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Study on Assessing the Vulnerability of Climate-Induced Internally Displaced Persons (IDPs) and Developing a Project Model to Strengthen Community Resilience in the Philippines

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Study on Assessing the Vulnerability of Climate-Induced Internally Displaced Persons (IDPs) and Developing a Project Model to Strengthen Community Resilience in the Philippines

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Executive Summary

This study aims to assess the vulnerability of internally displaced persons (IDPs) communities in the Philippines to climate change and presents practical response strategies and project models that strengthen resilience. Climate change results in gradual or abrupt environmental changes and the consequent deterioration of livelihoods and housing instability serve as catalysts for internal migration. Recent domestic migration driven by recurrent climate change is not merely an environmental concern; it encompasses intricate challenges related to economic, social, and institutional vulnerabilities, jeopardizing the stability of migrants' lives post-settlement. The Philippines, due to its geopolitical characteristics, undergoes a high incidence of climate change-induced catastrophes, leading to a growing and persistent rise in the number of internally displaced individuals (IDPs). This study focuses on Tacloban, a region exemplifying abrupt climate disaster in the Philippines, and Batangas, an area experiencing gradual climate disaster, as research subjects. Our objective was to examine the multifaceted vulnerabilities of resettlement communities for internally displaced individuals (IDPs) and to create methods to bolster community resilience.

The research was comprehensively conducted utilizing literature analysis, GIS-based spatial analysis, household surveys, and diverse qualitative methodologies. This study aims to deliver a comprehensive understanding of the integrated living conditions, vulnerabilities, and social adaptation processes of domestic migrants affected by climate change in the Philippines by employing a combination of quantitative and qualitative methodologies through field surveys. The research findings founded that households displaced by climate change are collectively experiencing serious difficulties, including livelihood instability (income reduction, elevated unemployment rates, employment insecurity), health vulnerability (insufficient medical services, increased susceptibility to infectious

diseases, mental health issues), social exclusion (disruption of community networks, lack of support from governmental and non-governmental organizations), housing instability (deficient settlement infrastructure, precariousness of temporary housing), and inadequate disaster preparedness (insufficient disaster warning systems, absence of disaster prevention policies).

Based on these research findings, this study proposes three key project models to enhance the resilience of climate change-induced internally displaced persons (IDPs) communities in the Philippines. First, it aims to improve physical resilience by building climate-adaptive infrastructure within the community. Specific implementation measures include ▲improving flood preparedness infrastructure, ▲establishing drinking water and sanitation management infrastructure, ▲ constructing climate-adaptive housing and evacuation infrastructure, and ▲ building eco-friendly heat-reducing infrastructure. Second, it seeks to secure local-level autonomy by strengthening the capacities of local governments and communities. This includes ▲supporting capacity-building programs for government officials, ▲providing information and communication channels for the community, and ▲developing community-led joint policies. Lastly, it aims to strengthen long-term social resilience through support for future generations and the operation of social integration programs. Key activities proposed include ▲ operating education and health support programs for migrant children and adolescents, ▲expanding mental health support services for psychological recovery, ▲enhancing climate adaptation and disaster response capabilities, and ▲providing vocational training and technical support.

This study also proposes three policy strategies to enhance practical and sustainable resilience at the community level, beyond the individual household level. First, to alleviate the livelihood issues underlying all vulnerabilities of climate migrants, it is essential to create quality jobs and establish sustainable income sources, while also building a self-sustaining system that links livelihood training provided by government and private entities to continuous income generation. Second, as it has been confirmed that domestic migrants who have experienced

relocation due to various forms of climate disasters in the past are still continuously exposed to new climate disasters even after resettlement, systematic disaster response strategies considering long-term climate change projections and response measures and training reflecting the characteristics and contexts of the migrants should be established. Third, while improving access to government-provided support programs for domestic migrants, it is crucial to ensure migrant participation in the policy formation and implementation process so that effective policies reflecting the actual demands arising at each stage of disaster-migration-settlement can be established

This study offers an in-depth analysis of internally displaced communities affected by climate disasters, presenting actionable policy implications applicable in the Philippines and other countries that are facing similar migration issues due to climate change. In addition to offering crucial evidence for developing resilience-enhancing strategies tailored to specific geographic areas in response to the climate crisis, this will help establish and implement domestic migrant support policies in cooperation with the Philippine government and international organizations. Future research must investigate the enduring socio-economic transformations faced by migrants as a result of climate change, the dynamics between migrants and host communities, the formulation of climate change response models tailored to regional contexts, and the possibilities for establishing collaborative frameworks with governmental and international entities.

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1. Background and Purpose of the Study

1.1 Background and Rationale of the Study

The increasing complexity and protraction of climate-related crises highlight the urgent need to address the challenges they bring. In developing countries, which are identified as more vulnerable to climate change, these crises transcend environmental concerns to become cross-cutting factors significantly impacting socio-economic development. Climate change not only exacerbates existing challenges but also creates new ones, necessitating immediate action.

Experts and scientists have warned that failure to keep global warming below 1.5°C, as outlined in the Paris Agreement, will make forced displacement one of the most severe impacts of climate change, particularly for vulnerable populations (CARE, 2020). The phenomenon of climate-induced displacement has gained increasing attention and support globally as its occurrence has risen. This concept stems from environmental migration but is narrower in scope, focusing specifically on migration caused by climate change. It is distinct from terms such as "climate refugee." Climate-induced displacement encompasses migration driven by both acute climate events and slow-onset impacts such as extreme weather, droughts, and food security issues, as well as conflicts over natural resources and land (CARE, 2020). In developing countries, climate-induced disasters and their socio-economic consequences are leading to a significant rise in the number of internally displaced persons (IDPs).

According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), IDPs are individuals or groups forced to flee their homes or habitual residences due to armed conflict, generalized violence, human rights violations, or natural and man-made disasters without crossing international borders (OCHA, 1998). The Special Rapporteur on the human rights of IDPs

highlights that these individuals often migrate as a last resort, with limited options, usually staying within national boundaries. Unlike refugees, IDPs tend to remain near conflict zones or within their regions.

The 75th UN General Assembly report in October 2020 addressed the human rights impacts of IDPs in the context of slow-onset climate change. Most climate-induced displacement is long-term and internal, as irreversible impacts render many areas uninhabitable, such as those affected by rising sea levels or desertification. Armed conflicts further weaken governance systems, hampering efforts to address climate change and protect affected populations. IDPs face multiple challenges, including loss of housing, livelihoods, access to water and sanitation, healthcare, education, and cultural heritage. During migration, they often lose essential documentation, hindering access to basic services, employment, housing, land rights, and political or judicial participation (Jimenez-Damary, 2020). IDPs thus face complex issues requiring solutions that extend beyond humanitarian assistance. An integrated approach, such as the Humanitarian- Development-Peace Nexus(HDP Nexus[1]) is necessary.

According to the 2024 Global Report on Internal Displacement by the Internal Displacement Monitoring Centre (IDMC), the global IDP population reached 75.9 million by the end of 2023, a 51% increase over the past five years. Among these, 68.3 million were displaced due to conflict and violence, while 7.7 million resulted

1) The Humanitarian-Development-Peace (HDP) Nexus refers to a concept that seeks to enhance coherence and complementarity among humanitarian assistance, development, and peace building efforts. Its goal is to reduce vulnerabilities in partner countries, prevent risks such as conflicts and disputes, decrease humanitarian needs, and contribute to sustainable development and peace (Permanent Delegation of the Republic of Korea to the OECD, 2022). Discussions on the HDP Nexus were formalized during the World Humanitarian Summit in May 2016 and further institutionalized at the Senior Level Meeting of the OECD Development Assistance Committee (DAC) in February 2019. At this meeting, the DAC Recommendation on the Humanitarian-Development-Peace Nexus was adopted, providing a framework for integrating these three dimensions into a cohesive approach. In 2024, marking the fifth anniversary of the adoption of the recommendation, a report was published assessing the progress made to date. The report reaffirmed the continued relevance of the HDP Nexus's foundational goals, issues, challenges, and best practices. It also outlined advancements achieved and highlighted future challenges and opportunities for implementing the HDP Nexus more effectively.

from disasters. In 2023 alone, disaster-induced displacement accounted for 26.4 million individuals (56%), surpassing conflict-related displacement at 20.5 million (44%). Climate-related disasters, such as floods (9.8 million) and storms (9.5 million), dominated, with geophysical disasters accounting for 6.1 million displacements.

The Philippines, a case study in this research, ranks among the most severely affected countries by climate-induced disasters. It is identified as the most vulnerable nation among 193 countries in the World Risk Index 2023, characterized by high vulnerability and low coping capacity (Bündnis Entwicklung Hilft and IFHV, 2023). By 2050, sea level rise is expected to inundate parts of Manila, threatening the livelihoods of over 6.8 million people (KIEP, 2020). Consequently, the number of climate-induced IDPs in the Philippines is rising, necessitating multifaceted efforts to strengthen resilience at the community level.

This study aims to assess the vulnerabilities of climate-induced IDPs in the Philippines, analyze the contexts and factors impeding disaster response capabilities, and propose effective strategies to enhance community resilience. Supporting the livelihoods and self-reliance of climate-induced IDPs contributes to improving disaster preparedness, strengthening resilience at the community level, and advancing national socio-economic capacities, including food security, towards more sustainable solutions (IDMC, 2023).

1.2 Unique Contributions and Significance of the Study

This study distinguishes itself by deeply examining the vulnerabilities experienced by climate-induced internally displaced persons (IDPs) in the Philippines, who have faced involuntary migration due to climate change and complex contextual factors. It seeks to connect these findings to policy approaches aimed at strategically and comprehensively supporting community resilience in the face of ongoing climate crises. To prevent further deterioration of conditions for climate-induced IDPs in

the Philippines, it is essential to systematically diagnose their vulnerabilities and adaptive capacities, formulate policies that support sustainable and self-reliant development, and identify relevant projects.

Addressing these challenges requires investments in risk mitigation measures that go beyond immediate emergency relief and humanitarian assistance. These investments must focus on strengthening the self-reliant resilience of migrant and resettlement communities. Moreover, the study emphasizes the importance of adopting a comprehensive approach, such as the Humanitarian-Development-Peace Nexus (HDP Nexus), to integrate emergency relief, development, and peacebuilding activities. Such integration helps mitigate humanitarian crises induced by climate change, achieve sustainable development, and reduce conflict and tension.

The study aims to achieve the following objectives:

First, by focusing on climate-induced IDPs in the Philippines, the study seeks to identify and analyze vulnerabilities from the perspectives of livelihood, health, and social capital—factors known to significantly affect these populations. By addressing socio-economic vulnerabilities that have not been sufficiently examined in previous studies, the research aims to enhance a nuanced understanding of the impacts, scale of harm, and challenges faced by IDPs.

Second, the study will comprehensively analyze the vulnerabilities, coping strategies, and mechanisms associated with climate-induced IDPs. By moving beyond individual-level approaches, it will propose a policy framework aimed at strengthening resilience at the community level. Through this framework, the study will provide actionable insights to enhance integrated resilience for both climate-induced IDPs communities and the host communities, contributing to the development of more sustainable and effective implementation strategies.

Third, in collaboration with local research partners in the Philippines, the study will ensure that its findings reflect the realities and contexts of affected communities. By producing research closely aligned with the actual experiences of

residents, it will develop an actionable framework and project models based on these findings. Furthermore, capacity-building workshops will be conducted to support the Philippine government in formulating practical and responsive climate policies.

Through these efforts, this study aims to contribute to both academic knowledge and the development of sustainable, impactful solutions for climate-induced IDPs and their host communities.

2. Literature Review

2.1 Global Climate Change Crisis and Migration

2.1.1 Climate Change and Migration

The World Migration Report 2023, published by the International Organization for Migration (IOM), categorizes climate change as a driver of migration into two types: slow-onset changes and sudden extreme climate events. Slow-onset changes include rising sea levels that inundate residential areas and damage agriculture, desertification reducing arable land, and worsening living conditions due to increasing temperatures, all of which ultimately influence migration decisions. On the other hand, disasters such as typhoons and floods, which are growing in frequency and intensity due to climate change, can trigger large-scale, sudden displacements. Similarly, droughts lead to water and food scarcity, causing severe migration in agriculture-dependent regions. Frequent and severe wildfires destroy ecosystems and displace residents.

According to the 2024 Global Report on Internal Displacement by the Internal Displacement Monitoring Centre (IDMC), the primary climate-related and natural disasters causing internal displacement in 2023, in descending order of scale, were floods, typhoons, earthquakes, droughts, and wildfires. Thus, migration can also be viewed as an adaptation strategy to climate change. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as “the process of adjustment to actual or expected climate and its effects, in human systems, to moderate harm or exploit beneficial opportunities.”

Natural disasters can result in both temporary and permanent migration. For example, small island developing states are especially vulnerable to sea level rise, leading to significant population displacement. Water scarcity, one of the most devastating impacts of climate change, forces local populations to consider

migration to sustain their livelihoods. The IOM explains that most migration decisions result from a combination of factors, with climate change often acting as a catalyst, exacerbating or accelerating existing drivers of migration. When discussing migration as an adaptation measure, it is essential to consider the three dimensions of climate vulnerability:

- Exposure: The level of exposure to climate impacts.
- Sensitivity: The extent to which a community is affected by climate change.
- Adaptive Capacity: The ability of individuals and communities to adapt to climate impacts, considering existing social, economic, and political vulnerabilities.

These dimensions determine the levels of vulnerability and resilience within climate-affected communities. However, migration as an adaptation strategy may be abandoned if financial losses are excessively substantial or resources for post-migration survival are insufficient. In such cases, those with high climate vulnerability or low resilience may left in highly dangerous areas, increasing their risk exposure.

As Gemenne (2010) points out, the ability to migrate from environmentally degraded regions is often limited to those with sufficient resources. Conversely, for those without such resources, migration becomes a last resort for survival. Socially vulnerable groups, such as women, children, and the elderly, are often more susceptible to the impacts of climate change (IOM, 2024). Experts and numerous studies highlight the need for policy interventions to accompany migration as an adaptation strategy. These interventions should prevent or mitigate additional burdens and social issues that may arise in host communities. National strategies and international cooperation are crucial to protecting vulnerable groups, including climate refugees.

In cases of large-scale disasters, migration often involves not only short-term evacuation but also long-term resettlement. Thus, support for housing,

infrastructure, community rebuilding, and resilience development is critical. Beyond physical relocation, comprehensive assistance is needed for economic, social, and psychological integration in resettlement areas.

2.1.2 Climate Change and IDPs

Most migrations caused by climate change occur within national borders. As previously explained, internally displaced persons (IDPs) refer to individuals or groups who are forced to leave their homes or habitual residences, either voluntarily or involuntarily, due to armed conflict, generalized violence, human rights violations, or natural and man-made disasters, without crossing international borders (OCHA, 1998). IDPs are characterized by two key features: the involuntary nature of their displacement and their movement being confined within the borders of their country. This category includes not only citizens but also other residents within the country, such as stateless individuals.

IDPs continue to grow in number. For example, droughts in agriculture-dependent regions force farmers to migrate to cities, and coastal flooding displaces residents to new areas. According to the 2024 Global Report on Internal Displacement by the Internal Displacement Monitoring Centre (IDMC), climate-related and geophysical disasters caused 26.4 million displacements across 148 countries in 2023. The transition from La Niña to El Niño that year led to fewer climate-related displacements from typhoons and floods in Asia but caused an increase in flood-induced displacements in Africa.

Notable cases include Somalia, where repeated droughts and floods led to severe food insecurity and large-scale migration, and Sudan, where simultaneous flooding and civil conflict forced residents to migrate multiple times. These examples demonstrate how climate change and disasters interact to drive internal displacement.

Despite their significant numbers and frequency, IDPs often lack sufficient

protection because they do not cross international borders. They face numerous challenges, including but not limited to,

- Loss of livelihoods and increased poverty.
- Weak social integration and networks.
- Limited access to education and healthcare services.
- Housing insecurity and increased vulnerability to other risks.
- Psychological stress and trauma from displacement.
- Insufficient policy support to address their specific needs.

These factors weaken the adaptive capacity and resilience of IDPs, making it crucial to address their vulnerabilities comprehensively.

Given the scale and complexity of internal displacement driven by climate change, further research and data collection are essential.[2] A comprehensive approach is needed to support IDPs, encompassing both immediate humanitarian assistance and long-term measures to rebuild their lives. National strategies and international cooperation must address the root causes of climate-induced internal displacement and ensure that IDPs are integrated into sustainable, resilient communities.

2.1.3 Key Issues and Discussions in the International Community

The international community anticipates a continued increase in the number of climate-induced IDPs. In 2023, climate-related displacement was observed even in high-income countries like Canada and New Zealand, reflecting an expansion in the range of affected nations. The World Bank's Groundswell report (2021) projects that up to 216 million internal displacements could occur across six regions by 2050. However, the report emphasizes that early and targeted actions to reduce global greenhouse gas emissions and ensure inclusive and resilient development could reduce the number of displaced persons by up to 80%. This underscores the

2) https://www.migrationpolicy.org/article/climate-migration-101-explainer

critical importance of international cooperation in addressing climate-induced migration.

At the 27th Conference of the Parties (COP 27) to the United Nations Framework Convention on Climate Change (UNFCCC) in November 2022, the connection between climate change and migration was formally recognized for the first time. COP 27 also resulted in the establishment of a new fund to address loss and damage in developing countries, with mechanisms for compensating these nations through contributions from developed countries. Building on this progress, COP 28 decided on the operational framework for the "Loss and Damage Fund" established at COP 27, raising a total of $792 million to support developing nations in coping with climate crises.[3)]

In March 2023, the International Dialogue on Migration (IDM) held in New York stressed the urgency of further actions to address climate change and achieve the Sustainable Development Goals (SDGs). Similarly, the United Nations Environment Assembly (UNEA) has incorporated climate-induced migration into the global environmental agenda. At its sixth session in 2024, UNEA highlighted the need for international cooperation to address forced migration driven by climate and environmental factors.

Organizations like the World Bank, IOM, and IDMC have emphasized the importance of accurate data collection and analysis to understand and respond to climate-induced migration. While challenges like wildfires and droughts are gaining attention, the lack of comprehensive data hampers effective long-term planning to mitigate migration risks in communities. To develop effective strategies, it is essential to collect data spanning not only the emergency phase of disasters but also the recovery period. This need has also drawn increasing attention to the role of local governments in supporting IDPs (IDMC, 2024).

The Humanitarian-Development-Peace (HDP) Nexus approach, traditionally

3) https://www.mofa.go.kr/www/brd/m_4080/view.do?seq=374485

focused on crises and conflict settings, is now being expanded to include discussions on climate change and IDPs. The 2019 DAC Recommendation on the HDP Nexus issued by the OECD Development Assistance Committee (DAC) noted that over the past 30 years, an increasing number of countries have experienced violence and conflict exacerbated by climate change. However, the recommendation primarily regarded climate change as a factor aggravating existing crises and conflicts, addressing vulnerable groups impacted by forced displacement in a limited context.

The 2022 interim progress review on the HDP Nexus by the OECD emphasized the need to integrate considerations such as gender equality and climate change into the Nexus framework. The review criticized the isolation of these issues into separate policy domains, advocating for their integration into holistic approaches. Among six thematic areas for pilot projects under the HDP Nexus, climate resilience (e.g., preparedness for climate hazards, disaster risk reduction) and forced displacement (e.g., internal displacement, migration, land rights, housing) directly address issues related to IDPs.

A 2024 report on the implementation and continued relevance of the DAC Recommendation on the HDP Nexus highlights the growing importance of the Nexus approach as the impacts of climate change intensify. The report underscores the role of the HDP Nexus in providing comprehensive solutions for IDPs, refugees, and other displaced populations. For instance, a special initiative by Germany's Federal Ministry for Economic Cooperation and Development (BMZ) advocates for the HDP Nexus approaches in forced displacement contexts, emphasizing its critical role in addressing the challenges faced by displaced populations and fostering long-term resilience.

2.2 Climate Change Crisis and IDPs in the Philippines

2.2.1 Climate Change in the Philippines

As previously mentioned, the Philippines is among the countries expected to suffer

the most significant national impacts of climate change. Consequently, the country is experiencing a sharp increase in the number of IDPs driven by climate-related factors.

Why, then, does the Philippines face higher climate change risks and associated IDPs challenges compared to other nations?

Geographic Location and Climate Risks in the Philippines

The Philippines faces a unique combination of geopolitical and climate-related challenges, making it one of the most disaster-prone countries globally. The country frequently experiences typhoons, earthquakes, volcanic eruptions, and other natural disasters due to its location. Approximately 60% of its land area and 74% of its population are exposed to various risks, including floods, cyclones, droughts, earthquakes, tsunamis, and landslides. According to the Global Climate Risk Index, the Philippines has experienced the highest number of disasters globally (317 events).As a climate-vulnerable nation, the Philippines is particularly susceptible to hydro-meteorological disasters, such as typhoons, which are expected to intensify due to the ongoing climate crisis. Situated between the South China Sea and the Western Pacific, the Philippines lies in a subtropical climate zone with distinct wet and dry seasons. The dry season typically lasts from November to May, while the wet season extends from June to October. During the dry season, the Philippines faces extreme heat and drought, while the wet season brings cyclones (tropical storms)[4] and flooding. Cyclones, which develop over tropical waters in the Pacific Ocean, the Indian Ocean, and other equatorial regions, are characterized by wind speeds exceeding 17 m/s, radii of up to 500

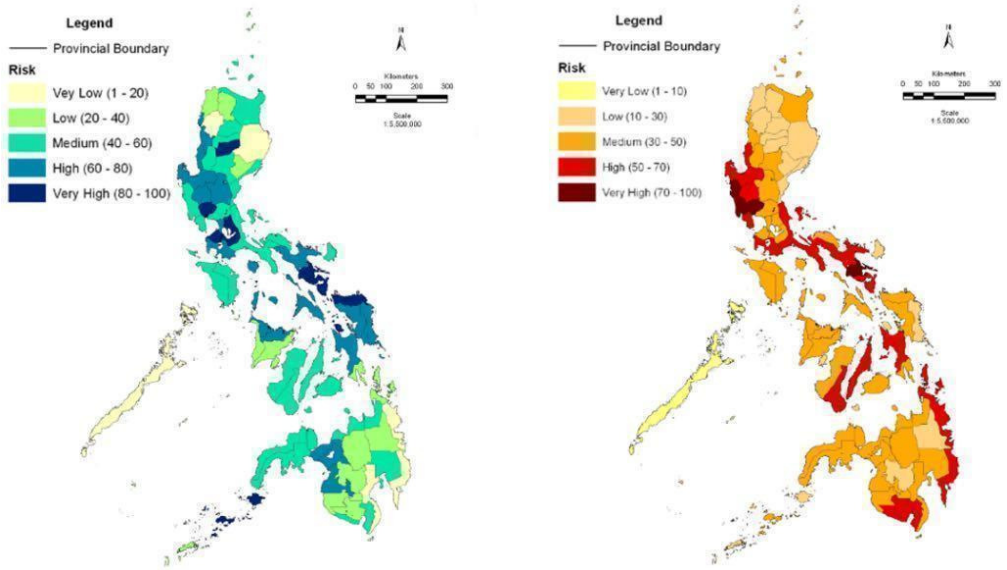
4) Cyclones are tropical storms that form over tropical seas near the Indian Ocean, Arabian Sea, and Bay of Bengal. These tropical cyclones are referred to by different names depending on their location: "Typhoons" when they occur in the Western North Pacific; "Hurricanes" in the North Atlantic and along the coasts of Mexico; "Cyclones" in the Indian Ocean or near Austral ia in the South Pacific. Cyclones are characterized by wind speeds exceeding 17 m/s, a radius of approximately 500 km, and are typically accompanied by strong winds and intense rainfall. These systems are among the most destructive weather phenomena, significantly impacting th e regions they strike.

km, and severe winds and torrential rainfall. The Philippines, composed of 7,107 islands and boasting one of the longest coastlines globally, suffers the greatest economic and human losses from cyclones. While the Philippines' location along the Pacific Ring of Fire increases its vulnerability to geophysical disasters such as earthquakes and volcanic eruptions, over 80% of the natural disasters in the past 50 years have been climate-related, predominantly cyclones and resulting floods (Jha et al., 2018).[5] On average, 20 cyclones form annually near the Philippines, with about 8 making landfall (Marcelino et al., 2014).[6] These cyclones are often among the strongest globally, significantly impacting the country. [Figure 1] illustrates the spatial distribution of climate-related disasters such as typhoons and sea-level rise, alongside geophysical disasters like earthquakes and volcanic eruptions. This variability indicates that different regions of the Philippines experience varying disaster types, underscoring the importance of regionalized disaster vulnerability assessments. Effective climate policies and their implementation must consider these regional contexts.

According to a 2021 report by IOM Philippines, the country is the second most affected nation in Asia by severe weather events.[7] Located within the Pacific typhoon belt, the Philippines is exposed to an average of 20 typhoons annually, with 8-9 crossing its territory, particularly between July and October, accounting for 70% of typhoon occurrences. These typhoons are among the strongest worldwide, with the fastest rates of sea level rise and sea surface temperature increases observed in the surrounding Philippine waters. In the southern Philippine waters, sea surface temperatures have risen by 0.2°C per decade over the past 20–30 years, while the northern waters have seen an increase of 0.3°C per decade.

5) Jha, S., Martinez Jr, A., Quising, P., Ardaniel, Z., & Wang, L. (2018). Natural disasters, public spending, and creative destruction: A case study of the Philippines
6) Marcelino Q. Villafuerte II, M.Q., Matsumoto, J., Akasaka, I., Takahashi, H.G., Kubota, H. and Cinco, T.A. 2014. Long-term trends and variability of rainfall extremes in the Philippines. At mospheric Research 137: 1–13.
7) https://www.iom.int/news/climate-change-adaptation-and-community-resilience-philippines

[Figure 1] Maps of Climate-Related Disasters (Left) and Geophysical Disasters (Right) in the Philippines



Source: Bollettino et al. (2018)

The annual mean temperature in the Philippines has risen by 0.6°C since the mid-20th century and is projected to increase by up to 2.9°C by the 2090s (WB Group & ADB, 2021). These climatic shifts significantly affect natural disaster frequency and intensity, further increasing the country's disaster burden. Data from the Asian Disaster Reduction Center (ADRC) show that the number of cyclones affecting the Philippines has increased dramatically, from 18 cyclones in the 1950s to 91 cyclones in the 2010s. Consequently, cyclone-related fatalities have risen from 2,362 deaths in the 1950s to 12,376 deaths in the 2010s, a nearly sixfold increase[8]. Such findings underscore the Philippines' growing vulnerability to climate change and the urgent need for targeted, region-specific strategies to mitigate disaster risks and enhance community resilience.

2.2.2 IDPs in the Philippines

In the Philippines, millions of people are displaced annually due to the devastating

8) https://www.statista.com/chart/23638/storms-storm-deaths-in-the-philippines/

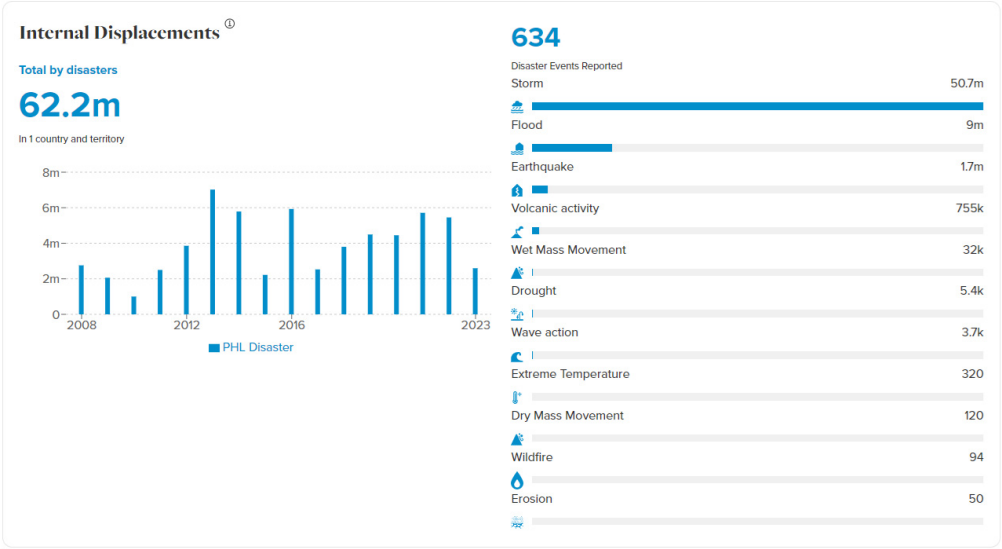
impacts of typhoons. Large-scale movements often occur as people flee disaster-stricken areas. According to the Internal Displacement Monitoring Centre (IDMC), there were 62.2 million displacement events in the Philippines between 2008 and 2023, caused by 634 reported weather-related and geophysical disasters. In 2023 alone, disasters triggered 2.594 million internal displacements, affecting 2.91 million IDPs. Of these, 16,000 displacements and 87,000 IDPs were caused by conflict. In East Asia and the Pacific, the number of displacements and IDPs caused by natural disasters far exceeds those triggered by conflicts (IDMC, 2024), with the Philippines exhibiting one of the highest rates of disaster-induced displacement. For example, in July 2023, Typhoon Doksuri displaced over 500,000 people across 12 regions in the country. Climate-induced natural disasters and their resulting displacements exhibit varying patterns and vulnerabilities depending on the affected groups. According to a 2021 report by the International Organization for Migration (IOM) titled Climate Change Adaptation and Community Resilience in the Philippines, the most vulnerable populations include farmers, fishers, the elderly, urban poor, and women. Notably, women account for 80% of climate-induced IDPs in the Philippines.[9] A Country Risk Profile for the Philippines, jointly published by the World Bank Group and the Asian Development Bank (ADB) in 2021, highlights that women working on small-scale farms are particularly vulnerable to forced displacement due to climate impacts, resource shortages, and food insecurity. These challenges compound their existing vulnerabilities, leading to disproportionate impacts during and after displacement. The above findings underscore the importance of identifying and addressing the distinct vulnerabilities faced by specific groups in disaster-affected areas, with a particular focus on gender-sensitive approaches and targeted interventions to enhance resilience.[10]

Additionally, in the Philippines, the increased mobility due to sudden-onset climatic events often leads to preemptive evacuations and internal displacement, which in turn are linked to human rights violations, explosive risks, and minor

9) https://www.iom.int/news/climate-change-adaptation-and-community-resilience-philippines
10) https://www.adb.org/publications/climate-risk-country-profile-philippines

crimes, posing significant security threats. In contrast to sudden-onset natural disasters, slow-onset climatic events, such as rising sea levels, also increase the frequency of migration. This type of movement exacerbates vulnerabilities, particularly through conflicts with host communities. In particular, accelerated sea level rise due to climate change is expected to significantly impact the poor populations along the coastal areas of Metro Manila, increasing the likelihood of migration or even refugee status for these individuals. This situation could lead to intensified resource competition, as well as conflict and social tensions (Guanio, 2024).

