

Climate-Induced Migration and Human Security in Southeast Asia: Rethinking Border Governance and Indonesia's Policy Response

Yulia Rimapradesi*

¹Sriwijaya University, Address, Palembang-Inderalaya Street, Ogan Ilir, South Sumatra, Indonesia

Corresponding author: yuliarimapradesi@fisip.unsri.ac.id

Keywords:

climate-induced migration;
human security; border
governance; climate
mobility; Indonesia.

ABSTRACT

Climate change has increasingly become a significant driver of human mobility, particularly in environmentally vulnerable countries such as Indonesia. As the world's largest archipelagic state, Indonesia faces growing risks of climate-induced migration resulting from sea-level rise, coastal erosion, flooding, and prolonged droughts. Despite increasing attention to climate adaptation and disaster risk reduction, the governance of climate-induced migration remains fragmented and insufficiently integrated into existing migration and border policies. This study aims to examine the relationship between climate-induced migration, human security, and border governance in Indonesia within the broader ASEAN context. Employing a qualitative library research approach, the study analyses policy documents, international reports, and peer-reviewed literature using thematic analysis. The findings reveal that climate-induced migration is not merely an environmental consequence but a multidimensional human security challenge affecting economic, food, health, environmental, and community security. Furthermore, Indonesia's current governance framework remains predominantly reactive, with limited coordination among climate adaptation, disaster management, and migration institutions. To address this gap, the study proposes a **Human Security-Based Border Governance (HSBG)** framework that integrates four complementary pillars: anticipatory climate risk governance, adaptive migration governance, human security protection, and regional cooperative governance. The framework contributes to the literature by bridging Climate-Induced Migration Theory, Human Security Theory, and Border Governance Theory into a unified analytical model. The study concludes that integrating human security into border governance is essential for strengthening Indonesia's preparedness for climate-induced migration while enhancing regional cooperation within ASEAN. These findings provide both theoretical contributions and practical policy recommendations for developing adaptive, inclusive, and resilient climate mobility governance.

Introduction

Climate change has become one of the defining global challenges of the twenty-first century, generating profound environmental, socioeconomic, and political consequences that increasingly shape patterns of human mobility. Beyond its impacts on ecosystems and economic development, climate change has intensified extreme weather events, sea-level rise, coastal erosion, prolonged droughts, and environmental degradation, all of which undermine the capacity of communities to sustain their livelihoods. As environmental conditions deteriorate, migration has emerged as one of the principal adaptive responses adopted by vulnerable populations. Consequently, climate-induced migration has gained growing attention among scholars and policymakers because it represents not only an environmental issue but also a complex challenge involving governance, security, and human rights (Change, 2022; Migration, 2024).

Recent global assessments indicate that climate-related disasters continue to displace millions of people annually. According to the Internal Displacement Monitoring Centre (Centre, 2024), weather-related hazards remain the largest driver of internal displacement worldwide, exceeding displacement caused by armed conflict in several regions. Similarly, the

Intergovernmental Panel on Climate Change (Change, 2022) projects that increasing temperatures, sea-level rise, and changing precipitation patterns will significantly intensify population mobility throughout the twenty-first century, particularly in low-lying coastal regions, small island states, and developing countries with high exposure to climate risks. Rather than representing isolated humanitarian emergencies, these displacement patterns increasingly constitute long-term structural challenges requiring integrated governance responses.

Southeast Asia represents one of the regions most vulnerable to the impacts of climate change. The region experiences recurrent floods, tropical cyclones, droughts, coastal erosion, and saltwater intrusion that directly affect agricultural productivity, fisheries, and coastal settlements. These environmental pressures are further exacerbated by rapid urbanization, demographic growth, and socioeconomic inequality, increasing the vulnerability of millions of people. The World Bank (2021) estimates that climate change may generate substantial internal migration across East Asia and the Pacific by 2050 if adaptation and development policies remain insufficient. Within this regional context, Indonesia occupies a particularly strategic position because of its extensive coastline, large archipelagic territory, and high dependence on climate-sensitive economic sectors (Bank, 2021).

Indonesia's geographical characteristics make the country exceptionally vulnerable to climate-induced displacement. Comprising more than 17,000 islands and over 108,000 kilometres of coastline, Indonesia faces increasing risks associated with sea-level rise, coastal flooding, land subsidence, and changing weather patterns (Bappenas, 2021). Coastal communities in areas such as Demak Regency, North Jakarta, and several small islands have experienced recurrent tidal flooding and coastal erosion, resulting in the gradual loss of housing, productive land, and livelihoods. These environmental changes have accelerated internal displacement while simultaneously increasing the likelihood of future cross-border mobility within the ASEAN region. Although current migration remains predominantly domestic, prolonged environmental degradation may reshape regional migration dynamics as affected populations seek sustainable livelihoods beyond their traditional places of residence.

The growing interaction between climate change and migration has significant implications for human security. Unlike conventional security approaches that prioritize the protection of state sovereignty and territorial integrity, the concept of human security emphasizes the protection of individuals from pervasive threats affecting their survival, dignity, and well-being (UNDP, 1994). Climate-induced migration simultaneously threatens multiple dimensions of human security, including economic security through livelihood disruption, food security through declining agricultural productivity, health security through increased exposure to disease, environmental security through ecosystem degradation, and community security through the erosion of social cohesion. Consequently, climate mobility should not be viewed solely as a migration issue but rather as a multidimensional security challenge requiring integrated policy responses.

Despite increasing scholarly attention to climate-induced migration, significant gaps remain within the existing literature. Previous studies have primarily examined environmental migration from three relatively separate perspectives. The first body of literature focuses on environmental drivers of migration, analysing how climatic hazards influence population mobility (McLeman R. , 2014; Black, 2011). A second strand emphasizes human security by examining the social and economic vulnerabilities experienced by displaced populations (Tadjbakhsh, 2007; Paris, 2001). A third body of research investigates border governance and migration management, primarily concentrating on immigration control, border security, and state sovereignty (Betts, 2013; Guild, 2020). While these studies provide important insights, relatively limited attention has been devoted to integrating these three perspectives within a single analytical framework capable of explaining how climate-induced migration reshapes border governance through the lens of human security, particularly in Indonesia and Southeast Asia.

