

Climate Change and the Human Rights of Coastal Communities in Indonesia: Legal Protection for Fishing Villages Facing Sea-Level Rise

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Abstract

Indonesia's extensive coastline makes coastal communities increasingly vulnerable to sea-level rise, coastal erosion, flooding, and changes in marine ecosystems. These environmental changes directly affect rights related to housing, livelihoods, food security, health, and cultural continuity. This article examines the human rights implications of climate change for fishing communities in Indonesia. Using normative juridical and policy analysis, the study evaluates environmental law, climate policy, coastal governance, disaster management, and human rights principles. The article argues that climate adaptation should be understood not merely as an environmental or infrastructure issue but as a human rights obligation. Coastal communities require meaningful participation in relocation, adaptation planning, and resource management decisions. The study proposes a rights-based coastal adaptation framework incorporating livelihood protection, participatory relocation, access to climate information, compensation, and preservation of community identity. Particular attention is given to situations in which climate-related relocation may disrupt social networks and traditional livelihoods. The article concludes that Indonesian climate policy should place affected communities at the center of adaptation planning and ensure that climate responses do not create new forms of displacement or inequality.

[Garis pantai Indonesia yang luas membuat masyarakat pesisir semakin rentan terhadap kenaikan permukaan laut, erosi pantai, banjir, dan perubahan ekosistem laut. Perubahan lingkungan ini secara langsung memengaruhi hak-hak yang berkaitan dengan perumahan, mata pencaharian, ketahanan pangan, kesehatan, dan keberlangsungan budaya. Artikel ini mengkaji implikasi hak asasi manusia dari perubahan iklim bagi masyarakat nelayan di Indonesia. Dengan menggunakan analisis yuridis dan kebijakan normatif, studi ini mengevaluasi hukum lingkungan, kebijakan iklim, tata kelola pesisir, manajemen bencana, dan prinsip-prinsip hak asasi manusia. Artikel ini berpendapat bahwa adaptasi iklim harus dipahami bukan hanya sebagai

masalah lingkungan atau infrastruktur, tetapi sebagai kewajiban hak asasi manusia. Masyarakat pesisir membutuhkan partisipasi yang bermakna dalam relokasi, perencanaan adaptasi, dan keputusan pengelolaan sumber daya. Studi ini mengusulkan kerangka kerja adaptasi pesisir berbasis hak yang mencakup perlindungan mata pencaharian, relokasi partisipatif, akses terhadap informasi iklim, kompensasi, dan pelestarian identitas masyarakat. Perhatian khusus diberikan pada situasi di mana relokasi terkait iklim dapat mengganggu jaringan sosial dan mata pencaharian tradisional. Artikel ini menyimpulkan bahwa kebijakan iklim Indonesia harus menempatkan masyarakat yang terdampak sebagai pusat perencanaan adaptasi dan memastikan bahwa respons iklim tidak menciptakan bentuk-bentuk baru pengusuran atau ketidaksetaraan.]

Keywords: Climate change, coastal communities, human rights, adaptation, Indonesia

Introduction

Climate change has transformed coastal vulnerability from an environmental problem into a multidimensional human rights issue. Indonesia is particularly exposed because its population, settlements, infrastructure, economic activities, and livelihoods are heavily concentrated in coastal and low-lying areas. Sea-level rise interacts with tidal flooding, land subsidence, shoreline erosion, changing rainfall patterns, extreme weather, and marine ecosystem degradation, producing cumulative pressures on communities that depend directly on coastal environments. Research examining Indonesia's adaptation laws has found that existing legal arrangements remain fragmented and give insufficient attention to the social burdens generated by sea-level rise, particularly for economically and socially vulnerable communities (Nurhidayah and McIlgorm 2019). More recent evidence from Jakarta identifies tidal flooding, groundwater salinization, property damage, livelihood disruption, and health problems as interconnected consequences experienced by coastal residents (Purnomo et al. 2024). These findings demonstrate that adaptation cannot be reduced to seawalls, drainage systems, or other physical infrastructure. The fundamental issue is whether public policy enables vulnerable communities to maintain safe, dignified, and sustainable lives under changing environmental conditions.

