 2016 concerning Environmental Protection and Management. This regulatory framework pertains to the realm of environmental protection, encompassing the management of coastal zones that are susceptible to the repercussions of climate change. These repercussions include, but are not limited to, phenomena such as sea level rise, abrasion, sea storms, tidal flooding, and the decline in the quality of marine resources.

According to Article 1, Paragraph 28 of Regional Regulation Number 6 of 2016 concerning Environmental Protection and Management, a definitive definition of climate change is provided. In this case, the term "climate change" is defined as "climate change" caused directly or indirectly by human activities. This definition underscores two salient points: first, the role of humans in accelerating the rate of climate change through greenhouse gas emissions, and second, the importance of recognizing that climate change is not merely a natural phenomenon, but also the result of environmentally unfriendly development activities. The incorporation of the aforementioned definition within the general provisions signifies the regional government's dedication to leveraging climate change concerns as a foundation for the development of environmental policies and programs.

The role of the community in environmental protection is emphasized in Article 11 paragraphs (2) and (3) which state that the community has the right to actively participate (Regional Regulation No. 6 of 2016 of Cirebon Regency) and develop and maintain local wisdom (Cirebon Regency Regional Regulation Number 6 of 2016). In the context of this discussion on coastal regions, local knowledge systems, including the traditional expertise of fishermen regarding tides, wind direction, and seasonal fish populations, play a pivotal role in the societal adaptation to climate change. Community involvement has been demonstrated to engender a sense of responsibility for established environmental policies. The delineation of ecoregional areas necessitates a comprehensive consideration of the socio-cultural, economic, and institutional characteristics of the respective communities. These areas, defined as geographical regions exhibiting comparable natural conditions, such as climate, soil, water, flora, and fauna, collectively constitute a unique ecosystem unit. It is imperative that the government prioritize the consideration of the diverse social contexts of coastal communities when formulating environmental management policies. These contexts encompass a wide range of factors, including but not limited to cultural, economic, and community-specific characteristics. In the context of environmental planning, Article 16, paragraph (3), stipulates that the Environmental Protection and Management Plan (RPPLH) is obligated to take into account local wisdom. This entails the consideration of the values, customs, traditional practices, and knowledge of local communities pertaining to environmental protection and management, community aspirations, and climate change. As delineated in paragraph (5), the RPPLH is obligated to incorporate adaptation and mitigation strategies for climate change. This indicates that the regional regulation has incorporated climate change into long-term environmental planning, thereby allocating space for social adaptation that is firmly embedded in the culture of coastal communities.

The Strategic Environmental Assessment (SEA) is required to encompass an evaluation of the degree of vulnerability and adaptive capacity to climate change, as delineated in Article 22, paragraph e. This stipulation asserts, "Level of vulnerability and adaptive capacity to climate change." In the context of coastal regions, KLHS plays a pivotal role in assessing the resilience of these areas to the adverse effects of climate change, including phenomena such as tidal flooding and seawater intrusion. Furthermore, it enables the examination of the adaptability of local communities in modifying their lifestyles in response to these environmental challenges. According to Article 27, paragraph (4), the assessment of environmental damage resulting from climate change can be facilitated by the utilization of pertinent indicators, including but not limited to: increases in global temperatures, rising sea

levels, intensified storm activity, and drought conditions (Cirebon Regency Regional Regulation No. 6 of 2016). This phenomenon is of particular concern in coastal regions that are susceptible to coastal abrasion, seasonal fluctuations, and declining pond productivity. The utilization of these indicators enables the government to objectively ascertain the extent of damage and to determine appropriate measures for recovery. According to Article 80, paragraph (4), the preservation of atmospheric functions encompasses mitigation and adaptation to climate change. This article strengthens the legal position of local governments in taking concrete actions against climate change, such as mangrove conservation, increasing public awareness, and providing climate-resilient infrastructure on the coast.

According to the findings of interviews conducted with the Cirebon Regency Environmental Agency (DLH), it is evident that the local government, through the DLH, has acknowledged the pressing nature of climate change, particularly in coastal regions. Areas such as Gebang, Pangenan, and Losari Districts have been identified as being most affected by abrasion and tidal flooding, resulting from rising sea levels triggered by climate change. The DLH has indicated that Cirebon Regency Regional Regulation Number 6 of 2016 serves as the legal foundation for implementing environmental protection measures, including addressing issues related to climate change. Despite the fact that the regulation does not explicitly address coastal areas, various programs implemented have been designed to support adaptation in vulnerable regions, including coastal areas.