The Indonesian case illustrates this research gap. Existing governance mechanisms remain fragmented across disaster management, climate adaptation, immigration administration, and development planning. Disaster-related displacement is generally addressed through emergency response mechanisms coordinated by the National Disaster Management Agency, while migration governance continues to focus primarily on labour migration, immigration control, and refugee management. Climate-induced migrants therefore occupy an ambiguous institutional position because no specific legal or policy framework explicitly recognizes environmentally displaced populations as a distinct category requiring long-term protection and governance. This institutional fragmentation limits policy coherence and reduces the state's capacity to anticipate future climate mobility.

The absence of comprehensive climate mobility governance also reflects broader challenges within ASEAN. Regional cooperation has made considerable progress in disaster management through the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) and the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management. Nevertheless, existing regional mechanisms remain largely oriented toward emergency humanitarian response rather than long-term migration governance. As climate change increasingly transcends national borders, governance responses likewise require stronger regional coordination capable of integrating climate adaptation, migration management, and human security.

Against this background, this study argues that climate-induced migration should be understood as a governance challenge situated at the intersection of environmental change, human security, and border governance. Rather than conceptualizing migration solely as a consequence of climate hazards, this article proposes that governance capacity significantly influences migration outcomes and determines whether mobility contributes to resilience or reproduces vulnerability. Accordingly, the study introduces the concept of Human Security-Based Border Governance (HSBG) as an integrated analytical framework that combines anticipatory climate risk governance, adaptive migration governance, human security protection, and regional cooperation. The framework seeks to move beyond conventional state-centric border governance by emphasizing the protection of individuals while maintaining effective migration management.

This study aims to analyse how climate-induced migration affects human security in Indonesia and to evaluate the preparedness of existing border governance in responding to emerging climate mobility within the ASEAN context. Specifically, the research addresses three questions: (1) How does climate change influence migration patterns and human security in Indonesia? (2) To what extent is Indonesia's current border governance framework capable of addressing climate-induced migration? (3) How can a human security perspective contribute to developing more adaptive border governance for climate mobility? By answering these questions, the study contributes to the growing literature on migration governance while providing policy recommendations relevant to Indonesia and ASEAN in responding to future climate-related population mobility.

Theoretical Framework

Understanding climate-induced migration requires an interdisciplinary theoretical perspective because environmental mobility cannot be sufficiently explained through a single analytical lens. Migration resulting from climate change is shaped by the interaction between environmental hazards, socioeconomic vulnerability, governance capacity, and institutional responses. Accordingly, this study integrates Climate-Induced Migration Theory, Human Security Theory, and Border Governance Theory to analyse how climate change influences population mobility and how governance systems respond to emerging forms of climate-related displacement. The integration of these theoretical perspectives provides a comprehensive framework for examining Indonesia's preparedness to address climate mobility within the broader context of Southeast Asia.

1. Climate-Induced Migration Theory

Climate-induced migration refers to the movement of individuals or communities whose decisions to relocate are significantly influenced by environmental change associated with climate variability and climate-related disasters. Unlike conventional migration theories that primarily emphasize economic incentives or political instability, climate-induced migration recognizes environmental degradation as an increasingly important driver of human mobility (McLeman R. , 2014). Nevertheless, contemporary migration scholarship argues that climate change rarely acts as an independent cause of migration. Instead, environmental change interacts with economic conditions, governance quality, demographic pressures, and social vulnerability to influence migration decisions (Black, 2011).

The Intergovernmental Panel on Climate Change (Change, 2022). identifies sea-level rise, prolonged droughts, flooding, land degradation, and extreme weather events as major climate-related drivers of displacement. These environmental changes reduce livelihood opportunities, increase food insecurity, and undermine community resilience, thereby encouraging migration as an adaptation strategy. The International Organization for Migration (Migration, 2024) similarly argues that climate mobility should be understood as part of a broader spectrum of adaptive responses rather than merely as a humanitarian emergency. Migration may therefore function either as a proactive adaptation strategy or as a consequence of forced displacement when environmental conditions become unsustainable.

In Indonesia, climate-induced migration is particularly relevant because of the country's archipelagic geography and extensive coastal population. Coastal erosion, sea-level rise, tidal flooding, and land subsidence have gradually displaced vulnerable communities, especially in low-lying coastal areas. Although most climate-related mobility currently occurs within national borders, increasing environmental pressures may reshape migration patterns throughout Southeast Asia. Consequently, Climate-Induced Migration Theory provides the analytical foundation for understanding how environmental change generates new forms of human mobility that require adaptive governance responses.

2. Human Security Theory

Traditional security studies have historically concentrated on protecting state sovereignty and territorial integrity from military threats. However, the end of the Cold War encouraged broader understandings of security that emphasize the protection of individuals rather than states. This perspective was institutionalized through the United Nations Development Programme (UNDP, 1994), which introduced the concept of Human Security as protecting people from chronic threats and sudden disruptions affecting their lives and well-being.

Human Security encompasses seven interconnected dimensions: economic security, food security, health security, environmental security, personal security, community security, and political security (UNDP, 1994). These dimensions highlight that security extends beyond military defence to include conditions necessary for sustaining human dignity and resilience. Climate-induced migration illustrates this multidimensional character because environmental degradation simultaneously affects livelihoods, food production, health conditions, environmental quality, and community cohesion.

Within the context of this study, Human Security Theory serves two analytical functions. First, it explains why climate-induced migration should not be viewed solely as population movement but rather as an indicator of broader human vulnerability. Second, it provides normative criteria for evaluating public policy by shifting analytical attention from territorial protection toward safeguarding the well-being of climate-affected populations. Consequently, Human Security offers a more comprehensive perspective for assessing migration governance than conventional state-centric security approaches.

Furthermore, Human Security Theory conceptualizes climate change as a threat multiplier, amplifying pre-existing socioeconomic inequalities and institutional weaknesses rather than

creating entirely new vulnerabilities. This perspective is particularly relevant for Indonesia, where environmental hazards interact with poverty, limited adaptive capacity, and uneven regional development. Therefore, analysing climate mobility through the lens of Human Security enables this study to examine how environmental change affects multiple dimensions of social welfare simultaneously.