The human rights implications become particularly significant for fishing communities because their livelihoods depend directly upon marine ecosystems and climatic conditions. Changes in fish distribution, fishing seasons, ocean temperatures, wave conditions, and extreme weather can affect both the safety and economic productivity of fishing. Research involving small-scale fishers in East Java demonstrates that adaptation strategies can significantly improve household

income and food security, while access to credit, fisher groups, and climate information influences adaptive capacity (Rahman, Toiba, and Huang 2021). Further research indicates that adaptation can also improve fishers' subjective well-being, suggesting that resilience should not be evaluated exclusively through physical indicators but also through its consequences for household welfare (Rahman et al. 2023). The rights to work, food, health, and an adequate standard of living are therefore directly implicated by climate change. A policy that protects coastal infrastructure while leaving fishing households economically insecure may reduce physical exposure without adequately protecting human dignity.

Climate vulnerability is also socially differentiated. Communities exposed to similar hazards may experience substantially different consequences because they possess different levels of income, education, access to information, infrastructure, social capital, and institutional support. Research in Indramayu, for example, identifies high social vulnerability among fish-farming communities exposed to tidal flooding and shows that vulnerability is shaped by income, education, family structure, local knowledge, experience, and external support (Karsidi et al. 2022). Research in Bengkulu similarly shows that fishers' perceptions of climate change correspond with observed climatic trends and that adjustment of fishing time represents a major adaptation response (Mulyasari et al. 2023). These findings challenge approaches that treat coastal communities as homogeneous beneficiaries of adaptation. Effective protection must identify who is vulnerable, why vulnerability occurs, and which institutional conditions prevent households from adapting effectively.

This article consequently approaches climate adaptation through a human rights and climate justice framework. It argues that adaptation should satisfy both substantive and procedural requirements: communities should be protected from foreseeable harm, while also possessing meaningful opportunities to participate in decisions concerning infrastructure, coastal management, livelihood programs, and relocation. This approach is important because adaptation measures can themselves generate injustice. A coastal defense project may protect one area while transferring flood risks elsewhere, while relocation may reduce exposure but undermine access to fishing grounds, markets, schools, cultural spaces, and social networks. International scholarship on adaptive justice demonstrates that adaptation can reproduce inequality when distributional, procedural, recognition, and structural dimensions are neglected (Schlosberg and Collins 2014; Shi et al. 2016). Indonesia therefore requires an adaptation framework that regards coastal residents not as passive recipients of climate programs but as rights holders whose knowledge, preferences, livelihoods, and social relationships must shape policy design.

This research uses normative juridical and policy analysis supported by relevant socio-legal and empirical scholarship. The normative analysis examines the constitutional and statutory foundations governing environmental protection, coastal and small-island management, fisheries, disaster management, spatial

planning, and the protection of human rights in Indonesia. Particular attention is given to the constitutional recognition of the right to a good and healthy environment, environmental participation, the protection and empowerment of fishers, and state responsibilities concerning disaster risk and natural-resource governance. The analysis is complemented by international human rights principles concerning the rights to life, health, food, housing, work, participation, information, and effective remedies. International climate principles are used not as substitutes for domestic law but as interpretive standards for assessing whether Indonesian adaptation policies are consistent with principles of equity, participation, and human dignity.

The empirical analysis draws upon peer-reviewed journal literature published no later than 2025 concerning Indonesian coastal communities, small-scale fisheries, sea-level rise, tidal flooding, climate adaptation, climate justice, livelihood vulnerability, coastal governance, and community participation. Studies concerning Jakarta, Semarang, Bengkulu, Indramayu, Wakatobi, Spermonde, Banyuwangi, Kupang, and other Indonesian coastal areas are examined to identify recurring patterns. The analysis adopts a descriptive, argumentative, and analytical structure. The descriptive dimension identifies the environmental and socioeconomic consequences of climate change; the argumentative dimension evaluates why these consequences should be understood as human rights concerns; and the analytical dimension examines whether existing governance arrangements adequately protect vulnerable communities. The study ultimately develops a rights-based framework that integrates legal protection with community participation, livelihood security, social equality, and accountable adaptation governance.

