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Challenges of Policy Frameworks in Protecting Coastal Communities Affected by Slow-Onset Climate Change Disasters

Slamet Luwihono[a,1,*], Hery Wibowo Trisaksono[b,2], Damar Waskitojati[c,3], Agung Waskitoadi[d,4]

[a,b,c,d] Percik Institute. Kampoeng Percik. Jl. Patimura Km.1. Kota Salatiga. Jawa Tengah 50711. Indonesia
[1] slametluwihono@gmail.com; [2] herikadavidson@gmail.com; [3] damar96@gmail.com*, [4] awa.percik@gmail.com

* corresponding author

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ABSTRACT

Tidal flooding (*banjir rob*) has emerged as a critical manifestation of slow-onset climate change impacts along Indonesia's coastlines, particularly on the northern coast of Central Java. Unlike sudden-onset disasters, tidal flooding develops gradually and cumulatively, creating prolonged vulnerability for coastal communities. This article examines the extent to which existing policy frameworks at national, provincial, and municipal/regency levels provide protection for coastal communities affected by tidal flooding, using a human security perspective. Employing a qualitative descriptive approach grounded in participatory research, the study combines policy document analysis with insights from community workshops conducted in Semarang City and Demak Regency under the Research and Advocacy for Climate Policy and Action (RACPA) program. The findings show that Indonesia has not yet established an integrated policy framework that explicitly recognizes tidal flooding as a slow-onset climate disaster. Protection measures remain fragmented across disaster management regulations, development planning instruments, and sectoral policies. Existing interventions provide partial protection across four domain: housing, economic, social, and environmental protection but are largely reactive and insufficiently responsive to the cumulative nature of tidal flooding. This condition constrains policy coherence, funding allocation, and implementation effectiveness, placing coastal communities in a precarious position between remaining in increasingly uninhabitable areas or relocating under conditions of socio-economic uncertainty. The article argues for a more inclusive, integrated, and community-centered policy framework to strengthen protection for climate-vulnerable coastal populations.

1. Introduction

As an archipelagic country, Indonesia is highly vulnerable to the impacts of climate change, including extreme weather events, droughts, rising temperatures, high waves, and sea-level rise. The combined effects of sea-level rise and land subsidence have intensified tidal flooding (*banjir*

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rob), which frequently poses a serious threat to the lives and livelihoods of coastal communities, particularly during periods of high tide. With a coastline extending more than 81,290 kilometers, tidal flooding occurs in numerous regions across Indonesia, affecting coastal areas in provinces such as Aceh, North Sumatra, West Sumatra, Jambi, the Riau Islands, Bangka Belitung, Lampung, Banten, Jakarta, West Java, Central Java, East Java, West Nusa Tenggara, South Kalimantan, Central Kalimantan, North Sulawesi, West Sulawesi, and Maluku (Kompas.TV, 2025).

Along the northern coast of Central Java particularly in Wonoagung Village, Karang Tengah Sub-district, Demak Regency, and RW 16 Tambakrejo, Tanjung Mas Urban-Village, North Semarang Sub-district, Semarang City climate change has contributed to a range of disasters, including high waves, coastal abrasion, flooding, and tidal inundation (*banjir rob*), which have led to population displacement (Tyas, 2018). Tidal flooding exhibits characteristics distinct from most other disasters, which typically occur suddenly and over relatively short periods. Instead, *banjir rob* develops gradually and recurs periodically. As a form of adaptation, coastal communities have normalized tidal flooding as part of everyday life, until eventually they are forced to relocate when their homes become permanently inundated and no longer habitable. The decision to remain in place or to relocate is often complex, as it involves both material and non-material considerations (Saptaningtyas et al., 2025).

These disasters have resulted in severe degradation of marine ecosystems, threats to livelihoods particularly among fisher-farmers damage to housing, disruptions to everyday activities, and increasing health problems (Boudreau et al., 2022; Saptaningtyas et al., 2025). Together, these impacts place coastal communities in highly vulnerable conditions. In responding to prolonged tidal flooding, communities have developed various adaptation strategies, including elevating house floors, raising roads, changing livelihoods, and other locally driven measures. However, these efforts have proven insufficient. The pace and intensity of climate change often exceed communities' adaptive capacities, while the high costs of adaptation further exacerbate vulnerability. As a result, some households are forced to relocate due to incapacity (*displacement*), while others remain because they are unable to move, yet continue to live under severe hardship and persistent disaster pressure (*trapped communities*), as documented in the RACPA Annual Report (2024). Given these conditions of vulnerability, protective interventions are urgently needed to enable climate-affected coastal communities to live more safely and with greater well-being.

Through the RACPA project a multi-stakeholder collaboration involving Jesuit Refugee Service Thailand, Percik–Indonesia, and the Environmental Science for Social Change (ESSC), Philippines advocacy efforts were undertaken alongside participatory research. In 2024, the RACPA project underscored the importance of protection measures for vulnerable groups, particularly coastal communities affected by climate change. Fundamentally, the protection of citizens is a core obligation of the state. The fourth paragraph of the Preamble to the 1945 Constitution of the Republic of Indonesia explicitly states that one of the purposes of the Indonesian state is to protect all its people. This obligation extends beyond protection from violence arising from external or internal conflict to include protection from threats to everyday life, including climate change–related disasters. This perspective aligns with the concept of human security, which moves beyond a narrow focus on conflict-related violence to encompass broader dimensions such as economic security, food security, health security, environmental security, personal security, community security, and political security (Alkire, 2003; Saptaningtyas, 2024).