3. Border Governance Theory

The concept of border governance has evolved significantly over the past two decades. Traditional border management primarily focused on territorial defence, immigration control, customs administration, and national sovereignty. Contemporary border governance, however, recognizes that borders have become dynamic governance spaces through which states regulate multiple forms of transnational mobility, including labour migration, refugees, trade, environmental risks, and humanitarian protection (Guild, 2020).

Rather than viewing borders solely as physical boundaries separating sovereign territories, Border Governance Theory conceptualizes borders as institutional mechanisms coordinating multiple actors across different governance levels. Governments, international organizations, regional institutions, and local communities collectively shape migration governance through legal frameworks, policy coordination, and administrative practices. Consequently, effective border governance increasingly depends upon institutional cooperation rather than unilateral state control.

Climate-induced migration challenges conventional border governance because environmentally displaced populations do not fit neatly within existing legal categories governing labour migration, refugees, or internally displaced persons. International refugee law does not currently recognize climate change as an independent basis for refugee status under the 1951 Refugee Convention. As a result, individuals displaced by environmental change frequently experience legal uncertainty despite facing severe threats to their livelihoods and security.

For Indonesia, this governance challenge is particularly significant because migration management remains institutionally fragmented across disaster management agencies, immigration authorities, environmental institutions, and development planning bodies. Existing policies primarily address emergency disaster response or migration administration separately without integrating long-term climate mobility governance. Accordingly, Border Governance Theory provides the conceptual basis for evaluating whether Indonesia's institutional framework is capable of responding to emerging climate-related migration.

4. Conceptual Integration

Although each theoretical perspective explains different aspects of climate mobility, their integration offers a more comprehensive understanding of contemporary migration governance. Climate-Induced Migration Theory explains why environmental change generates population mobility. Human Security Theory explains how climate-induced migration creates multidimensional vulnerabilities affecting individuals and communities. Border Governance Theory explains how governments and regional institutions should respond to these emerging mobility challenges.

Accordingly, this study argues that climate-induced migration should be understood as a governance issue situated at the intersection of environmental change, human security, and migration policy. Environmental degradation influences migration decisions, migration generates multidimensional human security challenges, and these challenges require adaptive border governance capable of balancing state sovereignty with the protection of vulnerable populations.

Based on this integrated perspective, the study proposes the Human Security-Based Border Governance (HSBG) framework as its analytical contribution. Unlike conventional

governance approaches emphasizing migration control, the HSBG framework positions human security as the primary normative foundation of border governance while maintaining effective migration management. The framework integrates four complementary components: anticipatory climate risk governance, adaptive migration governance, human security protection, and regional cooperative governance. Through this integrated framework, the study seeks to explain how Indonesia can strengthen its preparedness for climate-induced migration while contributing to broader regional governance within ASEAN.

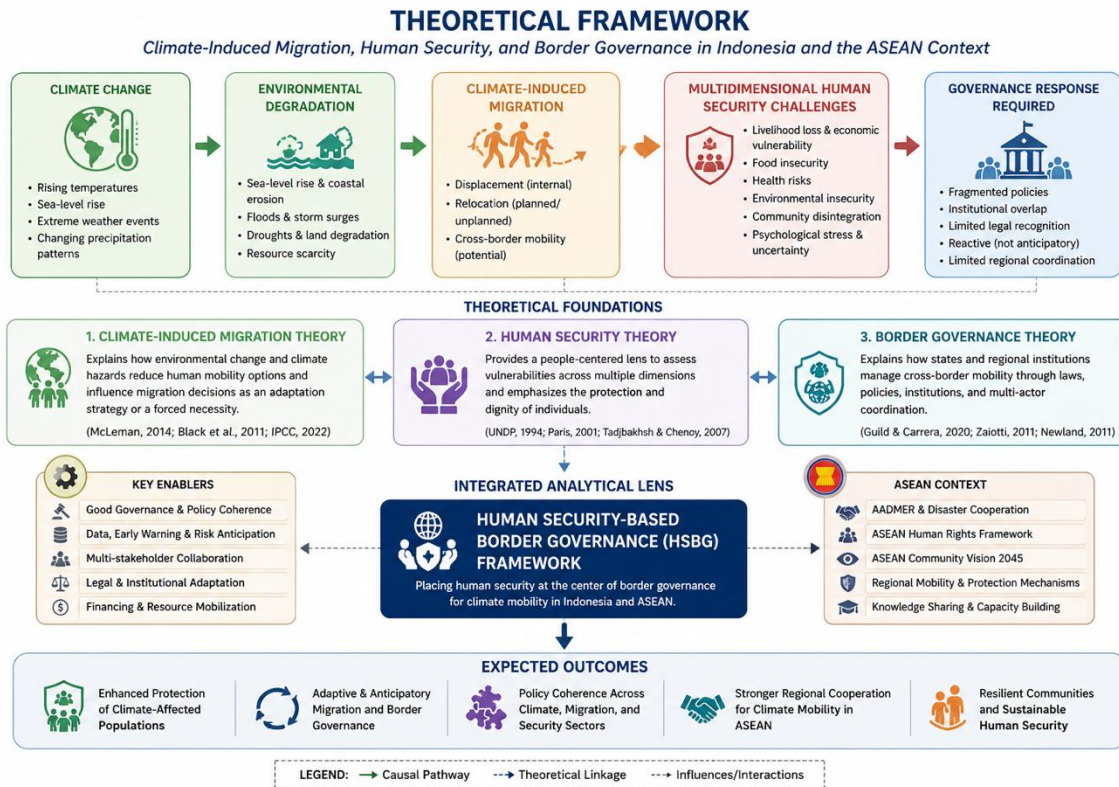


Figure 1. Theoretical Framework

Research Methods

This study employed a qualitative research design using a library research approach to examine the relationship between climate-induced migration, human security, and border governance in Indonesia within the broader ASEAN context. A qualitative approach was considered appropriate because the study sought to explore policy frameworks, theoretical developments, and governance responses rather than to measure statistical relationships. The analysis focused on understanding how climate change influences migration dynamics and how existing governance mechanisms respond to emerging forms of climate mobility.