[Figure 2] Number of Disaster-Induced Displacement and Reported Disasters in the Philippines (2008-2023)



Source: IDMC Website www.internal-displacement.org/database/displacement-data/

2.2.3 Current Responses and Discussions on IDPs in the Philippines

(1) Philippine Government Policies and Key Responses

To address the increasing frequency and severity of disaster impacts, the Philippines enacted the Climate Change Act (Republic Act No. 9729) in 2009 and the Philippine Disaster Risk Reduction and Management Act (Republic Act No. 10121) in 2010. The Climate Change Act was amended in 2011 (Republic Act No. 10174) to establish a long-term financing mechanism to more effectively address climate change challenges. The government has identified Climate Change Adaptation (CCA) and Disaster Risk Reduction and Management (DRRM) as the central pillars of its disaster response policies and has been actively formulating and implementing strategies based on these priorities. The National Climate Change Action Plan (NCCAP) serves as a baseline framework for designing national priority programs that address the needs of the most climate-vulnerable sectors. Within NCCAP 2011-2028, climate change-induced displacement is specifically addressed under the Human Security section. The Human Security component adopts the definition from the Philippine Development Plan (PDP), and in the context of climate change, the human security concerns include conflicts over natural resources, population displacement and displacement resulting from sea-level rise, large-scale biophysical and ecological disruptions, and social instability, as well as frequent humanitarian disasters caused by extreme weather events. These points indicate that the Philippine government acknowledges the connection between climate change and displacement. However, practical strategies often use the term “climate refugees” rather than “Internally displaced persons (IDPs)”, and focus on “settlement” rather than “displacement.” This emphasis on settlement reflects a strategy geared more towards the integration of displaced populations into permanent locations rather than addressing the dynamics of displacement itself. Such an approach, which lacks a comprehensive understanding of the specific characteristics of internal displacement, may limit the scope of intervention and hinder the establishment of a strong policy

foundation. This, in turn, can pose challenges in developing effective support programs for IDPs. Strategies and policies that fail to account for the nuances of internal displacement may inadvertently narrow the scope of actionable issues requiring intervention, as noted by Feldman, Nicholson, and Mayer (2024) in Climate Migration: Critical Perspectives for Law, Policy, and Research. Without adequate recognition of the distinct vulnerabilities and dynamics of IDPs, the development and implementation of effective support mechanisms remain constrained.[11)]

The Monitoring and Evaluation (M&E) Report on the National Climate Change Action Plan (NCCAP) 2011–2016 focused on assessing the readiness of government institutions, emphasizing clear evidence of the key governance elements essential for effective and successful climate change adaptation.[12)] The report identifies "reducing the risks experienced by men and women due to climate change and disasters" as an intermediate outcome goal under the Human Security component. It also highlights that awareness-raising activities on climate and disaster risk reduction are utilized in resettlement efforts and in preventing conflicts in cases of climate refugees. However, the report neither explicitly defines nor fully integrates the term "migration." Instead, it mentions migration in connection with land ownership issues, such as the informal settlement of public land and abandoned private properties in urban areas caused by rural-to-urban migration. Additionally, it references USAID literature to partially address how climate change can force the movement and displacement of affected populations, without delving deeper into the complexities of migration dynamics.

The Local Climate Change Action Plan (LCCAP), a localized framework under the National Climate Change Action Plan (NCCAP), serves as an implementation plan developed by local governments to address climate change challenges. The LCCAP

11) Feldman, I. Calum Nicholson and Benoit Mayer (eds). Climate migration: critical perspectives for law, policy, and research. J Environ Stud Sci (2024).

12) https://climate.gov.ph/our-programs/national-climate-change-action-plan/monitoring-and-evaluation

focuses on both climate change adaptation and mitigation and outlines strategies for local governments to respond to climate impacts while integrating these efforts into land use plans, sectoral development plans, and investment programs.

The amended Climate Change Act recognizes local governments as the frontline institutions in formulating, planning, and implementing climate change action plans for their respective areas. Consequently, the Climate Change Commission (CCC) and the National Disaster Risk Reduction and Management Council (NDRRMC) agreed in 2011 to enhance support for local governments by building their capacity to make informed decisions and implement effective plans and policies to address climate change. In 2014, the Department of the Interior and Local Government (DILG), the lead agency for disaster preparedness, published guidelines for developing LCCAPs. However, the DILG's guidebook does not explicitly use terms such as "migration" or "IDPs." Instead, it recommends collaboration between the CCC, UN-Habitat's human settlement program, and local governments to promote adaptive and resilient futures. This highlights the focus on settlement and planning rather than directly addressing the dynamics of migration or internal displacement.[13]In the LCCAP guidebook, the term "settlement" encompasses various meanings, including housing, community resettlement, and the improvement of informal coastal settlements or damaged housing units. Despite this focus, some LCCAPs consider IDP issues based on the local government's commitment, capacity, and the contextual realities of climate change and disasters in the region.

For example, the Batangas LCCAP includes analysis and references to the Badjao ethnic group, which has migrated to the area. However, this consideration is framed from the perspective of environmental risk factors posed by the migrants rather than adopting a migrant-inclusive approach focused on their integration or support. This reflects a gap in addressing the broader needs and rights of displaced populations within the LCCAP framework.[14]

13) Department of the Interior and Local Government. (2014). Guidelines on the Formulation of Local Climate Change Action Plan (LCCAP)

The Philippine government has initiated efforts to enhance its climate change policies and incorporate the protection of IDPs into its frameworks. Following the National Adaptation Plan (NAP) 2017–2022, the NAP 2023–2050 includes themes related to the protection of migrants displaced by climate, disaster, and conflict. However, Ian Fry, the UN Special Rapporteur on the promotion and protection of human rights in the context of climate change, noted a significant gap between the Philippines' extensive climate-related policies and their actual implementation.

In a press briefing following his 10-day visit to the Philippines in 2023, Fry urged the government to swiftly develop a strategic implementation plan for its climate policies. He also recommended the design of climate actions that are sensitive to diverse groups, including Indigenous Peoples (IPs) and persons with disabilities.

In light of these challenges, this study aims to go beyond merely reiterating existing policies and strategies. Instead, it focuses on formulating concrete strategies tailored to the specific demands and contexts of affected communities, ensuring that solutions are practical, inclusive, and responsive to local realities.[15] This study aims to present recommendations and considerations for developing comprehensive and effective support strategies that reflect the local contexts of communities. These recommendations are based on field-based, in-depth research into cases of IDPs caused by the two most frequent types of climate disasters in the Philippines: slow-onset and sudden-onset events. By grounding the analysis in real-world scenarios, the study seeks to ensure that the proposed strategies are practical and responsive to the specific needs of affected populations.

① Disaster Response Policies and IDPs

In 2011, the Philippine government established the 2011–2028 National Disaster Risk Reduction and Management Plan (NDRRMP), which categorizes disaster

14) https://pdf.usaid.gov/pdf_docs/PA00TG1P.pdf
15) https://www.gmanetwork.com/news/topstories/content/888492/implementation-of-philippine-climate-laws-still-lacking-says-un-special-rapporteur/story/

response into four phases: prevention and mitigation, preparedness, response and early recovery, and rehabilitation and recovery.[16] The NDRRMP was revised for the 2020–2030 period, driven by the impact of 15 disasters between 2011 and 2018, which resulted in 6,970 fatalities and ₱330 billion in damages and losses. The updated NDRRMP seeks to establish stronger connections between Disaster Risk Reduction and Management (DRRM), Climate Change Adaptation (CCA), and human security.

The National Disaster Risk Reduction and Management Council (NDRRMC) designated lead agencies for each disaster response phase, while local governments were tasked with primary responsibilities for disaster response at all stages. The revised NDRRMP emphasizes the need for strategic actions to bridge gaps in disaster response and management between national and local levels, highlighting the importance of localization. This approach has expanded the Philippine disaster response system into a structure involving nearly all government agencies, cascading implementation from the national level to local levels, thereby creating a more integrated and comprehensive disaster management framework.

Support for IDPs is primarily incorporated into the response phase of disaster management, with the Department of Social Welfare and Development (DSWD) serving as the lead agency. Activities during the response phase include needs assessments, search and rescue operations, relief efforts, and early recovery activities. Early recovery activities, conducted within three months following a disaster, focus on restoring basic services, livelihoods, governance, safety and rule of law, environmental and social conditions, and the reintegration of IDPs into their communities, including social and emotional rehabilitation. Some IDPs return to their original communities once the disaster situation stabilizes. However, when returning is not feasible, resettlement becomes necessary, transitioning into the rehabilitation and recovery phase. Through self-assessment of the NDRRMP, the Philippine government acknowledged that, despite achievements in the

16) https://www.preventionweb.net/publication/national-disaster-risk-reduction-and-management-plan- ndrrmp

rehabilitation and recovery phase, significant challenges remain. These include the resettlement of affected communities residing in high-risk areas, highlighting the ongoing need for enhanced disaster management strategies.

② Resettlement Program and IDPs

The resettlement program in the Philippines primarily focuses on providing housing support and is predominantly government-led. While many programs are implemented within the broader context of supporting low-income groups and informal settlers, specific programs exclusively targeting IDPs have also been undertaken. These resettlement programs typically cater to individuals displaced by disasters and conflicts, with notable examples including the resettlement sites for survivors of Typhoon Haiyan (Yolanda) in 2013 and the resettlement efforts for IDPs affected by the Marawi conflict.

The Tacloban Resettlement Program, initiated after Typhoon Haiyan (Yolanda) in 2013, was led by the National Housing Authority (NHA) and operated on a large scale in Tacloban. The program aimed to relocate affected communities to resettlement sites situated away from coastal areas. It developed multiple resettlement sites, primarily located in the northern part of Tacloban, to house approximately 16,000 families. However, as of 2023, a decade after the disaster, more than 31% of the 175,000 housing units completed under the program—roughly 54,000 units—remain unoccupied due to infrastructure deficits, particularly issues with adequate water supply (GMA News, 2023).

The Marawi Recovery Project was launched in response to the massive internal displacement caused by the 2017 armed conflict between government forces and the Maute group. To address the needs of displaced populations, the Philippine government established the Task Force Bangon Marawi, which spearheaded resettlement and recovery efforts. This program focused on rebuilding the Marawi region and resettling displaced IDPs while improving infrastructure and housing conditions in resettlement areas.[17)]

Meanwhile, the Pambansang Pabahay para sa Pilipino (4PH) Program is a national housing initiative aimed at supporting low-income groups and informal settlers. The program seeks to construct 1 million housing units annually to reduce the number of informal settlers by 2028. Led by the Department of the Interior and Local Government (DILG) and the National Housing Authority (NHA), the program focuses on providing affordable housing while promoting the development of smart cities.[18] Additionally, the program collaborates with local governments to address housing demands within their respective regions.[19] Additionally, Oplan Likas was a housing program implemented from 2011 to 2016 aimed at resettling approximately 120,000 informal settlers living in high-risk areas of Metro Manila.[20] The program, with an estimated budget of ₱50 billion, primarily targeted residents needing relocation from high-risk areas such as riverbanks, waterways, and railways. Led by the National Housing Authority (NHA), the program focused on providing housing for affected communities under government oversight.

However, according to the 2023 UN-Habitat Philippines Country Report, the Philippines still faces a housing shortage affecting 6.5 million households, with approximately 3.7 million informal settler families directly impacted. The primary drivers of this housing shortage include urban migration, the growth of informal settlements, armed conflicts, inequality, and climate change.

The Philippine government's housing projects have struggled to fully address the needs of informal settlers and low-income families. The initiatives are often limited to constructing vertical (condominium-style) housing units, which do not always align with the preferences or requirements of the target communities. Moreover, insufficient government funding and capacity have hindered efforts to bridge the housing gap. Additional challenges include informal settlements located in

17) https://reliefweb.int/report/philippines/60-idp-families-receive-transitory-houses-angat-buhay-village
18) https://dhsud.gov.ph/wp-content/uploads/Laws_Issuances/4PH/4PH%20Operations%20Manual.pdf
19) https://www.bworldonline.com/special-features/2024/02/14/575609/4ph-program-governments-tool -in-addressing-the-housing-crisis/
20) https://pids.gov.ph/publication/policy-notes/civil-society-and-public-sector-cooperation-case-of-op lan-likas

environmentally hazardous areas and urban housing projects that fail to address broader vulnerabilities.[21]

③ Social Welfare Policies and IDPs

Social welfare policies in the Philippines are primarily overseen by the Department of Social Welfare and Development (DSWD). As the lead agency for the disaster response phase, DSWD serves as the Vice-Chair of the Disaster Response Cluster under the National Disaster Risk Reduction and Management Council (NDRRMC), supervising the country's disaster response efforts.

The DSWD leads clusters responsible for the protection of IDPs, camp coordination and management, and food and non-food item distribution. It has also developed various tools to safeguard IDPs. For those IDPs who fall into poverty or face heightened vulnerabilities, the government's Pantawid Pamilyang Pilipino Program (4Ps) provides financial and social support. Additionally, regional offices such as the City Social Welfare and Development Office (CSWDO) allocate budgets to assist IDPs within their jurisdictions. Among the Badjao IDPs in Batangas, who are part of this study, some have received support through the DSWD's 4Ps program. Furthermore, the City Social Welfare Department Office of Batangas City employs a dedicated social worker for Badjao IDPs, providing various welfare programs ranging from family development initiatives to livelihood assistance.

In accordance with Philippine child-related laws such as RA 11188 and RA 10821, the DSWD also plays a central role as the lead agency for the protection of children, ensuring compliance with the country's legal frameworks for child welfare and safety.[22] According to UNICEF's 2023 Child Migration Report, the

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21) Habitat for Humanity. (2023). Philippines Policy Brief. Retrieved from https://www.habitat.org/sites/default/files/documents/Philippines%20policy%20brief_FINAL_20231024.pdf

22) Weerasinghe, S. (2021). Bridging the Divide in Approaches to Conflict and Disaster isplacement: Norms, Institutions and Coordination in Afghanistan, Colombia, Niger, the Philippines and Somalia. UNHCR and IOM. Retrieved from https://www.globalprotectioncluster.org/sites/default/files/2022-08/bridging_the_divide_-_new_ disclaimer_english.pdf

Philippines ranked among the countries with the highest number of children displaced due to natural disasters and severe weather events between 2016 and 2021.[23] The lack of access to adequate housing, food, healthcare, and education severely hampers children's growth and development. However, it remains challenging to ascertain whether the Philippine government has actively implemented policies to address the impacts of displacement, which can lead to child malnutrition or stunted growth.

④ Other Policies and IDPs: Legal Protection Efforts

The Philippines has experienced a significant number of IDPs due to frequent natural disasters and ongoing armed conflicts, particularly in the Mindanao region.[24] In February 2013, the Philippine Congress sought to enact a law aimed at protecting IDPs, which would have been the first of its kind in the Asia-Pacific region. However, the proposed legislation was vetoed in May 201 3.[25] In November 2013, the devastation caused by Typhoon Haiyan, which resulted in massive fatalities and the displacement of a large number of IDPs, underscored the urgent need for legislation to protect IDPs. In 2014, the Philippine Congress passed the Rights of Internally Displaced Persons Act (Senate Bill No. 1142, 2014).

However, it has been noted that addressing internal displacement effectively requires fostering a rights-based approach, clarifying key concepts, and ensuring accountability among duty-bearers. Additionally, there is a need to empower IDPs and their communities to understand and advocate for their rights, while mainstreaming and strengthening protection, assistance, and solutions programs

23) https://napc.gov.ph/message-of-south-cotabato-governor-reynaldo-sucayan-tamayo-jr-for-the-government-sector-capacity-building-and-development-on-frameworks-and-principles-on-idp-protection-and-displacement-resolutions/

24) https://www.unhcr.org/news/stories/philippines-passes-historic-bill-protect-internally-displaced

25) United Nations High Commissioner for Refugees (UNHCR). (2014). Typhoon Haiyan aftermath highlights need for national IDP law. Retrieved from https://www.unhcr.org/ph/10571-typhoon-haiyan-aftermath-highlights-need-national-idp-law.html

for IDPs across all levels of government agencies.[26] In August 2023, the House of Representatives approved House Bill No. 8269 (HB 8269), a proposed legislation aimed at strengthening a human rights-based approach to the protection of IDPs.[27] The bill defines arbitrary forced displacement as displacement resulting from violations of law, morality, public order, policy, abuse of authority, or disregard for rights and property. It establishes provisions to provide financial assistance and compensation to IDPs, facilitate international humanitarian aid, and designates the Commission on Human Rights (CHR) as the lead agency for monitoring the situation of IDPs. Despite these legal protection efforts, significant limitations remain, including resource constraints, inadequate participation and inclusion of displaced persons in decision-making processes, and challenges related to social integration (Tran & Bermudez, 2022).

Despite the continuous increase in the number of IDPs due to climate change and the severe vulnerabilities they face, the Philippine government has made efforts to enhance various policies and mechanisms to support IDPs affected by climate change and disasters. However, significant policy gaps and implementation constraints remain evident.

In relation to climate change and disaster response, the Philippine government has established frameworks such as the 2023–2050 National Adaptation Plan (NAP), the 2011–2028 National Climate Change Action Plan (NCCAP), and the 2010–2022 National Framework Strategy on Climate Change (NFSCC). However, these policies lack explicit references to IDPs caused by climate change.

Notably, the National Framework Strategy on Climate Change and the National Climate Change Action Plan, two key policy documents guiding the country's climate response, do not prioritize climate-induced IDPs as a central agenda. Nonetheless, partial efforts have been made by relevant agencies to address the

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26) Weerasinghe, S. (2021). Bridging the Divide in Approaches to Conflict and Disaster Displacement: Norms, Institutions and Coordination in Afghanistan, Colombia, Niger, the

27) Philippines and Somalia. UNHCR and IOM. Retrieved from https://www.globalprotectioncluster.org/sites/default/files/2022-08/bridging_the_divide_-_new_disclaimer_english.pdf

issue. For example, under the government's National Disaster Risk Reduction and Management Plan (NDRRMP), essential skills and capacity-building initiatives for community-level disaster response are being developed. These initiatives, spearheaded by key government departments such as the Department of the Interior and Local Government (DILG) and the Department of Social Welfare and Development (DSWD), include a climate and disaster risk assessment manual that incorporates the protection of climate-induced IDPs (Philippines Office of Civil Defense, 2020).

Additionally, the Climate Change Commission has highlighted IDP-related concerns in its ongoing National Adaptation Plan, particularly under Sector Outcome 5, which aims to protect the cultural heritage and well-being of persons and communities displaced by conflicts and disasters caused by climate change.

These policy initiatives indicate the potential for developing national policies that align with SDGs and international agreements, contributing to the identification and implementation of follow-up projects addressing climate-induced IDPs and their host communities. These efforts could play a crucial role in advancing sustainable solutions for displacement and resettlement in the Philippines.

(2) International Community's Discussions and Support for Philippine IDPs

① Discussions and Support from International Organizations

2In June 2022, UN Secretary-General António Guterres unveiled an Action Agenda on Internal Displacement to address the challenges of preventing, responding to, and resolving issues related to IDPs) This agenda calls for an integrated approach, combining efforts in development, peacebuilding, human rights, climate action, and disaster risk reduction. This comprehensive and collaborative approach underscores the UN's commitment to addressing IDP issues, including those in the Philippines, by emphasizing holistic and cooperative solutions to displacement challenges.[28] International cooperation partners work closely with the Philippine

government to protect the rights of IDPs and address their needs. Notably, they advocate for the enactment of rights-based legislation for IDPs in the Philippines. Such legislation would establish a legal framework to recognize and safeguard the rights of IDPs, thereby enhancing the country's national response to emergencies and displacement situations.[29]

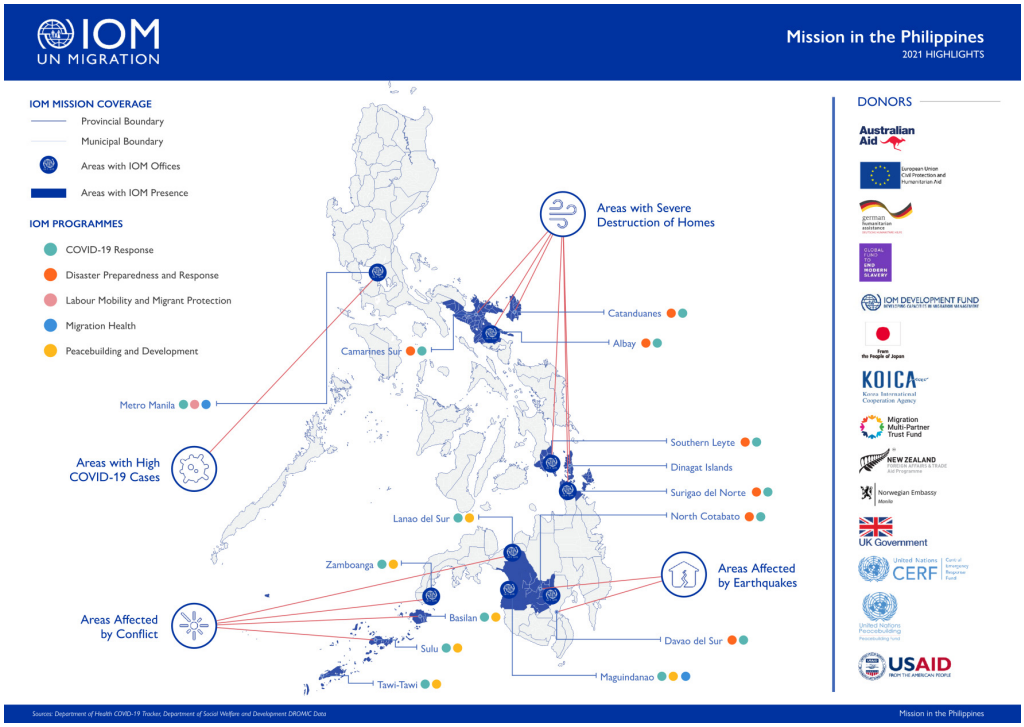
The International Organization for Migration (IOM), which addresses migration issues globally, established its office in the Philippines in 1975. Since the Philippine government became an IOM member state in 1988, the organization has been actively conducting support activities for IDPs in the country.[30] The IOM is one of the largest international organizations supporting IDPs in the Philippines. Working closely with the Philippine government[31] IOM provides sustained assistance across various areas, including camp coordination and management, housing provision, and psychosocial support.[32] For example, through Camp Coordination and Camp Management (CCCM), IOM collaborates with local governments to support emergency response efforts and provide resources to meet humanitarian assistance standards. Notably, IOM strengthens local capacities by offering CCCM training and materials to government officials and camp manager s.[33] Through its disaster response and recovery programs, IOM supports IDPs during disasters and crises by facilitating large-scale evacuation preparedness, providing psychosocial support, and offering emergency and permanent housing solutions. Additionally, during the COVID-19 pandemic, IOM delivered sanitation and health services in both camp and non-camp settings, ensuring access to essential hygiene facilities and healthcare. The organization also implemented

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28) United Nations. (2022). The United Nations Secretary-General's Action Agenda on Internal Displacement: Follow-Up to the Report of the UN Secretary-General's High-Level Panel on Internal Displacement.
29) https://philippines.un.org/en/208656-un-philippines-chief-bats-law-protecting-rights-internally-displaced-persons
30) https://philippines.iom.int/iom-philippines
31) https://crisisresponse.iom.int/response/philippines-crisis-response-plan-2023
32) https://philippines.iom.int/emergency-preparedness-and-response
33) IOM. (2019). Camp Coordination and Camp Management Manual. https://www.iom.int/sites/g/files/tmzbdl486/files/documents/CampCoordinationandCampManagement%20Manual.pdf

COVID-19 prevention measures, helping IDPs maintain health and safety during the crisis. Such activities by IOM focus on addressing the challenges faced by IDPs in the Philippines and supporting their efforts to regain stability and rebuild their lives.[34]

[Figure 3] IOM Activities in the Philippines



Source : IOM Philippines 2021 Snapshot[35]

The United Nations High Commissioner for Refugees (UNHCR) has been operating in the Philippines for over 40 years, initially focusing on issues related to asylum seekers, refugees, and stateless persons. In May 2010, following the resumption of dialogue between the government and armed groups, UNHCR established a presence in Mindanao, intensifying its efforts to address the challenges faced by internally displaced persons (IDPs).[36] UNHCR Philippines primarily focuses on IDPs in the Mindanao region. Even before Typhoon Haiyan struck in 2013, UNHCR

34) https://philippines.iom.int/migration-management
35) https://philippines.iom.int/country-mission
36) https://www.unhcr.org/ph/unhcr-in-the-philippines

had been actively supporting the Philippine Congress in drafting legislation to protect the rights of IDPs. Additionally, the organization convened national conferences and donor forums to advocate for the localization of laws aimed at protecting, promoting, and maintaining the rights of IDPs while working toward sustainable solutions.[37] On November 24, 2022, at the UNHCR IDP Donor's Forum in Mindanao, the UN Philippines Humanitarian Coordinator highlighted that internal displacement is a human rights issue situated at the intersection of many crises affecting humanity globally. The coordinator emphasized the importance of institutionalizing the Philippine government's efforts and underscored the need for legislation to provide a legal framework for recognizing and protecting the rights of IDPs.[38]

② Key Donor Countries' Discussions and Support for Philippine IDPs

The United States Agency for International Development (USAID) operates various programs to support IDPs in the Philippines, with a primary focus on the Mindanao region. USAID's initiatives include food assistance, housing provision, livelihood support, and education and training programs, all aimed at improving the quality of life for IDPs. Additionally, USAID collaborates with the Philippine government to enhance disaster response capabilities. Notably, it has provided ₱70 million in assistance and logistical support for disaster response efforts in Mindanao (USAID, 2023).

The Japan International Cooperation Agency (JICA) has also undertaken various projects to assist IDPs in the Philippines. Recently, JICA extended a ¥30 billion post-disaster preparedness loan to support the Philippines' disaster recovery and rehabilitation efforts. This initiative is designed to strengthen the country's disaster response capabilities and improve the resilience of vulnerable populations, including IDPs. Additionally, JICA conducted emergency relief operations for

37) https://www.unhcr.org/ph/29245-ungpid-idp-laws
38) https://philippines.un.org/en/208656-un-philippines-chief-bats-law-protecting-rights-internally-displaced-persons

recovery and reconstruction following Typhoon Haiyan (JICA, 2023).

Meanwhile, the Korean government has designated the Philippines as one of its priority ODA partner countries and has been providing consistent support. The Korea International Cooperation Agency (KOICA) allocated approximately $22,832,169 to the Philippines in 2022, ranking fourth among all ODA recipient countries. This funding primarily supported various projects related to disaster response, climate change, and the environment.[39] Since Typhoon Haiyan in 2013, the Korean government has provided emergency relief supplies, supported reconstruction efforts in affected areas, and established programs to enable local residents to achieve self-reliance through agriculture and fisheries training. Additionally, it has offered various education programs aimed at strengthening disaster preparedness and response capacities.

A notable project focusing on IDPs in the Philippines was the "Livelihood Support Project for IDPs for Peaceful Resettlement in Marawi," implemented through IOM from 2020 to 2023. According to the project planning survey report published by KOICA in November 2019, the initiative targeted IDPs displaced by the Marawi conflict. Its objective was to promote the peaceful return and resettlement of IDPs by supporting the establishment and capacity-building of village committees, providing psychosocial support, offering vocational training, and assisting with livelihood restoration to rebuild lost community functions.

Furthermore, previously implemented projects related to disaster response, climate change, and environmental management, as well as regional development initiatives, often included IDP resettlement areas as target locations. This suggests that there may be additional IDP-related support projects not formally included in official statistics.

39) KOICA(2023). 2022 KOICA Overseas Grant Performance Statistics

2.3 Conceptual Considerations on Approaches to Address IDPs Issues

2.3.1 Climate Migration and Vulnerability

As the global scale of climate-induced migration continues to increase exponentially, policymakers have shown heightened interest in climate migration, leading to a significant surge in related research. The growing magnitude of climate-induced displacement has become a critical focus of policy discourse and academic investigation worldwide. Climate migration, as noted in recent literature, has emerged as one of the most pressing challenges in contemporary global policy discussions. The increasing frequency and severity of climate-related events have contributed to unprecedented levels of internal displacement, drawing increased attention from policymakers and researchers alike. This heightened focus reflects the urgent need to understand and address the complex dynamics of climate-induced population movements.[40] While there is not yet consensus on the most appropriate terminology and clear definitions in this area,[41][42] it is generally accepted that the term "climate refugee" needs to be distinguished from other terminology.[43] According to international law, refugee status is specifically granted to those who face persecution or threats to life due to political, economic, or social reasons such as race, religion, nationality, membership in a particular social group, or status, and who have consequently fled their homeland. Furthermore, classification as a refugee grants the right to legal protection from UN member states. However, the scope of refugees under international law does not include natural disasters or climate-related factors, nor does it encompass people who

40) Islam, M. Rezaul, and Delwar Hossain. 2014. 'Island Char Resources Mobilization (ICRM):Changes of Livelihoods of Vulnerable People in Bangladesh.' Social Indicators Research 117 (3):1033-1054.

41) McMichael, C., Farbotko, C., Piggott-McKellar, A., Powell, T., & Kitara, M. (2021). Rising seas, immobilities, and translocality in small island states: Case studies from Fiji and Tuvalu. Population and Environment.

42) Ferris, E. (2020). Research on climate change and migration where are we and where are we going? Migration Studies, 8(4), 612-625.

43) De Sherbinin, A. (2020): Impacts of climate change as drivers of migration. Migration Policy Institute. 23 October 2020. Available at https://www.migrationpolicy.org/article/impacts-climate-change-drivers-migration

migrate within their own country to escape climate-related impacts.[44] Consequently, the term 'climate refugee' has not gained significant support from the international community.[45] Instead, the term 'climate migration' is generally used to encompass people who must relocate due to environmental changes caused by climate change, whether through extreme events or slow-onset events. Climate migration is further categorized based on the duration and scope of movement. The terminology is differentiated into temporary climate migration and permanent climate migration depending on whether the climate-induced environmental changes lead to temporary or permanent relocation. Additionally, it is classified into internal migration and international migration based on whether climate-induced movement occurs within national borders or across international boundaries.

However, since climate migration is not determined solely by environmental factors related to climate change, the drivers may vary even when categorized simply by duration and scope of movement. For example, if someone relocates to another region within their country due to reduced income resulting from climate change impacts, they could be classified as both climate-induced IDPs and economic migrants. Thus, climate migration cannot be attributed to climate change alone, as it is intertwined with economic, social, and cultural factors. In this context, surveys conducted among climate-induced IDPs rarely find respondents citing climate change as their primary motivation for migration.[46] In response, research has expanded to identify the migration motivations of climate-induced IDPs and more clearly define the scope and definition of climate migration. However, most studies to date suggest that climate change not only directly impacts residential risk but can also trigger migration flows by indirectly affecting economic, political, and socio-demographic migration factors through highly complex interrelationships.[47]

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44) Ghaly, S. (2021). Climate displacement and the need for legal protection. ANU Undergraduat e Research Journal, 11(1), 89-107.

45) Jang, Y., Lee, S., Song, J., Kim, J., & Jeong, M. (2022). Study on the Impact of Climate and Environmental Changes on Migration and the Labor Market. [KIEP] Research Report, 1-264.

46) Van Praag, L. (2021). A qualitative study of the migration-adaptation nexus to deal with envi ronmental change in Tinghir and Tangier (Morocco). Journal of Integrative Environmental Sc iences, 18(1), 1-17.

Given that climate migration cannot be explained by climate change alone, there has been increasing emphasis on examining various factors influencing climate migration through the lens of 'vulnerability'. Understanding and identifying the vulnerabilities inherent in climate migration, which is intertwined with complex factors, enables better comprehension of the patterns and trends necessary for climate migration response approaches, while also helping prevent future climate-induced displacement.