Climate Change, Coastal Vulnerability, and Human Rights

Sea-level rise creates a particularly complex form of vulnerability because its effects accumulate gradually while interacting with existing environmental and socioeconomic pressures. Coastal communities may experience repeated tidal flooding, erosion, salinization, infrastructure deterioration, and declining environmental quality long before permanent inundation occurs. Research assessing Jakarta's coastal vulnerability demonstrates that the combination of sea-level rise and land subsidence significantly increases exposure, with substantial portions of the coastline classified as highly or very highly vulnerable (Manessa, Dewi, and Pratama 2023). Similar vulnerability has been documented in Lebak, Banten, where coastal areas are exposed to shoreline change and increasing risks associated with sea-level rise (Oktaviani, Rahmawati, and Khalifa 2023). These findings are legally significant because environmental degradation can progressively undermine rights to housing, health, livelihood, and an adequate standard of living even when a catastrophic disaster has not occurred. Climate adaptation must therefore address slow-onset risks as seriously as sudden disasters.

The livelihood consequences are especially severe for small-scale fishers. Fishing households commonly possess limited financial reserves and depend heavily on natural resources, making them vulnerable to fluctuations in catch, fuel costs, weather conditions, and market prices. Research concerning fishers in the Spermonde Islands found high livelihood vulnerability and identified ecological, economic, and social adaptation mechanisms, including changes in fishing grounds and equipment (Suadi et al. 2022). Research in Pangkep likewise identifies economic adaptation as a central component of small-scale fishers' responses to climate-related pressures (Hasan et al. 2024). These patterns demonstrate that adaptation frequently requires households to modify livelihood practices rather than simply protect physical assets. From a human rights perspective, this creates a state obligation to ensure that adaptation programs provide the resources necessary for households to adjust without falling into deeper poverty. Credit access, training, market support, social protection, and climate information are therefore not merely development interventions; they can constitute mechanisms for protecting livelihood and food-security rights.

Food security represents another important dimension of climate-related vulnerability. Fishing communities depend on marine resources both as sources of income and as components of household diets. Changes in fish abundance and distribution may consequently create a double burden by reducing income while simultaneously affecting food availability. Empirical research among Indonesian small-scale fishers demonstrates that climate adaptation has a statistically significant positive effect on household food security (Rahman, Toiba, and Huang 2021). A subsequent study similarly found that adaptation intensity contributes positively to household food security (Rahman et al. 2022). These findings challenge the notion that adaptation should be measured exclusively through infrastructure or hazard reduction. A coastal village may possess flood defenses and still remain highly vulnerable if households cannot maintain adequate nutrition. Climate policy must therefore integrate fisheries sustainability, livelihood diversification, access to credit, and social assistance into adaptation planning. Protecting food security requires attention to the economic systems that enable communities to obtain food under increasingly uncertain environmental conditions.

Climate change also has implications for health. Coastal flooding, salinization, deteriorating sanitation, unsafe drinking water, and extreme weather can increase exposure to physical and psychological risks. Research on communities experiencing climate-related pressures in Indonesia identifies health adaptation as an important component of household responses (Riviwanto, Barlian, and Dwiyaniti 2024). In Jakarta, tidal flooding and groundwater salinization have been associated with a range of impacts affecting household well-being, demonstrating that environmental and health vulnerabilities are interconnected (Purnomo et al. 2024). The right to health consequently requires preventive adaptation rather than a policy limited to post-disaster medical assistance. Public

authorities should incorporate health vulnerability into coastal planning, ensure access to safe water and sanitation, strengthen emergency preparedness, and monitor the health consequences of prolonged environmental exposure. Climate adaptation that protects infrastructure while leaving residents exposed to unsafe living conditions cannot be regarded as fully rights-compatible.