The unit of analysis comprised international and national policy documents, peer-reviewed journal articles, reports published by international organizations, and relevant legal instruments concerning climate change, migration, human security, and border governance. Primary documentary sources included publications from the Intergovernmental Panel on Climate Change (IPCC), the International Organization for Migration (IOM), the United Nations Development Programme (UNDP), the Internal Displacement Monitoring Centre (IDMC), the World Bank, ASEAN policy documents, and Indonesian government regulations related to disaster management, climate adaptation, and migration governance. To ensure analytical rigor, peer-reviewed journal articles indexed in Scopus and Web of Science were prioritized, particularly those published within the last decade.

Data were collected through systematic document analysis. Documents were identified using academic databases, institutional repositories, and official government websites with keywords including *climate-induced migration*, *climate mobility*, *human security*, *border*

governance, environmental migration, Indonesia, and ASEAN. Inclusion criteria consisted of publications directly addressing climate-related migration, governance, or human security, while documents lacking relevance to the research objectives or sufficient academic credibility were excluded.

The collected data were analysed using thematic analysis following the six-stage framework developed by Braun and Clarke (2006). The analytical process involved: (1) familiarization with the literature through repeated reading; (2) initial coding of relevant concepts; (3) identification of recurring themes concerning climate-induced migration, human security, and border governance; (4) reviewing and refining thematic relationships; (5) defining and naming the final themes; and (6) interpreting the findings by integrating Climate-Induced Migration Theory, Human Security Theory, and Border Governance Theory. This analytical strategy enabled the study to identify institutional patterns, governance gaps, and conceptual linkages across the selected literature (Braun, 2006).

To enhance the credibility of the findings, data triangulation was conducted by comparing evidence derived from international reports, academic publications, and national policy documents. Cross-source comparison reduced the risk of relying on a single institutional perspective and strengthened the validity of the study's interpretation. Rather than generating statistical generalizations, the analysis aimed to produce analytical generalizations that contribute to the conceptual understanding of climate-induced migration governance.

Results And Discussion

1. Climate-Induced Migration in Indonesia: Emerging Patterns and Drivers

Climate change has emerged as one of the most influential drivers of human mobility in the twenty-first century, fundamentally reshaping migration patterns across vulnerable regions worldwide. Unlike traditional migration driven by economic opportunity, political instability, or armed conflict, climate-induced migration reflects a complex interaction between environmental degradation, socioeconomic vulnerability, institutional capacity, and adaptive decision-making. The findings of this study indicate that Indonesia is increasingly experiencing this multidimensional phenomenon as environmental changes progressively reduce the viability of livelihoods and settlement patterns, particularly in coastal and small-island communities.

The latest assessment by the Intergovernmental Panel on Climate Change (IPCC) emphasized that climate change has intensified sea-level rise, coastal erosion, extreme precipitation, prolonged droughts, and other hydro-meteorological hazards that significantly influence population mobility, particularly in developing countries with high exposure to climate risks (IPCC, 2022). Rather than producing immediate mass migration, environmental degradation generally operates as a slow-onset process, gradually eroding household resilience until migration becomes one of the few remaining adaptation strategies. This perspective supports the argument advanced by Black et al. (2011), who contend that climate change rarely functions as an independent cause of migration but instead interacts with social, economic, demographic, and political conditions to shape mobility decisions.

Indonesia represents one of the countries most vulnerable to this process because of its geographical characteristics. As the world's largest archipelagic state, Indonesia possesses more than 17,000 islands and approximately 108,000 kilometres of coastline, exposing millions of people to coastal hazards associated with climate change. The combination of sea-level rise, land subsidence, coastal abrasion, tidal flooding (*rob*), and changing rainfall patterns has progressively reduced the sustainability of agriculture, fisheries, and coastal settlements. Consequently, climate-related environmental degradation increasingly influences migration decisions among vulnerable populations, particularly in low-lying coastal regions.

Recent evidence illustrates this trend. The Internal Displacement Monitoring Centre (IDMC) reported that weather-related disasters remain the dominant cause of new internal displacement globally, with floods and storms accounting for millions of new displacement events annually (IDMC, 2024). Indonesia consistently ranks among the countries experiencing substantial disaster-related displacement because of its high exposure to hydrometeorological hazards. Similarly, the International Organization for Migration (IOM) emphasizes that environmental change has become one of the principal drivers of internal mobility across Asia-Pacific, where migration increasingly functions as a strategy for climate adaptation rather than merely an emergency response (IOM, 2024).

The Indonesian case demonstrates that climate-induced migration predominantly occurs as internal migration rather than international migration. Households affected by environmental degradation generally relocate to neighbouring districts or urban centres where employment opportunities, education, healthcare, and public services are more accessible. Nevertheless, this pattern should not be interpreted as indicating limited governance challenges. Instead, internal migration often serves as an early indicator of declining environmental resilience that may eventually generate more permanent and longer-distance mobility if environmental conditions continue to deteriorate (World Bank, 2021).

The World Bank's Groundswell Report projects that without effective climate adaptation and inclusive development policies, climate change could trigger tens of millions of internal climate migrants across East Asia and the Pacific by 2050 (World Bank, 2021). Indonesia is identified as one of the countries facing considerable risks because environmental degradation intersects with rapid urbanization, uneven regional development, and socioeconomic inequality. Consequently, climate-induced migration should be understood not simply as population movement but as a manifestation of broader structural vulnerabilities affecting development and governance.

The findings further reveal that migration decisions are strongly influenced by adaptive capacity. Communities possessing greater financial resources, diversified livelihoods, stronger infrastructure, and better access to public services are generally more capable of adapting locally without relocating. Conversely, economically marginalized households, particularly small-scale farmers and coastal fishing communities, often possess limited adaptive capacity and therefore experience migration as an unavoidable survival strategy. This finding is consistent with McLeman (2014), who argues that environmental migration is shaped not only by exposure to climatic hazards but also by the unequal distribution of adaptive resources within society.