The concept of vulnerability was initially employed in fields such as food security and natural disasters,[48] and has since expanded with somewhat different meanings across various sectors including disaster management, public health, and climate change. However, there is still no globally standardized definition of the concept.[49] The concept of vulnerability in the climate change domain began to be actively discussed in the international community in the early 1990s as concerns about climate change intensified. However, in transitioning to the climate change domain without a standardized concept of 'vulnerability', definitions have varied depending on the vulnerable subjects and policy topics under consideration.[50] In this context, the Intergovernmental Panel on Climate Change (IPCC) first defined climate change vulnerability in its Second Assessment Report published in 1995 as "the extent to which a system is unable to cope with adverse effects of climate change." The IPCC's definition of vulnerability has evolved subtly since the Second Assessment Report. In its recent Fifth and Sixth Assessment Reports, vulnerability is defined as "the propensity or predisposition to be adversely affected." The reports specify that multi-dimensional inequalities produced by non-climatic factors and uneven development lead to differences in exposure to climate change impacts, and that

47) Black, R., Adger, W. N., Arnell, N. W., Dercon, S., Geddes, A., & Thomas, D. (2011). The effe ct of environmental change on human migration. Global environmental change, 21, S3-S11.
48) Yun, S., Choi, B., & Jeon, E. (2013). Study on the Vulnerability Assessment of Climate Chang e in Siheung City. Journal of Climate Change Research, 4(1), 1-10.
49) Hong, E. (2016). Discussion on Vulnerable Groups to Climate Change in Developing Countrie s. Journal of International Development Cooperation, 11(4), 73-96.
50) Ko, J., & Kim, H. (2009). Study on the Vulnerability Assessment of Climate Change in Gyeon ggi Province. Policy Research, 1-1.

marginalized groups in social, cultural, political, economic, and institutional contexts demonstrate higher vulnerability to climate change.[51][52][53] This IPCC definition of vulnerability has been widely adopted and applied across numerous studies and relevant institutions, and is generally presented as a function of 'exposure to various climate change impacts, sensitivity to these impacts, and adaptive capacity of a system.'[54]

Climate Change Vulnerability = f(Exposure, Sensitivity, Adaptive Capacity)

In this context, exposure refers to the degree to which a system is exposed to climate change-induced variations. Sensitivity indicates the extent to which a system is affected, either adversely or beneficially, directly or indirectly, by climate-related stimuli. Adaptive capacity denotes a system's ability to adjust to actual or potential climate change impacts, moderate potential damages, utilize opportunities, and cope with consequences. In essence, vulnerability is viewed as the degree to which individuals or groups lack the ability to sensitively respond and adapt to external stresses (exposure) caused by climate change. The IPCC has identified vulnerable groups by considering these three elements, including the elderly, infants and young children, low-income populations, persons with disabilities, and migrants.[55][56] These groups more vulnerable to climate change

51) IPCC, "Synthesis Report of the IPCC Sixth Assessment Report (AR6) Summary for Policymakers", 29.
52) IPCC, "Synthesis Report of the IPCC Fifth Assessment Report (ARS) Summary for Policymakers", IPCC ARS SYR (2014), 54.
53) Kim, J. (2023). Climate Crisis: Proposals for a Human Rights Approach to Migrants Residing in Korea. Public Interest and Human Rights, 23, 99-137.
54) Islam, M. R., & Khan, N. A. (2020). Threats, vulnerability, resilience and displacement among the climate change and natural disaster-affected people in South-East Asia: an overview. Climate Change Mitigation and Sustainable Development, 111-138..
55) IPCC. 2022. Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:10.1017/9781009325844.
56) Kim, Y., & Shin, J. (2023). The Need for and Direction of Social Vulnerability Surveys for Climate Change Vulnerable Groups. Environmental Forum, 274, 1-23.

have garnered attention from policymakers and the development cooperation sector. Understanding climate change vulnerability within a country is essential for establishing national climate change policies and determining development assistance directions, as it requires both identifying and considering vulnerable groups within the nation (Oh et al., 2024). In particular, with the continuous increase in the number of climate-induced IDPs, there is a growing need to measure the overall vulnerability of IDPs to develop appropriate policies, response strategies, and support mechanisms.

2.3.2 Strengthening the Resilience of Climate-Induced IDPs

The concept of 'climate resilience' has gained attention from policymakers and the development cooperation sector in terms of establishing policies, responses, and support strategies for climate-induced IDPs. To understand climate resilience, it is necessary to examine the general meaning of 'resilience.'

The term resilience, derived from the Latin word 'resalire' meaning 'to jump back', implies the ability to return to a previous state.[57][58] While resilience has traditionally been used as a term in physics and psychology,[59] its usage has expanded across various fields. It is now generally understood as 'a relatively stable and inherent characteristic that protects against or reduces damage from shocks, trauma, and disruptions.'[60]

In particular, resilience has been naturally incorporated into the climate change domain, where it causes shocks to people and communities by increasing global

57) Lee, G., & Byun, B. (2022). The Impact of Disaster Victims' Quality of Life on Resilience: Foc using on the Moderating Effect of Social Support. Environmental Policy, 30(1), 255-280.
58) Choi, H., & Seo, Y. (2018). Design Strategies and Processes Viewed Through the Concept of Resilience. Journal of the Korean Institute of Landscape Architecture, 46(5), 44-58.
59) Barata-Salgueiro, T. and F. Erkip. (2014) Retail planning and urban resilience: An introductio n to the special issue. Cities 36: 107-111.
60) Kim, T., Kim, H., & Lee, G. (2011). Concept and Functional Goals of Urban Resilience for Disaster Management. Journal of the Korean Society of Safety (formerly Journal of Industrial Safety), 26(1), 65-70.

environmental changes and disaster frequency, and is now used under the term 'climate resilience.' The IPCC defines climate resilience as 'the capacity of social, economic, and ecological systems to cope with hazardous events, trends, or disturbances, responding or reorganizing in ways that maintain their essential function, identity, and structure while also maintaining the capacity for adaptation, learning, and/or transformation.'[61] Climate resilience essentially encompasses the ability to maintain and self-recover existing systems when environmental changes and shocks occur due to climate change,[62] while additionally emphasizing adaptive capacity and notions of learning.[63][64]

Why are policymakers and the development cooperation sector focusing on and emphasizing climate resilience with these implications? The main reasons include the inevitability of climate change (European Commission (EU), n.d.), securing economic stability (World Bank Group, 2020), and social equity (Global Climate Action and Marrakech Partnership, 2020; IPCC, 2023). Environmental changes and natural disasters due to climate change are already occurring, and their intensity is increasing. Thus, it is the general consensus of the international community, including the European Union (EU)[65] , that climate change cannot be completely avoided or suppressed. In this context where the inevitability of climate change is becoming increasingly evident, climate resilience - the capacity to prepare for, adapt to, and recover from environmental changes and disasters caused by climate change - is considered the best response strategy. Furthermore, strengthening climate resilience is emphasized as a means to reduce economic losses and secure stability. Disasters caused by climate change can inflict enormous economic losses

61) Pörtner, H. O., Roberts, D. C., Poloczanska, E. S., Mintenbeck, K., Tignor, M., Alegría, A., ... & Okem, A. (2022). IPCC, 2022: Summary for policymakers.
62) Klein RJ, Nicholls RJ, Thomalla F. 2003. Resilience tonatural hazards: How useful is this conc ept? Globalenvironmental change part B: environmental hazards.5(1):35-45
63) Tyler S, Moench M. 2012. A framework for urban climate resilience. Climate and developme nt. 4(4):311-326.
64) Lee, J., Kim, Y., & Lee, D. (2020). Development of a Diagnostic Tool for Public Buildings to Enhance Climate Resilience of Vulnerable Groups. Journal of Climate Change Research, 11(6 -2), 683-702.
65) https://research-and-innovation.ec.europa.eu/research-area/environment/climate-change-s cience/ climate-resilience-and-adaptation-climate-change_en

on national and global economies. Therefore, climate resilience is gaining attention as it enables faster and better recovery from climate disasters through enhanced resilience, ultimately securing economic stability and containing economic losses.[66] Finally, climate resilience is emphasized from a social equity perspective, which is particularly relevant to climate-induced IDPs. Climate change has a disproportionate impact on impoverished regions and vulnerable populations. People with limited social and economic resources are inherently more vulnerable to climate-induced shocks and suffer greater damages due to their reduced capacity to quickly recover to normalcy. From this perspective, strengthening climate resilience plays a crucial role in protecting these vulnerable groups and ultimately promoting social equity, which is why it receives particular attention from policymakers and the development cooperation sector.[67]

As climate resilience is being discussed as an effective approach to addressing both environmental and developmental issues for these reasons, there is also growing interest in practical measures to strengthen resilience (Nam, 2018; OECD, 2021). Discussions on effectively enhancing resilience have continued at the development cooperation level, and within this context, the ten characteristics of resilience proposed by the Institute of Development Studies at Sussex University are being utilized. While these ten characteristics were initially presented based on general resilience properties, they remain key concepts repeatedly discussed in development-focused resilience literature to date.

[Table 1] Ten Main Characteristics of Resilience in Development Contexts

Characteristics	Detailed Characteristics
Diversity	Functions within ecosystems, economic opportunities, opinions reflected in resilience-building processes, partnerships within communities, types of natural resources on which communities depend, planning, response, and recovery activities
Governance/ Institutional Effectiveness	Decentralization, flexibility, locality, promotion of learning, policy applicability to scientific research

66) https://www.worldbank.org/en/news/feature/2020/11/17/the-adaptation-principles-6-ways-to-build resilience-to-climate-change
67) https://unfccc.int/sites/default/files/resource/ExecSumm_Resilience.pdf

Characteristics	Detailed Characteristics
Acceptance of Uncertainty and Change	Developing policies that focus on adapting to and shaping change rather than controlling it or maintaining stability, by accepting the non-linearity and randomness of social/natural conditions
Community Participation	Traditional knowledge, community ownership of natural resources, community involvement in decision-making processes
Preparedness, Planning, and Rapid Response	Establishing ability to live with change rather than resist it, developing redundancy and system failure scenarios
Social and Economic Equity	Ensuring fairness and equity in risk distribution within communities
Social Values and Structures	Increasing community cooperation through enhanced individual interactions improves equity in natural resource access and resilience while reducing transaction costs
Non-equilibrium System Dynamics	Recovery to equilibrium state is not the goal, as there is no equilibrium state to return to after shock
Learning	Iterative policy/institutional implementation processes, implementation after reflection, adaptive management
Cross-scale Approach	Resilience is determined through interactions across various scales from community to global levels, involving social, political, economic, and cultural networks

Source: Bahadur et al. (2010), Nam Su-yeon (2018)

The ten characteristics mentioned above must be ensured to achieve high resilience. However, vulnerable groups, including IDPs, are often excluded from these characteristics, resulting in inherently low resilience. Therefore, it is essential to deeply examine which factors contribute to their vulnerability and to develop strategies and measures that can strengthen their resilience. In particular, for IDPs, there is a lack of research and discussion on identifying actual vulnerabilities and proposing solutions to enhance resilience, making such studies even more necessary.

In addition, it is important to analyze the role of social capital in strengthening the resilience of IDPs. Social capital can significantly influence the ability of displaced persons to adapt to and rebuild in new environments, especially when forced to leave their homes due to conflict, disaster, or other reasons. Several studies have proposed social capital as a crucial element of community resilience (Cutter et al., 2014; Frankenberger et al., 2013; Norris et al., 2008). For example,

Mayunga (2009) developed indicators divided into social capital, economic capital, physical capital, and human capital, analyzing the correlation between these indicators and the disaster response phase. Cutter et al. (2008) assessed community resilience from various aspects, including social, ecological, economic, institutional, infrastructure, and community capacity. Aldrich and Meyer (2015) analyzed how community ties, perceptions of local leaders, and collaboration with local NGOs during disaster situations can be as important as, or even more important than, physical preparedness.

Social networks based on trust contribute to the acquisition of essential resources such as housing, employment, and education for displaced persons, while also facilitating information sharing and mutual support during crises. This form of social capital strengthens a sense of belonging and mutual reciprocity within the community, creating an environment where IDPs can settle more securely and integrate into the local society.

3. Research Design

3.1 Scope and Key Concepts of the Study

As previously mentioned, this study aims to identify the current status and vulnerabilities of climate-induced IDPs through both quantitative and qualitative research. Based on these findings, the study intends to propose an institutional action framework and project models that can support the enhancement of adaptation capacities and resilience among IDPs in response to future climate disasters.

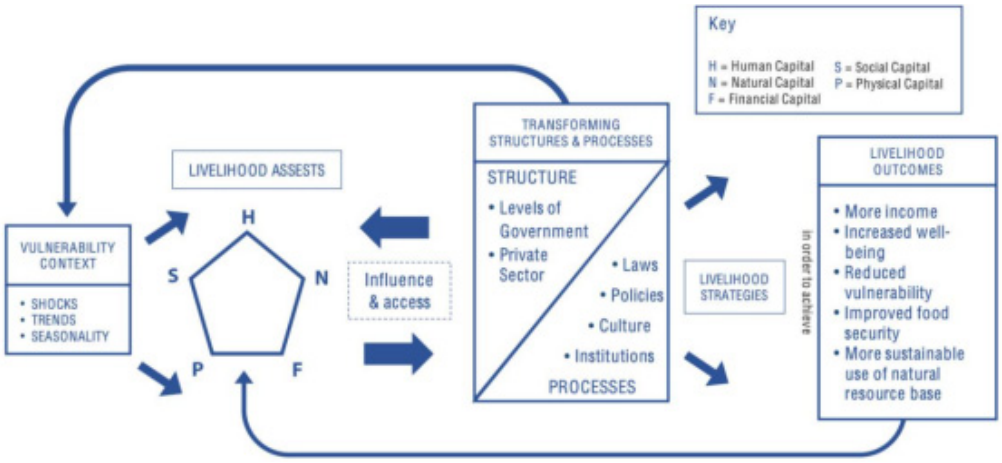
To achieve this, the research will focus on climate-induced IDPs, examining the vulnerabilities they experience during the displacement and resettlement process after climate-related disasters. The basic definition of vulnerability refers to the state or extent of being unable to cope with the adverse effects of natural or human-made disasters. Various factors are known to increase vulnerability. Therefore, this study aims to identify the factors contributing to the vulnerability of climate-induced IDPs using the Sustainable Livelihoods Approach (SLA). The SLA, developed by the Department for International Development (DFID), is widely used as a fundamental concept to assess households' vulnerability and resilience in response to shocks such as floods and storms (Yokoyama et al., 2023). Furthermore, the elements proposed in the SLA are closely linked to the ten characteristics of resilience mentioned by the Sussex Institute of Development Studies, meaning that vulnerability assessment using SLA can also encompass the concept of resilience.

The SLA is a widely used framework that serves as a foundation for understanding and identifying the environmental vulnerability and resilience of rural and urban populations in developing countries. It is employed by major international development organizations such as USAID, Care International, Oxfam, and Save the

Children Fund to conduct vulnerability assessments (Vogel, 2001). The SLA was initially developed to enhance the understanding of the livelihoods of vulnerable groups, identify constraints and enhancement factors affecting livelihoods, and present the connections between these factors, providing a foundation for vulnerability diagnosis and the planning of development strategies (Serrat & Serrat, 2017).

First, the vulnerability defined in the SLA refers to a state of insecurity in the lives of individuals, households, or communities due to external environmental changes. The factors that increase this vulnerability can be broadly categorized into external and internal aspects. The external aspects are divided into shocks, seasonalities, and critical trends, while the internal aspects include the lack of coping capacities and means to respond to the external factors, resulting in a vulnerable state.

[Figure 4] DFID's Sustainable Livelihoods Approach (SLA)



Source: Alcantara (2024)

[Table 2] Factors Causing Vulnerability in SLA (Vulnerability Context)

Factors Contributing to Vulnerability		Examples
External	Shocks	conflict, illnesses, floods, storms, droughts, pests, diseases, etc.
	Seasonalities	Prices and employment opportunities, etc.
	Critical trends	Demographic, environmental, economic, governance, and technological trends, etc.
Internal	Lack of ability and means to cope with external aspects	

Source: Serrat & Serrat(2017)

Vulnerability caused by both internal and external factors, such as shocks, affects the five capitals—human, social, financial, natural, and physical—at the individual, household, and community levels, further exacerbating the vulnerability.

[Table 3] Five Capitals Affecting Vulnerability in SLA

Five Capitals	Examples
Human capital	Health, nutrition, education, knowledge and skills, capacity to work, capacity to adapt, etc
Social capital	Networks and connections (patronage, neighborhoods, kinship), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviors, common rules and sanctions, collective representation, mechanisms for participation in decision-making, leadership
Financial capital	Savings, credit and debt (formal, informal), remittances, pensions, wages, etc
Natural capital	Land and produce, water and aquatic resources, trees and forest products, wildlife, wild foods and fibers, biodiversity, environmental services, etc
Physical capital	Transportation, roads, vehicles, safe shelters and buildings, water supply and sanitation, energy, communications, production equipment, seeds, fertilizers, pesticides, traditional knowledge, etc

Source : Serrat & Serrat(2017)

As previously mentioned, this study aims to identify the current status and vulnerability of climate-induced IDPs through quantitative and qualitative surveys, and based on this, propose an institutional action framework and project model that can support the strengthening of adaptation capacities and resilience of IDPs in response to future climate disasters.

To this end, the study focuses on IDPs who have experienced displacement due to climate change and will first examine the vulnerabilities they face during their migration and resettlement processes. The basic definition of vulnerability refers to a state or degree where individuals or communities are unable to cope with the adverse impacts of natural or man-made disasters, and various factors are known to increase vulnerability. Therefore, this study aims to identify the elements that contribute to the vulnerability of climate-induced IDPs using the Sustainable Livelihoods Approach (SLA). Developed by the UK Department for International Development (DfID), SLA is widely used as a basic concept to assess the vulnerability and coping capacity of households facing shocks such as floods and storms (Yokoyama et al., 2023). Moreover, the elements presented in SLA are closely linked to the ten characteristics of resilience identified by the Sussex Institute of Development Studies, making the vulnerability assessment through SLA a comprehensive approach that also addresses resilience.

SLA is a widely used concept that forms the basis for understanding and identifying the environmental vulnerability and resilience of rural and urban residents in developing countries. It is utilized by major international development organizations, such as USAID, Care International, Oxfam, and Save the Children Fund, for vulnerability assessments and explorations (Vogel, 2001). SLA primarily aims to enhance understanding of vulnerable groups' livelihoods, identifying constraints and factors that improve their livelihoods, and presenting these interconnections as a foundation for diagnosing vulnerabilities and planning development strategies (Serrat & Serrat, 2017).

In SLA, vulnerability is defined as the instability of an individual, household, or community's life due to external environmental changes. The factors that increase vulnerability are generally categorized into external and internal aspects. External aspects are divided into shocks, seasonalities, and critical trends, while internal aspects include the lack of capacity and means to cope with external factors, leading to a defenseless state.

[Table 4] Key Vulnerability Assessment Indicators and Research Methods

Five Capitals in SLA	key identifying elements
Human capital	Health, Livelihood
Social capital	Social capital, Adaptive capacity
Financial capital	Livelihood
Natural capital	Livelihood
Physical capital	Livelihood

Based on the analysis of the five vulnerability capitals from SAL, the key elements for vulnerability assessment can be divided into 'health,' 'livelihood,' and 'social capital.' In terms of health, an individual's health condition directly affects their labor capacity and productivity, ultimately enabling them to sustain livelihood activities and escape poverty. Therefore, it is crucial to identify the specific vulnerabilities in the health and well-being aspects of IDPs and examine the factors that impact their lives. The importance of 'livelihood' in vulnerability assessment lies not only in poverty but also in strengthening resilience and self-sufficiency in response to external shocks. Furthermore, livelihood affects an individual's or household's capacity to manage risks such as natural disasters from climate change and market volatility. Therefore, it is necessary to assess vulnerability from multiple perspectives by evaluating livelihood indicators.

Lastly, 'social capital' is considered an important assessment element because it contributes to building trust and cooperation, sharing information and resources, risk distribution, and creating social safety nets that ensure the welfare and livelihood stability of vulnerable groups, including IDPs. In particular, the higher the social capital, the more trust and cooperation increase within the community, making it easier to share livelihood strategies and resources (e.g., agricultural skills, financial resources). When external shocks occur, individuals can help and support each other, thus reducing individual household risks. This facilitates enhanced resilience.

3.2 Research Sites Selection

3.2.1 Rationale for Selecting Research Sites

In this study, the research sites were selected based on two distinct locations in the Philippines, both impacted by climate change: the Tacloban area in Leyte Island, which experienced devastating impacts from Super Typhoon Haiyan in 2013, leading to a significant number of involuntary displacements, and the city of Batangas, which hosts a settlement of the Badjao ethnic group that migrated due to a combination of climate change and other complex factors. Both sites were chosen as the main research areas.

Although both sites have experienced the impacts of climate change, the specific climate events, the backgrounds of settlement formation, the timing and modes of displacement, the composition of the populations, and the characteristics of the communities differ. In Tacloban, a sudden natural disaster caused significant damage, and large-scale settlements were built under government policies, resulting in mass migration primarily from residents who experienced the disaster in the Tacloban area. In contrast, in Batangas, the Badjao ethnic group, as a minority in the Philippines, experienced involuntary migration due to climate change and other complex factors. They have settled in multiple regions of the Philippines, with a sequential and gradual migration process, accompanied by post-relocation support from local governments.

In Tacloban, the central government formulated the policy framework for resettlement of Haiyan-affected populations, which was then implemented by the local government. In Batangas, however, the local government of Batangas City independently initiated and carried out policies to accommodate and support displaced persons (IDPs), with various programs supported by the city's social welfare, environmental resource, and education departments in alignment with the IDP integration policy.

This study aims to assess the vulnerabilities experienced by climate-induced IDPs

in the two regions, focusing on the impacts of climate change on livelihood, health, and social capital. Additionally, the study seeks to evaluate the disaster response capacity of IDPs and identify the factors that hinder it, in order to propose strategies to strengthen their disaster response

3.2.2 Overview of Selected Research Sites

(1) Tacloban: Displacement Area for Typhoon Haiyan Affected Populations

① Location and Size

Tacloban City is the capital of Leyte province, located in the Eastern Visayas region (Region VIII) of the Philippines, and is often referred to as the Gateway to Eastern Visayas. Tacloban City is administratively unique in that it is independent from Leyte province, yet it serves as the capital of the province. According to the 2020 Census of Population and Housing by the Philippine Statistics Authority (PSA),[68] Tacloban City covers an area of 201.72 km², making it the smallest in terms of area among the three cities in Leyte province. The total population of Tacloban is 251,881, accounting for 5.54% of the entire population of the Eastern Visayas region (Region VIII).[69] The population density stands at 1,249 people per square kilometer.

Tacloban City is composed of 138 barangays. A barangay is the smallest administrative unit in the Philippines, representing a village-level community. Each barangay consists of 20 to 50 households or more, typically in the form of informal settlements called “puroks,” and even smaller rural barangay clusters known as “sitios.”

Tacloban has been established as a port city since 1874, located at the southern entrance of the San Juanico Strait in San Pedro Bay. The main sources of livelihood

68) Highlights of the Population Density of the Philippines 2020 Census of Population and Housing (2020 CPH)
69) Tacloban City Profile – PhilAtlas

are fishing and trade, with abaca, copra, and timber being key exports. Tacloban is transitioning from a region that has struggled with high poverty rates and natural disasters to a hub for business and tourism. As the center of Eastern Visayas, Tacloban is the only highly developed urban area in the region, playing a pivotal role as a hub for trade, industry, commerce, education, healthcare, and communications technologies.[70] According to the Philippine Statistics Authority (PSA), Tacloban experienced an economic growth rate of 13.8% in 2022, more than double the previous year's rate of 6.6%, marking the fastest economic growth in the Eastern Visayas region.[71] The Tacloban City government is making efforts to accelerate economic growth by implementing strategies such as tax incentives, improvements in road networks, and ensuring stable power and water supply, with the goal of attracting investments and increasing tourism.

[Figure 5] Location of Leyte Province



70) ITACLOBAN, (2021.05.05), 'About Tacloban–City Profile' https://www.itacloban.com/2021/05/tacloban.html#:~:text=Tacloban%E2%80%99s%20economy%20is%20primarily%20focused,education%2C%20healthcare%2C%20communication%2C%20and%20technology

71) https://www.pna.gov.ph/articles/1215457

[Figure 6] Location of Tacloban City



② Geographical and Climatic Features

Tacloban is geographically surrounded by Leyte Gulf and the Pacific Ocean to the east and south, and mountains to the north and west. Situated in a low-lying area at 3 meters above sea level, Tacloban is highly vulnerable to sea-level rise, coastal flooding, and storm surges. The intrusion of seawater into the soil often leads to land subsidence, causing frequent issues in the coastal areas. The rapid urbanization and high population density in Tacloban have further exacerbated the vulnerability to natural disaster responses.[72] According to the UNDRR report, rapid urbanization, the conversion of agricultural land into residential areas, and concrete pavement reduce the ground's ability to absorb water, thereby increasing the risk of flooding. Additionally, population growth can also impact service delivery, with a key factor being the lack of property ownership, which forces the

72) Ranada, P. (2013). 'What made Tacloban so vulnerable to Haiyan?' Rappler.https://www.rappler.com/environment/disasters/43712-tacloban-assessment/#:~:text=1,Red%20meaning%20highly

impoverished to live in disaster-prone areas such as riverbanks and coastal zone s.[73] The average monthly temperature in Tacloban is around 28°C, and the annual average rainfall reaches 2,800mm, with rainfall occurring throughout the year (Asio, 2021). Leyte, where Tacloban is located, is a tropical rainforest region that is frequently exposed to the climatic risks of tropical cyclones during the monsoon season. The geographical and climatic features of the Leyte region, combined with the increasing frequency of typhoons and other extreme events due to climate change, have particularly negative impacts on the majority of coastal fishermen who rely on fishing as their primary source of food, income, and livelihood (Tan et al., 2018).

③ Background of Settlement Formation

On November 8, 2013, Typhoon Haiyan, one of the most powerful storms ever recorded, made landfall in the Philippines, resulting in the loss of thousands of lives and displacing tens of thousands of residents, leaving many without shelter. Due to Typhoon Haiyan[74]the Philippines experienced economic losses estimated at approximately 2 trillion pesos, with 6,300 fatalities reported (NDRRMC, 2014). In particular, Tacloban was recorded as the hardest-hit area among the affected regions. Typhoon Haiyan directly impacted Tacloban, where 90% of the city was destroyed, resulting in 2,200 casualties.[75] Most of the areas hardest hit in Tacloban were located in low-lying zones, with elevations below 5 meters, and were identified as informal settlements with high population density (Ching et al., 2015).

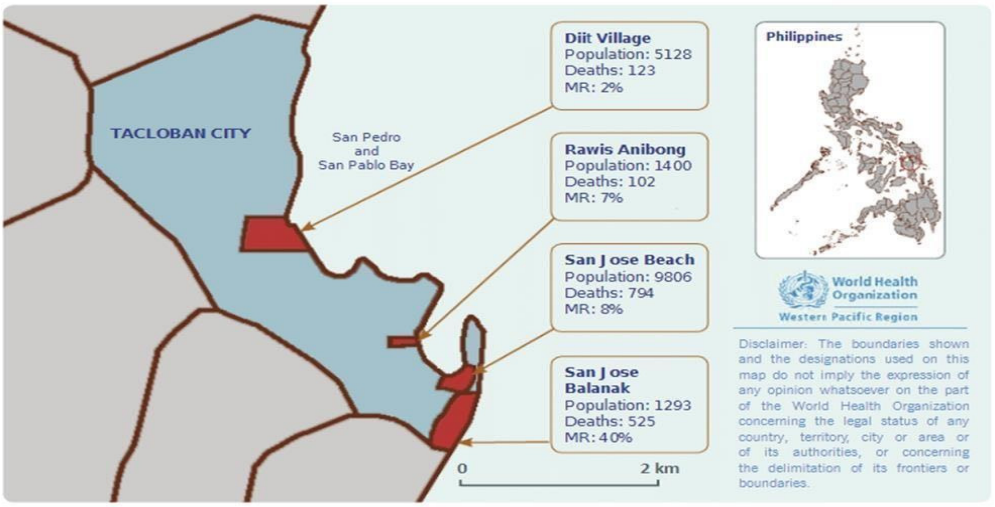
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73) UNDRR (2019). Disaster Risk Reduction in the Philippines: Status Report 2019. Bangkok, Thailand, United Nations Officefor Disaster Risk Reduction (UNDRR), Regional Office for Asia and the Pacific

74) Local name is Yolanda

75) Amazona, R. (2023, October 11). Thanksgiving to highlight 'Yolanda' 10th anniversary in Tacloban. Philippine News Agency. Retrieved from https://www.pna.gov.ph/articles/1211586

[Figure 7] Mortality Rates by Research Sites in Tacloban, Philippines (January 2014)



MR, mortality rate.

*Red-marked areas: The regions with the highest number of fatalities[76)]

Since Typhoon Haiyan, the Philippine government has worked to support affected residents and reduce long-term disaster risks through the establishment of the Tacloban Recovery and Redevelopment Plan (TRRP). In collaboration with local governments, the government has created new settlement areas in northern Tacloban while restricting the construction of buildings in the coastal areas severely damaged by the typhoon. As a result, approximately 80 hectares of land, located about 40 km from the affected areas, were allocated for the formation of a settlement, where around 16,000 households from the coastal regions were relocated. The government aimed to provide support policies for stable livelihoods, including healthcare, education and protection services, and economic revitalization projects. However, despite the progress of settlement formation and relocation, the living conditions of IDPs in Tacloban remain critical. Severe delays in the construction of vital infrastructure, such as access to drinking water and school facilities, as well as challenges such as vulnerable housing conditions and the distance from livelihood sources, are significant obstacles to improving the

76) Ching, P. K., de Los Reyes, V. C., Sucaldito, M. N., & Tayag, E. (2015). An assessment of disaster-related mortality post-Haiyan in Tacloban City. Western Pacific surveillance and response journal: WPSAR, 6(Suppl 1), 34.

lives of IDPs in Tacloban (Mangada & Cuanton, 2022). The issue of livelihood vulnerability for IDPs, who previously lived in informal settlements along the coastline before Typhoon Haiyan, has encountered new challenges during the relocation process to the new settlements (Mangada, 2016). A study conducted six years after Haiyan, when 70% of the residents of Tacloban's coastal areas had relocated to the new settlements, revealed that many residents continued to maintain the social networks from their pre-relocation coastal communities, citing economic opportunities and social ties as key reasons (Iuchi & Mutter, 2020). This highlights the need for both immediate physical infrastructure support to meet the basic needs of IDPs post-disaster and policy interventions at the community formation and sustainability levels during the relocation and settlement processes.

For this reason, recent studies have consistently focused on the livelihood vulnerabilities of IDPs in resettlement areas and various attempts to address these issues. While some IDPs in resettlement areas have tried to sustain their livelihoods by utilizing financial support and local social capital, obstacles have been identified due to resource shortages and challenges arising from existing power structures (Ensor et al., 2021). Notably, women have been found to face greater difficulties in starting new livelihoods due to household responsibilities and limited resources. Additionally, various forms of additional support, such as remittances, have been provided to help households recover their fragile livelihoods. However, it has been consistently confirmed that higher-income households are more likely to receive remittances, and households with strong social networks have greater opportunities for recovery, highlighting the ongoing issue of inequality between social classes in livelihood recovery post-disaster (Su, 2022).