Legal Protection and Fragmented Coastal Governance

Indonesia possesses several legal foundations that can support rights-based climate adaptation. The 1945 Constitution recognizes the right to a good and healthy environment and establishes principles concerning natural-resource management for public welfare. Environmental legislation provides mechanisms for environmental protection and public participation, while legislation concerning disaster management, coastal areas and small islands, and the protection and empowerment of fishers establishes additional institutional responsibilities. Nevertheless, the existence of multiple laws does not automatically produce coherent climate governance. Nurhidayah and McIlgorm found that Indonesia lacked a comprehensive adaptation law and that existing sectoral instruments placed greater emphasis on hazard-oriented responses than on community vulnerability and social justice (Nurhidayah and McIlgorm 2019). This fragmentation creates a significant legal problem because climate impacts do not conform to administrative boundaries. A single coastal village may simultaneously require environmental protection, fisheries management, housing policy, disaster preparedness, spatial planning, health services, and livelihood assistance.

The consequences of fragmented governance become visible when local governments must prioritize particular locations and adaptation measures. Research examining multiple Indonesian coastal cities shows that local authorities face difficult trade-offs when deciding which hazards, neighborhoods, and interventions should receive priority (Handayani et al. 2022). Such decisions have distributive consequences because prioritizing one area can leave other communities comparatively unprotected. From a human rights perspective, these decisions should therefore be guided by transparent criteria based on vulnerability, necessity, and equality rather than solely on economic returns or political influence. A rights-based approach would require governments to explain how adaptation priorities are determined and to provide affected residents with opportunities to contest decisions. The issue is not that every community must receive identical protection, but that differences in protection must be justified through legitimate and publicly accessible criteria.

Participation is particularly important because climate adaptation involves decisions that directly affect property, livelihoods, settlement patterns, and access to natural resources. Research on coastal households in Semarang demonstrates that participatory capacity and community self-organization are important factors enabling households to live with coastal hazards (Buchori et al. 2019). Research on

Jakarta similarly emphasizes the importance of integrating climate knowledge with spatial planning and co-producing information with vulnerable communities (Wijaya et al. 2020). These findings support an interpretation of participation that extends beyond formal consultation. Communities should be involved while alternatives are still open and should have access to information sufficient to evaluate proposed measures. Participation that occurs only after infrastructure or relocation decisions have been effectively finalized provides little opportunity for meaningful influence. Procedural rights must therefore be integrated into the earliest stages of adaptation planning.

Environmental information is another essential component of procedural protection. Coastal residents need accessible information concerning flood projections, erosion, sea-level rise, environmental quality, fisheries changes, infrastructure risks, and proposed adaptation projects. Such information enables communities to make informed decisions about whether to remain, modify their livelihoods, seek government support, or consider relocation. The experience of Bengkulu demonstrates that fishers actively seek climate information to adjust fishing time and reduce exposure to hazardous conditions (Mulyasari et al. 2023). Climate information should therefore not remain concentrated within technical agencies. Governments should develop mechanisms that translate scientific forecasts into locally understandable information and combine scientific knowledge with community observations. Recognition of local knowledge is particularly important because residents often possess detailed knowledge about seasonal patterns, fishing grounds, shoreline changes, and historical flooding that may complement formal scientific assessments.

Participation, Livelihood Protection, and Climate-Related Relocation

Relocation presents one of the most difficult questions in climate adaptation because it can simultaneously protect physical safety and undermine other dimensions of human well-being. Coastal residents may be attached to their settlements because of family relationships, community networks, cultural practices, employment opportunities, and access to fishing grounds. Research in Semarang shows that household responses to coastal hazards are shaped by social relationships and local capacities, rather than by physical risk alone (Buchori et al. 2018). This finding is important because a purely technical risk assessment may conclude that relocation is desirable while failing to capture the social costs of displacement. A rights-compatible adaptation framework should therefore distinguish between reducing exposure and improving overall human well-being. Relocation should not be treated as an automatically superior adaptation option simply because it removes people from physically hazardous areas. The quality, security, and sustainability of life at the destination must also be assessed.