Indonesia's coastal regions provide concrete illustrations of these dynamics. In Demak Regency, Central Java, recurrent tidal flooding, shoreline retreat, and coastal erosion have damaged residential areas, agricultural land, and aquaculture ponds, forcing many households to abandon traditional livelihoods. Similar environmental pressures have been documented in North Jakarta, where sea-level rise combined with severe land subsidence has increased the frequency of coastal inundation and accelerated residential relocation. Small-island communities across eastern Indonesia also face growing environmental pressures as freshwater resources become increasingly saline and productive land gradually diminishes. These examples demonstrate that environmental degradation does not merely damage physical infrastructure but fundamentally alters the socioeconomic foundations supporting community resilience.

Beyond environmental exposure, governance capacity plays a decisive role in shaping migration outcomes. The literature consistently demonstrates that migration becomes more

likely when adaptation policies, infrastructure investment, and disaster preparedness fail to keep pace with accelerating climate risks. The ASEAN Migration Outlook (2024) similarly argues that climate-related mobility across Southeast Asia reflects interactions between environmental stressors, labour markets, demographic change, and governance capacity rather than environmental factors alone. Consequently, migration should be viewed as part of a broader governance process requiring coordinated policy responses at national and regional levels.

From the perspective of Climate-Induced Migration Theory, the findings support the proposition that migration constitutes one form of climate adaptation rather than simply evidence of humanitarian crisis. Environmental degradation creates pressures that influence household decision-making, but migration outcomes remain mediated by socioeconomic conditions, institutional effectiveness, and public policy. This interpretation extends earlier environmental migration literature by emphasizing that governance quality significantly determines whether migration contributes to resilience or reproduces vulnerability.

The findings also suggest that Indonesia's current policy framework remains predominantly reactive. Existing interventions continue to prioritize post-disaster humanitarian assistance while placing comparatively less emphasis on anticipatory adaptation strategies capable of reducing future displacement risks. Planned relocation, climate-resilient infrastructure, sustainable livelihood diversification, and long-term spatial planning remain unevenly implemented across climate-vulnerable regions. Consequently, migration governance has yet to evolve from emergency response toward proactive climate mobility management.

Overall, the analysis demonstrates that climate-induced migration in Indonesia represents neither a temporary environmental consequence nor solely an economic migration phenomenon. Instead, it reflects the interaction of climate change, socioeconomic inequality, institutional capacity, and governance effectiveness. Recognizing this multidimensional character provides the analytical foundation for understanding why climate-induced migration should be addressed through a broader human security perspective. Therefore, the following section examines how environmental mobility generates multidimensional vulnerabilities affecting economic security, food security, health security, environmental security, and community resilience.

2. Climate-Induced Migration as a Human Security Challenge

The findings indicate that climate-induced migration in Indonesia extends beyond environmental displacement and has become a multidimensional **human security** issue. While environmental degradation acts as the immediate driver of mobility, its broader consequences are reflected in declining livelihoods, weakened social resilience, reduced access to basic services, and increasing inequalities among vulnerable communities. These findings support the argument that climate-induced migration should not be understood solely as a migration phenomenon but as a governance challenge that directly affects human well-being.

The concept of Human Security, introduced by the United Nations Development Programme (UNDP), shifts the focus of security from protecting territorial sovereignty to safeguarding individuals from chronic and sudden threats affecting their lives and dignity (UNDP, 1994). Within this framework, climate change functions as a threat multiplier, intensifying existing socioeconomic vulnerabilities rather than creating entirely new forms of insecurity (Tadjbakhsh & Chenoy, 2007). Consequently, migration resulting from climate-related environmental change simultaneously affects multiple dimensions of human security.

One of the most immediate impacts is the deterioration of economic security. Coastal erosion, tidal flooding, prolonged droughts, and changing rainfall patterns have reduced the productivity of agriculture, fisheries, and other climate-sensitive livelihoods. Households that depend on these sectors often experience declining income and increasing uncertainty, prompting migration as an adaptive strategy. However, relocation does not automatically improve economic conditions. Many displaced households enter informal labour markets in urban areas where employment is unstable and social protection remains limited. This finding is consistent with the World Migration Report 2024, which notes that environmental mobility frequently transfers socioeconomic vulnerability from places of origin to destination areas rather than eliminating it (IOM, 2024).

Climate-induced migration also undermines food security by disrupting local food production systems. Agricultural land affected by drought, flooding, or saltwater intrusion experiences declining productivity, while fisheries face increasing uncertainty due to changing marine ecosystems. As local production decreases, households become increasingly dependent on external food markets, making them more vulnerable to fluctuations in food prices and supply chains. The IPCC Sixth Assessment Report similarly concludes that climate change is reducing food system resilience across many developing regions, particularly among communities with limited adaptive capacity (IPCC, 2022).

Another significant dimension concerns health security. Climate-related displacement frequently exposes affected populations to inadequate housing, limited access to clean water, poor sanitation, and increased risks of communicable diseases. In addition to physical health risks, displacement often generates psychological stress associated with the loss of homes, livelihoods, and social networks. Recent studies further demonstrate that climate-induced displacement has important mental health implications, particularly for populations experiencing repeated environmental shocks (Romanello et al., 2024). These findings highlight that the health consequences of climate mobility extend beyond emergency response and require long-term social and public health interventions.

Equally important is the impact on community security and belonging. Migration frequently disrupts established social networks, cultural practices, and community identities that have developed over generations. Individuals relocating because of environmental pressures often face challenges integrating into receiving communities, including social exclusion, unequal access to public services, and competition for employment opportunities. These conditions may weaken social cohesion and increase the risk of local tensions if migration governance is not accompanied by inclusive social policies. This dimension is particularly relevant to the scope of *Perantau: Journal of Migration, Borders, and Belonging*, which emphasizes migration not only as physical mobility but also as a process of negotiating identity, inclusion, and belonging.

The findings therefore suggest that climate-induced migration should be interpreted as a multidimensional governance issue rather than merely an environmental consequence. Existing policy responses in Indonesia remain largely centred on disaster management and emergency relief, whereas long-term measures addressing livelihood recovery, social integration, and adaptive mobility remain comparatively limited. This institutional orientation risks treating displacement as a temporary humanitarian problem rather than as a structural challenge requiring integrated development planning.