A number of programs that have been or are being implemented by DLH have encountered various challenges. One such program involves the planting of mangroves as a strategy to rehabilitate coastal ecosystems, with the aim of preventing abrasion and preserving biodiversity.

However, in Cirebon Regency, the management of forests and marine ecosystems, including mangroves, has been entrusted to the provincial government. Presently, the Cirebon Regency Environmental Agency (DLH) is the sole entity responsible for the dissemination of knowledge regarding mangroves. However, the agency is encountering challenges in implementing activities such as planting, managing, and monitoring mangroves. The Cirebon Regency Environmental Agency (DLH) must first coordinate with the provincial government to implement these efforts.

The Environmental Agency's primary program in addressing climate change is the "Climate Village Program," which aims to enhance public awareness and engagement in local adaptation and mitigation efforts. The Environmental Agency is implementing a selection process to identify several areas in the Cirebon Regency that will be designated as climate villages. The selection criteria include the sensitivity of the area to climate change and the local efforts to address it, as well as the management of waste. For instance, in one village, residents have adopted the practice of utilizing disposable plastic gallon waste as a substitute for pots for plants, demonstrating a unique approach to sustainable living. The Environmental Agency has established criteria for the designation of Climate Villages. Areas that meet these criteria receive guidance from the Agency in various forms. However, no coastal regions have yet been designated as fostered climate villages, primarily due to the limited engagement of coastal communities in addressing climate change and adaptation. Their primary focus remains on their daily lives. According to the Environmental Agency, certain coastal areas are on the verge of meeting the criteria for designation as fostered villages, particularly in the context of effective mangrove management. However, in other sectors, there is still considerable room for improvement. For instance, there are still many individuals who dispose of waste into the sea. Consequently, the Environmental Service places a priority on fostering socialization and imparting education to coastal communities regarding climate change.

At the same time, policies still do not fully cover social adaptation in a comprehensive review of the literature reveals a paucity of attention to the socio-cultural aspects of coastal communities. Specifically, there is a dearth of literature addressing the protection of coastal communities against changes in livelihoods, social migration, and the cultural identity of fishing communities. The regional regulation number 6 of 2016 has established provisions for addressing climate change, thereby providing a framework for the Environment Agency (DLH) to formulate and implement various adaptation programs. The DLH has been implementing this strategy in the field; however, there is still room for improvement, particularly with regard to social adaptation in coastal regions. To address these challenges, there is a need for enhanced coordination among government agencies, strengthened law enforcement, increased community participation, and the utilization of budgetary resources that can adequately support conservation programs.

**The Importance of Coastal Community Participation in Environmental Management**

Coastal communities in Cirebon are heavily reliant on the coastal ecosystems that provide essential natural resources for their livelihoods, including fisheries, agriculture, and tourism. However, the increasingly evident consequences of climate change, including rising sea levels, coastal erosion, and erratic extreme weather, are endangering the viability of these ecosystems. To address these challenges, the role of coastal communities in environmental management is of critical importance. The establishment of a system that not only protects coastal ecosystems but also improves the well-being of the communities that depend on them is possible through community empowerment, ecosystem-based management, and the development of environmentally friendly alternative livelihoods.

The coastal communities of Cirebon have historically depended on natural resources found along the coast for their daily needs. Fishermen, farmers, and tourism businesses are groups that depend on natural resources for their livelihoods. These resources include fish, shrimp, coconuts, and other marine products. Coastal ecosystems, including mangrove forests, coral reefs, and seagrass beds, play a vital role in supporting the sustainability of these economic sectors. Mangroves, for instance, function as natural barriers, impeding coastal erosion and safeguarding marine habitats. Coral reefs, on the other hand, serve as a habitat for diverse fish species, which in turn provide a significant economic benefit to local fishermen.

However, the sustainability of this coastal ecosystem is threatened by access to natural resource exploitation and the impacts of climate change. The phenomenon of rising sea temperatures and sea levels, a consequence of global warming, has precipitated the imminent threat of mangrove forests being lost, while concurrently leading to an escalation in coastal erosion. Consequently, the coastal communities of Cirebon, comprising fishermen and farmers, are confronted with a diminution in the natural resources upon which they depend for their subsistence. Climate change is also causing increasingly erratic rainfall, worsening droughts and floods, and threatening agricultural yields and food security in coastal areas.