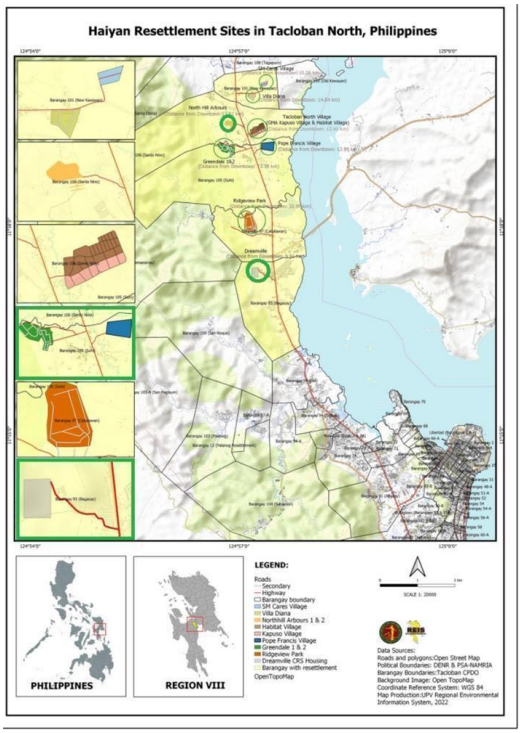
Some studies have identified groups in the resettlement areas that report a moderate level of satisfaction with their living conditions (Pormon et al., 2023). However, many IDPs still report the lowest levels of satisfaction in areas related to livelihood, such as employment opportunities, skills, and livelihood training. This is primarily due to the difficulty in finding new livelihood options in areas far removed from their original settlements, especially since many IDPs were

forced to relocate abruptly due to climate disasters. Additionally, the resettlement areas were found to be located far from the center of Tacloban, which restricted access to employment opportunities. Despite these challenges, high satisfaction levels were reported in areas such as community relationships, mutual assistance among neighbors, and access to education or healthcare. Some IDPs, over time, have tended to adapt to the new environment while maintaining their existing socio-economic networks, gradually becoming more satisfied with life in the resettlement areas (Iuchi, 2024). In particular, one study found that the satisfaction with housing in the resettlement areas increased as the participation of IDPs in the resettlement process became higher (Hadlos, 2021).

④ Overview of the Research Sites

The Philippine government established specific policies for the residents affected by Typhoon Haiyan and formed resettlement sites in the northern part of Tacloban, relocating about 16,000 households (Cities Development Initiative for Asia, 2023) from coastal areas that were severely impacted by the typhoon. In collaboration with the National Housing Authority (NHA) and various non-governmental organizations and private sector entities, the government developed 17 resettlement sites approximately 9 to 15 kilometers from downtown Tacloban. Among these, North Hill Arbours, led by the National Housing Authority (NHA), and DREAMVille, led by the international humanitarian organization Catholic Relief Services (CRS), were selected as the research sites for this study.

[Figure 8] Locations of Northern Tacloban Resettlement Sites



Source : Ladylyn et al.(2022)

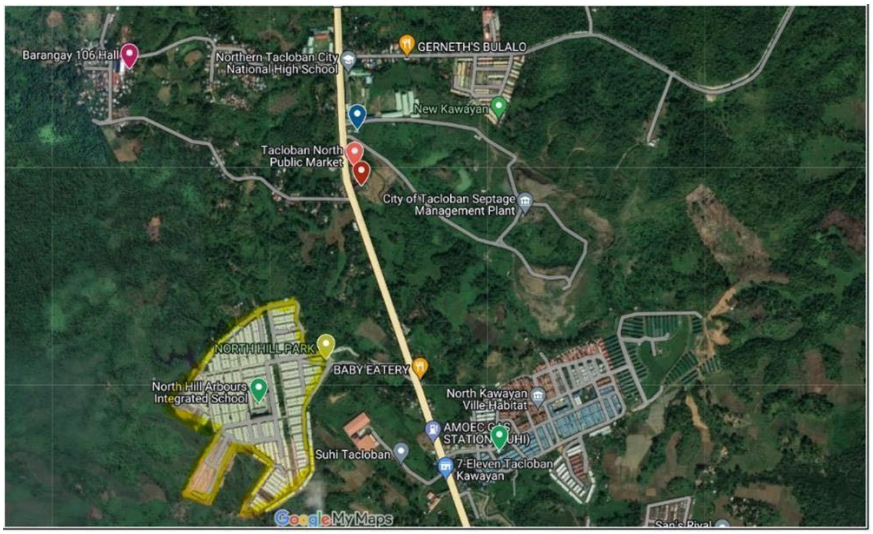
(a) Key Information about North Hill Arbours

North Hill Arbours, located in Barangay 106, is one of the largest resettlement sites established by the National Housing Authority (NHA) for survivors of Typhoon Haiyan. It accommodates residents from several Barangays affected by the typhoon, including Barangays San Jose (Brgy. 88), Magallanes (Brgy. 51), and Sagkahan (Brgy. 61). The resettlement area is divided into North Hill Arbours 1 and North Hill Arbours 2. As of March 2024, the site houses 1,586 households, with a total population of 6,619 people.

The residents were relocated to the site in November 2016 after basic infrastructure, such as potable water, electricity, and community facilities, was established. The relocation was facilitated through buses and military trucks supported by the government. However, North Hill Arbours is located about 13

kilometers from the center of Tacloban, making transportation costly for residents, which has significantly impacted their livelihood and access to education. Due to these challenges, some residents do not reside in the resettlement area full-time. They stay only on weekends to prevent their houses from being reclaimed by the government. Moreover, some IDPs have been forced to leave the resettlement site due to severe livelihood difficulties.[77)]

[Figure 9] Map of North Hill Arbours



Source : Google map

It is reported that several support programs continue to be implemented at North Hill Arbours through the Philippine and Tacloban governments, as well as various NGOs, even to this day. Recently, under the support of the National Housing Authority (NHA) and a member of the Philippine Senate, some residents have been granted free housing and land ownership.[78)] In response to flooding issues affecting the resettlement area, the Tacloban government has also continued its support by constructing new drainage systems to prevent further inundation.[79)] In particular,

77) https://newsinfo.inquirer.net/1856468/a-decade-later-moving-on-still-hard-for-yolanda-survivors
78) https://www.leytesamardailynews.com/sen-go-witnesses-distribution-of-land-titles-to-yolanda-survivors-in-tacloban-city/
79) https://www.itacloban.com/2022/01/City-Mayors-Office-and-CEO-respond-to-flooding-problems-in-Tacloban-North.html

the Cities Development Initiative for Asia (CDIA) has initiated a preliminary design and feasibility study through its Faecal Sludge Management (FSM) project to address sanitation issues across the entire northern Tacloban resettlement area. Efforts are being made to establish a fecal sludge management system, improve wastewater treatment facilities, and enhance management capabilities in order to support these objectives.[80]

[Table 5] Key Information of North Hill Arbours

Host community	Barangay 106 (Sto. Niño)
Development Authority	National Housing Authority
Settlement Period	December 2016
Total Area	9.290㎢
Population	6,619 persons (3,326 males, 3,293 females) (Barangay Population: 14,905 persons)
Number of Households	1,586HH
Major Infrastructure	Water Supply: Water supply for daily use is unstable, with distribution limited to specific days of the week (Monday, Wednesday, Friday), making water tanks essential for residents. Key Facilities: Schools, parks, gymnasium, cathedral, and churches are located within the resettlement area. However, facilities such as health centers, police station, and daycare centers are situated approximately 1km away from the resettlement area, which has adequate transportation facilities. While Tacloban City Hall is located at a considerable distance (approximately 13.5km from the resettlement area), the recently opened Tacloban North Sub-Office, established by the city government to improve accessibility for IDPs in the northern region, is located 800m away. The fire station is identified as the most distant facility, located 14.3km away. Housing Facilities: Each housing unit consists of a 40㎡ lot area with a 30㎡ house, primarily constructed using bricks, cement, and steel materials. Occupied houses are visibly well-maintained and preserved, while vacant houses appear

80) https://cdia.asia/2023/02/24/cdia-proposes-a-phased-investment-project-to-improve-public-health-and-environment-in-tacloban-city/

	neglected and poorly maintained. Some houses within the resettlement area have been modified and expanded for personal and business purposes.
Transportation	Tricycle, Modern Jeep
Environmental Characteristics	Location: Located approximately 13km from downtown Tacloban Environmental Conditions: Very limited green space and poor street sanitation conditions
Political and Administrative Structure	Community Structure: Consists of 11 clusters, with each cluster comprising 178-180 households primarily from the same pre-resettlement communities. Administrative Organization: The Homeowner's Association (HOA) structure is scheduled to be established through elections next year.

(b) Key Information about DREAMVille

Another research site in Tacloban, DREAMVille is a resettlement village built under Catholic Relief Services (CRS) through The Anibong Resettlement Project (ARP). It was established for the most vulnerable 900 households among the residents of Anibong community, which was designated as a no-residence zone due to the severe damage caused by Typhoon Haiyan. CRS planned the project to ensure that residents were involved at every stage, including site selection, community planning, housing design, and self-management. Even after the organization withdrew, the community was empowered by the establishment of a Homeowner's Association (HOA) to ensure long-term development.

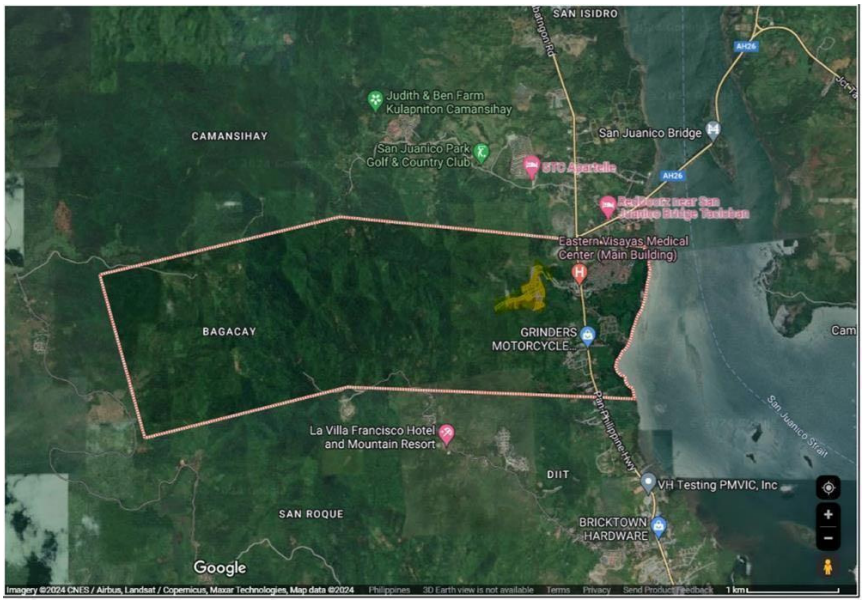
Construction of DREAMVille began in 2016, and the first residents moved in by February 2020, making it a relatively late settlement for the displaced individuals. By June 2020, the settlement was officially handed over to the HOA and relevant government agencies. As of that time, 320 households had settled in the village, and currently, there are 759 households with a total population of 3,622.

DREAMVille is located approximately 6.9 km from the original Anibong community and about 9.9 km from downtown Tacloban, and it is accessible via public transportation. Various forms of support have been provided primarily through

CRS. In terms of livelihood support, CRS collaborated with the National Social Housing Corporation of the Philippines to assist DREAMVille residents in joining a low-interest loan program, which helped them with the complex paperwork and costs, thus securing land ownership for the resettled families.

Additionally, CRS has supported the displaced families, who previously relied on fishing near the sea, by providing access to new employment opportunities in fields such as sales, agriculture, and transportation. To strengthen the development of a sustainable resettlement community and foster social cohesion, CRS also conducted training in social and behavior change communication, as well as disaster risk reduction. Notably, CRS donated part of the land to the Department of Education for the construction of a permanent school, and allocated land for a basketball court and public market for the host community, ensuring that both the resettlement community and the host community benefit.

[Figure 10] Map of DREAMVille



Source : Google map

[Table 6] Key Information of DREAMVille

Host community	Barangay 93 (Bagacay)
Development Authority	Catholic Relief Services, CRS
Settlement Period	March 2020
Total Area	3.576㎢
Population	3,622 persons (1,838 males, 1,784 females) (Barangay Population: 9,565 persons)
Number of Households	759HH
Major Infrastructure	Water Supply: While water facilities are connected, supply is limited, causing residents to rely on water tanks for storage or draw water from wells for daily use. Key Facilities: The resettlement area contains elementary schools, a gymnasium, cathedral, and churches. High schools and health centers are located within 1km. However, public facilities such as the Tacloban North Sub-Office, Barangay Hall, and police station are situated approximately 5km away, presenting accessibility challenges for residents. Housing Facilities: Housing units are categorized into four types: Type A, B, C, and D. Type A is the smallest single-story house, while Type D is the largest two-story house, with larger households eligible for bigger housing units. The houses are primarily constructed using bricks, cement, and steel materials. Some houses have been arbitrarily expanded by non-professionals or converted for business use, leading to safety concerns and conflicts between neighbors.
Transportation	Tricycle, Modern Jeep
Environmental Characteristics	The village features a circular layout with wide two-lane roads
Political and Administrative Structure	The Homeowner's Association (HOA) was pre-established in 2015 by Catholic Relief Services (CRS) prior to resettlement, comprising 900 members from Anibong. The association consists of a board of directors, committees, and two cluster representatives (representing seven clusters from the Anibong area). Members received education and guidelines for harmonious community living for five years before relocation, maintaining continuous discussions and meetings.

(2) Batangas – Resettlement Village of the Badjao Ethnic Group as Climate IDPs

① Location and Scale

Batangas City is located in the southern part of Luzon Island in the Philippines and serves as the capital of Batangas Province. It is classified as a 1st-class component city, with a total area of 282.96 km². Batangas City is composed of 105 barangays, including 48 urban barangays and 57 rural barangays. As of 2022, the estimated population is 364,985, with 62.24% (227,159 people) residing in urban areas and 37.76% (137,827 people) in rural areas. The average household size in Batangas City is 4 people, and according to the 2015 Family Income and Expenditure Survey (FIES) conducted by the Philippine Statistics Authority (PSA), the average annual income per household is 267,000 pesos, or 22,250 pesos per month.

Batangas City is home to the Batangas International Port, one of the most active ports in the Philippines, as well as several key industries, including oil refineries and natural gas plants. However, agriculture remains the primary source of income. Batangas City is also the educational center of the Batangas region, with schools ranging from kindergarten to university levels.

The Badjao ethnic group in Batangas City is primarily located in the barangays of Malitam and Wawa. Barangay Wawa is a rural barangay with a total area of 53.3341 hectares and is divided into 6 puroks or sitios. Barangay Malitam, located further inland, is a significantly larger urban barangay, with an estimated population of 7,960 in 2022.[81] According to the Badjao IDPs population data (FOI, 2021), 58.07% (1,464 people) of the Badjao population residing in the Calabarzon Region IV live in Batangas City. Of these, 48.84% (715 people) are male and 51.16% (749 people) are female. 51.57% of the population falls within the working age group of 15-64 years. Children under 14 account for 47.13% of the population, with those under 4 years old comprising 19.06% of the total population. Seniors aged 65 and over make up 1.3%. Among those aged 5 and above, 61.27% have not received formal

81) https://www.batangascity.gov.ph/web/social-aspects-2

education, while 17.55% have completed formal education. Of the educated individuals, 12.57% have received primary education, 2.32% have attended preschool, 1.98% have completed secondary education, and only 0.68% have pursued post-secondary education.

[Figure 11] Location of Batangas City



② Geographical and Climatic Features

Batangas City has a tropical monsoon climate, with an annual average temperature of 27.87°C, which is 0.65% higher than the national average for the Philippines. The climate is divided into two distinct seasons: the dry season, from November to April, and the rainy season, from May to October. Rainfall occurs on 212.17 days per year, accounting for 58.13% of the total year, with rainfall exceeding 1.0 mm on those days. The humidity level averages 84.8%.[82] The city is bordered to the south by Batangas Bay, and its surroundings feature a mountainous terrain with several hills and mountains. The northern region has a gentle slope ranging from 0% to 8%, while the southern and western areas have steep slopes exceeding 50%, characterized by a significantly rugged terrain.[83] Batangas City is traversed by many rivers and streams, flowing into Batangas Bay via the Calumpang River. The

82) https://weatherandclimate.com/philippines/batangas/batangas-city
83) https://www.batangascity.gov.ph/web/physical-geographical-aspects-2

Calumpang River has a catchment area of approximately 472 km², with a length of 8 kilometers and an average width ranging from 54 to 165 meters.[84] The Badjao settlement formed its community near the mouth of the Calumpang River, which is located along the coastline. The average elevation of Batangas City is approximately 8.4 meters above sea level, while the elevation of the Badjao settlement is only about 2-3 meters. Based on literature indicating that areas with an elevation of less than 10 meters are generally exposed to high flood risks, it can be concluded that the Badjao community's settlement area is highly vulnerable to flooding.

③ Background of Settlement Formation

The migration of the Badjao people to their settlement was initiated under complex circumstances. The Badjao, a Muslim nomadic indigenous group that traditionally lived along the southern coast of the Philippines and relied on fishing for their livelihoods, faced significant challenges. These included armed conflict, inter-tribal disputes over livelihoods, and a decline in fish stocks due to climate change, all of which led to livelihood insecurity, threats, and poverty. In response, they began migrating northward within the Philippines. Additionally, the intensification of disasters caused by climate change across the country also contributed to the displacement of the Badjao people. Currently, only a few members of the Badjao community still maintain their nomadic lifestyle. Over time, with successive migration and resettlement, they are increasingly integrating into land-based populations, transitioning from boat-dwelling communities to sedentary indigenous people (Nimmo, 1972; Macalandag, 2023).

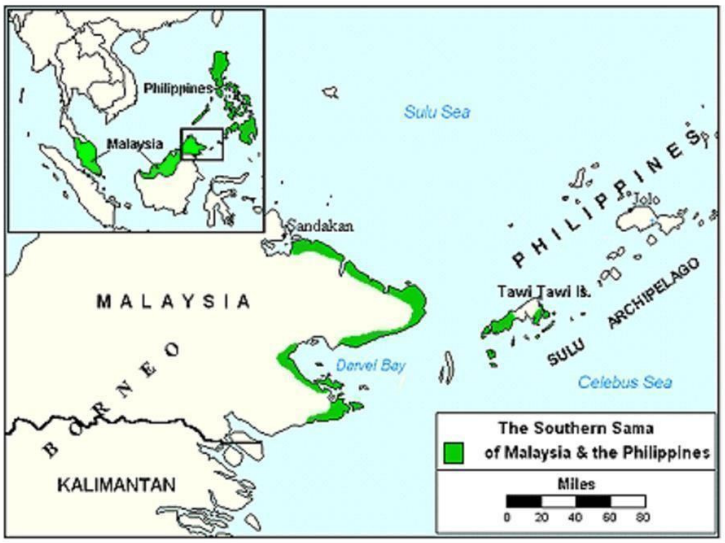
Batangas City, a key urban area due to its accessibility and location with the Batangas International Port, became a prominent destination for many Badjao IDPs. In interviews, Badjao IDPs in Batangas City explained that they were forced to leave their previous homes in Mindanao and Zamboanga due to threats and

84) https://www.batangascity.gov.ph/web/physical-geographical-aspects-2

prohibitions from armed groups, which prevented them from fishing at sea, exacerbating their livelihood challenges. Initially, two Badjao families settled in the area, and by 2017, approximately 200 families had formed the Badjao settlement in Barangay Malitam and Wawa. Research conducted by Tamayo & An (2019) indicated that respondents considered their settlement period in Batangas City as being from a "long time" ago, and other literature suggests this settlement began over 30 years ago.

Unlike other settlements formed through government policies, the Badjao settlement in Batangas City was initiated by the IDPs themselves. Initially, the Batangas City government resisted the settlement of the Badjao IDPs, but later accepted them during the second wave of migration. The government subsequently offered legal protections such as registration and implemented support programs for the Badjao community. The Badjao IDPs initially formed their settlement near the coastline, in alignment with their traditional coastal lifestyle. However, due to the impact of climate change and disasters, such as typhoons, coastal erosion, and land degradation caused by wildfires, their original settlement was destroyed. The IDPs experienced multiple relocations within Batangas. Today, the Badjao people still reside near the Calumpang River, close to Batangas Bay, about 30 minutes from the city center of Batangas (Valle-Castillo, 2018; Tamayo & An, 2019). Unlike in other regions, migration to the Badjao settlement in Batangas City continues to receive support from the city government.

[Figure 12] Original Residence of the Badjao Ethnic Group



Source : Bethany World Prayer Center, https://joshuaproject.net/people_groups/15065/RP

④ Overview of the Research Site

According to the Batangas City Social Welfare and Development Office (CSWDO), as of July 2024, it is estimated that there are 261 households in Barangay Malitam and over 200 households in Barangay Wawa. Although Batangas City regularly conducts surveys of the Badjao IDPs population, it remains difficult to obtain an accurate count due to the high mobility of the community and the common occurrence of multiple families residing in one household.

The Badjao people continue to live near the coastline, maintaining their traditional lifestyle, including the use of boat-dwelling homes (overwater bungalows). The current settlement area is located on private land, not government-owned land, making it difficult to assign formal addresses or develop infrastructure. As a result, the community lacks access to safe drinking water and electricity and remains highly exposed to ongoing disaster risks. The settlement is situated in a low-lying area with an elevation of 2-3 meters, which is significantly lower than the average elevation of Barangay Wawa, at 8.4 meters. This makes the Badjao settlement

highly vulnerable to flooding and frequent damage from hydrological disasters such as typhoons and heavy rainfall. The vulnerability of the community's housing and environment is closely linked to their overall vulnerability in terms of livelihood and quality of life.

The Badjao IDPs are highly vulnerable to changes in disaster conditions, access to drinking water, electricity, income sources, and food security (Bicomong et al., 2016). The community's vulnerability is exacerbated by factors such as low education levels, high illiteracy rates, cultural factors like early marriage (especially among women), the use of their ethnic language, and other social and economic disadvantages (Valle-Castillo, 2018). The practice of early marriage, in particular, has contributed to the disruption of educational opportunities for many Badjao children.

Historically, fishing was the primary livelihood of the Badjao people, but they have faced difficulties in maintaining this livelihood due to the construction of dikes for flood control, which has damaged their boats and disrupted their fishing activities. These challenges have been exacerbated by unforeseen consequences of disaster management policies.

The Badjao IDPs in Batangas City are officially recognized as citizens (Batangueños).[85] Batangas City government, in collaboration with the community, has implemented several support policies, including designating Badjao community leaders, promoting inter-tribal marriages and Badjao language learning, providing free education, including Badjao people in the government's poverty reduction programs, granting voting rights, improving health and sanitation, addressing the issue of early marriage, solving livelihood and local problems, and strengthening disaster response and partnerships (Valle-Castillo, 2018). The Badjao IDPs were included in the 4P (Pantawid Pamiliyang Pilipino Program)[86], one of the Philippine

85) https://sesam.uplb.edu.ph/life-of-the-badjaos-in-barangay-malitam-batangas-city/news/

86) The 4Ps is a program that provides cash assistance, health, education, and nutrition services to infants and pregnant women in poor families. It is organized by the Department of Social Welfare and Development (DSWD) and is carried out in cooperation with the Department of Health (DOH) and the Department of Education (DepEd).

government's social welfare programs, which provides cash support, health, education, and nutrition services to impoverished families, under the coordination of the Department of Social Welfare and Development (DSWD), the Department of Health (DOH), and the Department of Education (DepEd) (Tamayo & An, 2019). In schools within the barangay, Badjao students study alongside Batangueño students. Approximately 60% of Badjao students have access to education. Additionally, community literacy education, Badjao children's learning support, school fee subsidies, and an alternative learning system for students struggling to follow the regular education system have been implemented, along with daycare centers for Badjao children within the settlement. Despite these efforts, challenges such as inconsistent funding, lack of community participation, and difficulties in linking vocational training to income-generating activities have made livelihood support programs less effective (Tamayo & An, 2019).

A study conducted in 2019 regarding the quality of life of the Badjao residents indicated that, among the Batangas City government's programs, the most important to the Badjao IDPs were health and education services. The highest satisfaction was reported in relation to support for pregnant women and the registration of children's births (Tamayo & An, 2019).

[Figure 13] Settlements of Badjao IDPs in Barangay Malitam and Wawa



Source : Google earth

[Table 7] Key Information of Barangay Malitam and Wawa

Host community	Barangay Malitam and Wawa - These two barangays are located on an island at the mouth of the Calumpang River in Batangas City. The Badjao IDPs community is spread across both barangays along the island's coastline, resulting in different administrative jurisdictions depending on their residential location.
Development Authority	- The Badjao IDPs settlement was formed organically by the IDPs themselves and is acknowledged by both the Batangas City government and barangay authorities. - Individual households are not assigned specific addresses.
Settlement Period	The Badjao IDPs began moving to the area approximately 20-30 years ago, and this displacement continues to the present day.
Total Area	As this is not an officially established settlement, it is difficult to determine its exact size or area. However, preliminary research using Google Earth shows that the visited community area (marked by the square in the above photo) is approximately 0.04㎢.
Population and Number of Households	According to the Batangas City Social Welfare and Development (CSWD) officer, 261 households reside in Barangay Malitam and 200 households in Barangay Wawa. While the Batangas City government conducts regular population surveys of the Badjao IDP community, accurate population counting remains challenging due to their high mobility and the fact that multiple families often share a

	single household.
Major Infrastructure	Water Supply: There are two communal hand pumps in the community, but due to poor maintenance, only one is operational. There is no piped water system, and some residents purchase water by the container. Only a few households have domestic water tanks. Health Facilities: Barangay Health Centers are located in both Barangay Malitam and Wawa, accessible to the Badjao IDP community. (While the straight-line distance from the Badjao settlement along the coast to the health centers is approximately 750m. Using a tricycle, it takes within about 30minutes minutes to reach.) Educational Facilities: Schools within the barangays (two elementary schools and one secondary school) are accessible to Badjao students. Wawa Elementary School and Malitam Elementary School are approximately 730m from the Badjao settlement. Other Key Facilities: (Roads) There are no paved roads leading to the Badjao IDP settlement. (Dike) A dike was installed was installed along parts of the coastline 2-3 years ago to reduce damage from typhoons and floods. (Barangay Offices) These function like local administrative offices, managing communication and coordination. Barangay Malitam office is approximately 1km away, while Barangay Wawa office is about 500m away. (Batangas City Social Welfare Department) As the primary department supporting Badjao IDPs, it is located approximately 2km from the settlement. Housing: The houses maintain their traditional over-water dwelling style, built on stilts using bamboo. They typically use cloth instead of doors, and it was observed that there are no individual household toilets, resulting in open defecation practices.
Transportation	- There are no jeepneys (Jeep) operating within the barangays on the island. Transportation within the barangays is primarily by tricycle, and residents must first take a tricycle to leave the island before accessing jeepney services when needed.
Environmental Characteristics	- The barangays are situated on an island surrounded by the Calumpang River. Due to the island's low elevation, the bridges connecting to each barangay entrance are vulnerable to flooding - particularly the Malitam barangay entrance, which sits almost level with the river and experiences frequent flooding. The bridge connecting to Wawa barangay was recently reconstructed following damage from a previous typhoon. The island's elevation is lower than the mainland, with the central area at 9m above sea level, while the

	Badjao IDP settlement area ranges from approximately 3-6m in elevation. - Due to lack of waste management, garbage and sewage are severely neglected, accumulating within the community and along the coastal areas at concerning levels.
Political and Administration Structures	- The Badjao IDP community falls under the administrative jurisdiction of Batangas City and its barangays. They officially designate tribal leaders to communicate with the barangay, while the Barangay Captain, as the official barangay leader, oversees the entire community. - Batangas City has encouraged Badjao IDPs to register as voters and record births, and consequently, it has been confirmed that a significant number of IDPs now possess national IDs.

3.3 Research Methods and Field research

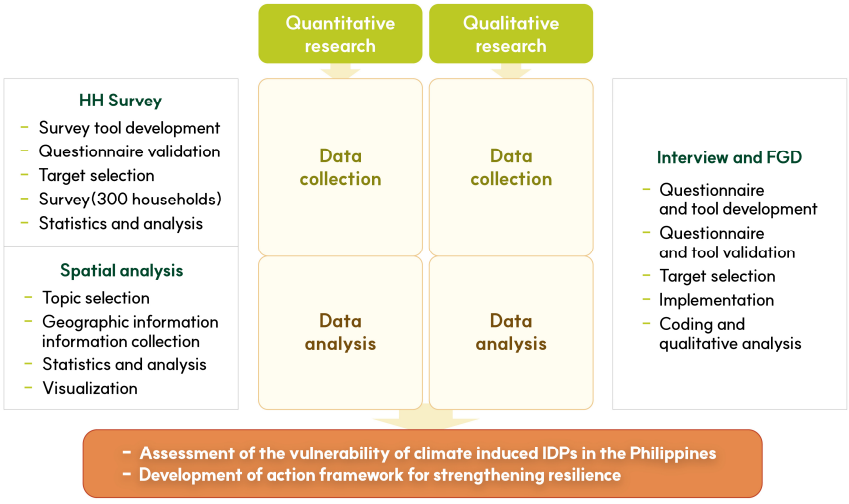
3.3.1 Research Methods

This study aims to assess the vulnerabilities of IDPs who have experienced involuntary migration due to climate change and propose an action framework to strengthen their resilience. To achieve this, the research team conducted a comprehensive literature review on climate change and IDPs and selected the livelihood and health sectors as the primary areas of focus within the complex vulnerabilities arising from climate change. This focus was chosen with the intention of aligning the findings with the Korean government's ODA policies and key areas of interest when developing the action framework and project proposals. Additionally, social capital within the community, which influences vulnerability and resilience, was measured as a key factor. The main research questions set during the research design are as follows:

- What are the vulnerabilities in the areas of livelihood, health, and social capital experienced by climate-induced IDPs?
- What are the coping strategies and mechanisms related to the vulnerabilities of climate-induced IDPs?
- What are the effective strategies for strengthening the integrated resilience of both climate-induced IDP communities and host communities?

To answer these questions, the research team selected a mixed methodology. A mixed methodology combines quantitative and qualitative research methods to better understand the research questions from multiple perspectives. Through quantitative research, the study sought to gain an overall understanding of the vulnerabilities, climate and disaster awareness, risk factors, and social capital experienced by the IDP communities. Through qualitative research, the study aimed to gain a deeper understanding of the IDPs' experiences with migration and resettlement, as well as the perspectives and views of host communities and other stakeholders. Specifically, the research adopted a concurrent mixed methods research approach, collecting and analyzing both quantitative and qualitative data independently but simultaneously (Creswell & Plano Clark, 2017).

[Figure 14] Data Collection and Analysis Process Using Mixed Research Methods



Initially, the research design focused on quantitative research through household surveys. However, after discussions with research partners, it became clear that due to various characteristics of the target community (such as communication challenges due to the use of regional dialects and indigenous languages, low literacy and reading comprehension, difficulty in understanding and providing accurate answers, and reluctance to provide honest responses due to wariness or intimidation towards outsiders), conducting surveys would be challenging.

Nevertheless, both parties agreed that surveys were essential for obtaining an overall understanding of the situation in the IDP communities, and a detailed survey design was developed to facilitate participation from IDPs. This included translating the survey into the local language, employing local enumerators with thorough training, and adjusting the survey methodology to align with local characteristics.

Additionally, spatial analysis using geographic information was incorporated to better understand the vulnerabilities experienced by IDP communities from multiple perspectives. The qualitative research was expanded, considering the suggestions from research partners, to gain a deeper understanding of the situation in the IDP communities. This involved conducting in-depth interviews (IDI) and focus group discussions (FGD) with both the IDP and host communities, as well as key informant interviews (KII) with local stakeholders, with distinct approaches tailored to the characteristics of each group.

In summary, the study combined a quantitative approach—focused on surveys and spatial analysis—to assess the vulnerabilities of climate-induced IDPs, while qualitative research aimed to capture the migration experiences and coping strategies of IDPs. This methodology was designed to identify the specific needs and circumstances of the target communities and inform the development of a resilience action framework aligned with these findings.