The climate change crisis affecting Indonesia's coastal areas particularly in Central Java Province is therefore not merely a biophysical phenomenon characterized by sea-level rise, but an existential threat to human dignity that requires an interdisciplinary reading. As emphasized in the *Human Development Report* (United Nations Development Programme, 1994), human security has two core dimensions: "first, safety from chronic threats such as hunger and disease; and second, protection from sudden and painful disruptions in the patterns of daily life whether at home, at work, or within communities." In the context of the northern coast of Central Java, these security

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disruptions have become permanent and increasingly complex. This argument is reinforced by (Gasper, 2019), who contends that a human security approach must be able to "see the lives of ordinary people, especially the most vulnerable, and ask whether they possess the basic requirements for security that is existential and dignified." From this perspective, human security extends beyond economic development alone to confront lived realities of vulnerability. In fragile coastal contexts, this approach is particularly relevant, as it seeks a balance between economic development and human development while placing human dignity at the center of analysis.

Accordingly, this article examines how the state at national, provincial, and municipal/regency levels has developed policies to protect coastal communities vulnerable to climate change–related disasters. These forms of protection include housing protection, economic protection, environmental protection, and social protection. This paper is written as a reflective outcome of the RACPA project's research and advocacy efforts, prioritizing a grounded, bottom-up approach while also conducting a focused review of relevant policy documents. It is hoped that this study will contribute more detailed insights into the need for practical and community-centered policy interventions that prioritize protection for populations most vulnerable to climate change impacts.

2. Research Method

This qualitative descriptive study adopts a grounded research approach to examine the extent to which the forms of protection expected by coastal communities are reflected in existing policy frameworks. Grassroots experiences therefore serve as the primary foundation for identifying protection needs. The qualitative descriptive approach is used to examine phenomena in their natural settings, where the researcher acts as the key instrument, with the aim of developing an in-depth understanding of meanings, behaviors, perceptions, and motivations through rich, contextualized descriptions rather than statistical generalization (Sugiyono, 2014). This approach is considered suitable for uncovering the meanings embedded in written policies related to the protection of coastal communities affected by climate change–related disasters. As noted by (Creswell, 2014), qualitative approaches emphasize deep understanding of social phenomena through qualitative data collection techniques such as interviews, observation, and focus group discussions (FGDs).

In addition, this study conducted a systematic policy inventory and content analysis focusing on protection-related provisions across laws and regulations, policy documents, and other supporting materials. Legal and policy documents were identified through the Indonesian Legal Documentation and Information Network (*Jaringan Dokumentasi dan Informasi Hukum*—JDIH) using keywords including *disaster*, *climate change impacts*, *community protection*, *coastal protection*, *climate change adaptation*, and *fulfilment of basic needs for disaster victims*.

The policy content analysis is structured around four categories of protection housing, economic, social, and environmental protection and is limited to identifying the availability of protection policies at the national, provincial, and municipal/regency levels, as well as examining the scope of implementation mechanisms as articulated in the policy documents. During the analytical process, protection measures outlined in regulatory documents are systematically compared with the protection needs derived from the vulnerability conditions of coastal communities affected by tidal flooding (*banjir rob*) as a slow-onset climate change–related disaster. These protection needs were identified through a participatory workshop held on 4 June 2025.

The participatory workshop involved 50 participants, including neighborhood leaders, religious leaders, and women and men from coastal communities, and resulted in the identification of four core protection categories: housing protection, economic protection, social protection, and environmental protection. The workshop, titled *Developing Strategies to Strengthen Coastal Community Resilience in Climate Change Adaptation*, was organized by Percik under the *Research*

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and Advocacy for Climate Policy and Action (RACPA)[1] program and held on 3–4 June 2025 at Quest Hotel, Semarang City. Participants represented diverse elements of coastal communities from RW 16 Tambakrejo, Tanjung Mas Urban-Village, Semarang City, and Wonoagung Village, Demak Regency. Through participatory discussions, the workshop generated a collective identification of community vulnerabilities as well as the adaptation and protection strategies required to address climate change impacts.

3. Results and Discussion

3.1. Identification of Policy Documents and Four Policy Dimensions

The document review process indicates that policies explicitly regulating the protection of communities potentially affected by climate change have not yet been consolidated into a single, comprehensive legal framework, either at the national level or at subnational levels (provincial and municipal/regency). Consequently, the identification of protection policies in this study was conducted through disaster management regulations, regional development planning documents, and sectoral policies.

In total, 47 policy documents were collected and reviewed by the authors. However, following a close reading of the documents and their classification based on relevance to the four protection categories housing, economic, social, and environmental protection not all documents identified in the initial inventory were included in the subsequent analysis.