The active involvement of coastal communities in environmental management is imperative for the development of effective and pertinent policies. Local communities possess a wealth of knowledge and experience in sustainable natural resource management methods, often passed down through generations. Therefore, it is imperative that coastal communities be incorporated into all phases of the environmental management policy-making and implementation process, at both the local and national levels.

In Cirebon, community participation in coastal ecosystem management can be initiated through the involvement of local stakeholders in mangrove rehabilitation and coral reef protection programs. For instance, local fishermen can play a role in the mangrove rehabilitation process by planting mangrove seedlings in areas affected by erosion, while

coastal farmers can contribute to efforts to restore contaminated land. The involvement of the community in these conservation efforts is expected to engender a sense of responsibility for environmental sustainability. This, in turn, is anticipated to enhance the community's motivation to maintain the sustainability of the ecosystem.

Moreover, it is imperative for communities to be engaged in the decision-making process concerning regulations that have a direct impact on their lives, such as fishing limits or land use regulations in coastal areas. The efficacy of environmental policies is contingent upon the active involvement of communities in their formulation and implementation. Absent their support and active engagement, prevailing policies are likely to fall short of their intended goals and may even exacerbate the hardships experienced by coastal communities.

The empowerment of coastal communities is a critical component of ensuring sustainable natural resource management. This empowerment can be achieved through education and training that enhances community capacity to manage the environment sustainably. A critical aspect of this initiative entails the dissemination of educational materials that underscore the significance of mangrove and coral reef conservation. A more profound comprehension of the long-term benefits of these ecosystems is essential for fostering awareness among coastal communities regarding the significance of environmental preservation. This heightened awareness will subsequently motivate communities to engage directly in conservation initiatives.

Moreover, it is imperative to recognize the pivotal role of economic empowerment in providing coastal communities with alternative, environmentally sustainable livelihoods. Many coastal communities are economically dependent on the fisheries sector, which is their primary source of income. However, the overexploitation of fish resources, compounded by the effects of climate change, poses significant challenges for fishermen, making it difficult to achieve optimal catches. Consequently, alternative livelihoods grounded in ecologically sustainable economics, such as ecotourism, emerge as a potentially viable solution.

Ecotourism, defined as the practice of traveling to and visiting natural tourist destinations, such as mangroves, coral reefs, or coastal conservation areas, has been shown to provide communities with additional income while simultaneously raising awareness of the importance of environmental sustainability. The practice of ecotourism, when managed by local communities, has the potential to reduce pressure on coastal ecosystems while providing opportunities for communities to generate more sustainable income. This approach does not involve the degradation of the natural environment. In this regard, the training of skills in the domains of tourism and the marketing of local products is of crucial importance to the success of ecotourism programs.

A critical component of this initiative is the provision of comprehensive outreach programs that address pressing environmental concerns, including the consequences of climate change and the imperative of sustainable natural resource management. It is imperative for coastal communities in Cirebon to develop a more profound comprehension of the efficacy of specific approaches, such as the implementation of a more judicious marine resource management strategy and the mitigation of the repercussions of climate change, in enhancing their quality of life and the sustainability of natural resources.

Intensive outreach on environmental issues is an integral aspect of coastal community empowerment efforts. This empowerment encompasses not only the dissemination of knowledge but also the modification of behaviors and perspectives concerning natural resources, particularly those associated with coastal ecosystems. The coastal communities of Cirebon, the majority of whom are dependent on natural resources, must acknowledge that they are not merely beneficiaries of the environment; they are also its protectors and managers. Consequently, effective outreach can serve as a conduit for expanding the

understanding of coastal communities regarding sustainable management of natural resources and the role of their actions in mitigating the impacts of climate change.

In addition to providing an understanding of the impacts of climate change, outreach programs must also emphasize the importance of wise and sustainable natural resource management. The sustainable utilization of coastal natural resources, including mangrove forests, coral reefs, and other marine ecosystems, necessitates meticulous management to ensure their continued viability and utilization. A significant challenge in the management of coastal natural resources is the issue of overexploitation, which can result in ecosystem damage.

It is imperative that such outreach be customized to align with the specific cultural and contextual nuances inherent within the community. For instance, in the context of mangrove conservation, it is imperative to acknowledge the significance of local values associated with mangrove trees, which are frequently regarded as symbols of protection by numerous coastal communities. The provision of education to communities regarding sustainable natural resource management and the provision of environmentally friendly alternatives have been demonstrated to increase community participation in conservation and environmental management programs.