From the perspective of Human Security Theory, these findings reinforce the argument that effective governance should prioritize the protection of individuals alongside environmental adaptation. Security should not be measured solely by the state's ability to

control territorial borders but also by its capacity to ensure that climate-affected populations maintain access to livelihoods, healthcare, education, and social protection. In this regard, migration should be recognized as one component of climate adaptation that requires coordinated policies linking environmental management, disaster risk reduction, social welfare, and migration governance.

Overall, the analysis demonstrates that climate-induced migration in Indonesia reflects the intersection of environmental change, socioeconomic vulnerability, and institutional preparedness. The multidimensional impacts identified across economic, food, health, and community security illustrate that climate mobility is fundamentally a human security challenge. These findings provide the analytical basis for evaluating whether Indonesia's existing border governance framework is capable of responding to increasingly complex patterns of climate-related mobility, which is discussed in the following section.

3. Evaluating Indonesia's Border Governance in Responding to Climate-Induced Migration

The findings demonstrate that Indonesia's existing border governance framework has not yet comprehensively addressed the emerging challenges posed by climate-induced migration. Although Indonesia has established relatively strong institutional arrangements for disaster risk reduction, climate adaptation, and migration management, these policy domains continue to operate largely within separate administrative frameworks. Consequently, climate-induced migration remains insufficiently recognized as a distinct governance issue requiring integrated policy responses.

Indonesia has made considerable progress in disaster governance through the enactment of Law No. 24 of 2007 on Disaster Management, the establishment of the National Disaster Management Agency (BNPB), and the implementation of climate adaptation strategies under the National Action Plan for Climate Change Adaptation (RAN-API). These policy instruments have significantly improved disaster preparedness and emergency response capacity. Nevertheless, they primarily concentrate on disaster response and climate resilience rather than on the long-term governance of climate-related human mobility (Bappenas, 2021).

Similarly, migration governance in Indonesia remains predominantly oriented toward labour migration, immigration administration, and border control. Existing legal frameworks regulate international migration, refugee management, and immigration procedures, yet they do not explicitly recognize climate-induced migrants as a distinct category requiring legal protection or long-term governance mechanisms. Consequently, individuals displaced by gradual environmental degradation often fall outside existing institutional mandates, creating policy fragmentation between environmental governance, disaster management, and migration administration (IOM, 2024).

This institutional fragmentation reflects the limitations of conventional state-centric border governance. Traditionally, border governance has focused on protecting territorial sovereignty, regulating cross-border movement, and maintaining national security. However, contemporary migration challenges increasingly require governance approaches that recognize borders not merely as physical boundaries but as dynamic institutional spaces where environmental change, migration, and human security intersect (Guild, 2020). Climate-induced migration illustrates this transformation because environmentally displaced populations frequently move through gradual, adaptive processes rather than sudden cross-border movements commonly addressed in conventional migration policy.

The Indonesian experience further demonstrates that climate mobility is primarily internal, yet its governance implications extend beyond domestic policy. Environmental degradation in coastal areas has encouraged migration toward urban centres, creating increasing pressures on housing, employment, infrastructure, healthcare, and public services. If climate impacts continue to intensify, these internal migration patterns may also influence regional mobility across Southeast Asia, particularly in border regions where socioeconomic disparities and environmental vulnerabilities overlap. Consequently, climate-induced migration should be understood not only as a domestic governance challenge but also as an emerging regional policy issue (Rimapradesi, 2025).

Regional cooperation under the Association of Southeast Asian Nations (ASEAN) has strengthened disaster management through the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) and the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre). These institutions have enhanced regional coordination in emergency response, humanitarian assistance, and disaster preparedness. However, recent assessments indicate that ASEAN's institutional framework still places greater emphasis on emergency disaster response than on long-term governance of climate-related mobility (ASEAN, 2024). Issues such as planned relocation, climate mobility governance, legal recognition of environmentally displaced populations, and regional migration coordination remain only partially incorporated into existing ASEAN policy frameworks.

Recent evidence from the ASEAN Migration Outlook (2024) highlights that environmental change is becoming an increasingly important determinant of population mobility throughout Southeast Asia. Nevertheless, migration governance across the region continues to be fragmented because climate adaptation, labour migration, disaster management, and border administration are frequently managed by separate institutions with limited policy integration. Similar observations are reported by the International Organization for Migration (2024), which argues that effective governance of climate mobility requires institutional coordination extending beyond traditional migration management toward whole-of-government and whole-of-society approaches (Migration, 2024).

From the perspective of Border Governance Theory, these findings indicate that Indonesia's current governance framework remains largely reactive. Institutional responses continue to prioritize post-disaster humanitarian assistance rather than anticipatory governance capable of reducing future displacement risks. Adaptive migration planning, climate-resilient settlement policies, integrated spatial planning, and legal mechanisms addressing climate-induced displacement remain relatively underdeveloped. Consequently, existing governance arrangements are insufficiently prepared to manage the increasingly complex interaction between climate change, migration, and human security (Calliari, 2022).

The analysis therefore suggests that strengthening Indonesia's border governance requires a shift from conventional border control toward adaptive border governance. Such an approach should integrate climate adaptation, migration governance, disaster risk reduction, and human security into a coherent institutional framework. Rather than perceiving migration solely as a security concern, governance should recognize climate mobility as an adaptive process that requires coordinated planning, legal certainty, and social protection for affected populations.

Ultimately, the findings demonstrate that the principal challenge does not lie in the absence of public institutions but in the limited integration among existing governance mechanisms. Indonesia already possesses substantial institutional capacity in disaster management, climate policy, and migration administration; however, these sectors continue to operate within

fragmented policy environments. Addressing climate-induced migration therefore requires governance reform that strengthens inter-agency coordination, harmonizes legal frameworks, and promotes regional cooperation within ASEAN. These findings provide the basis for proposing an integrated governance model that places human security at the centre of climate mobility governance, which is presented in the following section.