Tabel 1. Identification of Policy Documents and Protection Relevance

Policy Document	Level	Protection Relevance
The 1945 Constitution of the Republic of Indonesia	National	General protection framework: human rights
Law No. 24 of 2007 on Disaster Management	National	General protection framework: right to participate in decision-making; housing and social protection
Government Regulation No. 64 of 2010 on Disaster Mitigation in Coastal and Small Island Areas	National	General protection framework: recognition of tidal flooding (*banjir rob*) as a disaster
Government Regulation No. 21 of 2008 on the Implementation of Disaster Management	National	Housing and social protection
Government Regulation No. 2 of 2018 on Minimum Service Standards	National	Housing and social protection
Decree of the Head of the National Disaster Management Agency (BNPB) No. 296A on Housing Assistance for Disaster-Affected Damaged Houses	National	Housing protection
Minister of Agriculture Regulation No. 30 of 2023 on the Facilitation of Agricultural Insurance	National	Economic protection
Central Java Provincial Regulation No. 7 of 2025 on the Medium-Term Regional Development Plan (RPJMD) 2025–2029	Central Java Province	Housing, economic, social, and environmental protection

[1] Research and Advocacy for Climate Policy and Action (RACPA) is a five-year project designed to better understand the climate change and human (im)mobility nexus in the context of coastal and island communities. The RACPA project is implemented by the Jesuit Refugee Service Asia Pacific (JRSAP), ESSC in the Philippines, and the Institute for Social Research, Democracy and Social Justice (Percik) in Indonesia with support from the Australian Government through Caritas Australia.

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Central Java Governor Regulation No. 14 of 2024 on the Action Plan for the Implementation of Minimum Service Standards 2024–2026	Central Java Province	Housing and social protection
Demak Regency Regulation No. 5 of 2025 on the Medium-Term Regional Development Plan (RPJMD) 2025–2029	Demak Regency	Housing, economic, social, and environmental protection
Demak Regent Regulation No. 42 of 2023 on the Action Plan for the Implementation of Minimum Service Standards 2023–2027	Demak Regency	Housing and social protection
Demak Regency Regulation No. 5 of 2024 on the Protection and Empowerment of Fishers, Fish Farmers, and Salt Farmers	Demak Regency	Economic protection
Semarang City Regulation No. 8 of 2025 on the Medium-Term Regional Development Plan (RPJMD) 2025–2029	Semarang City	Housing, economic, social, and environmental protection
Semarang Mayor Regulation No. 84 of 2023 on the Regional Action Plan for the Implementation of Minimum Service Standards 2023–2026	Semarang City	Housing and social protection
Semarang Mayor Regulation No. 26 of 2025 on Social Protection for Vulnerable Workers	Semarang City	Economic protection
Semarang Mayor Regulation No. 54 of 2024 on Guidelines for Scholarship Provision for Children of Farmers and Fisheries Actors	Semarang City	Social protection

Source: document study (2026)

3.2. General Protection Policies Implemented by the Government of Indonesia

Before examining policies specifically aimed at protecting coastal communities affected by climate change–related disasters, it is important to first consider how protection policies have generally been implemented by the Government of Indonesia. These policies have largely been developed without explicit consideration of the slow-onset nature of climate change and its cumulative impacts on vulnerable communities.

The 1945 Constitution of the Republic of Indonesia, as the supreme legal foundation, guarantees the protection of citizens. Through the constitutional amendments, the state explicitly affirms the protection of human rights, particularly those of Indonesian citizens. Articles 28A, 28D, 28G, and 28H guarantee the rights to a decent life, freedom from fear, protection, a healthy environment, access to health services, and private property. These provisions can be interpreted as affirming the state's obligation to protect citizens' fundamental rights in all circumstances, both under normal conditions and in disaster situations.

More specifically, within the context of disaster management, Law No. 24 of 2007 on Disaster Management, Article 26, guarantees every person's right to social protection and a sense of security, as well as the right to participate in decision-making related to disaster management activities, particularly those affecting themselves and their communities. This law is further operationalized through Government Regulation No. 21 of 2008 on the Implementation of Disaster Management, as well as regional regulations at the subnational level. These include Central Java Provincial Regulation No. 11 of 2009 on Disaster Management in Central Java Province, Demak Regency Regulation No. 9 of 2016 on Disaster Management in Demak Regency, and Semarang City Regulation No. 13 of 2010 on Disaster Management in Semarang City.

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Although provincial and municipal/regency governments have enacted implementing regulations derived from Law No. 24 of 2007, Government Regulation No. 21 of 2008 stipulates that disaster management planning must be integrated into development planning processes. This integration is intended not only to ensure that development initiatives are more attentive to disaster risks, but also to prevent development activities from generating new disaster risks for communities. Furthermore, such integration enhances the likelihood of effective disaster management implementation, as regional budget allocations (APBD) are largely derived from programs incorporated into the Medium-Term Regional Development Plan (RPJMD) and the Regional Government Work Plan (RKPD).