Relocation becomes particularly problematic when fishing communities are moved away from the marine resources upon which their livelihoods depend. A

household that receives a replacement house but loses practical access to fishing grounds may experience economic displacement even if its property rights have formally been compensated. The same problem can arise when relocation sites lack markets, schools, health facilities, transportation, or fishing infrastructure. Adaptation planning must therefore evaluate livelihood continuity as a central criterion. Evidence from East Java shows that access to credit, social capital, fisher organizations, and climate information can strengthen adaptive capacity (Rahman, Toiba, and Huang 2021). These resources should be incorporated into relocation programs so that affected communities can rebuild economic security rather than merely reconstruct physical housing. Compensation should consequently address not only the value of structures and land but also measurable losses of livelihood and access to essential services.

Relocation should also be designed according to principles of consent, participation, transparency, compensation, and accountability. International scholarship demonstrates that adaptation projects can reproduce injustice when powerful actors dominate decision-making or when vulnerable residents are treated as obstacles to development rather than rights holders (Schlosberg et al. 2017; Sovacool et al. 2017). Research on coastal adaptation further demonstrates that apparently beneficial interventions can produce unintended inequalities when existing power structures are ignored (Nalau, Becken, and Mackey 2018). These findings are directly applicable to Indonesia because coastal redevelopment, infrastructure projects, and climate adaptation may involve competing interests among governments, developers, tourism operators, fisheries actors, and local residents. A rights-based framework should therefore require social impact assessment and transparent consultation before relocation or major coastal transformation occurs.

Participation must also recognize inequalities within coastal communities. Women, elderly people, persons with disabilities, informal workers, tenants, and low-income households may experience climate impacts differently from formally recognized property owners or male household heads. Recent research concerning fisherwomen in Bali highlights the disproportionate socioeconomic consequences of climate change and the exclusion of women from important decisions concerning resource management and adaptation (Supartha, Pertiwi, and Gomes 2025). A similar concern emerges in broader adaptation scholarship, which demonstrates that gender and socioeconomic inequalities can overlap and intensify vulnerability (Amorim-Maia et al. 2022). Consequently, community participation should not be satisfied through consultation with a small number of community representatives. Adaptation institutions should actively create mechanisms through which women and other marginalized groups can articulate their interests and influence policy outcomes.

Toward a Rights-Based Coastal Adaptation Framework

A rights-based coastal adaptation framework should begin with vulnerability-sensitive planning. Governments should identify communities facing the highest combined exposure, sensitivity, and limited adaptive capacity rather than distributing adaptation resources solely according to economic value or infrastructure density. Research on Indonesian coastal cities indicates that adaptation decisions involve difficult choices concerning which locations receive priority, making transparent criteria essential (Handayani et al. 2022). Vulnerability assessment should include physical exposure but also income, livelihood dependence, housing conditions, access to public services, gender, age, disability, tenure security, and access to institutional support. Such an approach would shift adaptation from a hazard-centered model toward a people-centered model. It would also enable governments to identify communities that might otherwise remain invisible because they occupy informal settlements or depend on informal economic activities.

Livelihood protection should constitute the substantive foundation of adaptation policy for fishing villages. Governments should facilitate livelihood diversification without assuming that fishing itself must disappear. Adaptation may include improved fishing technology, climate information services, insurance, access to credit, cold-storage facilities, market infrastructure, sustainable fisheries management, alternative employment, and vocational training. Research from Indonesian fishing communities consistently demonstrates that adaptation is influenced by economic resources and social capital (Rahman, Toiba, and Huang 2021; Suadi et al. 2022). Research from Bengkulu further demonstrates that fishers adjust fishing schedules and seek information in response to changing climatic conditions (Mulyasari et al. 2023). These findings indicate that communities already possess adaptive capacities that policy can strengthen. Government programs should therefore support community agency rather than replacing local strategies with externally designed interventions.