Existing Governance	Current Limitation	Policy Recommendation
Disaster Management (BNPB)	Focuses on emergency response	Integrate long-term climate mobility planning
Immigration Policy	No legal recognition of climate-induced migrants	Develop a climate mobility governance framework
Climate Adaptation Policy	Prioritizes environmental resilience	Link adaptation with migration governance
Spatial Planning	Limited integration with migration risk	Develop climate-sensitive spatial planning
ASEAN Cooperation	Disaster response-oriented	Expand regional cooperation on climate mobility and human security

4. Human Security-Based Border Governance: Towards an Integrated Climate Mobility Framework

The preceding analysis demonstrates that climate-induced migration in Indonesia cannot be adequately addressed through conventional governance approaches that treat climate adaptation, migration management, disaster response, and border administration as separate policy domains. Instead, the findings reveal that these issues are deeply interconnected and require an integrated governance framework capable of simultaneously addressing environmental vulnerability, population mobility, and human security. Building upon these findings, this study proposes the Human Security-Based Border Governance (HSBG) framework as its principal conceptual contribution.

The HSBG framework departs from the traditional understanding of border governance, which has historically emphasized territorial sovereignty, immigration control, and national security. Although these functions remain essential, contemporary migration challenges increasingly require governance systems that also prioritize the protection of individuals and communities affected by climate change. As environmental degradation intensifies, border governance can no longer be understood solely as the regulation of territorial boundaries but must also encompass the governance of human mobility, resilience, and social protection (Guild & Carrera, 2020).

The empirical findings indicate that Indonesia already possesses important institutional capacities through disaster management agencies, climate adaptation policies, and migration governance. However, these institutions continue to operate within fragmented administrative structures, limiting their ability to anticipate and respond to climate-related mobility in a coordinated manner. Similar governance challenges have been identified across Southeast Asia, where climate adaptation policies are often disconnected from migration governance and regional cooperation mechanisms (ASEAN, 2024; IOM, 2024). Consequently, strengthening institutional integration represents a fundamental prerequisite for improving climate mobility governance.

The proposed HSBG framework consists of four interrelated pillars that together provide a comprehensive approach to governing climate-induced migration.

The first pillar is anticipatory climate risk governance. Rather than responding only after disasters occur, governments should strengthen climate-risk assessments, early warning systems, vulnerability mapping, and climate-sensitive spatial planning. Anticipatory governance enables public institutions to identify areas with high displacement potential and implement adaptation measures before migration becomes unavoidable. The IPCC (2022) emphasizes that proactive adaptation significantly reduces future displacement risks and enhances community resilience.

The second pillar is adaptive migration governance. The findings suggest that migration should not automatically be interpreted as policy failure but rather as one legitimate adaptation strategy. Public institutions therefore need to facilitate safe, orderly, and dignified mobility through planned relocation programmes, livelihood diversification, access to legal documentation, housing assistance, and employment support. This perspective aligns with the International Organization for Migration's concept of climate mobility, which recognizes migration as part of broader climate adaptation rather than solely as humanitarian displacement (IOM, 2024).

The third pillar is human security protection, which constitutes the normative foundation of the proposed framework. Consistent with Human Security Theory (UNDP, 1994), governance should prioritize protecting individuals from multidimensional threats affecting their livelihoods, health, food security, environmental sustainability, and community well-being. The findings presented in Sections 4.1 and 4.2 demonstrate that climate-induced migration affects far more than physical relocation; it reshapes socioeconomic opportunities, social cohesion, and the sense of belonging experienced by displaced populations. Consequently, migration governance should integrate social protection, public health, education, and livelihood recovery into climate adaptation policies.

The fourth pillar is regional cooperative governance. Climate-induced migration increasingly transcends national administrative boundaries, making regional cooperation essential for effective governance. ASEAN has already developed institutional mechanisms for disaster management through AADMER and the AHA Centre, yet existing cooperation remains predominantly focused on emergency humanitarian response. The findings of this study suggest that ASEAN should progressively incorporate climate mobility into its regional governance agenda through harmonized policy standards, shared climate-risk information, coordinated adaptation strategies, and collaborative capacity-building among member states (ASEAN, 2024). Such cooperation would strengthen regional resilience while respecting the sovereignty of individual member states.

Collectively, these four pillars transform border governance from a reactive, security-oriented approach into an adaptive governance model centred on resilience and human security. Unlike conventional migration governance, which primarily regulates movement across borders, the HSBG framework emphasizes preventing forced displacement through climate adaptation while ensuring that migration, when it occurs, contributes to sustainable human development rather than reproducing vulnerability (Boas, 2022).

From a theoretical perspective, the HSBG framework extends previous scholarship by integrating three analytical traditions that have often been examined separately. Climate-Induced Migration Theory explains the environmental drivers of population mobility, Human Security Theory provides a normative framework for protecting vulnerable populations, and

Border Governance Theory explains the institutional arrangements governing migration. By combining these perspectives, this study demonstrates that effective climate mobility governance depends not only on environmental adaptation or migration management individually but also on the institutional integration of both within a human security framework.

The proposed framework also contributes to policy debates concerning Indonesia's long-term climate resilience. Existing governance arrangements remain predominantly sectoral, whereas climate mobility requires cross-sectoral coordination involving disaster management authorities, immigration institutions, environmental agencies, local governments, and regional organizations. Establishing an integrated governance mechanism would improve policy coherence, reduce institutional fragmentation, and strengthen national preparedness for future climate-related displacement.

Overall, the Human Security-Based Border Governance (HSBG) framework represents the principal contribution of this study. It offers a conceptual model capable of bridging the gap between climate adaptation, migration governance, and human security while providing a practical reference for policymakers in Indonesia and Southeast Asia. As climate change continues to reshape patterns of human mobility, governance systems must evolve beyond conventional border control toward adaptive, inclusive, and people-centred approaches that simultaneously protect human dignity and strengthen societal resilience.

Conclusion

This study examined the relationship between climate-induced migration, human security, and border governance in Indonesia within the broader ASEAN context. The findings demonstrate that climate change has become an increasingly important driver of human mobility by intensifying environmental degradation, disrupting livelihoods, and increasing the vulnerability of communities exposed to recurrent climate-related hazards. In Indonesia, climate-induced migration remains predominantly internal; however, its implications extend beyond population movement to encompass broader challenges related to economic security, food security, health, environmental sustainability, and community resilience. Accordingly, climate-induced migration should no longer be understood solely as an environmental consequence but as a multidimensional governance issue that requires integrated and long-term policy responses.