An examination of regional development planning documents specifically the Medium-Term Regional Development Plans (RPJMD) shows that the governments of Central Java Province, Demak Regency, and Semarang City have all identified tidal flooding (*banjir rob*) as a climate change–related disaster that requires serious attention and policy intervention. The identification of problems and strategic issues occupies a central position within the RPJMD, as it forms the basis for regional development policy directions. In Central Java Provincial Regulation No. 7 of 2025 on the RPJMD, the provincial government explicitly recognizes that areas such as Semarang, Demak, and Pekalongan have experienced disasters driven by climate change. Although protection measures are not always explicitly articulated within the list of policy directions, the Central Java Provincial Government has incorporated protection for communities vulnerable to climate change impacts into its Priority Programs, Intervention Programs, Action Programs, and Tactical Programs.

At the municipal and regency levels, the Demak Regency Government, in its Technocratic Draft RPJMD 2025–2029, identifies areas vulnerable to tidal waves and coastal abrasion across the sub-districts of Sayung, Karangtengah, Bonang, and Wedung. For Demak Regency, addressing tidal flooding and inundation remains a major challenge. High mitigation costs, limited budget capacity, and the difficulties associated with relocating affected residents significantly constrain response efforts. In Demak Regency Regulation No. 5 of 2025 on the RPJMD 2025–2029, tidal flood management is incorporated under Mission Five: *Strengthening Inclusive and Sustainable Social and Environmental Resilience*. This mission includes, first, a strategy focused on adaptive social protection (including protection against natural disaster risks); second, a strategy aimed at enhancing resilience to disasters and climate change, which encompasses coastal protection measures and mitigation of land subsidence; and third, a strategy addressing tidal flooding through an incremental planning approach that is gradual, adaptive, and sustainable.

In Semarang City, Regional Regulation No. 8 of 2025 on the RPJMD 2025–2029 articulates the city's development vision and mission, particularly the sixth mission, which aims to *realize a resilient and sustainable urban environment while strengthening flood and tidal inundation control and mitigating their impacts on communities*. This mission seeks to create an environment that is not only environmentally sustainable but also capable of protecting communities from the impacts of the climate crisis. With respect to flooding and tidal inundation, Semarang City's policy direction emphasizes flood and tidal control through infrastructure enhancement, improved prevention and preparedness measures, and strengthened community adaptive capacity in response to climate change impacts. Efforts to reduce household expenditure burdens—through integrated system strategies, adaptive and integrative social protection, equitable social assistance and social security, and the provision of basic service infrastructure—are primarily oriented toward addressing poverty-related challenges.

To further strengthen community protection in disaster contexts, Semarang City has enacted Regional Regulation No. 13 of 2010 on Disaster Management, which operationalizes the provisions of Law No. 24 of 2007 on Disaster Management. Although this regulation derives from higher-level legislation, it provides a more detailed articulation of community protection compared to regulations at the provincial and regency levels. Specifically, it elaborates disaster victims' rights,

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including protection of dignity, property, and livelihoods; fulfillment of basic needs in accordance with minimum emergency assistance standards as stipulated in prevailing regulations; access to services tailored to specific needs, including psychological rehabilitation for vulnerable groups; and explicit protection for vulnerable populations. In addition, the regulation guarantees post-disaster rehabilitation measures, including environmental restoration in disaster-affected areas; repair of public infrastructure and facilities; housing repair assistance; psychosocial recovery; health services; and the restoration of social, economic, and cultural life.

3.3. Policy Challenges across Four Dimensions of Protection for Climate-Vulnerable Communities

This subsection is derived from the outcomes of a community workshop in which participants collectively identified the protection needs of climate-vulnerable communities and subsequently developed these needs within a *theory of change* framework. Through the *Workshop on Developing Strategies to Strengthen Coastal Community Resilience in Climate Change Adaptation*, organized by Percik in Semarang on 3–4 June 2025 as part of the broader *Research and Advocacy for Climate Policy and Action (RACPA)* program, key vulnerabilities faced by coastal communities—particularly those in RW 16 Tambakrejo, Semarang City, and Wonoagung Village, Demak Regency—were systematically mapped, along with the forms of protection required to address them.

The distinctive characteristics of tidal flooding (*banjir rob*) mean that the protection needs of affected communities differ significantly from those associated with other types of disasters. Unlike sudden-onset hazards, tidal flooding develops gradually and persistently, resulting in cumulative impacts over time. Based on the participatory mapping process, four interrelated forms of protection were identified as essential for coastal communities vulnerable to climate change–related disasters: housing protection, economic protection, environmental protection, and social protection**.**

The analysis indicates that existing protection policies still require further attention, particularly with regard to budgetary considerations, timeframes, and institutional capacity, while also respecting communities' freedom to decide whether to remain in place or to relocate. Although government presence through various policy implementations largely sectoral in nature has contributed to strengthening community capacity, these efforts remain suboptimal due to their fragmented design. As a result, protection measures have not yet fully responded to the complex and interconnected vulnerabilities experienced by climate-affected coastal communities.