Ecosystem-based adaptation should complement physical infrastructure and livelihood programs. Mangroves, coral reefs, seagrass ecosystems, wetlands, and other coastal habitats can contribute to shoreline protection, biodiversity conservation, fisheries productivity, and community livelihoods. However, ecosystem-based interventions must be implemented with attention to access and rights. Conservation policies that restrict fishing or traditional resource use without adequate consultation may unintentionally undermine the very communities whose resilience they are intended to strengthen. Research on ocean governance and small-island communities emphasizes that climate justice requires recognition of local communities' dependence on marine resources and meaningful involvement in governance decisions (Fathi et al. 2025). Adaptation should therefore seek to protect ecosystems while ensuring that local residents remain legitimate participants in decisions regarding their use and management.

Climate justice also requires attention to distributive, procedural, recognitional, and structural dimensions. Distributive justice concerns who receives adaptation benefits and who bears the costs. Procedural justice concerns whether affected communities can participate meaningfully in decision-making. Recognitional justice requires policymakers to recognize differences in culture, livelihood, gender, social status, and vulnerability. Structural justice addresses the deeper institutional and economic conditions that reproduce vulnerability. These dimensions are increasingly important in adaptation research because adaptation projects can inadvertently reinforce existing inequalities (Shi et al. 2016; Araos et al. 2016). For Indonesia, this means that the success of a seawall, relocation program, or coastal restoration project should not be evaluated solely according to engineering performance. Policymakers should also ask whether the intervention improves the security of vulnerable households, distributes benefits fairly, preserves livelihoods, and enables affected communities to influence future decisions.

Accountability and access to remedies should constitute the final component of the framework. Coastal communities need accessible mechanisms through which they can challenge decisions concerning environmental permits, spatial plans, infrastructure projects, relocation, compensation, or the allocation of adaptation resources. Complaint mechanisms should be affordable, transparent, independent, and available without requiring sophisticated legal knowledge. Environmental impact assessment should also incorporate cumulative climate and social impacts rather than considering projects individually. This is especially important where multiple infrastructure or development activities affect the same coastal ecosystem. Human rights protection becomes meaningful only when communities possess mechanisms for enforcing their rights. Adaptation without accountability risks becoming another administrative process in which vulnerable groups are consulted but possess little capacity to influence outcomes.

The institutional framework should therefore integrate national, provincial, and local responsibilities. Climate adaptation cannot be effectively implemented if national policies establish broad objectives while local governments lack financial resources, technical capacity, or clear legal mandates. Conversely, local adaptation initiatives may remain fragmented if they are not connected to national climate financing and coastal governance systems. Research on Indonesian coastal governance demonstrates the importance of combining community resilience with institutional support and sustainable economic development (Sani, Ulya, and Razak 2024). Adaptation governance should consequently establish clear responsibilities for financing, data provision, monitoring, participation, and remedies. Such coordination would help prevent the fragmentation that has historically limited the effectiveness of Indonesia's adaptation framework.

Climate Justice and the Protection of Coastal Communities

Climate justice provides a broader normative foundation for connecting environmental protection with human rights. Coastal communities that contribute relatively little to global greenhouse-gas emissions may nevertheless experience severe consequences from climate change through sea-level rise, ecosystem degradation, changing fisheries, and extreme weather. Research on Indonesian coastal communities argues that constitutional and statutory recognition of environmental rights has not always translated into effective protection because regulatory fragmentation, weak coordination, and economic interests can limit implementation (Nur, Novemyanto, and Meilani 2025). This gap between formal rights and practical protection is central to the legal challenge of climate change. Human rights should not remain abstract guarantees. They must shape the allocation of adaptation resources, the design of coastal projects, the regulation of environmentally harmful activities, and the procedures through which affected residents participate in decision-making.