(1) Spatial Analysis

The spatial analysis was conducted to understand the climate vulnerability of the two study areas. Given the background of the IDP resettlement villages, hydrological risk factors were prioritized for analysis. Specifically, to understand flood risks, a multivariate analysis was performed considering factors such as elevation, slope, drainage density, and the terrain wetness index. Additionally, Digital Elevation Model (DEM), Landsat 8 data, and Visible Infrared Imaging Radiometer Suite (VIIRS) data were combined to assess the urban form and urban

heat island effect around the IDP communities. The analysis also measured the relative flood risk, population movement toward the area, and the accessibility of emergency response facilities within a 1.5-mile radius of the community.

(2) Quantitative Research

Household Survey

The household survey aimed to assess the vulnerabilities experienced by climate-induced IDPs in their resettlement areas, focusing on the aspects of livelihood, health, and social capital. It also sought to explore the relationships between these three aspects of vulnerability and identify which vulnerabilities the IDPs perceive as the most significant risks. Furthermore, the survey aimed to analyze the key factors influencing the community resilience of climate-induced IDPs. A total of 300 household representatives (200 from Tacloban and 100 from Batangas) were surveyed, with the analysis based on responses from 298 individuals (198 from Tacloban and 100 from Batangas) after excluding responses from individuals under 18 and duplicate responses, in accordance with IRB standards. Trained local enumerators conducted the survey using the online survey tool Kobo Toolbox, which was utilized in the local language for data collection. Kobo Toolbox is an online-based survey tool developed for data collection in humanitarian aid and international development cooperation contexts.

(3) Qualitative Research

Focus Group Discussion

Focus Group Discussion (FGD) is a method used to gather data by assembling a small group of participants who are well-versed in the subject matter and allowing them to freely and deeply discuss the issues related to the research objectives. This method enables effective understanding of various perspectives, perceptions, and experiences on a specific topic through the participants' interaction. It also has the advantage of generating active discussions, fostering empathy, and creating

synergies among the participants. Taking into account the diverse and complex conditions of the local participants, the FGD was conducted with unstructured questions. Focus group discussions were held with male, female, and mixed groups from both the IDP community and the host community in each resettlement area. A total of 14 groups, consisting of 86 participants (53 IDPs from 8 groups and 33 host community members from 6 groups), participated in the focus group discussions.

In-depth Interview

In-Depth Interviews (IDI) are a type of interview that explores the underlying needs, attitudes, and emotions of the participants. It is conducted through one-on-one interviews, allowing participants to freely share their experiences, thoughts, and feelings, which provides an opportunity to collect diverse and rich personal opinions. Therefore, in this study, in-depth interviews were chosen to gather personal and candid experiences from IDPs regarding the background of their migration, their experiences during the migration and settlement process, and their current life in the resettlement areas. The interviews were conducted with as unstructured questions as possible to maintain flexibility. A total of 24 IDPs participated in the in-depth interviews.

Key Informant Interview

Key Informant Interviews (KII) were conducted with government officials, representatives from support organizations, community leaders, and experts to gather insights on the context of migration in the Philippines under climate change and disaster conditions, as well as the internal and external environmental changes experienced by the community. These interviews aimed to gather broader information and context that would be difficult to obtain through surveys and interviews with IDPs. The purpose was to complement the interpretation of the quantitative data. A total of 21 stakeholders participated in the interviews.

Observation

Observation is one of the most important qualitative research methods used in case studies, ethnographic studies, and other types of research to collect data on various cultural backgrounds (Ciesielska & Jemielniak, 2018). It involves observing the environment and conditions of the research area, taking photographs, and monitoring the behavior, relationships, and networks of local community members regarding space and resources. This method is implemented to complement the information collected through other research methods (Bele, Sonwa, & Tiani, 2014). Observations in a natural setting provide a richer understanding of the research subjects and can uncover situations, problems, and patterns that other sources may fail to recognize or properly explain. Therefore, in this study, observation was conducted as a complementary method to understand the information obtained through surveys (Survey), focus group discussions (FGD), and in-depth interviews (IDI), as well as to acquire additional information.

The research questions and key components for each research method are outlined in the table below [Table 8].

[Table 8] Research Questions and Key Components by Research Methods

Methods	Research questions	Key components
Household Survey	• How has climate change affected the IDPs? • What vulnerabilities have IDPs experienced after climate-related disasters?	- Displacement - Livelihoods - Health - Social capital *Tacloban - Community adaptive capacity
Focus Group Discussion	• What should be considered in establishing a social system that can contribute to strengthening the resilience of climate-induced IDPs? • What are the resources within the community that can contribute to strengthening the resilience of climate-induced IDPs?	- Understanding the community's risk perception and response capacity - Identifying the social capital characteristics of IDPs resettlement areas and host communities
In-depth Interview	• What are the factors and key mechanisms that have influenced the vulnerabilities of climate-induced IDPs?	- Identifying the pathways of vulnerability creation and the factors hindering resilience during the climate disaster,

Methods	Research questions	Key components
	• What are the key policy considerations for enhancing the resilience of climate-induced IDPs?	migration, and resettlement process
Key Informant Interview	• What support efforts have been made in the community to improve the vulnerabilities of climate-induced IDPs? • What policy gaps need to be addressed to strengthen the resilience of climate-induced IDPs?	- Understanding the planning and formation process of the IDPs resettlement community (basic infrastructure, governance, decision-making, etc.) - Assessing the current status of IDPs communities - Identifying the efforts and perceptions of stakeholders regarding the enhancement of IDPs resilience

The qualitative research conducted in this study aims to complement the vulnerabilities and coping strategies identified through household surveys of Typhoon Haiyan displaced persons in Tacloban and Badjao displaced persons in Batangas. The goal is to gain a deeper understanding of the experiences of the IDPs before, during, and after their displacement, specifically focusing on their experiences in relation to climate change. Additionally, the study seeks to explore the key factors necessary to enhance community resilience, taking into account the complex migration backgrounds, vulnerabilities, and characteristics of the communities, and to derive implications for applying these findings to policies and developing effective strategies.

Participant Selection

In this study, in-depth interviews (IDI) were conducted with displaced persons, focus group discussions (FGD) with both displaced persons and host community residents, and key informant interviews (KII) with community stakeholders. In Tacloban, qualitative research was conducted in two resettlement areas: North Hill Arbours (Barangay 106), supported by the government, and DREAMVille (Barangay 93), supported by an NGO. In Batangas, research was conducted in the Badjao displaced persons communities located in the Malitam and Wawa barangays. The

research participants were selected with the help of local research partners, ensuring diversity and minimizing bias by carefully discussing and coordinating the characteristics of participants.

For the in-depth interviews, 13 Typhoon Haiyan displaced persons from Tacloban and 11 Badjao displaced persons from Batangas were selected, making a total of 24 interviewees. Efforts were made to gather a diverse range of migration experiences based on factors such as barangay affiliation, age, and settlement period. To avoid response bias and duplication, those who did not participate in the survey were prioritized for the interviews.

Key informant interviews (KIIs) were conducted with community stakeholders involved in the migration and settlement processes or those able to provide key information. These included local government officials, community leaders, school teachers, barangay health center staff, and other major public service providers. A total of 9 key informants from Tacloban and 12 from Batangas were interviewed.

Focus group discussions (FGDs) were conducted separately with displaced persons and host community groups. In Tacloban, FGDs were held with 10 groups from two barangays, while in Batangas, 4 groups from two barangays participated. The discussions were primarily conducted in English or Tagalog-English translation, though both regions also used indigenous languages, so some participants, for whom Tagalog was difficult, used their native languages or additional translators were employed. While translator bias was a concern, the primary focus was on creating an environment where participants felt comfortable and could engage freely.

3.3.2 Field research

Due to the specific nature of the research subjects, there is a lack of existing data and literature, and the migration backgrounds and characteristics of the two regions differ significantly. Therefore, the depth of the field investigation based on

the context of the areas was believed to be crucial in determining the quality of the data collected, analysis, and ultimately the quality of the research results. In particular, by closely collaborating with research partner organizations that have a deep understanding of the target areas, the study was designed and carried out to enhance the research capacity of the research partners, which is one of the main objectives of this study.

Thus, the research team jointly planned and prepared the quantitative survey and qualitative research with the research partners. To ensure a more rigorous research design and execution, the study was divided into stages: a pre-visit, a first round of surveys (primary data collection), and a second round of qualitative research (secondary data collection). Both the planning and preparation, as well as the execution of the first and second rounds of data collection, were carried out simultaneously in June and July as part of the concurrent mixed-methods research design. However, since the two investigations were independently planned and conducted, they are described separately for convenience.

[Table 9] Steps of Field Research

Pre-Visit		1st Main Study		2nd Main Study
(Tacloban) June 4th – 9th (Batangas) June 4th – 8th		(Tacloban) July 1st – 15th (Batangas) June 24th – 26th		(Tacloban) July 3rd – 21st (Batangas) July 2nd – 10th
– Research Team Meetings – Pilot testing of the survey tool – Community visits and observations – Interviews (KII)	⇨	(Quantitative Research) – Household Survey (200 households in 2 communities in Tacloban, 100 households in 1 community in Batangas)	⇨	(Qualitative Research) – Interviews (IDI, KII) – Focus Group Discussions (FGD) – Community Visits and Observations

The pre-visit was conducted to expand the understanding of the research areas and to prepare for the main survey. It involved a pilot application and refinement of the survey tool, interviews with key stakeholders to understand the context, and community visits and observations to gather village-specific information. During

the first round of surveys (primary data collection), household surveys were conducted by local consultant teams and surveyors assigned to the two areas. The development and refinement of the survey tool, translation, surveyor training, and data monitoring were carried out collaboratively by the Ewha Womans University research team and the Philippine research partners. In the second round of data collection (secondary data collection), interviews and focus group discussions (FGD) were conducted, with direct support from the Ewha Womans University research team, in collaboration with the Philippine research partners and local consultants. The local investigation was conducted flexibly, adapting to the characteristics and context of the areas. Specific preparation details for each stage are outlined below.

4. Findings

4.1 Key Findings from Spatial Analysis of Vulnerability

4.1.1 Introduction

The Philippines is highly vulnerable to climate change, with many communities relying on coastal ecosystems. Considering the geographic characteristic that 60% of the country, including 10 major cities, is located along the coast, the impact of climate disasters, such as temperature rise, sea-level rise, and storms, on the coastal infrastructure, livelihoods, and other assets is expected to be severe (Loyd et al., 2022).

This study aims to understand the climate vulnerability of the target areas, Tacloban and Batangas, with a focus on the IDPs resettlement communities in both regions. Due to climate disasters, IDPs have been involuntarily displaced to new areas in Tacloban and Batangas, leading to the formation of 17 resettlement communities in Tacloban and approximately 7 loosely formed resettlement communities in Batangas.

This study will examine the climate vulnerability through urban form analysis, urban heat island effect analysis, and flood risk analysis, and will provide policy implications to enhance the resilience of the IDP communities affected by climate change.

4.1.2 Analysis Methods

① Urbanization in IDPs

In this study, night-time light data was utilized to understand urbanization of the target cities. This data, widely used in remote sensing, can be collected through

tools such as the DSMP-OLS or VIIRS night-time light data series (Bustos et al., 2015; Elvidge et al., 2021; Elvidge et al., n.d.; Enenkel et al., 2020; Jiang et al., 2017; Levin et al., 2020; Levin & Zhang, 2017). Recent studies have applied this data to track the displacement patterns of IDPs in response to natural disasters or conflicts (Chen, 2020; Enenkel et al., 2020; Li & Li, 2014). This study applied this data to Tacloban and Batangas over the past 10 years to comprehensively understand urbanization and population flows. The method for measuring night-time urbanization changes involves comparing pixel values at specific points across different years. Positive values at a particular point indicate that people, GDP, or urban development have been drawn to that area, while negative values indicate an outflow from the area. A value of 0 means little to no inflow or outflow. Due to the broad pixel size of the VIIRS system, it is more suitable for national-level analysis, with less precision. However, it is still widely used in field research to understand local population flows. The VIIRS night-time light data, collected by the Earth Observation Group at the University of Colorado, was used for the analysis (Earth Observation Group, n.d.; Elvidge et al., 2017; Elvidge et al., 2021; Elvidge et al., 2019; Elvidge et al., n.d.).

② Urban Heat Island Effect Analysis

To examine the urban heat island effect, Band 10 in the Landsat system, which has been known to be useful for thermal mapping and estimated soil moisture (USGS, 2023), was utilized. In this study, the land surface temperature was used as a proxy to understand air temperature in specific areas, with the acknowledgment that surface temperature influences air temperature, though not in a proportional relationship. For the analysis, the surface temperature was converted to a Z-score. This allowed for comparison of each pixel with the overall geographical characteristics of the city to determine how much higher the temperature was in a particular area compared to other locations. It also confirmed that people living in those areas were experiencing higher and more uncomfortable temperatures, supporting claims that urban designs in these areas might intentionally or

unintentionally concentrate heat compared to other areas.

③ Flood Risks Analysis

To assess the flood risk in IDPs resettlement areas, three characteristic protocols were established. First, VIIRS night-time light imagery were used to analyze urbanization. Second, a multicriteria flood risk approach, based on Landsat data, was employed to map flood-prone areas. Lastly, a proximity analysis was conducted based on the distance between the center point of IDP locations and municipal infrastructure, to evaluate accessibility to emergency response facilities during a flood.

In this study, various factors such as slope, elevation, healthy green vegetation, , topographic wetness index (TWI), proximity to impervious surfacing, and proximity to flowing water were comprehensively considered to select areas with the highest potential for flood. Each spatial output was measured on a 1-5 scale, combined to form an aggregate value, and then compared to the urban morphology defined by VIIRS and the locations of IDP sites.

Additionally, near analysis, a standard mapping process used for different emergency response systems at various scales, was utilized to determine the accessibility of emergency response facilities in the Tacloban resettlement areas (Gunes & Kovel, 2000; Milenkovic & Kekic, 2016; Kwan & Lee, 2005; Šterk & Praprotnik, 2017). The closer the area was to regions with a high concentration of emergency response facilities, the higher its accessibility was considered, and the areas with the highest emergency response accessibility were selected based on the latitude and longitude of the IDP areas and the emergency response facilities.

[Table 10] Description of Categories Used for Flood Risk Assessment

Category	Description	Data	Calculation	Source
Emergency Facilities	Number of facilities (e.g., police stations, fire stations, libraries, schools, municipal buildings, religious facilities, gymnasiums, etc.) within the 1.5 miles buffer	Tabulated from Google Earth	Spatial join to buffer (1.5 mi buffer)	Google Earth
NDVI (Normal Distribution Vegetation Index)	Difference is band data to illustrate health of vegetation	Landsat 8 satellite	NDVI = (B5 – B4) / (B5 + B4)	NDVI
Urban Change	Difference in VIIRS nighttime value at pixel	VIIRS	(Pixel value 2023 – Pixel value 2003)	VIIRS
Flood Risk	Computed by the multicriterial model with elevation, slope, Topographic Wetness Index (TWI), NDVI, and NDUI	Elevation data from STRM 1-sec global arc	TWI = ln (flow accumulation/ tan slop)	TWI
		NDVI from Landsat 8 data	NDVI = (B5 – B4)/ (B5+B4)	NDVI
		NDUI from Landsat 8 data	NDUI = (B6-B5)/(B6+B5)	NDUI

Note: B4 B5, and B6 refer to the Landsat bands 4, 5, and 6. Band 4 is the red band. Band 5 is the near infrared band. Band 6 is the short-wave infrared band, referred to as SWIR.

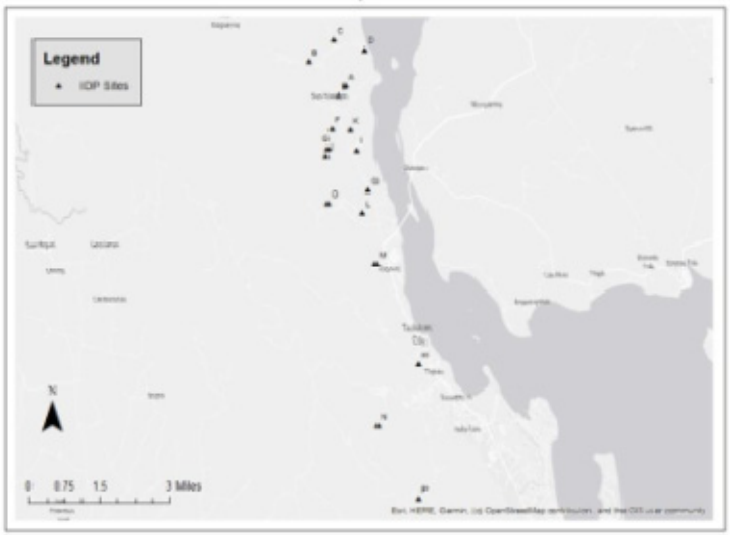
4.1.3 Results

(1) Regional characteristics

Currently, in the northern part of Tacloban, there are 31 permanent Pabahay (housing) communities for displaced persons due to Typhoon Haiyan, spread across 11 barangays. According to the Tacloban City Housing and Regional Development Office, the National Housing Authority (NHA), a government agency, has developed

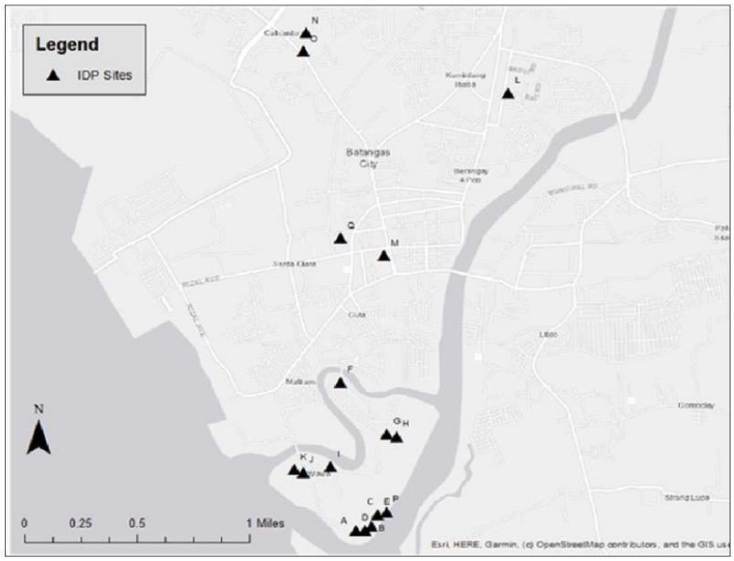
17 of these Pabahay sites, where housing for a total of 14,479 households has been constructed (Mangada & Cuanton, 2022). [Figure 15] illustrates the distribution of the IDPs resettlement communities along the San Juanico Strait in northern Tacloban.

[Figure 15] Resettlement Sites of IDPs in Tacloban



Batangas City is a coastal city characterized by a tropical savanna climate (Reyes et al., 2019), with an estimated population of 329,874 in 2015 (Dagulo, 2021). Unlike Tacloban, the Badjao IDP resettlements in Batangas are concentrated in several areas near the city center. These Badjao resettlements are located very close to each other, making it difficult to examine differences between the settlements in this study. This points to the need for further research using high-resolution systems such as LIDAR.

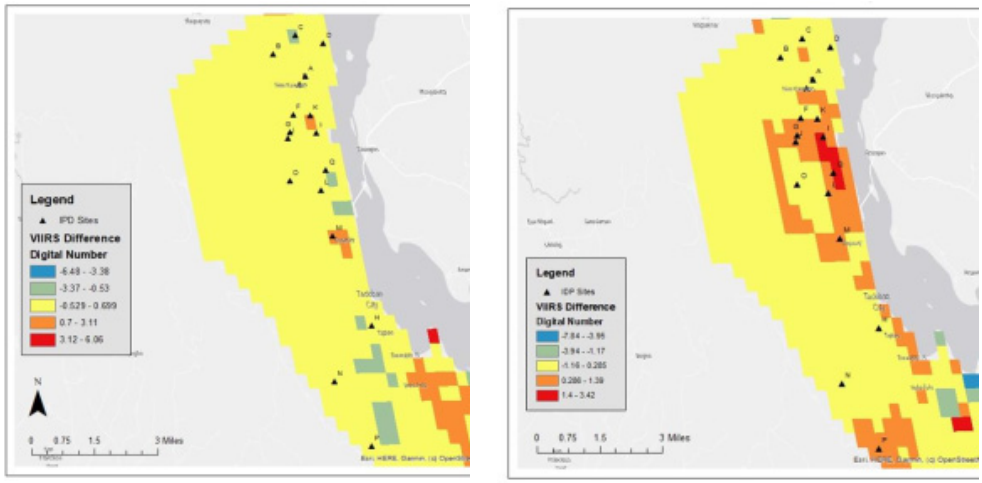
[Figure 16] Locations of Badjao IDPs Settlements in Batangas



(2) Urbanization and Urban Heat Island Effect Analysis

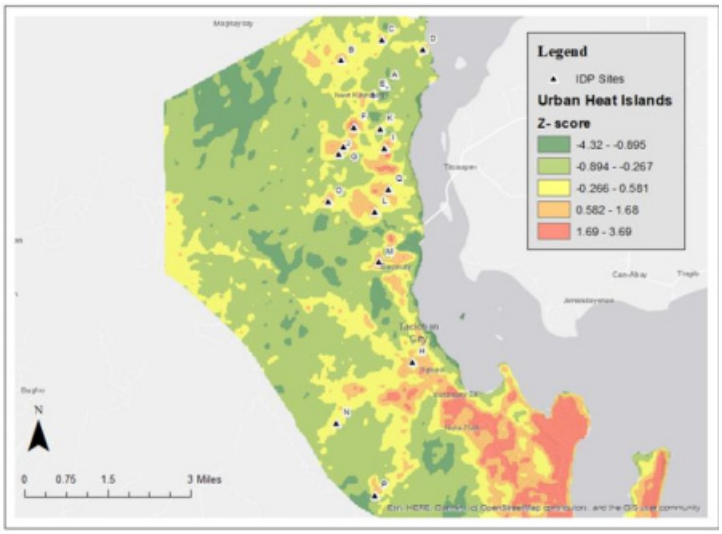
In [Figure 17], the points marked in yellow, orange, and red indicate areas where population influx or urban development occurred, while the points marked in green and blue signify areas where outflow was observed. Analysis of data from resettlement sites in Tacloban suggests that an influx occurred around IDP resettlement communities, with only very limited outflow observed. Specifically, [Figure 17] (a) shows an increase in population in the resettlement sites K (GMA Kapusao Village), I (Saint Francis Village), and M (DREAMVille) between 2012 and 2016 (orange, VIIRS values 0.7–3.11). Similarly, [Figure 18] (b) reveals population growth in eight resettlement sites, including A (SM Cares Village), F (North Hill Arbours), G (Greendale Residences), H (Pope Francis Village), L (Ridgeview Park), O (Knightsbridge), P (Salvacion Heights), and Q (Lions Village), from 2017 to 2021. Notably, the areas I (Saint Francis Village), L (Ridgeview Park), and Q (Lions Village) appeared to experience the most active urbanization during this period.

[Figure 17] (a) VIIRS Change from 2012 to 2016, and (b) VIIRS Change from 2017 to 2021 in Tacloban



[Figure 18] illustrates the Z-scores for IDP resettlement sites. Regions marked in yellow, orange, and red have Z-scores of 0 or above, indicating the presence of urban heat island (UHI) effects in those areas. In Tacloban, IDP resettlement sites are evenly distributed at or near the centers of these heat islands, suggesting the need to modify urban design within and around these settlements to reduce heat exposure. The VIIRS data collected in Tacloban highlighted population movements toward the northern areas of Tacloban, accompanied by the growth of church-centered regions. Google Earth imagery revealed a polycentric suburban network structured along a single road. Furthermore, Band 10 of the Landsat satellite system confirmed that urban heat systems are forming in spatial areas consistent with the suburban networks identified in the VIIRS data. This suggests a correlation between increasing urban density or construction and rising urban heat from 2012 to the present.

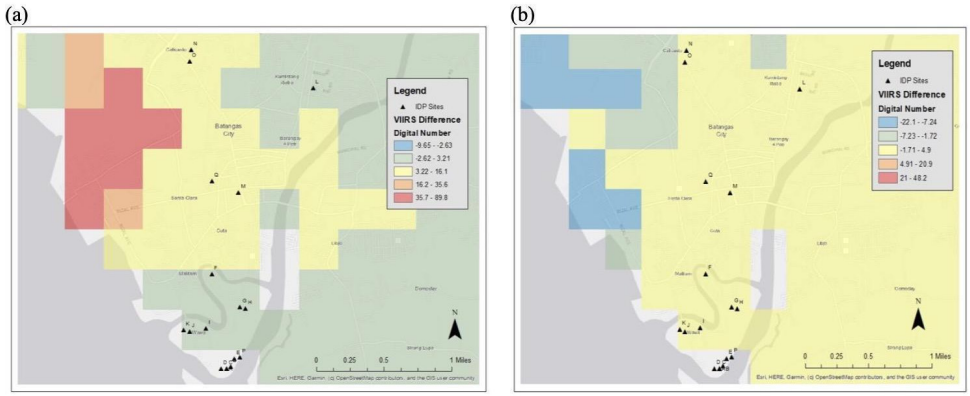
[Figure 18] Urban Heat Island Effects in Tacloban



Referenced: Images captured on March 14, 2024, were utilized

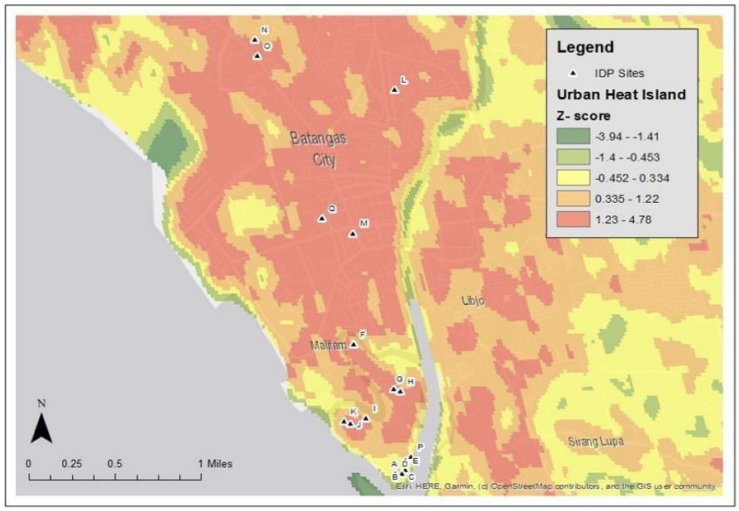
Based on the analysis of VIIRS data from 2012 to 2021, a decade-long trend reveals that after an initial population movement toward coastal areas, a subsequent shift away from the coast was observed. This pattern, however, did not appear to affect the Badjao IDPs settlement area, where the population around the settlement remained relatively stable throughout the period.

[Figure 19] (a) VIIRS change from 2012 to 2016 (left), and (b) VIIRS change from 2017 to 2021 in Batangas (right)



Using Landsat Band 10 imagery, it was confirmed that the Batangas region is significantly exposed to extreme urban heat. [Figure 20], observed on March 14, 2021, illustrates that most of the Batangas area is engulfed in the urban heat island effect, while a few small areas exhibit relatively lower temperatures. This variation is presumed to result from differences in urban design across regions.

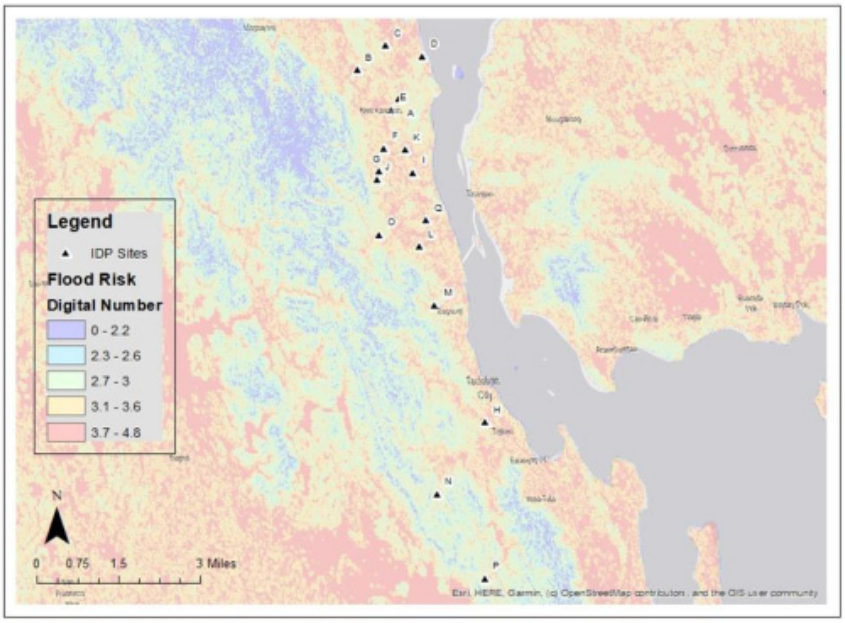
[Figure 20] Urban Heat Island Effects in Batangas



(3) Flood Risk

[Figure 21 highlights areas with low flood risk in blue and high flood risk in red. Flood risk analysis revealed that, with the exception of a small, densely populated area near Mount Naga-Naga located west of downtown Tacloban, most other regions in Tacloban are highly vulnerable to floods. Furthermore, an analysis measuring the distance between resettlement communities of IDPs and emergency response facilities indicated that most resettlement sites tend to be located at a considerable distance from these facilities. Consequently, in the event of flooding, IDPs residing in these resettlement communities would need to travel long distances, leading to increased costs and delayed emergency response times. This finding suggests a significant potential for additional harm to IDPs who have already experienced displacement.

[Figure 21] Flood Risks in Urban Areas of Tacloban



Note: Data output for VIIRS, DEM Data, and Landsat data was measured at 30 by 30-meter spatial resolution.

The number of emergency response facilities near Tacloban's IDPs resettlement communities varies from 1 to 15, with Saint Francis Village identified as having the highest number of such facilities. According to the Total Score of Vulnerability (TSV), flood risks range between 1.75 and 4.5. Among these, Villa Diana recorded the lowest risk level at 1.75, while Villa Sofia had the highest risk level at 4.5. Notably, Villa Sofia, the most vulnerable in terms of flood risk, has a scarcity of emergency response facilities within a 1.5 miles radius.

Additionally, observations from VIIRS nighttime light data from 2003 to 2023 indicate a consistent population increase in Villa Sofia. Despite showing no statistically significant difference in flood risk compared to other resettlement sites, its relative vulnerability is evident. Conversely, Villa Diana was identified as a low-vulnerability area. Although Villa Diana and Villa Sofia share certain commonalities, Villa Diana's relative safety against flooding can be attributed to its higher number of emergency response facilities and abundant green spaces.

These factors suggest that accessibility to emergency facilities and green spaces plays a crucial role in mitigating vulnerability, highlighting the influence of economic considerations in Tacloban's urban design.

As illustrated in [Figure 21, a vast portion of Tacloban is exposed to flood risks due to its elevation and slope, underscoring the need to integrate climate disaster safety into urban planning. For instance, reducing paved surfaces, expanding green spaces, developing communities away from low-lying areas, and constructing additional emergency response facilities to accommodate population growth can reduce climate vulnerability and strengthen the resilience of IDP resettlement communities.