A pertinent example in Cirebon is the conservation of mangroves. Mangroves fulfill a dual function in coastal protection, mitigating abrasion and providing a habitat for diverse fish species. Additionally, they are notable oxygen producers, a crucial aspect of marine ecosystems. The process of educating coastal communities about the long-term benefits of mangrove conservation necessitates a comprehensive exploration of local cultural values. In many coastal regions, mangrove trees are frequently held in high esteem as symbols of environmental protection and sustainability. Consequently, aligning conservation approaches with the values held by local communities will enhance their sense of ownership over the conservation program.

Moreover, education on the significance of employing eco-friendly fishing techniques and implementing more prudent management of marine resources should be incorporated into outreach programs. Destructive fishing techniques, including the use of explosives or fishing gear that damages coral reefs, can cause permanent damage to marine ecosystems and threaten the survival of coastal communities that depend on fisheries. It is imperative to educate the public on environmentally friendly fishing techniques, such as the use of eco-friendly nets or sustainable fish farming. These techniques must be promoted as safer and more profitable alternatives in the long term.

A critical component of empowering coastal communities involves the provision of environmentally sustainable livelihood options. In numerous instances, coastal communities continue to depend on methods of natural resource exploitation that are not sustainable. This is primarily due to a lack of awareness regarding more sustainable practices and the absence of more lucrative alternatives. Consequently, outreach programs must incorporate information regarding economic opportunities that can be pursued without compromising environmental integrity.

Ecotourism emerges as a pivotal alternative livelihood strategy for coastal communities in Cirebon. The utilization of coastal natural resources, including mangrove forests, beaches, and coral reefs, has been identified as a strategy for communities to develop tourism potential. This approach has the potential to positively impact economic growth while concurrently contributing to environmental conservation (Karmila, 2021). This ecotourism education must be complemented by knowledge on how to wisely manage natural tourist destinations, including how to regulate tourist visits, mitigate negative impacts on ecosystems, and develop supporting businesses such as homestays and local products based on natural resources (Tatiyanantakul, 2021).

It is important to ensure that coastal communities are provided with training and skills in managing ecotourism businesses. This training could include basic knowledge of tourism management, marketing, and training in providing environmentally friendly services (Jayanti, 2017).

In order to ensure the preservation of nature and the sustainability of ecosystem-based tourism, it is imperative that coastal communities play an active role in these efforts. Coastal communities in Cirebon, who have a long-standing relationship with nature and depend on its resources, are well-positioned to contribute to environmental stewardship. However, as previously mentioned, while community participation is crucial, various challenges must be overcome to ensure that policies are effective and sustainable in the long term. This necessitates the implementation of strategic measures that encompass not only the community but also all pertinent stakeholders, including governmental entities, non-governmental organizations (NGOs), and the private sector.

A significant challenge in implementing coastal community participation is the absence of effective coordination among government entities, non-governmental organizations (NGOs), and the communities themselves. In numerous instances, government policies neglect to consider local knowledge and the particular requirements of coastal communities. Despite their commendable intentions, these policies frequently fall short in achieving their intended outcomes due to a dearth of community participation in the formulation and execution of these plans.

For instance, the formulation of mangrove conservation policies is frequently undertaken without consideration of the traditional methodologies employed by communities to ensure the sustainability of coastal ecosystems. Communities in Cirebon, with their close ties to nature, can provide valuable insights into their long-standing practices for managing natural resources. The government and relevant institutions must actively engage with these communities in the planning process to ensure the acceptance and implementation of these policies. This underscores the significance of enhanced, cooperative discourse among the relevant parties.

In order to address these challenges, it is essential to initiate a more inclusive dialogue between the government, NGOs, coastal communities, and other relevant stakeholders. The process may commence with the engagement of communities in policy formulation, wherein they are able to offer insights and concepts regarding the optimal preservation of coastal ecosystems while concurrently enhancing their well-being. The utilization of discussion forums or regular meetings facilitates the exchange of local knowledge and experiences concerning the mitigation of environmental challenges among communities. This approach is expected to ensure that the resulting policies are more relevant and tailored to specific local needs and conditions.