In response to these limitations, this study proposes the four-dimensional protection framework as a bottom-up protection model**,** grounded in community experiences and priorities. This framework is intended to complement existing sectoral policies by providing an integrated lens through which protection needs can be addressed more holistically, coherently, and responsively in the context of slow-onset climate change impacts.

3.3.1. Housing Protection

Housing conditions and adaptive capacity in coastal areas affected by tidal flooding (*banjir rob*) often constitute a critical "threshold" that shapes residents' decisions to either remain in place or relocate. The RACPA survey indicates that 75 percent of residents choose to remain, driven by considerations such as strong family ties, proximity to livelihood sources, the absence of alternative relocation sites, lack of financial resources to move, and a sense of attachment to their current living environment (Saptaningtyas et al., 2025). This choice, however, entails significant consequences, as coastal households must bear substantial costs to adapt to recurrent and increasingly severe tidal flooding. Elevating house floors by one meter every five years requires an estimated investment of IDR 25–30 million. These costs rise considerably when roof elevation becomes necessary due to reduced floor-to-ceiling height.

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Communities' ability to finance adaptation measures is further constrained by the combined pressures of household debt, declining family income, and the accelerating pace of climate change, which often outstrips local adaptive processes. When households can no longer afford adaptation, displacement becomes unavoidable, as homes suffer severe damage, are permanently inundated by seawater, and become uninhabitable. Betts (2013) describes this condition as *survival migration*, which occurs when individuals are forced to move not due to political persecution, but because they "can no longer secure the basic means of survival in their place of origin."

These inequalities are particularly evident in the legal status of lost land. Marfai & King (2008) notes that effective coastal flood management requires land-use policies that acknowledge the dynamic nature of shorelines. Without such recognition, a legal anomaly emerges in which land is treated as static (classified as terrestrial) while, in physical reality, it has disappeared and become sea. Consequently, as highlighted by 12:13 PM, coastal residents in Indonesia often lose everything both their physical land and their legal standing to receive government assistance, because the law continues to treat land as a static asset that does not disappear.

Regarding the choice of whether to remain or relocate, the Central Java Provincial Government has, on various occasions, stated that it respects community decisions. Although no specific regulation explicitly governs respect for community choice, this stance aligns with the protection of community rights within disaster management as stipulated in Article 26 paragraph (1)(e) of Law No. 24 of 2007 on Disaster Management, which affirms that "every person has the right to participate in decision-making related to disaster management activities, particularly those affecting themselves and their communities." This provision may be interpreted as legal recognition of community voice especially that of disaster-affected populations—in decisions concerning remaining in place (rehabilitation) or relocating, both of which constitute integral components of disaster management. This principle of respecting the right to choose is further reflected in regional regulations at the Central Java Provincial and Demak Regency levels. In contrast, Semarang City Regulation No. 13 of 2010 on Disaster Management no longer explicitly includes provisions guaranteeing community participation in disaster management decision-making processes.

The right of communities to decide whether to remain in place or to relocate is not absolute. Article 32 paragraph (1) of Law No. 24 of 2007 on Disaster Management stipulates that, in the implementation of disaster management, the government may: (a) designate disaster-prone areas as prohibited zones for settlement; and/or (b) revoke or reduce part or all of an individual's ownership rights over property in accordance with prevailing laws and regulations. In cases where ownership rights are revoked, affected communities are entitled to compensation.

With regard to housing protection for victims of tidal flooding (*banjir rob*), the Central Java Provincial Government is currently developing policies for the construction of floating houses in coastal areas, as well as programs to improve housing quality (*adequate and habitable housing*) for residents who choose to remain in place. The floating house policy is being developed in collaboration with the Demak Regency Government through the construction of a prototype floating house in Timbulsloko Village, Demak Regency. For coastal residents affected by tidal flooding who decide to relocate, the provincial government provides social assistance for the construction of new houses through schemes that require beneficiaries to supply land independently. Another housing strategy involves relocation, as implemented in Simonet Hamlet, Semut Village, Pekalongan Regency. This scheme, which requires substantial financial resources, was made possible through multi-stakeholder collaboration.

Policies for the provision and rehabilitation of adequate housing for disaster victims are implemented not only by the Central Java Provincial Government but also by the governments of Demak Regency and Semarang City. This responsibility is mandated by Government Regulation No. 2 of 2018 on Minimum Service Standards, which defines housing as a compulsory basic service for local governments. In the housing sector, provincial and municipal/regency

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governments are required to provide basic services in the form of housing provision and rehabilitation for disaster victims. These services include: (1) rehabilitation of lightly and moderately damaged houses; (2) reconstruction of severely damaged houses; (3) new housing construction or relocation; and (4) assistance in accessing adequate rental housing.

In operationalizing these standards through regional regulations on the Action Plan for the Implementation of Minimum Service Standards, the Central Java Provincial Government allocated IDR 3.8 billion in 2026 for the rehabilitation of 150 disaster-affected houses and IDR 4.485 billion for the reconstruction of 75 houses. In relation to housing protection for disaster victims, the Demak Regency Government allocated IDR 2 billion for the rehabilitation of 200 houses and IDR 1.5 billion for the construction of 30 houses. Meanwhile, the Semarang City Government allocated a total of IDR 160 billion for basic housing services related to the provision and rehabilitation of adequate housing for disaster victims. This allocation covers three program components: housing development programs, construction and rehabilitation of houses for disaster victims or relocation under city programs, and housing rehabilitation initiatives.