[Table 11] Variances of Flood Risk-based Climate Vulnerability in IDPs resettlement, Tacloban

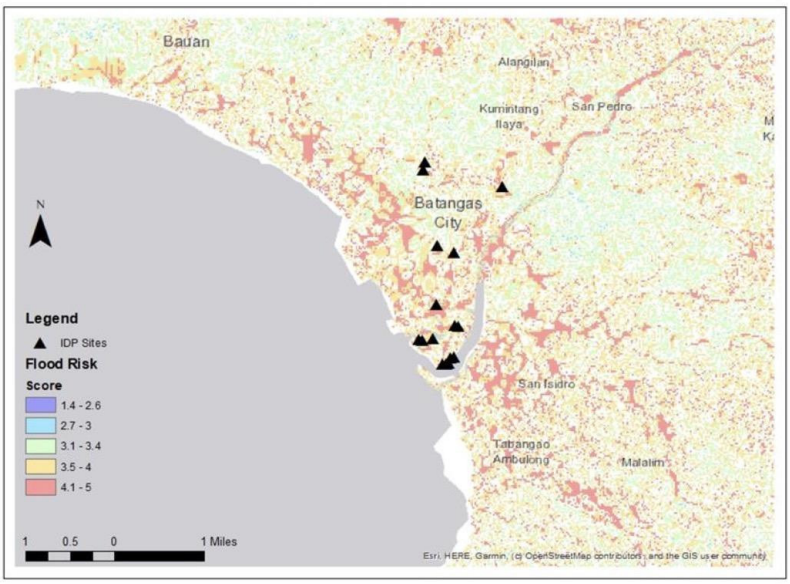
IDP Camp Name	Location In the Map	Type	Number of Emergency Facilities within 1.5 miles of IDPs	Flood Risk, 1 to 5	NDVI	NDUI	Rank of Emergency Response	Rank of Flood Risks	Rank of NDVI	Rank of Urban Change	Total Score of Vulnerability (TSV)
Villa Sofia	D	Gov	4	1.950295884	0.280682476	0.191067502	7	4	4	3	4.5
Salvacion Heights	P	Gov	1	3.172002409	0.431944093	0.212042208	8	2	2	3	3.75
Operation Blessing	N	NGO	4	2.999778069	0.442148707	0.198465322	7	3	2	3	3.75
New Hope Village	B	Gov	5	3.295488292	0.391943406	0.006500302	6	2	3	4	3.75
Sangway Village	C	Gov	5	3.533385922	0.351262959	0.271193644	6	1	3	3	3.25
North Hill Arbors	F	Gov	11	3.125502626	0.421911799	0.773699665	5	2	2	3	3
SM Cares Village	A	NGO	12	3.45838553	0.383774233	0.658274327	4	2	3	3	3
Lions Village	Q	NGO	13	3.312849201	0.281070192	0.562740266	3	2	4	3	3
Dreamville	M	NGO	12	2.98111502	0.425250985	0.382165817	4	3	2	3	3
GMA Kapuso Village	K	NGO	12	3.404653108	0.39011511	1.015892005	4	2	3	2	2.75
Ridgeview Park	L	Gov	12	3.134308167	0.409933125	0.914210588	4	2	2	3	2.75
Pope Francis Village	H	NGO	13	3.286220579	0.36745776	0.259288215	3	2	3	3	2.75
Knightsbridge	O	Gov	12	2.612739862	0.453822749	0.204260721	4	3	1	3	2.75
Guadalupe Heights	J	NA	14	2.869628133	0.446165944	0.259331575	2	3	2	3	2.5
Greendale Residences	G	Gov	14	3.196417527	0.412775035	0.530423987	2	2	2	3	2.25
Saint Francis Village	I	Gov	15	3.473333365	0.316021463	1.269152939	1	2	3	2	2
Villa Diana	E	Gov	14	3.378399258	0.404659537	1.669862827	2	2	2	1	1.75

Furthermore, as shown in [Figure 22, flood risks were also distinctly observed across the entirety of Batangas.[87] This suggests the necessity of considering urban

87) As the standard deviation of NDVI (0.070) and NDUI (0.042) in the Batangas region is close to zero, the Total Vulnerability Score (TSV) for flood risk was not calculated to compare the vulnerability rankings among Badjao IDPs settlements.

design modifications to mitigate flood risks at the scale of the entire Batangas region. However, due to the limitations of Landsat's spatial resolution, it is challenging to accurately identify localized flood risks in areas such as the Badjao IDPs settlement. Conducting additional studies with higher-resolution data would be valuable for generating detailed, location-specific recommendations.

[Figure 22] Flood Risk Map of IDPs resettlement in Batangas



4.1.4 Summary

An examination of climate vulnerabilities in Tacloban and Batangas revealed that both cities are exposed to risks related to urban heat islands and floods. In Tacloban, IDP resettlement communities are spread across a wide area and exhibit characteristics similar to suburban regions, whereas in Batangas, the settlements are located in densely populated urban environments. Both areas showed signs of growth in terms of population density and urbanization, as indicated by changes in VIIRS data. However, these developments were also accompanied by design-related issues that could exacerbate vulnerabilities to climate change.

In Tacloban, the accessibility of emergency response facilities around resettlement

communities was generally low. Some communities, such as Villa Sofia in the northern suburban area, had access to only one emergency facility, highlighting significant infrastructure disparities for climate disaster response. Comparative analysis using Landsat data confirmed that Villa Sofia's high flood risk is primarily due to its limited access to emergency facilities. Additionally, areas like Pope Francis Village and Saint Francis Village experienced distinct urban heat challenges due to insufficient green spaces and urban development. Despite having better accessibility to emergency facilities, these areas remained vulnerable to flooding, indicating the need for innovative urban design approaches to strengthen climate disaster resilience.

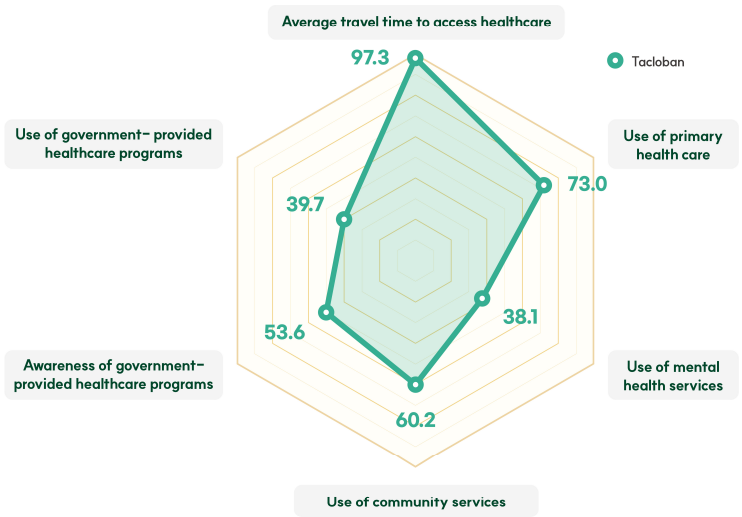
4.2 Key Findings from Vulnerability Analysis in Tacloban

4.2.1 Findings from Household Surveys

(1) Health Vulnerability

[Figure 23] Health Vulnerability of Climate-induced IDPs in Tacloban

0 (high vulnerability) ↔ 100 (low vulnerability)



The radial chart above illustrates the principal findings of the survey of IDPs in

Tacloban, which assesses their vulnerability with respect to health on a scale of 100. Although the average travel time to access healthcare (97.3 points on a scale of 100) was found to be relatively low, with most individuals traveling less than 30 minutes, indicating a relatively low vulnerability, further analysis was necessary to account for the local context. This analysis is described in detail below. Additionally, perceptions of access to primary health care (73 points) and community services (60.2 points) are relatively high, indicating that vulnerability is not a significant concern in these areas. Conversely, awareness (53.6 points) of and access (39.7 points) to healthcare programs offered by the government was relatively low, as was awareness of the availability of mental health services (38.1 points). This indicates the necessity to improve services by improving the publicity of government programs or identifying and supplementing programs needed by the IDPs in Tacloban.

When analyzed in conjunction with the detailed health-related survey questions, the physical healthcare facilities for IDPs in Tacloban appears to be relatively accessible. For instance, 83% of respondents indicated that they utilized public transportation to access healthcare facilities, and 92% asserted that they could reach the nearest healthcare facility within 30 minutes of their residence. However, while survey response indicate low vulnerability in terms of physical accessibility, we cannot assume the dame for overall health. During the field survey, it was discovered that the cost of transportation to visit healthcare facilities within a 30-minute radius constituted a significant financial and temporal burden for IDPs in Tacloban who were experiencing financial difficulties.

In terms of utilization of services, over half of the respondents indicated that they could utilize primary healthcare services (77%) and community services such as childcare programs and shelters (61%). When queried as to whether they had utilized health services when necessary over the past 12 months, 52% of respondents indicated that they had done so. Further cross-analysis and t-tests confirmed the absence of significant differences in health service utilization based on gender or age group. The primary reasons for utilizing health services were

diabetes, hypertension, and cancer, which are non-communicable diseases (27%), and injuries such as lacerations, burns, fractures, and dislocations (18%) or coughs, colds, and fevers (17%). The remaining responses (29%) were primarily associated with visits to healthcare facilities for health checkups or for reasons related to pregnancy and childbirth. A majority (91%) of respondents indicated that government-run public health centers (at the barangay, municipal, and national levels) represent their initial point of contact when seeking healthcare services.

The respondents demonstrated limited awareness of the government-provided healthcare programs, such as free prescription drugs and vaccines. However, the utilization of these programs was even more limited. The results indicate that the government's efforts have not been adequately publicized, that the information delivery methods have not been readily comprehensible, or that the programs offered have not been closely aligned with the needs of IDPs in Tacloban.

Furthermore, the low level of awareness regarding mental health services indicates that the availability of mental health treatment is comparatively limited in comparison to that of primary healthcare services. The Tacloban resettlement community is predominantly composed of IDPs from the Philippines as a consequence of Typhoon Haiyan. In the event that a significant number of individuals require treatment for trauma resulting from a major natural disaster, it is imperative to underscore the necessity for enhancements in the accessibility of mental health services.

Furthermore, 47% of respondents indicated that a member of their household had not received adequate care due to the financial burden associated with healthcare expenses. Other reasons for not receiving health services included the use of folk remedies (15.2%) and the unavailability of healthcare facilities or hospital beds (2.5%). The state of not receiving or being unable to receive healthcare services despite the need for such services is called the "experience of unmet healthcare needs," and it is one of the key indicators to be assessed for improving healthcare accessibility (Ha, 2023). The respondents to the Tacloban survey corroborated that

the primary cause of the experience of unmet healthcare needs was economic. It is noteworthy that within Tacloban, the proportion of individuals who reported that the cost of treatment was a reason for forgoing treatment was higher in DREAMVille than in North Hill Arbours. This suggests that even within Tacloban, financial access to healthcare was not relatively low in DREAMVille.

[Table 12] Reasons for Unmet Medical Needs by Villages (DREAMVille, North Hill Arbours) in Tacloban

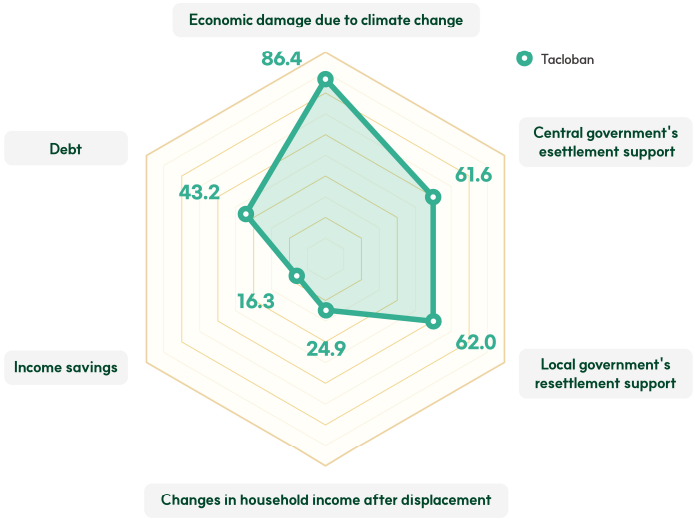
Category		Frequency	Ratio
DREAMVille	Burden of medical expenses	55	55.6
	Availability of traditional remedies	14	14.1
	Health facilities are far or no slots available	1	1.0
	Others	29	29.3
	Total	99	100.0
North Hill Arbours	Distance to healthcare facilities	2	2.0
	Burden of medical expenses	38	38.4
	Availability of traditional remedies	16	16.2
	Health facilities are far or no slots available	2	2.0
	Others	41	41.4
	Tota	99	100.0

Furthermore, 56% of individuals bear the financial responsibility of healthcare costs when accessing medical services, while others utilize government assistance (13.1%), loans (9.1%), PhilHealth (8.6%), or familial support (8.6%) to cover their healthcare expenses. The findings of the Tacloban survey indicate that respondents lack adequate financial access to healthcare.

(2) Livelihood Vulnerability

[Figure 24] Livelihood Vulnerability of Climate-induced IDPs in Tacloban

0 (high vulnerability) ↔ 100 (low vulnerability)



Looking at the key findings in the radial chart above, the livelihood vulnerability of IDPs in Tacloban is high, with many reporting a significant decrease in household income after displacement (24.87 points on a scale of 100). In addition, a majority of households were in debt (43.15 points) and had not saved in the past 12 months (16.33 points), indicating the need for policy intervention to address these issues.

The item on the extent of economic damage from climate change resulted in a score of 86.36 on a scale of 100, but this did not necessarily indicate low vulnerability. Among the households that had experienced a climate change-induced disaster in the past five years, 85.5% reported no direct economic losses. However, this is likely due to a different perception of the magnitude of the change rather than a lack of impact on IDPs who were already in a vulnerable state. In alignment with this, the most prevalent disasters reported by surveyed households over the past five years are heat waves (22.3%), tropical cyclones

(18.7%), and earthquakes (17.2%). This illustrates that IDPs are exposed to additional forms of disasters, while the impact of tropical cyclones persists due to the geographical characteristics of the Philippines. Analyses suggest that the proportion of people reporting direct economic losses is low because displaced people in Tacloban have increased their capacity to cope with the effects of the typhoons, which were the main cause of displacement, and are living in a relatively safer environment than before displacement, but there is an increasing need to identify and prepare for the possibility of damage from new disasters as climate disasters such as heatwaves affect them in different ways.

When considering the detailed items on livelihoods, the majority of respondents reported that they had not received any resettlement assistance from central or local government in the process of moving to their current location. The majority of respondents (71.7%) indicated that they had not received resettlement funding from the central government. Similarly, 73.3% of respondents reported that they had not received funding from local governments. Analysis of the responses from those who reported receiving financial assistance from the central and local governments revealed that 55% identified the central government as primarily responsible for covering resettlement costs, while 44% attributed most of the costs to the local government. These findings suggest that the responses regarding resettlement support from the central government were comparatively more favorable.

Upon analysis of the results by the resettlement community in Tacloban, it was found that a greater proportion of respondents in North Hill Arbours (34.3%) reported receiving financial assistance from the central government compared to those in DREAMVille (22.2%). However, the percentage of support from local governments was comparable between the two villages, with DREAMVille reporting 25.3% and North Hill Arbours 27.3%. North Hill Arbours is a resettlement community led by the central government. As a result, it may be assumed that it has a higher rate of experience with financial assistance than DREAMVille. However, it is also possible that the high proportion of respondents who reported

not receiving financial assistance in cash or in kind because they were only formally provided with housing is due to the fact that they understood financial assistance as part of a social program.

In terms of income generation and economic activity, the primary source of income for IDPs in Tacloban over the past six months has been small businesses. A total of 34.1% of respondents indicated that they generated income from small businesses, including street vending and handicraft sales. Additionally, 10.1% were from individuals engaged in small business or personal/household sales activities, such as jewelry sales, bartering, and fish sales. The next most prevalent source of income was irregular wage-based employment, such as seasonal labor, which accounted for 31.8% of all sources of income. As a result, IDPs in Tacloban were observed to be engaged in income-generating activities, including small business ownership and day labor, which entailed a greater degree of personal responsibility and less reliance on a stable source of income. The proportion of individuals deriving income from more stable and regular sources was 21.2%, a figure that was comparatively lower than the proportion of those deriving income from small businesses and casual employment.

A cross-sectional analysis of the primary sources of income and sectors in which respondent households are primarily engaged reveals that those with small businesses as their primary source of income are predominantly engaged in retail and fishing. Households that earned their living through seasonal or temporary labor wages tended to work in construction. This suggests that the distribution of household incomes may fluctuate in response to shifts in economic conditions and the distinctive attributes of particular industries.

[Table 13] Cross-Analysis of Primary Income Sources and Changes in Income Levels After Displacement

		Significantly decreased	Decreased	No change	Increased	Don't know	Total
Small businesses	Frequency	23	29	17	5	0	74
	Ratio	31%	39%	23%	7%	0%	100%
Seasonal labor/ irregular wages	Frequency	30	21	14	4	0	69
	Ratio	44%	30%	20%	6%	0%	100%
Regular employment wages	Frequency	15	9	15	6	1	46
	Ratio	33%	20%	33%	13%	2%	100%
Government assistance/support	Frequency	0	1	0	1	0	2
	Ratio	0%	50%	0%	50%	0%	100%
Humanitarian aid from international organizations	Frequency	2	1	0	0	0	3
	Ratio	67%	33%	0%	0%	0%	100%
Disposal of household assets	Frequency	1	0	0	0	0	1
	Ratio	100%	0%	0%	0%	0%	100%
Other opinions	Frequency	14	5	3	0	0	22
	Ratio	64%	23%	14%	0%	0%	100%
Total		77	62	44	14	1	198

Furthermore, 56.6% of the respondents indicated that they were in debt, with the primary reasons for this status being the addition of new household members (29.5%) and the purchase of essential items (17.9%). Given the considerable proportion of individuals in Tacloban who have incurred debt to support additional household members or to procure essentials such as food, water, and cooking fuel, it is reasonable to conclude that livelihoods represent a significant and urgent concern for IDPs. When asked if they could borrow money if they needed it, 65.7% said they could, indicating that borrowing is relatively easy.

Nevertheless, when queried as to whether they had saved over the past 12 months, 77.3% of respondents indicated that they had not, suggesting that the majority of IDPs are currently without savings. Moreover, even those who reported having savings were most likely to retain them in cash at home rather than in a financial institution. Field surveys confirmed that the primary source of borrowing was from loan sharks rather than first-tier financial institutions, indicating that a significant

proportion of IDPs in Tacloban are subsisting from day to day without surplus capital and that economic literacy is limited.

(3) Social Capital Vulnerability Assessment

In their pioneering work on social capital, Coleman (1988) and Putnam (1993) identified trust, norms, and networks as the main components of this concept. Although numerous studies have subsequently proposed alternative definitions of social capital, the role of trust as a fundamental element of social capital has been consistently acknowledged. In particular, Coleman (1988) and Krishna (1999) emphasized trust as a central component of social capital.

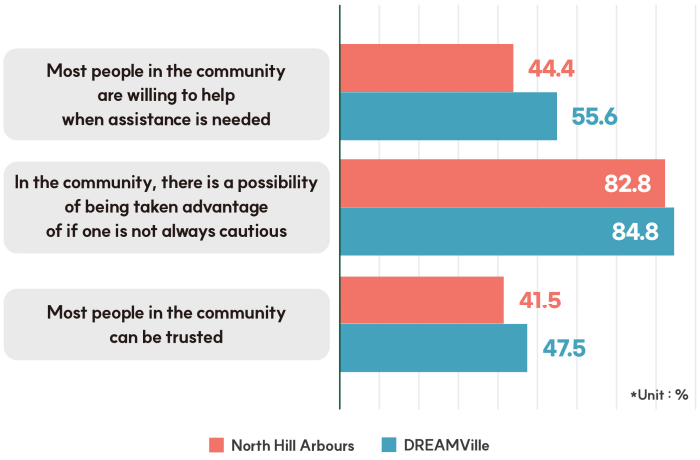
Trust as a form of social capital can be classified into two principal categories: general or social trust and institutional or organizational trust. The concept of general trust encompasses the notion of mutual trust between members of a given society, extending even to individuals with whom one has minimal or no personal acquaintance. It is founded upon the assumption that individuals will not engage in deceit or harm towards others for personal gain (Uslaner, 2020). Furthermore, it serves a pivotal function in the development of social capital, enabling social exchange and collaboration (Moon, 2019). In contrast, the concept of institutional trust pertains to the trust placed in public and private institutions. The assumption that public institutions will function in a fair and efficient manner, that policies are based on trust, and that the private sector is socially responsible and operates fairly are known to contribute positively to the activities of nations and businesses.

In alignment with this, a survey of trust in the Tacloban region indicated that a comprehensive trust structure had yet to be established. Upon inquiry as to whether they placed trust in the villagers, 44.5% of respondents indicated that they did, while 38.9% stated that they did not. A slightly higher number of respondents affirmed trust, yet the discrepancy between the two responses was not statistically significant. There were no significant differences in response rates by town. Furthermore, when questioned as to whether they had confidence in their

community to provide assistance when required, only 50% responded in the affirmative, indicating a low level of confidence in this particular aspect. By village, 55.6% of people in DREAMVille said they would be able to get help, compared to 44.4% in North Hill Arbours. This suggests that residents in DREAMVille are more likely to perceive that they would be able to access help if needed. On the other hand, when asked if they would be taken advantage of if they weren't always vigilant in their villages, DREAMVille respondents were 2 percentage points more likely to say yes, indicating that DREAMVille residents tend to be both trusting and wary of their villagers.

[Figure 25] Social Trust Levels by Village

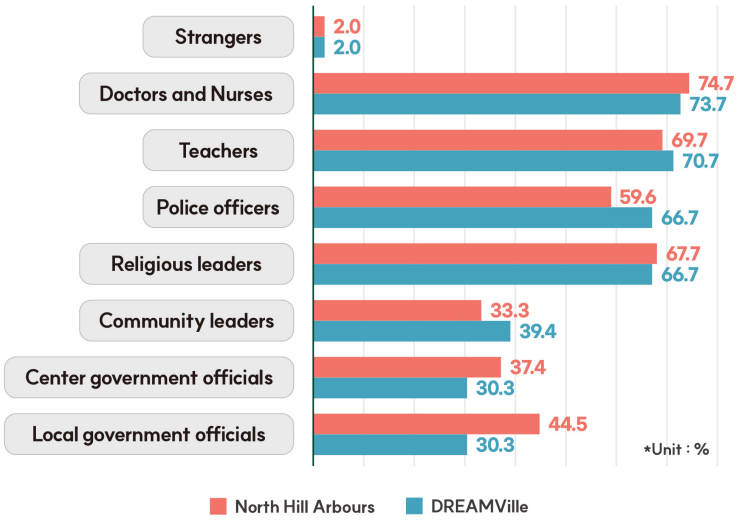
[number of respondents = 198]



Conversely, it appears that institutional trust is more firmly established than general trust. Despite the general lack of confidence in the government, there was a notable degree of trust in public sector employees, including healthcare professionals, educators, and law enforcement officials. In particular, levels of trust in central and local government officials are higher in North Hill Arbours, which was established by the central government, than in DREAMVille, which was established by the nonprofit Catholic Relief Services (CRS). Furthermore, levels of trust in village leaders are higher in DREAMVille, where village self-governance is running relatively smoothly.

[Figure 26] Institutional Trust Levels by Village

[number of respondents = 198]



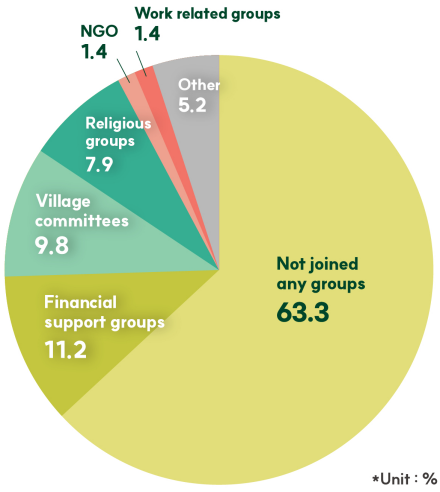
The category most commonly associated with social capital is that of groups and networks. This category assesses the extent to which people participate in and interact with various types of social groups and informal networks. It denotes the extent of voluntary collective action, with an individual's engagement within a group or network exerting a significant influence on the development of social cooperation and mutual trust. These intergroup or interpersonal networks serve as a crucial component of social capital, offering a platform for members to collaborate, facilitate communication, and advance social cooperation (Putnam et al., 1993; Putnam, 2000).

In light of these considerations, a study was undertaken to ascertain the organizations to which IDPs in Tacloban belong and the nature of their interactions, including the provision and receipt of assistance. The survey findings indicated that the majority of IDPs surveyed (63%) reported that they had not joined any organizations over the past 12 months. This suggests that IDPs are less likely to engage with formal social networks or groups. Among those who indicated that they were members of a group, financial support groups were the most

prevalent (11.2%), followed by village committees (9.8%) and religious groups (7.9%). This suggests that IDPs are primarily engaged in financial support groups to address economic needs or livelihood issues or belong to village committees where they contribute to some degree to community decision-making. It is evident that religious groups serve as significant networks, thereby demonstrating that faith-based social solidarity continues to exert a considerable influence.

[Figure 27] Group Membership (Past 12 Months)

[Number of respondents = 198]



Among those belonging to a group, 50% have received emotional support from an affiliated organization, most commonly from religious groups, village committees, and financial support groups. Among those with an affiliated group, 59% of respondents indicated that they had never received financial support, suggesting that financial assistance was less prevalent than emotional support. Among those who did receive financial support, it was more likely to originate from financial support groups, religious groups, and village committees. The findings reveal that in the Tacloban survey respondents' communities, membership in certain groups and activities is quite limited, but they do possess access to emotional and financial assistance from financial support groups, village committees, and religious groups.

At the individual level, respondents were most likely to have received emotional support in the past 12 months from family (30.0%), friends (18.1%), and relatives (16.8%), and financial support from family (40.4%), relatives (16.6%), and local government (14.6%). This finding is consistent with the family-centered culture of the Philippines, indicating that family and relatives serve as the primary social capital network. This trend is also reflected in the responses of IDPs from Tacloban, who indicate that their primary sources of information are relatives, friends, and neighbors, in addition to mass media, social media, or the Internet.

A total of 52% of respondents indicated that they would be able to obtain financial assistance from their neighbors in the event of an emergency, while 58.1% stated that they would be able to arrange for someone to care for their family in the event of their absence for a day or two. In the event of a long-term challenge, such as the death of a family member or loss of employment, 54% of respondents indicated that they had access to a source of assistance. Accordingly, over half of the respondents indicated that they believed they could obtain practical assistance from their local community for both immediate and long-term challenges. The results of the independent samples t-tests indicated that respondents with debt (mean 3.55, SD=1.407) were statistically significantly more likely than those without debt (mean 2.98, SD=1.596) to indicate that they had neighbors they could turn to for assistance in the event of an emergency financial situation, in addition to close family members.

[Table 14] Levels of Agreement on Statements Based on Debt Status

Category	No debt (n=85)		Has debt (n=112)		t(p)
	Mean	SD	Mean	SD	
Small loans	2.98	1.596	3.55	1.407	-2.690(0.008**)
Short-term family care	3.21	1.746	3.53	1.605	-1.298(0.196)
Long-term emergency	3.28	1.623	3.37	1.446	-0.382(0.703)

*p<.05, **p<.01, ***p<.001

Finally, collective action and cooperation are significant indicators of social capital, reflecting the perception of a community's capacity to collaborate

effectively in addressing a shared objective or public concern. It is beneficial to examine this aspect because, in the majority of cases, collective action and cooperation are feasible when there is a sufficient level of social capital within a community (World Bank 2004).

The results of the survey of Tacloban residents' expectations regarding collective action and cooperation indicated that 72.2% of respondents believed that the town would act collectively to address a public problem, such as a water supply issue. This shows that residents are prepared to collaborate in order to address public issues within their communities.

Furthermore, 78.8% of respondents indicated that they would be able to obtain assistance from their community in the event of a personal crisis, such as a serious illness or the death of a parent. This indicates a robust anticipation that neighbors and the community will offer reciprocal assistance in instances of personal adversity, which points to a relatively well-entrenched culture of social solidarity and collaboration in Tacloban. Notably, this perception of collective action and cooperation varied by length of residence. With regard to the aforementioned item, an independent samples t-test was employed to examine the influence of residency on collective action and cooperation. The findings revealed that the mean score on the Likert scale for respondents who have resided in the current area for a minimum of six years was 4.30 (SD=1.108), which was statistically significantly higher than that of respondents who have resided in the area for a period of one to five years. It suggests that a longer residency is associated with higher levels of trust and expectations of collective action and cooperation within the community.

[Table 15] Levels of Agreement on Statements Based on Length of Residence

Category	1-5yrs(n=81)		above 6yrs (n=117)		t(p)
	Mean	SD	Mean	SD	
In case of water supply issues	3.80	1.461	3.94	1.385	-0.672(0.502)
In case of issues with community members	3.85	1.415	4.30	1.108	-2.383(0.018*)

*p<.05, **p<.01, ***p<.001

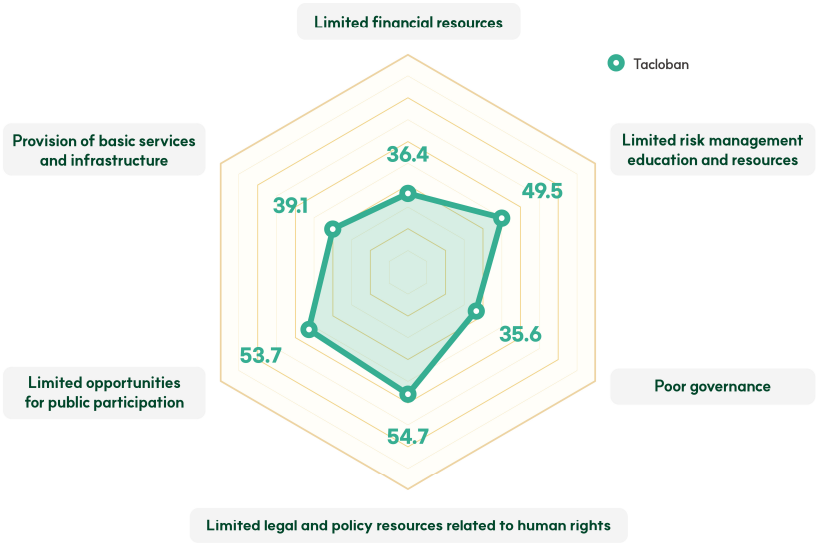
The findings indicate that prolonged residence in a specific region fosters a sense of trust within the community, which can subsequently enhance the level of mutual assistance and collaboration. This is a significant indicator that networks within a community become more robust over time. Consequently, residents are better equipped to collaborate in addressing shared challenges.

(4) Community adaptive capacity vulnerability

① Central government policy and support vulnerability

[Figure 28] Vulnerability of Climate-induced IDPs in Tacloban to Central Government Policy and Support

0 (High Vulnerability) ↔ 100 (Low Vulnerability)



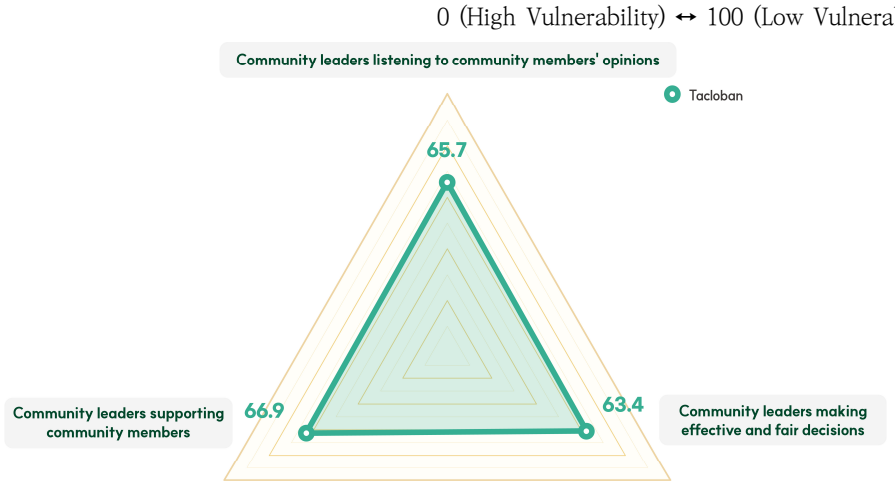
The majority of IDPs in Tacloban who were surveyed exhibited relatively low trust in the central government. Furthermore, they rated the risk of the impact of central government policy support on their current location as high. In particular, respondents awarded an average score of 35.61 (out of 100) to the issue of poor governance due to a lack of transparency and corruption in the central government. This was perceived as a serious risk by 65% of all respondents.