Ocean governance must similarly recognize that marine ecosystems are not simply economic resources. For many coastal and island communities, the sea constitutes a source of food, employment, cultural identity, social relationships, and historical continuity. Research concerning small islands in Indonesia emphasizes the vulnerability of local communities to sea-level rise, ocean acidification, ecosystem degradation, and political marginalization while also identifying gaps in community participation in marine governance (Fathi et al. 2025). This perspective is particularly relevant to fishing villages because environmental degradation can simultaneously threaten ecological sustainability and community identity. A coastal adaptation policy that protects infrastructure but destroys access to marine resources may therefore generate a new form of maladaptation. Protection should instead seek to preserve the ecological foundations upon which community rights depend.

Gender equality should form an integral component of this climate justice approach. Women in fishing communities often perform essential activities in fish processing, marketing, household management, and income diversification while receiving less recognition in formal fisheries governance. Evidence from Bali indicates that fisherwomen face economic insecurity and social marginalization as climate change affects fisheries and marine ecosystems, despite possessing valuable knowledge and adaptive capacities (Supartha, Pertiwi, and Gomes 2025). This finding demonstrates why household-level adaptation cannot be understood solely through the activities of male fishers. Women's economic contributions and knowledge should be incorporated into adaptation planning, social protection, livelihood programs, and decision-making structures. Climate adaptation that overlooks gender may unintentionally reproduce inequalities and reduce overall community resilience.

The protection of cultural continuity is equally important. Some Indonesian coastal communities maintain distinctive relationships with marine environments that extend beyond conventional economic concepts. The Bajo community, for example, has developed adaptation strategies based on its social and ecological relationship with coastal and marine environments (Herdiansyah et al. 2018). Similar patterns can be observed in other island and fishing communities where local knowledge informs responses to environmental change. When adaptation policies disregard these relationships, they may undermine cultural identity even if they successfully reduce exposure to physical hazards. Recognition should therefore be treated as a substantive component of climate justice. Communities should be able to define what constitutes a successful adaptation strategy based partly on their own social and cultural priorities.

A just adaptation framework ultimately requires a transformation in the way coastal policy defines success. Conventional approaches often prioritize measurable infrastructure outputs such as kilometers of seawalls constructed, drainage capacity increased, or households relocated. These indicators are useful but incomplete. A human rights approach would additionally measure whether households retain secure livelihoods, whether food security improves, whether women and marginalized groups participate, whether climate information is accessible, whether cultural relationships are protected, and whether affected residents can obtain remedies. Such indicators would provide a more comprehensive assessment of whether adaptation actually reduces vulnerability. The objective should not simply be to defend land against the sea but to protect people, ecosystems, livelihoods, and social institutions from the unequal consequences of climate change.

Conclusion

Climate change and sea-level rise increasingly threaten Indonesian coastal communities through tidal flooding, erosion, land subsidence, changing marine ecosystems, extreme weather, and livelihood uncertainty. The evidence examined in this study demonstrates that these impacts extend beyond environmental damage and directly affect rights related to livelihood, food security, health, housing, cultural continuity, and participation. Fishing communities are particularly vulnerable because their economic and social systems depend heavily on marine resources and climatic conditions. Existing adaptation measures have generated important forms of resilience, but legal and institutional fragmentation continues to limit effective protection. Adaptation policies that prioritize physical infrastructure without addressing socioeconomic vulnerability may reduce particular hazards while leaving households exposed to poverty, livelihood loss, and social displacement.

Indonesia should consequently develop a more coherent rights-based framework for coastal climate adaptation. Such a framework should integrate

vulnerability-sensitive planning, meaningful participation, accessible climate information, livelihood protection, gender-responsive governance, ecosystem-based adaptation, social protection, culturally appropriate relocation, fair compensation, and effective remedies. Relocation should not be treated as an automatic solution to sea-level rise and should only proceed through transparent, participatory, and livelihood-sensitive processes when continued settlement becomes demonstrably unsafe. Most importantly, coastal communities should be recognized as rights holders and knowledge holders rather than passive beneficiaries. Climate adaptation will be socially legitimate and sustainable only when it reduces physical exposure while simultaneously protecting dignity, equality, livelihood security, cultural identity, and the ability of affected communities to participate meaningfully in decisions concerning their future.

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