Funding for housing rehabilitation as a form of disaster victim protection is sourced not only from regional budgets (APBD) but also from central government funds managed by the National Disaster Management Agency (BNPB). The Decree of the Head of BNPB No. 296A on Housing Assistance for Disaster-Affected Houses specifies the amount of housing assistance provided: IDR 60 million for severely damaged houses, IDR 30 million for moderately damaged houses, and IDR 15 million for lightly damaged houses.

Despite the availability of various housing protection policies, these measures have not fully resolved the housing challenges faced by coastal communities affected by tidal flooding. Housing rehabilitation assistance has been instrumental in enabling households to elevate house floors. However, when such needs recur and the number of households requiring assistance exceeds allocated budget quotas, significant implementation challenges arise. Moreover, the declaration of disaster status by local governments is a prerequisite for disbursing rehabilitation assistance. In practice, authorities often hesitate to declare disaster status for tidal flooding due to its slow-onset characteristics, the absence of simultaneous large-scale destruction, and the lack of fatalities. Official recognition of climate change impacts—particularly sea-level rise—as a causal factor of disasters, as stipulated in Government Regulation No. 64 of 2010 on Disaster Mitigation in Coastal and Small Island Areas, is therefore critical for expanding fiscal space for climate-related disaster management and housing protection for tidal flood victims.

Expecting tidal flood victims to bear part of the financial burden of disaster management is particularly challenging. This is evident in housing assistance schemes that require land ownership for new house construction. Prolonged household economic pressure due to declining incomes, high adaptation costs, debt accumulation, and asset devaluation significantly constrains families' ability to purchase or provide land outside tidal flood–prone areas.

Similarly, housing assistance schemes based on communal relocation or self-provided land are not free from implementation challenges. Notably, relocation policies for disaster victims are not comprehensively regulated in existing legislation. Under Government Regulation No. 2 of 2018 on Minimum Service Standards, relocation is intended primarily for communities affected by government development programs, rather than disaster victims. In the case of Simonet Hamlet, Semut Village, Pekalongan Regency where homes were submerged due to tidal floodingrelocation was implemented by drawing on regulations governing the upgrading of informal and slum settlements as a legal basis, rather than disaster management regulations.

Beyond substantial financing requirements, communal relocation schemes face resistance from affected communities, particularly regarding vertical housing (*rusun*). For fishers, living in vertical housing poses practical challenges, including limited space for storing fishing gear. Relocation to landed housing is also frequently rejected, as relocation sites are often located far from original settlements due to land availability constraints. As a result, livelihood transitions become

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unavoidable, placing households in conditions of economic uncertainty. As noted by (Hugo, 1996), climate migrants that often lack the skills required for urban labor markets, pushing them into precarious informal employment.

As a way out of this policy impasse, McAdam (2012) cautions that relocation should not be treated merely as a logistical challenge, but rather as a *human rights challenge*. When communities are relocated without adequate consideration of economic and cultural sustainability, relocation risks becoming a form of secondary displacement and systemic failure. Accordingly, Ferris (2011) emphasizes the importance of ensuring *secure land tenure in relocation sites* to prevent displaced populations from being resettled in unsafe and informal settlements.

3.3.2. Economic Protection

In the economic sphere, coastal communities experience severe pressure not only from tidal flooding (*banjir rob*) itself, but also from other climate change–related hazards, with the situation becoming more acute due to the high costs of adapting to recurrent tidal inundation. Large areas of rice fields have been damaged and can no longer be cultivated as a result of seawater intrusion. Transitioning from rice farming to aquaculture, however, is far from straightforward. Differences in culture and skills, combined with the substantial capital required to convert rice fields into fish ponds, pose significant challenges for rice farmers. Moreover, aquaculture is not a secure livelihood in the context of tidal flooding. Increasingly severe tidal inundation, coupled with high waves, frequently damages pond embankments. Without proper embankments and relying solely on net barriers, pond productivity declines significantly.

For fishers particularly small-scale and traditional fishers economic pressure is not caused directly by tidal flooding, but rather by other climate change–related impacts such as stronger waves, degradation of coastal ecosystems, and encroachment into fishing grounds by large vessels. Tidal flooding nonetheless exacerbates their vulnerability by increasing household expenditures at a time when incomes are declining, especially during lean fishing seasons.

Within Central Java Provincial Regulation No. 7 of 2025 on the Medium-Term Regional Development Plan (RPJMD) 2025–2029, the provincial government has developed a number of policies and programs aimed at protecting the economic livelihoods of coastal communities, many of whom work as fishers and farmers. These include subsidized fertilizer programs for farmers, diesel fuel subsidies for fishers, guaranteed purchase of agricultural and fishery products through the regionally owned enterprise *Jateng Agro Berdikari*, crop failure insurance programs for farmers and fishers administered through *Jamkrida*, and the normalization of estuary areas to facilitate access for traditional fishing vessels. Similarly, RPJMD documents at the municipal and regency levels—both in Demak Regency and Semarang City—include economic protection measures, particularly for fishers, in the form of insurance schemes and support for fishing gear.