Consequently, there is an imperative to augment the capacity and comprehension among stakeholders concerning the pivotal role of coastal communities in environmental management. It is imperative that government entities and non-governmental organizations (NGOs) adopt a more proactive stance in their efforts to educate the public on the merits of conservation and sustainable management. Conversely, communities must be encouraged to engage actively in policy processes to cultivate a sense of ownership and responsibility for their implementation.

Another common challenge in coastal natural resource management is the limited availability of resources and funding at the local level. A significant challenge confronting numerous community empowerment and conservation initiatives is the scarcity of financial resources to facilitate their execution. Moreover, a considerable number of coastal regions are confronted with constrained financial resources, which hinders the allocation of adequate financial support for the implementation of environmental management programs.

To address this, it is imperative to optimize the utilization of village funds or special allocation funds, which can be employed to support conservation activities involving the community. It is incumbent upon central and regional governments to ensure the judicious utilization of available financial resources to support activities that have a direct impact on nature conservation and the empowerment of coastal communities. Moreover, transparent and accountable fund management is imperative to ensure that communities can observe the tangible impact of their allocated funds.

Village funds have the potential to support community initiatives aimed at the management of coastal ecosystems. Such initiatives may include the rehabilitation of mangrove forests, the promotion of environmental education, and the development of community-based ecotourism businesses. Consequently, financial resources are allocated not solely to physical development but also to the creation of sustainable and environmentally friendly solutions. A judicious management of these funds can engender a symbiotic relationship between community economic empowerment and environmental preservation, thereby ensuring long-term benefits.

One alternative livelihood option for coastal communities is the development of ecotourism. Ecotourism can be defined as a form of tourism that aims to conserve nature and raise environmental awareness, while providing economic benefits to local communities. In Cirebon, with its biodiverse coastline, the potential for ecotourism is considerable. Community-based ecotourism programs have been demonstrated to be an effective means of preserving natural ecosystems and providing alternative income sources for coastal communities.

However, the development of ecotourism cannot be undertaken in a haphazard manner. A meticulous approach to planning and management is imperative to avert the potential adverse impacts of tourism on the ecosystem. In this regard, the active involvement of coastal communities is imperative. It is imperative that communities are empowered to manage tourist destinations, promote existing biodiversity, and provide educational experiences for tourists about the importance of environmental protection. Consequently, ecotourism emerges not only as a lucrative alternative livelihood but also as a means to disseminate awareness regarding the significance of nature conservation.

The efficacy of environmental conservation outreach initiatives is contingent upon their integration within comprehensive strategies aimed at empowering coastal communities. This outreach should not only focus on information about coastal ecosystems but also on practical ways communities can maintain the sustainability of natural resources. For instance, communities can be educated in suitable conservation techniques, sustainable fishing methods, and eco-friendly waste management.

The provision of environmental education at all levels of society, from children to adults, is imperative. These educational programs can be implemented through various methods, such as workshops, training, or teaching in local schools. The correlation between environmental awareness and active participation in conservation programs is well-documented.

In confronting the challenges posed by climate change and the preservation of coastal ecosystems, the involvement of coastal communities in Cirebon is imperative for the success of environmental management programs. Achieving enhanced effectiveness in the management of coastal natural resources is contingent upon the establishment of effective dialogue between the government, NGOs, and coastal communities. Additionally, optimization of village funds and other local resources is imperative. Moreover, the development of ecotourism and the empowerment of communities in environmentally sustainable natural resource management have the potential to serve as a sustainable alternative to improving community economic well-being. The implementation of

environmental outreach and education programs that are culturally tailored to the local population is of paramount importance for the purpose of fostering awareness and active participation in coastal conservation initiatives. These measures are designed to ensure the sustainability of ecosystem-based tourism and to generate long-term benefits for coastal communities in Cirebon.

## CONCLUSION

The present study indicates that prevailing environmental legal policies are inadequate in adequately supporting the social adaptation of Cirebon's coastal communities to the impacts of climate change. Despite the establishment of various policies related to coastal protection and management in Indonesia, the implementation of these policies faces numerous challenges. The fundamental challenges to the success of these initiatives are rooted in the discrepancy between existing policies and the prevailing conditions on the ground. This is further compounded by the overlapping authority between various agencies and the limited public participation in the decision-making process.