The study further reveals that Indonesia's existing governance framework has not yet fully adapted to the increasing complexity of climate-related human mobility. Although significant progress has been achieved in disaster risk reduction, climate adaptation, and migration management, these policy sectors continue to operate within fragmented institutional arrangements. Existing governance mechanisms remain largely oriented toward disaster response, immigration administration, and sectoral policy implementation, while long-term governance specifically addressing climate-induced migration remains underdeveloped. This institutional fragmentation limits policy coherence and reduces the state's capacity to anticipate and manage future patterns of climate mobility.

From a theoretical perspective, this research contributes to the growing literature by integrating Climate-Induced Migration Theory, Human Security Theory, and Border Governance Theory into a unified analytical framework. The findings demonstrate that environmental change, human vulnerability, and governance capacity are closely interconnected and cannot be adequately analysed through a single disciplinary perspective. By combining these three theoretical approaches, the study provides a more comprehensive

understanding of climate mobility governance and expands current discussions on migration, borders, and belonging in Southeast Asia.

The principal contribution of this study is the development of the Human Security-Based Border Governance (HSBG) framework. The framework proposes that effective governance of climate-induced migration should be built upon four complementary pillars: anticipatory climate risk governance, adaptive migration governance, human security protection, and regional cooperative governance. Unlike conventional border governance, which primarily emphasizes territorial control and migration regulation, the HSBG framework positions human security as the normative foundation of governance while maintaining the state's responsibility to manage mobility effectively. In doing so, the framework offers a conceptual approach for strengthening governance capacity while protecting the rights, dignity, and resilience of climate-affected populations.

The findings also have important policy implications for Indonesia and ASEAN. At the national level, Indonesia should strengthen institutional coordination among agencies responsible for disaster management, climate adaptation, immigration, spatial planning, and social protection in order to establish an integrated governance framework for climate mobility. Existing policy instruments should progressively recognize climate-induced migration as a long-term governance challenge requiring planned adaptation, social protection, and livelihood resilience. At the regional level, ASEAN should expand existing disaster cooperation mechanisms by incorporating climate mobility into regional migration governance through policy harmonization, data sharing, institutional collaboration, and capacity-building initiatives. Such measures would enhance regional preparedness while supporting the implementation of sustainable and people-centred migration governance.

Despite these contributions, this study has several limitations. As a qualitative library research, the analysis relied primarily on secondary data obtained from academic publications, policy documents, and reports produced by international organizations. Consequently, the proposed Human Security-Based Border Governance framework remains conceptual and has not yet been empirically tested within specific climate-vulnerable communities. Future research is therefore encouraged to employ comparative case studies, mixed-method approaches, or field-based investigations to examine how climate-induced migration is experienced at the local level and how governance interventions influence adaptation outcomes. Comparative analyses involving Indonesia and other ASEAN member states would also enrich understanding of regional governance responses to climate mobility.

In conclusion, climate-induced migration represents one of the most significant governance challenges emerging from contemporary climate change. Addressing this challenge requires a fundamental shift from reactive disaster management toward adaptive, integrated, and human-centred governance. By proposing the Human Security-Based Border Governance (HSBG) framework, this study contributes to both academic debates and policy development by offering a conceptual foundation for strengthening migration governance in Indonesia while supporting broader regional cooperation within ASEAN. As climate change continues to reshape patterns of human mobility, integrating human security into border governance will become increasingly essential for promoting resilience, sustainable development, and inclusive forms of belonging across Southeast Asia.

Conflict of Interest

The author declares that there is no conflict of interest related to the research, authorship, or publication of this manuscript. The research was conducted independently, and there are no

financial, personal, institutional, or professional interests that could have influenced the research process, analysis, or publication of the findings.

AI Declaration

Artificial intelligence (AI) tools were used during the preparation of this manuscript for limited writing and language assistance, including improving sentence structure, grammar, clarity, and academic English. The AI tool used was OpenAI ChatGPT. The tool was not used to generate or fabricate research data, empirical findings, citations, or references. The author independently developed the research framework, conducted the analysis, verified the sources and references, and made all substantive academic judgments. The author remains fully responsible for the accuracy, originality, integrity, and final content of the manuscript.

References

- Change, I. P. (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability*. IPCC.
- Migration, I. O. (2024). *World Migration Report 2024*. International Organization for Migration.
- Centre, I. D. (2024). *Global Report on Internal Displacement 2024*. Internal Displacement Monitoring Centre.
- Bank, W. (2021). *Groundswell Part 2: Acting on Internal Climate Migration*. World Bank.
- Bappenas. (2021). *Indonesia Long-Term Strategy for Low Carbon and Climate Resilience 2050*. Bappenas.
- UNDP. (1994). *Human Development Report 1994*. United Nations Development Programme.
- McLeman, R. (2014). *Climate and Human Migration*. Cambridge University Press.
- Black, R. B. (2011). Migration as adaptation. *Nature*, 478(7370), 447–449.
- Tadjbakhsh, S. &. (2007). *Human Security*. Routledge.
- Paris, R. (2001). Human Security: Paradigm Shift or Hot Air? *International Security*, 26(2), 87–102.
- Betts, A. (2013). *Survival Migration*. Cornell University Press.
- Guild, E. &. (2020). *Integrated Border Governance*. Centre for European Policy Studies.
- McLeman, R. (2014). *Climate and Human Migration: Past Experiences, Future Challenges*. Cambridge University Press.
- Braun, V. &. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2), 77–101.
- Rimapradesi, Y. (2025). Migrasi Iklim dan Keamanan Manusia: Tantangan Kebijakan untuk ASEAN dan Implikasi bagi Indonesia. *Jurnal Hubungan Internasional Indonesia*.
- Boas, I. W. (2022). Climate mobilities: Migration, im/mobilities and mobility regimes in a changing climate. *Journal of Ethnic and Migration Studies*, 48(15), 3365–3379.
- Calliari, L. V. (2022). Governing people on the move in a warming world: Framing climate change migration and the UNFCCC Task Force on Displacement. *Global Environmental Change*.