Furthermore, 64% of respondents indicated that the risk of a lack of financial support to the community was high, with an average score of 36.36 (out of 100) for this item.

Upon analysis of the responses from the resettlement sites in Tacloban, no significant differences were observed in the majority of items. However, there was a notable discrepancy of over 10%p between the two communities with regard to limited risk management education and training, as well as limited community resources (DREAMVille 35.4%, North Hill Arbors 45.5%) and the potential impact on the provision of essential services and infrastructure (DREAMVille 61.6%, North Hill Arbors 49.5%). DREAMVille is a resettlement community under the guidance of a nonprofit organization where many disaster preparedness trainings and drills have been held. This may be indicative of the fact that residents of DREAMVille do not perceive the lack of risk management education, training, and resources to be a significant risk factor in the same way that residents of North Hill Arbors do.

② Perceived Vulnerability in Local Leadership

[Figure 29] Perceptions of Local Leaders Among Climate-induced IDPs in Tacloban



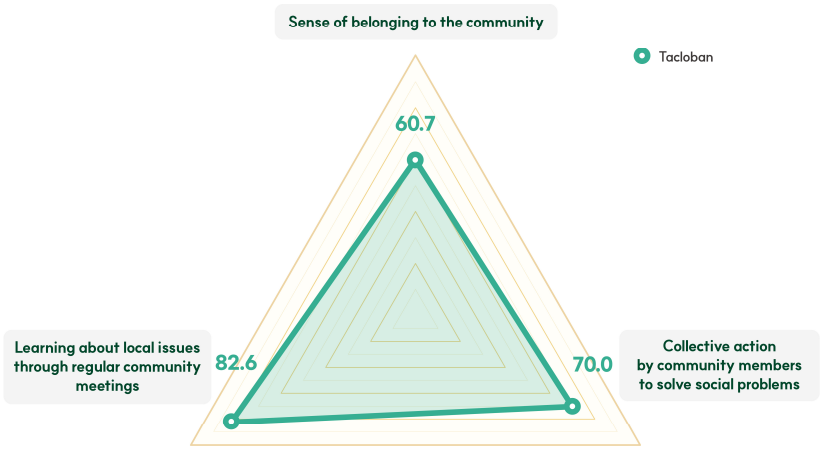
In Tacloban, the level of trust in community leaders and governance, including village leaders, was found to be relatively high, with all scores exceeding 60 on a

100-point scale, indicating a low vulnerability. In response to the inquiry regarding the adequacy of community leadership in providing support to residents in need, approximately 65% of respondents indicated affirmatively, with a mean score of 66.92 for this item. In response to the question of whether community leaders were making effective and fair decisions for the community, nearly 65% of respondents indicated that they were, resulting in a converted score of 63.38. Lastly, 59% of respondents indicated that they agreed with the assertion that regional leaders are attentive to the concerns of local constituents. This item was assigned a scaled score of 65.66. It is notable that across all items, positive responses constituted the majority. A greater proportion of IDPs in Tacloban were found to rely on community leaders, such as barangay officials, for information regarding government assistance and benefits, as opposed to the central government. Additionally, a higher level of trust was observed in community leaders among this population. The findings indicate that the Tacloban community exhibits a reduced vulnerability in this regard

③ Vulnerability in Community Belonging

[Figure 30] Vulnerability of Community Belongingness Among Climate-induced IDPs in Tacloban

0 (High Vulnerability) ↔ 100 (Low Vulnerability)

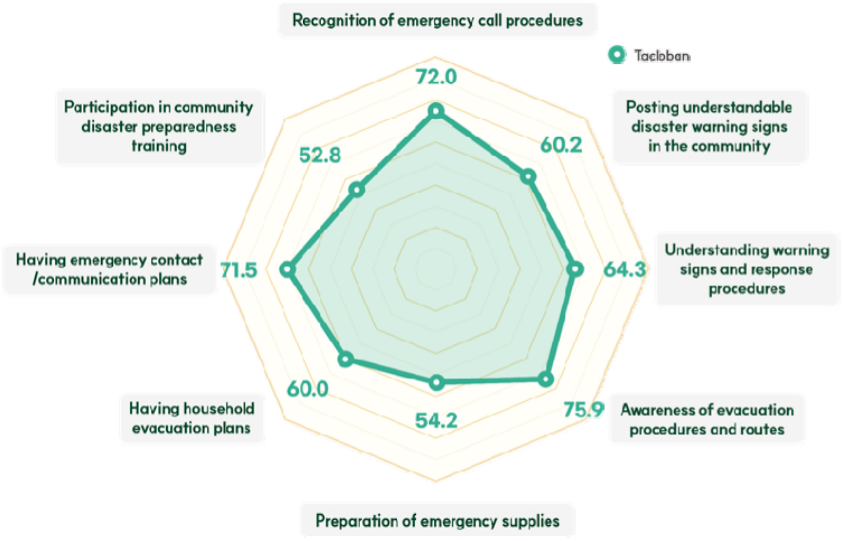


The sense of community among IDPs in Tacloban was found to be 60.73 on a scale of 100, with 60% of those surveyed responding affirmatively to the statement that community members feel a strong sense of belonging. This shows that IDPs have some sense of community within their current social environment. Nevertheless, the degree and significance of this sense of community can be interpreted in a multitude of ways, as individuals tend to uphold social benefits through close connections to their former barangay officials or define their community in disparate ways. In addition, 69% of respondents indicated that village members were willing and motivated to engage in collective action to address community issues, with a mean score of 70.08 on a 100-point scale. This demonstrates a profound dedication to collaborative problem-solving within the community. In particular, the motivation for this collective action suggests the presence of cohesion and solidarity in the community. Furthermore, 85% reported that village members kept up with local issues and news through regular village meetings. This illustrates the growing significance of village meetings as a conduit for the dissemination of information and the facilitation of communication. It also demonstrates that residents are proactively engaged in acquiring knowledge about matters pertaining to the community. The findings indicate that village meetings are a significant contributor to enhanced community communication and collaboration.

④ Vulnerability in Disaster Awareness and Preparedness

[Figure 31] Vulnerability of Disaster Awareness and Preparedness Among Climate-induced IDPs in Tacloban

0 (High Vulnerability) ↔ 100 (Low Vulnerability)



IDPs in Tacloban, who had been displaced due to climate change-related disasters, were generally more aware of what to do in the event of a disaster. With regard to the ability to make an emergency call in the event of a disaster, the mean score was 71.97 on a scale of 100, indicating that the majority of respondents were aware of the procedures for obtaining assistance in the event of an emergency. In addition, the score for knowing how and where to evacuate in the event of a disaster was 75.88, indicating a low vulnerability to these items.

Conversely, there is some variation, with a score of 60.23 out of 100 for awareness of disaster warning signs in the community and 64.27 for awareness of warning signs (such as emergency sirens) and what to do in case of a disaster. Furthermore, the majority of respondents in DREAMVille (74%) indicated that they are aware of the warning signs, such as sirens, and know how to respond to them. In contrast, in the North Hill Arbours neighborhood, awareness of these warning signs is relatively low (57%).

Additionally, an independent samples t-test indicated that there was some variability in responses to disaster awareness. A comparison of the mean scores of items responded to on a Likert scale for the statement that disaster warning signs are clearly posted in a language that local residents can understand revealed that the mean response score for DREAMVille respondents was 3.84 (SD=1.483), while that for North Hill Arbors respondents was 3.30 (SD=1.675). The discrepancy was subjected to statistical analysis, which revealed that it was statistically significant at t=2.381 ($p<0.05$).

[Table 16] Perception Differences on Disasters by village (DREAMVille, North Hill Arbours) in Tacloban

Awareness of How to Receive Emergency Support During Disasters	DREAMVille (n=99)		North Hill Arbours (n=99)		t(p)
	Mean	SD	Mean	SD	
Appropriateness of Language Used on Disaster Warning Signs	3.87	1.283	3.89	1.399	−0.106 (0.916)
Residents' Understanding of Disaster Warning Signs	3.57	1.572	3.25	1.680	1.354 (0.177)
Awareness of Evacuation Procedures and Routes During Disasters	3.84	1.483	3.30	1.675	2.381 (0.018*)
Awareness of Evacuation Procedures and Routes During Disasters	3.91	1.478	4.16	1.315	−1.270 (0.206)

*p<.05, **p<.01, ***p<.001

Furthermore, individuals who had resided in their neighborhood for a minimum of six years exhibited a statistically significant correlation with the assertion that the majority of local residents possess a comprehensive understanding of the evacuation procedures and routes in the event of a disaster, as compared to those who had lived in their neighborhood for a period of one to five years.

[Table 17] Perception Differences on Disasters by Length of Residence (1-5 Years, 6+ Years) in Tacloban

Category	1-5years(n=81)		above 6years (n=117)		t(p)
	Mean	SD	Mean	SD	
Awareness of How to Receive Emergency Support During Disasters	3.81	1.295	3.92	1.372	-0.558 (0.577)
Appropriateness of Language Used on Disaster Warning Signs	3.32	1.649	3.47	1.622	-0.632 (0.528)
Residents' Understanding of Disaster Warning Signs	3.57	1.581	3.57	1.621	-0.020 (0.984)
Awareness of Evacuation Procedures and Routes During Disasters	3.79	1.531	4.21	1.283	-2.001 (0.047*)

*p<.05, **p<.01, ***p<.001

On the other hand, it was found that IDPs have adequate plans to prepare for possible future disasters, but in practice, they were somewhat underprepared in terms of disaster preparedness supplies and disaster preparedness drills. In particular, the establishment of a communication plan for contacting family members or neighbors in the event of a disaster was rated 71.47 on a scale of 100, indicating that individuals were not vulnerable to lacking a communication system in place during an emergency. However, the other categories remained in the 50s across the board, indicating that intervention was needed to improve vulnerabilities.

The respondents demonstrated a mean score of 59.85 on a 100-point scale when asked if they had a plan for evacuation, including the identification of prioritized items and the delineation of escape strategies in the event of a disaster. In contrast, the mean score was 54.17 when asked if local residents have emergency supplies in their homes or vehicles to prepare for a disaster. These scores show that there is still room for improvement in the areas of supply preparation and evacuation planning.

The item with the lowest score was participation in household and community disaster preparedness training, with a score of only 52.78 out of 100. This indicates

a relatively high vulnerability to participation in drills and suggests that more active participation in drills is needed to improve response capabilities in real-world disasters. It is noteworthy that when responses to this item were compared by neighborhood, DREAMVille had a 58.6% participation rate, while North Hill Arbors had a relatively low participation rate of 46.4%. The findings indicate a necessity for program development and policy support to enhance disaster preparedness and participation in drills, with the objective of elevating the overall level of disaster preparedness among IDPs. Furthermore, additional interventions or support may be required in specific geographic areas.

[Table 18] Key Findings from Quantitative Analysis in Tacloban

Category	Vulnerability assessment
Health	· Relatively low vulnerability in physical accessibility to healthcare facilities · Low financial accessibility, leading to treatment abandonment due to cost burdens · Low awareness of health programs provided by central/local governments · Low utilization of health programs provided by central/local governments
Livelihood	· Limited reports of direct economic damage related to climate change, but the need for detecting and preparing for potential impacts of newly emerging disasters · Insufficient resettlement support from central/local governments · Small-scale businesses (e.g., street vending, handicraft sales) and irregular wages (e.g., seasonal day labor) as primary household income sources · Frequent debt accumulation due to accommodating additional household members and purchasing essential survival items · Low savings rates due to livelihood difficulties, with most savings kept at home rather than in financial institutions · Significant decline in household income levels compared to pre-migration circumstances
Social capital	· A tendency to trust neighbors while remaining cautious · High levels of trust in healthcare workers, educators, police, and religious leaders · Participation in groups and networks is limited to specific needs and contexts · Family, relatives, and acquaintances function as primary social capital networks · Relatively strong willingness to cooperate in addressing public issues within the community
Community adaptive capacity	· Insufficient financial support from the central government for community development · Poor governance due to a lack of transparency and corruption in the central government

Category	Vulnerability assessment
	· Inadequate disaster risk management education and resources provided by the central government · Insufficient infrastructure and basic services provision by the central government · Local leaders demonstrate good responsiveness to community members' opinions · Local leaders provide effective support to community members · Local leaders make fair and effective decisions · Awareness of response measures and evacuation procedures during disasters · Limited awareness of disaster warning signs and signals within the community · Insufficient preparation of emergency supplies and participation in community disaster training

4.2.2 Findings from Qualitative Research

(2) Vulnerability of IDPs in the climate disaster, displacement, and resettlement phases

① Climate Disaster Phase

Typhoon Haiyan swept across Tacloban with remarkable swiftness, disrupting the lives of victims and inflicting significant damage upon the livelihoods of coastal communities. Not only did the victims lose their homes and livelihoods, but they were also forced to grapple with the anguish of losing their loved ones, including family members, relatives, and neighbors, in the disaster. As reported by respondents, Tacloban appeared to be a "ghost city" in the immediate aftermath of Typhoon Haiyan, with the storm's intensity exceeding initial expectations. Given the topography of Tacloban, the majority of residents who had previously experienced frequent typhoons and heavy rains heeded the warnings issued through news and social media outlets, preparing for evacuation by packing simple food and tools. They sought refuge in safer areas, nearby accommodations, and relatives' homes. Nevertheless, even for those who were evacuated to safer locations and provided with more durable materials, the destructive force of the typhoon proved overwhelming. The strong winds that swept in from the coast caused the boats used to evacuate them to capsize, resulting in the immediate

destruction of their homes.

The majority of victims, who were residing in informal settlements in coastal regions, were unable to secure immediate shelter and sustenance. Consequently, they were compelled to relocate expeditiously to any available place, even if only for a brief period. Those who participated in this study recalled being separated from their families and staying in schools, public buildings, or the homes of close relatives as temporary shelters for brief periods of time. However, the typhoon caused severe damage throughout Tacloban, including the loss of critical infrastructure, and the city was unable to meet the sudden increase in demand for basic necessities such as water, food, and clothing. The trauma and lack of resources caused by Typhoon Haiyan left the victims in a state of extreme anxiety and fear. In many parts of the country, the threat of riots led to a state of panic before emergency assistance from international organizations arrived.

② displacement phase

As the recovery process from climate-related disasters has been prolonged, a significant number of individuals have opted to relocate for reasons pertaining to family security and economic stability. Those residents who had relatives residing in the city, such as in downtown Tacloban, or who were able to access information regarding various forms of government assistance through their barangay officials were afforded the opportunity to relocate to temporary shelters. However, those affected were compelled to evacuate Tacloban and seek refuge in surrounding areas, as they were unable to secure shelter in closer proximity. One individual who was displaced as a result of Typhoon Haiyan stated that, in the aftermath of the disaster, he relocated his family from Tacloban, which was experiencing significant instability in terms of security and resources, to Cebu in order to seek safer living conditions and more sustainable livelihood opportunities. In the aftermath of Typhoon Haiyan, the provincial government deployed military aircraft to facilitate the displacement of victims in Tacloban to Manila, Cebu, and other

destinations. However, he elucidated that he also encountered profound discrimination in the area to which he relocated in his pursuit of employment. Consequently, he was compelled to return to Tacloban to secure work after a mere week, leaving his family behind. The government provided emergency transportation to assist victims, yet the absence of supplementary measures to bolster the resilience of individuals in areas where they were compelled to flee led to a multitude of instances where people opted to relocate and subsequently returned, compelling numerous households to live apart from their families. Therefore, IDPs who were already socially vulnerable as a result of climate-related disasters, such as the loss of livelihoods, encountered even greater challenges due to the lack of adequate government assistance and the experience of repeated displacement.

③ Resettlement Phase

(a) Preparation for resettlement

Governmental-level policies were put in place to support victims of Typhoon Haiyan in the Tacloban region, and resettlement centers were established in northern Tacloban. North Hill Arbours was built by the National Housing Authority (NHA), a state agency, and DREAMVille was built by CRS, an international CSO, at the request of the local government of Tacloban. In both resettlement communities, priority was accorded to informal settlers situated along the coastal areas among the typhoon victims. The final beneficiaries were identified in coordination with their respective barangays. Following the selection of a site and the construction of requisite infrastructure, such as housing, the resettlement of IDPs commenced in 2015 at North Hill Arbours and in 2020 at DREAMVille, following a more extended preparatory phase.

The majority of IDPs in North Hill Arbours who participated in this study either resided in government-provided transitional shelters for a brief period before being relocated to the resettlement community due to the collapse of their original

shelters along the coastline as a result of Typhoon Haiyan, or they constructed makeshift dwellings within their original shelters and were subsequently relocated upon the completion of the construction of the resettlement community housing units. In a statement released to the press, IDPs in North Hill Arbours revealed that, following the climate disaster, they had received no further official assistance from the government beyond the pledge of housing in a resettlement community.

Conversely, individuals displaced from their homes at DREAMVille were provided with financial assistance from CRS to assist each household in locating suitable accommodation while awaiting the conclusion of the displacement process and the subsequent resettlement to a designated community in 2020. The aforementioned circumstances have permitted the inhabitants to reside in a secure environment, free from the recurrent devastation wrought by climate-related catastrophes that have afflicted the coastal regions, even in the aftermath of Typhoon Haiyan. In addition, the five years preceding displacement were utilized as a preparatory period for life in the resettlement community. During this time, CRS concentrated its efforts on pre-organizing the seven clusters, establishing leadership, providing specialized training, and implementing a system to guarantee that the formation of the resettlement community would be led by the IDPs themselves.

Moreover, training programs, including various seminars and forums for IDPs, were established, and prospective settlers were required to participate continuously. The initiative facilitated interaction and the exchange of experiences among IDPs from disparate barangays. It also provided education on social behaviors, attitudes, and other pertinent topics, with the objective of fostering mutual growth and resilience in the context of displacement. Additionally, it offered vocational training for livelihood support and disaster response training, with the aim of equipping participants with the skills and knowledge to navigate future risks.

The IDPs were also engaged in the construction phase of the resettlement community, wherein their preferences for their future residence were reflected. Furthermore, they were involved in the ongoing construction phase, during which

they were afforded the opportunity to express their opinions through site visits, meetings with representatives, and feedback boxes. The evidence suggests that the provision of preparation and support to IDPs in the pre-resettlement phase has the effect of reducing the incidence of displacement. The support provided by DREAMVille represents a shift towards a more comprehensive approach to the communities and livelihoods that will emerge in resettlement communities. This approach views resettlement as both an end goal and a process, necessitating a holistic and integrated strategy.

Despite the various efforts made by CRS prior to the establishment of these resettlement communities, there were several limitations. The majority of support programs designed for IDPs were oriented towards adults and thus failed to adequately address the heterogeneous needs of vulnerable groups, including the elderly, youth, and individuals with disabilities. Moreover, although programs for IDPs are devised with the objective of ensuring a sustainable and feasible resettlement, issues of sustainability and feasibility have been identified. As the majority of the programs were externally funded and had a limited duration, they concluded before the resettlement phase, leaving no established mechanisms to facilitate the accommodation and adaptation to the challenges inherent to this phase. In particular, vocational training provided to IDPs with livelihood vulnerabilities was identified as a constraint that was not utilized after displacement. This was due to the fact that the training provided was not easily applicable within the resettlement community setting, for example, organic farming.

[Table 19] List of Resettlement Sites in Tacloban

No.	Name of resettlement sites	leading organization
1	SM Cares Village	NGO
2	New Hope Village	Government
3	Sangway Village	Government
4	Villa Sofia	Government
5	Villa Diana	Government
6	North Hill Arbours	Government

No.	Name of resettlement sites	leading organization
7	Greendale Residences	Government
8	Pope Francis Village	NGO
9	Saint Francis Village	Government
10	Guadalupe Heights	Government
11	GMA Kapuso Village	NGO
12	Ridgeview Park	Government
13	DREAMVille	NGO
14	Operation Blessing (Community of Hope)	NGO
15	Knightsbridge	Government
16	Salvacion Heights	Government
17	Lions Village	NGO

(b) Causes of Resettlement

The majority of IDPs in the resettlements studied said they chose resettlement for "security." Those who had been displaced from their original places of residence in order to secure a safe place to live and a stable source of livelihood explained that they had pursued the opportunity of free housing in resettlement communities and had thus decided to resettle. The provision of free housing in resettlement communities for IDPs who were residing illegally on government land served to mitigate the risk of frequent climatic disasters along the coast, as well as the instability of livelihoods associated with squatting.

The IDPs residing along the coastline observed that they had been persistently exposed to a multitude of climate-related disasters prior to their encounter with Typhoon Haiyan. Consequently, they experienced a pervasive sense of fear and anxiety, repeatedly relocating to shelters in anticipation of disaster warnings. Despite the "trauma" wrought by Typhoon Haiyan, victims residing in informal settlements along the coastline were compelled to remain in their original locations following the disaster, as they lacked the resources to relocate to safer areas. Furthermore, economically vulnerable victims indicated that they were unable to remain in their displacement sites following the destruction of their livelihoods by the typhoon, citing a lack of viable alternative sources of income. The findings of

the field survey thus confirm that while vulnerability to safety and livelihoods can act as a trigger for displacement, livelihood issues such as lack of access to resources also function as an underlying barrier to displacement despite threats to safety.

After Typhoon Haiyan, the local government of Tacloban declared an area extending 40 m from the coastline as a "no-build zone" and strongly advised residents of the area to consider displacement to other areas. Nevertheless, IDPs who had established positive relationships with barangay officials, who possessed the authority and responsibility for disseminating information about resettlement communities and selecting eligible IDPs, were able to access information and opportunities for displacement to resettlement communities more efficiently and rapidly. Even those IDPs who were residing in provisional accommodations following the disaster and undergoing the resettlement community selection process reported that they were able to participate in the lottery for the resettlement community by contacting barangay officials with whom they had a close relationship. Even vulnerable populations that experience repeated climate disasters and delays in displacement due to a lack of sufficient resources possess resources and information. The presence of direct and indirect connections to supportive community networks has been demonstrated to render displacement a more effective coping strategy for climate-related disasters.

(c) Benefits of Resettlement

Similarly, the safety of their dwellings, which were constructed with solid and durable materials, was identified as the primary benefit of residing in the North Hill Arbours and DREAMVille resettlement communities by those who had been displaced by Typhoon Haiyan and relocated to these communities. The IDPs expressed relief at the prospect of resettlement, which would eliminate the need to evacuate hastily due to climate-related disasters such as typhoons. In particular, they identified the advantages of owning a home with individual legal title as a

significant benefit. They expressed satisfaction with the proximity of essential services, such as primary schools and churches, which were within walking distance. Additionally, they perceived the location to be safer and quieter, which was beneficial for their family members, including their children.

(d) Challenges of the Resettlement

❶ Livelihood

Despite the numerous advantages gained by individuals displaced and resettled in new communities, research has revealed that they are susceptible to a range of vulnerabilities throughout the resettlement process. In particular, the changes in livelihoods resulting from displacement had direct and indirect impacts on livelihood vulnerability along a variety of pathways.

The relocation of IDPs to resettlement communities has resulted in their physical distance from key infrastructure that was previously accessible and integral to their daily lives. This displacement has placed them in a challenging position, facing numerous burdens related to their displacement. The participants described a dearth of fundamental infrastructure, including schools, health centers, and markets, within and surrounding the resettlement communities. This deficiency in basic resources contributed to the inability of IDPs to establish sustainable livelihoods within the resettlement communities, ultimately perpetuating their displacement. Furthermore, the majority of the study participants indicated that the cost of transportation, which they had not previously considered a significant issue in remote locations, had become a considerable burden due to the fact that the majority of the basic facilities and services necessary for daily life were situated within their immediate vicinity.

Difficulty in Securing New Livelihoods

Among the various vulnerabilities, the search for a stable new source of livelihood

(i.e., employment) as a result of displacement was identified as a pivotal challenge, intertwined with other vulnerability factors experienced by IDPs. Those who had lost their livelihoods and experienced significant hardship as a result of Typhoon Haiyan were confronted with the challenge of reestablishing their livelihoods in the wake of their displacement to resettlement communities. It was observed that many IDPs in the areas surrounding the resettlement communities have been unable to secure new sources of livelihood. As a result, they are struggling to continue the work they have been doing in their original place of resettlement or to find immediate employment that will allow them to build on their existing networks and solve their livelihood problems. A significant proportion of the displaced population in the resettlement community continued to engage in fishing activities and relied on the sea for their livelihoods following their displacement. Those who were unable to secure alternative employment in the surrounding neighborhoods frequently traveled daily to the downtown area, where the resettlement community was situated, in search of short-term job opportunities, such as those of day laborers. Furthermore, the vulnerability is intensified by climate change, which has been demonstrated to directly influence livelihood vulnerability. Tacloban is situated in a geographic area that is frequently susceptible to climate-related disasters, with a limited number of transportation options operational during typhoons or heavy rains and significant mobility constraints even after displacement.

Breakaway after resettlement

In particular, the exacerbation of these livelihood vulnerabilities has led to a noticeable phenomenon of attrition, whereby people opt for relocation even after being displaced to resettlement communities. It was not uncommon within the resettlement communities to find residential properties that were unoccupied or had been abandoned for extended periods of time. This phenomenon was more prevalent in the government-led resettlement community of North Hill Arbours. As evidenced by the study participants, displacement commenced from the inception

of the resettlement process. The majority of those displaced were employed in urban areas during the week and resided in rural areas on weekends due to livelihood constraints. In instances where these constraints remained unresolved despite this repetitive pattern, the IDPs would relocate once more to other areas. Furthermore, the aforementioned vacant units have been left unmaintained for an extended period, resulting in their transformation into a breeding ground for juvenile delinquency. This development introduces an additional community risk factor.

Vulnerability in Accessing Basic Infrastructure

Moreover, despite the considerable length of time that had elapsed since their displacement, estimated to be between three and eight years, they continued to face challenges in accessing basic infrastructure that was essential for their daily lives. It was discovered that even at the inception of their displacement to the resettlement community, the IDPs encountered significant challenges due to the unavailability of essential utilities such as electricity and a reliable water supply. It took at least several additional weeks for electricity to be connected, and water from communal water tanks in the resettlement community was hauled in by IDPs, which was not always sufficient. The issue of water scarcity within the resettlement community remains unresolved. While water connections were initiated in 2021, they were only accessible to a limited number of households, with the majority of residents still facing the challenges associated with the early years of resettlement. A significant number of study participants indicated that households collect and utilize water during rainfalls to meet their water requirements. However, they also reported experiencing challenges with inadequate water supplies during the hotter months or in the absence of rainfall. Even when water was accessible, it was only available for a restricted period during the morning, or on occasion, not at all during the week. In addition, the water supply is of poor quality and can only be used for washing clothes and dishes, and drinking water has to be collected separately, making water a major burden on displaced people's livelihoods. It was

found that IDPs, who were already experiencing severe economic vulnerability in relation to basic livelihoods such as food and education prior to their displacement, were faced with additional burdens after their relocation to resettlement communities, making it even more difficult for them to maintain a stable livelihood.

❷ Social network aspects

Social network disruption

The displacement of individuals affected by climate-related disasters has also resulted in notable shifts in social relations. Leaving a place of residence and resettling in an unfamiliar place often involves the burden of separating from familiar social relationships, such as friends and neighbors, and forging new ones in an unfamiliar environment. Although many of the IDPs in the study opted for relocation to circumvent another climate-related catastrophe, they nevertheless grappled with profound distress over the loss of their erstwhile coastal residences, where they were born, raised, and resided for an extended period, and the dissolution of numerous relationships. As a consequence of Typhoon Haiyan, a considerable number of IDPs have been compelled to relocate on multiple occasions and have been separated from their families for extended periods of time. Furthermore, the participants expressed feelings of loneliness due to a lack of reliable social support. This was particularly evident in the context of the gradual dispersal of close friends and neighbors who had formed relationships in remote areas, often due to economic challenges. Indeed, during the process of displacement and resettlement, IDPs identified the difficulty of establishing relationships with their new neighbors as a significant challenge. The alterations in living circumstances and interpersonal dynamics resulting from involuntary displacement have imposed a considerable toll of trauma and stress on IDPs. In particular, IDPs' communities were characterized by a high degree of vulnerability among specific demographic groups. Elderly individuals, youth, and children

encounter significant challenges in adapting to unfamiliar environments and in establishing relational communication.

Connection to Original Residences

In the context of the target region, issues of displacement and changes in social relationships assume greater significance, given the importance attributed to close networks of relatives, acquaintances, and other social connections. In an activity that requested IDPs in the two resettlement centers to identify the community to which they belonged, some participants responded with the name of their former neighborhoods. The actual research activity revealed that approximately 80%[88] of IDPs in North Hill Arbours and more than 90%[89] of IDPs in DREAMVille maintained their affiliations and voting rights in the barangay where their original homes were situated. The study identified two primary motivations for maintaining past affiliations. First, individuals were found to support a relative who was a barangay official. Second, individuals maintained their social benefits by maintaining a close and stable relationship with the barangay. The remaining small number of IDPs explained that they changed their affiliation due to administrative convenience or natural opportunities to build relationships with their new barangay. In essence, the relationship with the barangay, which wields administrative authority and responsibility to facilitate connections between residents and government entities as well as community support networks, functions as a conduit through which IDPs can access resources and information. In particular, the close ties between the barangay officials responsible for selecting and distributing beneficiaries based on limited resources and the IDPs who were urban poor may have been instrumental in ensuring their livelihoods.

88) Confirmed in FGD activity with North Hill Arbours cluster leaders.
89) Confirmed in an interview with a secretary at the Barangay 93 office where DREAMVille is located

❸ Daily Security and Disasters Aspects

Expansion of Social Problems Such as Drugs and Riots

Climate disaster-induced displacement has been demonstrated to be associated with a range of security threats, including an increased risk of human rights abuses and crimes such as theft. In two of the resettlement communities examined in this study, security concerns were frequently identified as a significant risk to the community. In particular, social problems included drugs, theft, and riots. The gravity of the situation was confirmed by the accounts of IDPs who witnessed individuals under the influence of drugs within the resettlement community, thereby posing a threat to the community or being killed in shootings. Furthermore, shoplifting of merchandise and furniture is a prevalent phenomenon, with some study participants reporting observations of children engaging in such activities.

Among the myriad of issues highlighted by the majority of study participants, the severity of the riots was a prominent concern. Communities experienced anxiety and fear as a result of violent and intimidating behavior, including large groups of people walking around in clusters and throwing rocks and bottles at homes. These problems were found to be disseminating not only within the resettlement community, but also to the host community, the barangay area. Volunteers from the barangay articulated substantial concern regarding the recent escalation in social challenges, including riots, which had not been observed in the past prior to the establishment of the resettlement community. In essence, concerns regarding security within the resettlement community began to surface as a potential hindrance to the process of integration with the host community, thereby jeopardizing the overall security of the region.