In Demak Regency, economic protection is further articulated through Regency Regulation No. 5 of 2024 on the Protection and Empowerment of Fishers, Fish Farmers, and Salt Farmers, particularly Article 21 concerning business risk guarantees in fisheries and salt production. Under this regulation, the Demak Regency Government provides fisheries and salt farming insurance that covers risks such as loss or damage of equipment, work-related accidents and fatalities, as well as risks arising from disasters, fish disease outbreaks, climate change impacts, pollution, and occupational hazards.

By contrast, insurance-based protection for rice farmers, particularly crop failure assistance, is administered directly by the central government through the Ministry of Agriculture. Minister of Agriculture Regulation No. 30 of 2023 on the Facilitation of Agricultural Insurance provides protection against losses caused by natural disasters, plant and animal diseases, and climate change impacts. However, this form of protection is primarily targeted at land designated as sustainable food agricultural land or protected rice fields. This requirement is often difficult to meet for coastal agricultural land that is highly vulnerable to seawater intrusion and tidal flooding.

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In the context of tidal flooding, economic empowerment as a follow-up to economic protection is crucial for coastal communities that require additional income sources to meet high adaptation costs and sustain livelihoods during lean periods. Governments at all levels have implemented various community economic empowerment programs, including initiatives to increase income through improved access to capital, employment opportunities, entrepreneurship, and human resource capacity building. However, these programs have not adequately addressed market access and marketing guarantees. Guaranteed purchase mechanisms exist at the provincial level, but are largely absent at the municipal and regency levels. As a result, many community-led initiatives such as small-scale marine product processing enterprises in coastal areas of Demak Regency and Semarang City have stalled due to weak and unreliable market access.

The state has an absolute obligation to provide economic protection for its citizens, both for those who remain in tidal flood–affected areas and for those who are forced to relocate because their homes have been permanently inundated. Kälin (2008) emphasizes that states have the primary duty and responsibility to provide protection and humanitarian assistance to internally displaced persons (IDPs). This obligation requires a legal regime that, as argued by Biermann & Boas (2010), that offers more than temporary assistance, but ensures long-term residency rights and socio-economic integration for individuals and households whose homes and livelihoods have been permanently lost.

3.3.3. Social Protection

Social protection is critically needed to safeguard coastal communities as climate change–related disasters, particularly tidal flooding (*banjir rob*), continue to occur with increasing frequency and severity. Prolonged tidal flooding has imposed multiple hardships on coastal livelihoods. Declining incomes and, in many cases, the loss of livelihoods have significantly affected household economies, while at the same time households face rising expenditures directly associated with tidal flooding. These include recurring costs for elevating house floors, contributing to road elevation initiatives, and repairing transportation equipment, all of which must be borne routinely by households living in coastal areas. This situation differs from other natural disasters such as river flooding, flash floods, tsunamis, volcanic eruptions, or earthquakes which are typically sudden-onset and episodic in nature.

The governments of Central Java Province, Demak Regency, and Semarang City have implemented a range of social protection policies and programs that are generally applicable in nature and not specifically targeted at disaster victims or climate-vulnerable coastal communities. These include comprehensive health services through free health insurance for low-income households, equitable access to education through scholarship programs for poor students, and subsidized food schemes. In addition, various social security and social assistance programs function as social protection mechanisms, including the *Program Keluarga Harapan* (conditional cash transfers), Non-Cash Food Assistance (*BPNT*), *Kartu Indonesia Sehat*, *Kartu Indonesia Pintar*, cash transfers funded through tobacco excise revenue sharing (*DBHCHT*), employment social security schemes, and regionally funded programs such as *Kartu Jateng Sejahtera*.

To date, these social protection schemes have largely been framed as instruments for poverty alleviation rather than as adaptive mechanisms to address disaster impacts and climate change–induced vulnerability, despite the fact that the right to social protection for disaster victims is formally guaranteed under Law No. 24 of 2007 on Disaster Management and its implementing regulations at the regional level. While social protection as a poverty reduction mechanism is appropriate, a critical question remains as to whether victims of tidal flooding are adequately protected when eligibility is determined primarily on the basis of poverty data. Tidal flooding is widely recognized as a climate change–related disaster capable of pushing households into poverty through asset loss and damage, livelihood disruption, and indebtedness arising from high adaptation costs.

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Several factors raise doubts as to whether coastal communities vulnerable to tidal flooding receive sufficient social protection when poverty status is used as the primary eligibility criterion. Poverty data produced by Statistics Indonesia (BPS) are based on household expenditure on food and non-food items relative to the official poverty line. Households whose expenditures fall below the poverty line are classified as poor. In the context of tidal flooding, however, coastal households often incur substantial adaptation-related expenditures, which may place them above the poverty line and thus exclude them from social assistance programs, even though their economic vulnerability remains high. Although non-food expenditure carries a smaller weight than food expenditure in the construction of the poverty line, this measurement approach tends to obscure the lived realities of climate-induced vulnerability.