The significance of ecosystem-based coastal management, encompassing the conservation of mangrove and coral reef ecosystems, must be a paramount concern within the framework of environmental legal policy. Coastal ecosystems play a vital role in protecting coastal communities from the impacts of climate change. However, effective management of these ecosystems necessitates the active participation of communities that are directly dependent on these natural resources. In this context, it is imperative to empower coastal communities through education, training, and the provision of environmentally friendly livelihood alternatives. This is crucial to increase their awareness and involvement in environmental management.

To this end, the creation of more effective policies, improved coordination between government agencies, strengthened law enforcement, and the use of technology and funding to support conservation programs are imperative. It is imperative that the government allocate greater attention to ensuring that coastal communities have access to environmental justice and the resources necessary to implement sustainable coastal management policies.

In essence, the implementation of legal policies that are more adaptive and ecologically just, and which engage communities in every stage of the decision-making process, will have a substantial impact on the socio-economic resilience of Cirebon's coastal communities in the face of the challenges posed by climate change. Therefore, there is an urgent need for more inclusive and coordinated policy reforms and implementation. These reforms are necessary to enable coastal communities to survive and thrive in the face of climate change challenges.

## REFERENCES

Agency for the Assessment and Application of Technology (BPPT), "Water Management for Food Security and a Sustainable Environment," Journal of Natural Resources Technology 15, no. 4 (2018): 190–204

Agus Santoso, "The Impact of Climate Change on the Cirebon Coastal Ecosystem," Kompas, January 15, 2025.

Aldrian, E. (2011). Climate change adaptation and mitigation in Indonesia. Indonesia: Center for Climate Change and Air Quality, Deputy for Climatology, Meteorology, Climatology, and Geophysics Agency

B. Arief Sidharta, (1996), (First Edition), Points of Ideas on the Proper Implementation of Law and Governance, Bandung: PT CITRA ADITYA BAKTI, p. 70

Bappenas, Indonesia Sustainable Development Strategy Report 2020-2024 (Jakarta: Bappenas, 2020), 33.

Cirebon Coast and Climate Change," Cirebon Environmental News, accessed January 29, 2025, https://www.cirebonenvnews.com/pesisir-cirebon-iklim .

Decree of the Minister of Environment and Forestry No. 23 of 2017 concerning Mangrove Forest Management (Jakarta: Ministry of Environment and Forestry, 2017), Article 5.

Dunn, W. N. (2000). Introduction to public policy analysis. Indonesia: Gadjah Mada University Press.

Government of Indonesia, Indonesia's Nationally Determined Contribution (NDC), Ministry of Environment and Forestry, 2021, 12.

Jayanti, TB (2017). Urban heritage tourism development strategy in Cirebon City, West Java. Jurnal Corridor, 8(2), 195-205.

Keraf, A. Sonny. Environmental Ethics. Jakarta: Kompas Media Nusantara, 2010.

Kyoto Protocol, United Nations Framework Convention on Climate Change, ratified 11 December 1997, accessed 29 January 2025, https://unfccc.int/resource/docs/convkp/kpeng.pdf .

Law No. 27 of 2007, Management of Coastal Areas and Small Islands (Jakarta: Ministry of Maritime Affairs and Fisheries, 2007), 58.

Law No. 32 of 2009, Environmental Protection and Management (Jakarta: Ministry of Law and Human Rights of the Republic of Indonesia, 2009), Article 15

Meteorology, Climatology, and Geophysics Agency (BMKG), Indonesia Annual Climate Report 2023 (Jakarta: BMKG, 2023), 25.

Ministry of Environment and Forestry (KLHK), Impact of Climate Change in Coastal Areas (Jakarta: KLHK, 2022), 47.

Ministry of Environment and Forestry of the Republic of Indonesia, Annual Report on Sustainable Natural Resource Management 2020 (Jakarta: Ministry of Environment and Forestry, 2021), 15.

Ministry of Environment and Forestry of the Republic of Indonesia, Annual Report on Environmental Management in Coastal Areas 2020 (Jakarta: Ministry of Environment and Forestry, 2021), 45.

Siti Karmila, "The Role of Ecotourism in Empowering Coastal Communities in Cirebon," Journal of Sustainable Tourism 9, no. 3 (2021): 110–120.

Tatiyanantakul, W. (2021). Guidelines for Community-Based Tourism Development by Cultural Tourism Management: A Case Study of Muen Wai Community, Mueang, Nakhon Ratchasima Province. Journal of Thai Hospitality and Tourism, 16(1), 76-91.