Similarly, the use of the Integrated Social Welfare Database (*DTKS*) of the Ministry of Social Affairs and the Socio-Economic Registration (*Regsosek*) in determining eligibility for social protection presents additional challenges in reaching coastal communities vulnerable to tidal flooding. The questionnaires used in both surveys do not account for disaster adaptation expenditures as a household burden. As a result, the socio-economic impacts of slow-onset climate disasters remain largely invisible within existing social protection targeting mechanisms.

In local policy practice, coastal communities are frequently trapped in conditions of systemic injustice. As Schlosberg (2012) argues that justice is not only about the distribution of goods; it is also about the recognition of those affected by environmental change. The failure of political and legal systems to recognize disaster-affected communities as legitimate and sovereign subjects of protection constitutes a fundamental form of injustice.

3.3.4. Environmental Protection

Environmental protection policies developed by the Central Java Provincial Government include disaster risk reduction and environmental sustainability initiatives such as *Mageri Segoro*, a coastal protection program aimed at securing the shoreline. This initiative also promotes the construction of the Giant Sea Wall, a coastal embankment designed to prevent abrasion, tidal flooding (*banjir rob*), and sedimentation. Coastal protection measures are complemented by drainage system improvements and flood control efforts, particularly in Semarang City, Pekalongan, and Demak Regency, to prevent water stagnation, especially during periods when high tides coincide with heavy rainfall.

With regard to clean water availability as a component of environmental protection, the provincial government has promoted the development of desalination systems, particularly along the northern and southern coasts of Central Java. Additional measures include the expansion of regional and industrial drinking water supply systems (*SPAM*), as well as more intensive enforcement of local groundwater regulations through quarterly evaluations. These policies and programs aim to secure clean water supply while addressing the impacts of excessive groundwater extraction in areas such as Pekalongan, Demak, and Semarang, where groundwater overexploitation has exacerbated land subsidence.

Ensuring universal and safe access to drinking water particularly piped potable water has become increasingly critical, as communities in areas frequently affected by tidal flooding face severe challenges in accessing clean water. In Wonoagung Village, Demak Regency, for example, existing water sources are insufficient to meet residents' needs in terms of both quality and quantity. Due to the limited availability of freshwater sources, residents often mix freshwater with brackish water. This mixed water is used only for bathing and washing, yet it has led to widespread skin diseases among residents. To meet drinking water needs, households must incur additional expenses to purchase refillable drinking water. This situation illustrates a profound sense of injustice when contrasted with the presence of industrial facilities located near the village. Industries operate multiple deep wells and extract significantly more groundwater than local residents, yet it is the community that bears the brunt of tidal flooding and land subsidence.

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This condition reflects the argument advanced by Adger et al. (2006) who asserts that adaptation to climate change is a matter of social justice because impacts and the capacity to adapt are unevenly distributed, often falling most heavily on those who have contributed least to the problem.

4. Conclusion and Recommendation

This study shows that the Government of Indonesia has not yet established a comprehensive and integrated policy framework that specifically protects coastal communities affected by tidal flooding (*banjir rob*) as a slow-onset climate change–related disaster. At the national, provincial, and municipal/regency levels, protection measures remain fragmented across disaster management regulations, development planning instruments, and sectoral policies. Nevertheless, these government interventions have provided meaningful support to affected communities, although their implementation still requires a stronger inclusivity paradigm to ensure that the most vulnerable populations are adequately protected.

The findings indicate that existing policies offer partial forms of protection across four main domains housing, economic, social, and environmental protection but are largely reactive, sectoral, and ill-suited to the gradual and cumulative nature of tidal flooding. Housing protection policies, while providing important short-term assistance through rehabilitation and reconstruction schemes, have not sufficiently addressed the structural challenges posed by recurrent inundation, escalating adaptation costs, and limited access to viable relocation options. Economic protection remains weakly articulated, particularly at the local level, where empowerment-oriented programs are not systematically aligned with climate risks and disaster-induced livelihood losses.

Although social protection mechanisms are relatively extensive, they continue to be framed primarily as poverty alleviation instruments rather than as adaptive tools for managing climate change–related vulnerability. As a result, communities affected by prolonged and intensifying tidal flooding frequently fall through institutional gaps, receiving intermittent assistance that does not correspond to the long-term nature of their exposure. Environmental protection policies have made substantial investments in coastal defense and water management infrastructure; however, addressing land subsidence and ensuring access to clean water for coastal communities remain critical challenges that must be addressed by the government.

Overall, the absence of explicit recognition of tidal flooding as a slow-onset climate disaster has constrained policy responsiveness, and implementation effectiveness. This situation places coastal communities in a precarious position, forcing them to choose between remaining in increasingly uninhabitable environments or relocating under conditions of uncertainty and diminished socio-economic security. From a human security perspective, this represents an ongoing challenge in fully safeguarding the dignity, safety, and livelihoods of coastal populations affected by climate change.

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