Problems of future generations, the displaced youth

Alarmingly, IDPs and barangay officials in the resettlement community have reported that the majority of those involved in these riots are teenagers. Deviant youth who do not receive adequate care and support from their families, schools, and society are being blamed for serious social problems. Key stakeholders acknowledged the correlation between problems such as riots and issues such as drugs and teenage pregnancy. Indeed, one barangay official explained that the resettlement community has the highest teenage pregnancy rate in the Philippines.

Despite the exclusion of participants below the age of 18 from the present study, separate interviews were conducted with participants who were adolescents prior to resettlement to gain an indirect understanding of what their experiences of climate disasters, displacement, and resettlement may have been like. The majority of the participants distinctly recollected the feelings of anxiety and dislocation they experienced during each climate disaster due to their proximity to the coast. However, they did not receive any explanation from adults throughout the entire process of repeated displacement and resettlement. One participant explained that she learned of her relocation to a resettlement community on the same day.

Furthermore, the majority of participants disclosed that they had never previously left their coastal homes of origin and that the displacement process was characterized by feelings of anxiety and difficulty. Even after displacement to the settlements, adapting to the new environment proved to be a significant challenge for youth. One participant explained that they were uncertain how to adapt to their suddenly changed surroundings, which led them to remain indoors, observing the outside environment and people passing by for a while. Participants described a range of vulnerabilities faced by youth after resettlement, highlighting that youth who were not properly cared for and disciplined at home ended up joining riots and that psychological anxiety and problem behaviors among youth who had experienced great stress and trauma were at a high level of "addiction." Furthermore, youth are not only confronted with the same livelihood vulnerabilities

as adults, such as food, water, and finances, but they are also exposed to firsthand experiences with riots, drugs, and teenage problems, which have been identified as a potentially higher risk exposure.

While the various vulnerabilities of IDPs in the resettlement process have recently been the focus of attention, the anxiety and trauma experienced by future generations, such as youth, in relation to displacement, and the resulting vulnerabilities, have not been addressed to the same extent. Most reporting and policy support on the vulnerabilities of IDPs has focused on the adult population. In the context of the resettlement community in Tacloban, it was observed that there was an absence of policy support or access for youth and children. This underscores the necessity for a more systematic and comprehensive identification of the vulnerabilities of youth and children in relation to sustainable support for IDPs.

❹ Climate Disaster Aspects

Evolving Patterns of Climate Disasters

A recent study has revealed that IDPs who have opted for displacement to resettlement communities in order to evade the peril of climate change-induced disasters are nevertheless subjected to ongoing exposure to the vulnerabilities associated with these disasters. The IDPs in the study noted that they were still being affected by typhoons and heavy rains, which had previously been a threat. Despite residing in homes that are safer and stronger than those in which they previously inhabited coastal areas, it is imperative to note that these individuals must take shelter in the event of a major storm. However, there have been documented cases of individuals opting to remain in their residences due to the limited capacity of available shelters in resettlement centers and the inaccessibility of other shelters. The absence of disaster response infrastructure in resettlement communities has been demonstrated to increase the risk of climate disasters to IDPs.

Furthermore, climate disasters, including floods, landslides, earthquakes, heat waves, and wildfires, have had a profound impact on the lives of IDPs, functioning as community hazards. While limited climatic events, such as typhoons and heavy rains, have historically impacted IDPs, novel forms of climatic disasters are beginning to affect the entire resettlement community or partially depending on the living conditions. For instance, the soil in the vicinity of the mountains where the resettlement communities are located has been eroded due to incessant heavy rainfall, landslides have caused significant damage to roads and houses, and resettlement communities have been inundated. The intensifying heat wave, precipitated by extreme weather events, has led to an increase in skin diseases and other illnesses among children, the elderly, and other vulnerable populations. These groups have also been frequently exposed to the sudden danger of wildfires.

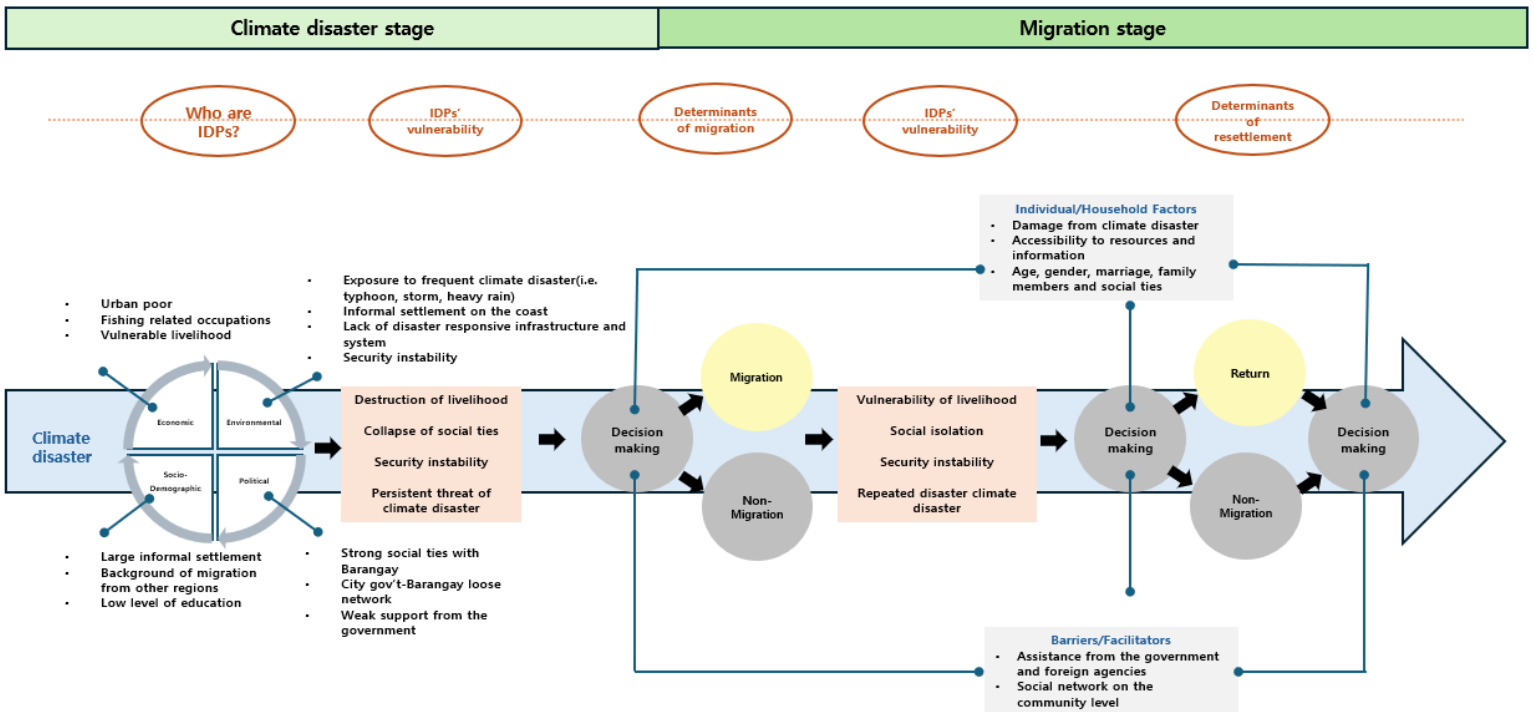
The ongoing rise in temperature, precipitated by extreme weather events, has resulted in an escalation of dermatological ailments and other health complications among children, the elderly, and other susceptible demographics. These demographic groups have also been repeatedly exposed to the sudden threat of wildfires. However, it was observed that in most cases, individuals were responding to various forms of climate disasters on a personal level. Even when official guidance was provided in advance, there were instances where IDPs did not take it seriously, resulting in large-scale disasters.

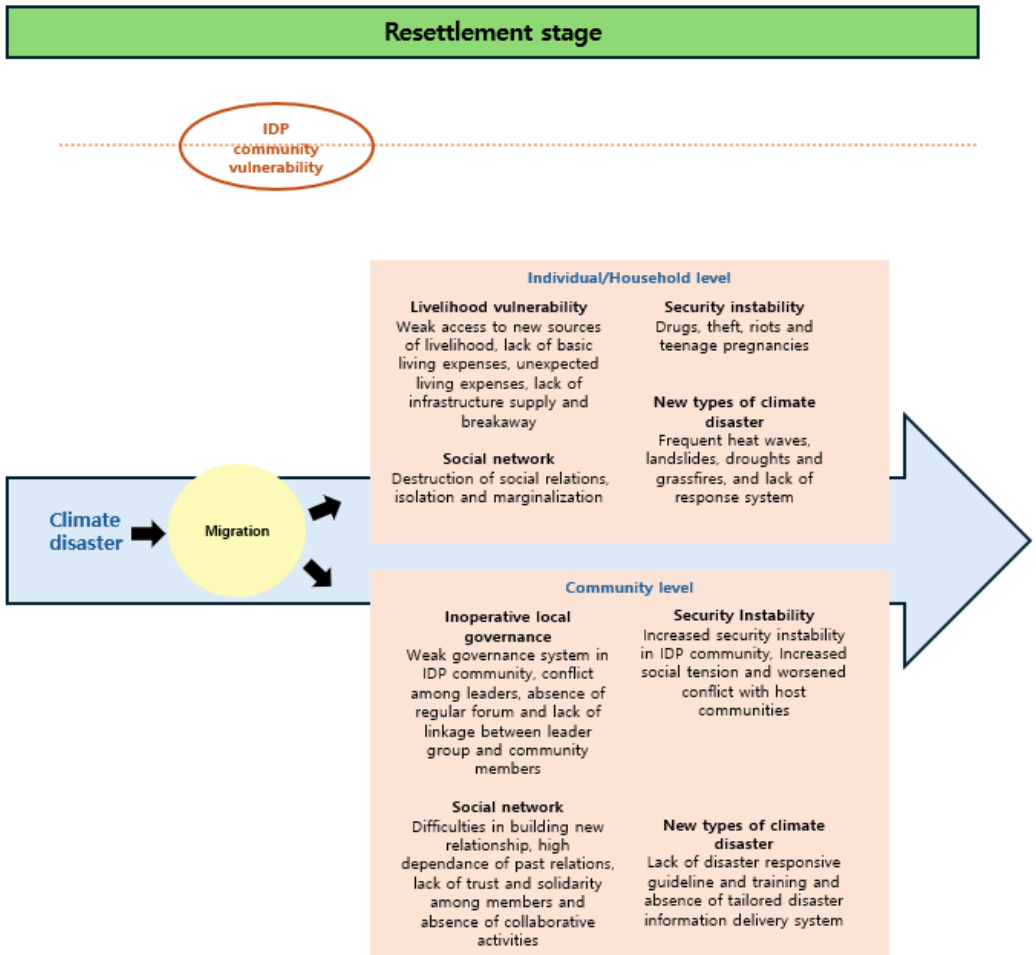
[Table 20] Disaster Factors in Communities by Resettlement Sites

Category	North Hill Arbours		DREAMVille	
Climate disaster	Typhoon	–	Typhoon	–
	Heavy Rainfall	–	Heavy Rainfall	–
	Flooding	–	Flooding	–
	Earthquakes	–	Earthquakes	–
	Heatwaves	+	Heatwaves	+
	Fires/Wildfires	+	Fires/Wildfires	+
	–	–	Landslides/Soil Erosion	+
	–	–	Drought	+
Daily disaster	Riots	+	Riots	+
	Drug Abuse	+	Drug Abuse	+
	Theft	–	Theft	–
	Teen Pregnancy/ Prostitution	+	Teen Pregnancy	+
	Water Shortages	+	Water Shortages	+
	Rumors	–	Traffic Accidents	+
	Gas Leaks	+	Dengue Fever	–
	Waste Management Problems	–	Hospital Waste	+
	Stray Animals	–	School Bullying	–

* + sign: Disasters that have intensified or newly emerged compared to the original place of residence

[Figure 32] Vulnerability Factors at Each Stage of Climate Disaster-Displacement-Resettlement for Climate-induced IDPs in Tacloban




Resettlement stage
IDP community vulnerability
Individual/Household level
Livelihood vulnerability
Weak access to new sources of livelihood, lack of basic living expenses, unexpected living expenses, lack of infrastructure supply and breakaway
Security instability
Drugs, theft, riots and teenage pregnancies
Social network
Destruction of social relations, isolation and marginalization
New types of climate disaster
Frequent heat waves, landslides, droughts and grassfires, and lack of response system
Climate disaster
Migration
Community level
Inoperative local governance
Weak governance system in IDP community, conflict among leaders, absence of regular forum and lack of linkage between leader group and community members
Security Instability
Increased security instability in IDP community, Increased social tension and worsened conflict with host communities
Social network
Difficulties in building new relationship, high dependance of past relations, lack of trust and solidarity among members and absence of collaborative activities
New types of climate disaster
Lack of disaster responsive guideline and training and absence of tailored disaster information delivery system

(3) Community Adaptive Capacity

① Community Governance

In the North Hill Arbours resettlement community, decision-making is centralized around the HOA, which is organized into 11 clusters. Within each cluster, a designated community officer serves as the de facto liaison between the cluster leader and the displaced individual, overseeing the management of complaints. Within each block, issues that require attention are communicated to the HOA by the block leader. The block leader then disseminates this information to the barangay and subsequently, to the city government. In certain instances, the HOA may communicate directly with the city government.

However, the field survey revealed that the governance structure of these resettlement communities is not currently functioning reliably. The HOA leadership group is preparing to hold elections to re-elect its leaders due to transparency issues in its operations, including finances. However, this has been delayed to date due to the pandemic. Similarly, the cluster leadership groups are in a position to hold elections due to leadership vacancies; however, they have also been delayed due to various circumstances.

According to the study participants, the appointment of over 100 community officers across 11 clusters was documented. However, only approximately 15 of these officers were found to have actively engaged in meetings aimed at addressing community concerns. This observation suggests that the established decision-making structure may not have been operating in accordance with its intended functionality. This absence of decision-making was also identified at the block level. One community leader noted that even when cluster leaders convene meetings to address various issues in the community, it is not easy to get residents together.

In the case of the North Hill Arbours Resettlement community, only a few clusters consist of individuals from the same barangay, with the majority comprising IDPs

from five or more barangays. Thus, while there is close interaction among a small number of neighbors from the same barangay, most of them have to live with strangers. The diverse backgrounds and origins of these community members were identified as a barrier to sustaining collaborative behaviors for common problem solving and discussion.

In addition to these challenges, at North Hill Arbours, while community concerns are communicated to the municipal government through block leaders or barangay offices within the resettlement community, it can take a considerable amount of time for these requests to be addressed. A significant proportion of the IDPs in the study expressed sentiments of indifference on the part of the city government and barangay offices towards vulnerable populations in need of support. Furthermore, there is an absence of reliable or consistent support or administration for IDPs in resettlement communities, despite the fact that they have changed barangay affiliation after displacement.

In DREAMVille, members of the seven clusters were organized in advance of their displacement to the resettlement community, leaders were selected, and various trainings and seminars were provided. The leadership group of the resettlement community, the HOA, received training on specific methods and pathways to address various issues that would arise in the community after displacement. Subsequently, the HOA leadership group served as the focal point within the resettlement community at the beginning of the displacement. The HOA leadership group continues to serve as the primary decision-making body for DREAMVille, with six to seven block leaders under each cluster overseeing the management of each neighborhood. In the event that issues arise in the resettlement community that require resolution, these issues are brought to the attention of the HOA leaders by the block leaders through local residents. The block leaders then communicate with the Barangay office or city government, depending on the nature of the issue.

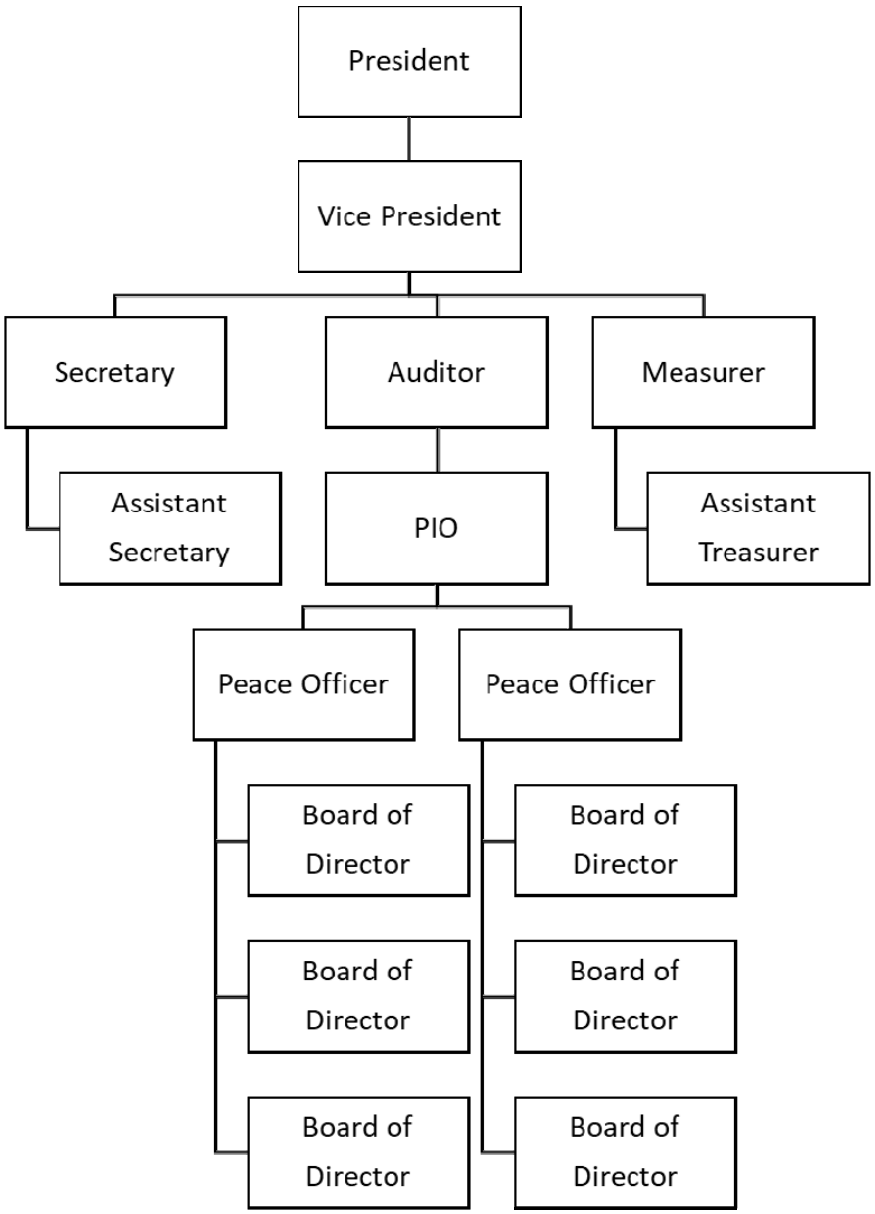
However, over time, DREAMVille was also facing various changes at the governance level. Following the culmination of the DREAMVille construction project, the

process of handing over the settlement to the government has progressed as scheduled from late 2021 to early 2022. The handover from the CRS to the city went smoothly, and the HOA leadership group was positive about having a direct line of communication with the city about the needs of the resettlement community. However, due to the extended duration required for requests to be deliberated and authorized by the municipal government, DREAMVille continues to engage with the CRS officials, with whom they have cultivated a long-standing relationship of trust, to address challenging issues and procure short-term assistance (e.g., event supplies) when necessary.

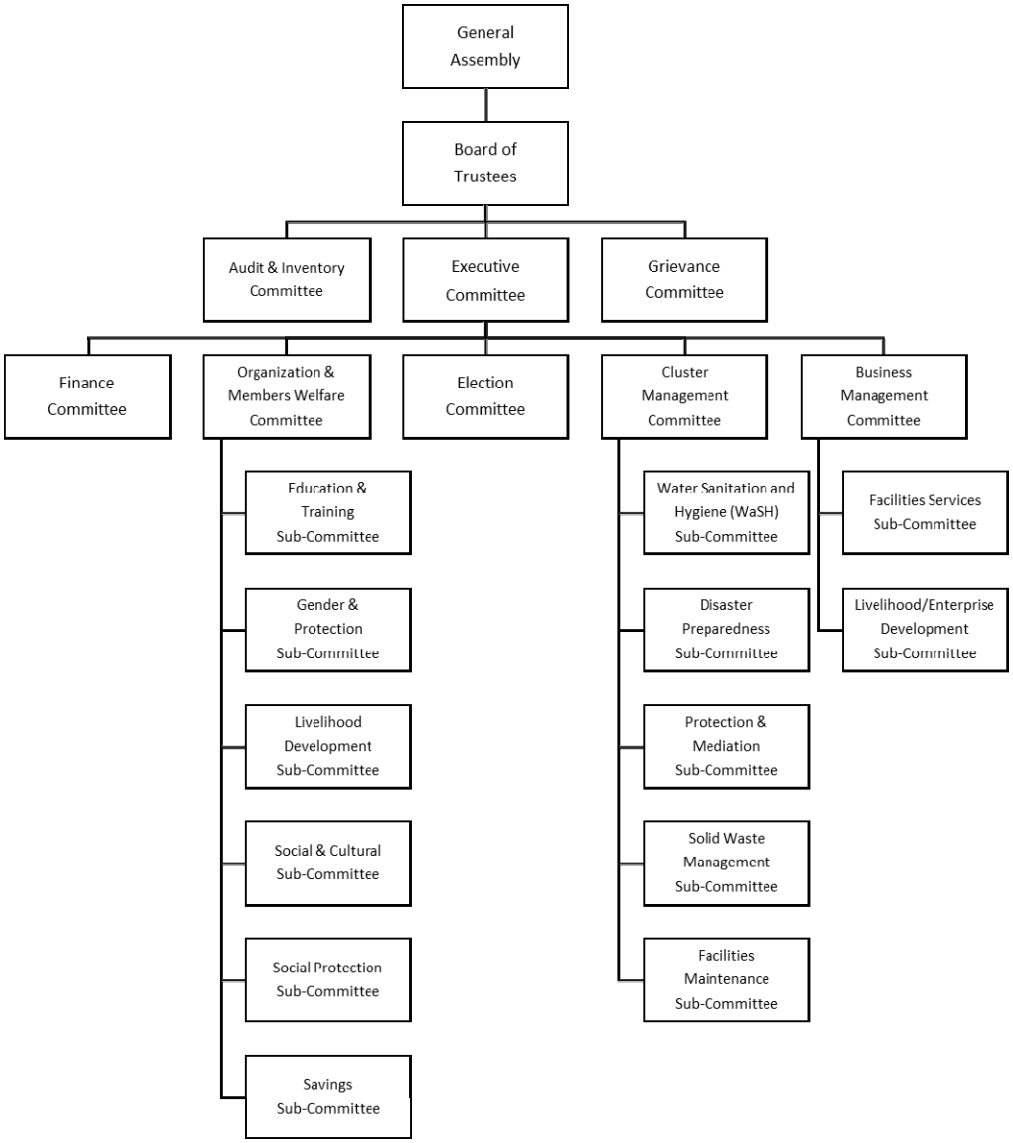
Recent developments have led to indications of internal discord within the HOA leadership group. This has manifested through a series of elections that have resulted in a turnover of members, the emergence of leadership vacancies, and the emergence of inter-group conflicts that have led to the division of the organization along partisan lines. At the time of the field survey, DREAMVille was preparing to hold elections to establish new leadership to overcome the challenges. However, even during this period of instability, it was evident that, in contrast to North Hill Arbours, the resettlement community leaders who participated in the study acknowledged that numerous issues within the resettlement community could be addressed with external support. Nevertheless, these leaders also expressed a shared aspiration to expeditiously address the numerous unresolved issues within the community.

[Figure 33] Governance Structures of North Hill Arbours and DREAMVille

1. North Hill Arbours



2. DREAMVille



② Disaster Response Systems and Approaches

A thorough examination of local responses within North Hill Arbours to the various hazards identified in the resettlement community reveals a conspicuous absence of sustained and systematic response. For instance, in an effort to address the issue of rioting, which was identified as a significant social problem, community officers

endeavored to enhance community security by establishing neighborhood watch groups to patrol and stabilize the community. However, this initiative proved to be transient, ultimately ceasing due to internal conflicts among community officers. Additionally, the necessity for additional barangay outposts or police facilities was not adequately addressed, leading to the implementation of ineffective interventions to rectify the problem.

North Hill Arbours is also plagued by a pervasive litter problem, with a variety of waste and filth present. However, without a local solution, individual households are left to bear the burden of inconvenience and disposal. In particular, a paucity of discourse on the various problems and specific responses to them was observed in North Hill Arbours. This was despite the community's recognition of the emergence of novel climate disasters, such as heat waves, as a pressing community problem and the urgent need for specific awareness, education, and response measures. This can be attributed to the lack of decision-making governance to jointly review, formulate, report, and resolve community issues, and the absence of local discussion and coordination, despite the delays in resolving issues within the various resettlement communities. A notable challenge that was identified by IDPs pertains to the dearth of designated spaces that could be utilized for discussions concerning the various issues encountered during the process of actual resettlement.

In DREAMVille, a variety of everyday disasters and climate disaster phenomena were observed after resettlement, as well as different aspects of disaster response. These observations are analogous to those made in North Hill Arbours. In the event that issues arise within the resettlement community, such as nighttime noise, disputes, or riots, the block leaders and HOA leaders are responsible for addressing their own issues. If these issues cannot be resolved, they may request the intervention of the barangay office to facilitate resolution. In addition, one of the chronic challenges that IDPs have faced since the beginning of their resettlement is the lack of water; while households are connected to running water, the large influx of people into northern Tacloban has resulted in a limited and sometimes

unreliable water supply, with water available for only a few hours a day. Consequently, concerted efforts have been made to address this issue through collaborative meetings with Prime Water and municipal government officials facilitated by the HOA, the decision-making body within the resettlement community.

Nevertheless, it was observed that the community as a whole is not adequately prepared for disaster response, with vulnerabilities identified in terms of the various climatic hazards they face, especially after displacement to settlements. The majority of IDPs at DREAMville were dependent on their personal experiences, rather than on accurate guidelines or knowledge of climate disasters, to assess their level of disaster risk and determine appropriate responses. For instance, the majority of IDPs in the study exhibited a reaction to disasters on an individual basis, such as "getting ready when the heavy rains start," rather than preparing for them in advance, as they felt safer in their former coastal neighborhoods. The study also found that, in the aftermath of Typhoon Haiyan, despite exposure to a variety of disasters, there was a lack of specific household-level preparedness plans (e.g., communication networks, evacuation methods and routes, emergency supplies, etc.).

At neither the resettlement community level nor the lower level of the block was there any specific guidance or discussion on disaster preparedness at the local level. However, there was some discussion among households in the block about specific disasters or maintenance at the discretion of the block leader. Of particular concern are emerging climate hazards, such as landslides in resettlement communities, which are recognized as a risk by most IDPs. However, there is a scarcity of discussion regarding preparation for such hazards at the individual and local levels.

In this study, IDPs who were severely affected by Typhoon Haiyan discussed the challenges they faced in the pre-preparation phase. They explained that they required more accurate information, resources, and sensitive response behaviors.

In particular, while warnings to watch out for "storm surge," a term used to describe the storm surge, many coastal residents relied on their own perceptions of the weather to determine the level of danger and were not prepared, he said. The absence of a designated term for climate disasters, such as "storm surge," in the local language utilized by IDPs in Tacloban, resulted in a significant error in information dissemination. This has ramifications for subsequent climate disaster responses. Consequently, it is imperative to implement training programs that instruct individuals on specific response behaviors (e.g., disaster phenomena, initial response, location of shelters and corridors, emergency supplies, etc.).

③ Social capital

Relationships between IDPs in resettlement communities

The diverse origins and backgrounds of the members of the resettlement communities, and their strong sense of belonging to their former barangays, were also found to influence the patterns of relationships among IDPs in the resettlement communities where they currently reside. Research conducted with IDPs in North Hill Arbours revealed that, following their resettlement with neighbors from the same barangay, IDPs demonstrated a strong reliance on each other from the early stages of their displacement. This reliance facilitated a relatively seamless adjustment to life in the new settlement. However, participants explained that while they can easily interact with people from the same barangay, it can be difficult to adjust to a place where population is composed of people from different barangays. In other words, in areas where the displacement was not accompanied by neighbors from the same barangays, or where the neighborhood consists mostly of IDPs from other barangays, it is not easy to adjust to the new environment without individual efforts to observe, get to know, and actively form relationships with each other. Consequently, it was not difficult to identify IDPs who remained isolated within the resettlement community, unable to establish new connections fro an extended period. Therefore, while the willingness of IDPs to

assist those in need within their current settlements was observed, no unified values or behaviors to support individuals or communities at the collective level were identified.

A similar pattern of vigilance and observation of unfamiliar neighbors within a resettlement community of IDPs from diverse origins was also identified in another study site, DREAMVille. The study's findings suggest that even for individuals residing in close proximity to others from different barangays, there is a tendency to place greater trust and reliance on individuals from one's own barangay. This phenomenon is accompanied by a reduced receptiveness towards unfamiliar or new neighbors. However, when discussing strategies to assist displaced individuals in distress and to address challenges within the community, most participants demonstrated a comprehensive understanding of the response system. In comparison to North Hill Arbours, displaced individuals described a network centered around leadership within the resettlement community, including HOA, cluster, and block leaders, among others. This network was characterized by the presence of established criteria and guidelines for problem-solving.

This assertion is further substantiated by the definitions of "community" ascribed by IDPs within their respective resettlement communities. For instance, IDPs residing in North Hill Arbours delineate community in terms of physical and surface characteristics, such as "living in a certain area, people, houses." In contrast, IDPs in DREAMVille characterize community in terms of "different facilities, homes, and people," emphasizing the presence of communal elements, including "helping each other and working together for the best of the community." Answers that placed significant emphasis on relationships, such as "peace and order," were identified. In North Hill Arbours, when asked to identify their community, several participants indicated that they did not consider North Hill Arbours to be their community. In contrast, in DREAMVille, participants described the community as having a "common language, culture, and purpose" despite having different beliefs, endings, livelihoods, and attitudes due to their diverse origins and backgrounds. This suggests a specific acknowledgment of the

differences among its members, as well as a recognition of the shared values and direction that the community holds.

Despite the presence of analogous relational vulnerabilities in the establishment of the two resettlement communities, which comprised IDPs from disparate barangays, the underlying causes of these disparities can be ascribed to the pre-displacement phase. As delineated in the introduction, during the resettlement community formation phase of DREAMVille, the implementing agency, CRS, has selected eligible persons for resettlement, pre-structured the post-displacement village organization, and established leadership groups. Furthermore, CRS has provided training programs for IDPs on behaviors and attitudes they should adopt to build healthy relationships with their neighbors and how to address community issues after displacement. The training and discussion opportunities that were made available during the five-year resettlement preparation period likely contributed to a shared understanding of the consistent direction, values, and structure of the community in which they would be living, even among prospective resettlers from different backgrounds and origins.

However, in both North Hill Arbours and DREAMVille settlements, there was an absence of well-established or active community organizations. This observation is corroborated by the quantitative findings, which indicate that the majority of IDPs do not affiliate with organizations or other groups. Ensuring access to resources and information can therefore be seen as an important livelihoods-related policy intervention point for displaced people who not only have multiple chronic vulnerabilities but also experience isolation or restrictions in their networks following displacement.

Relationships with host communities

The study revealed a paucity of ongoing interaction between host communities and IDPs. Formal communication was established through visits by HOA officials to the barangay office during the annual barangay general meeting or when issues within

the resettlement community necessitated resolution. Conversely, the HOA officials would also visit the barangay office during events held within the resettlement community. It was observed that IDPs in resettlement communities also visit Barangay offices to apply for various social assistance or to obtain certificates, among other things. However, they rarely interact with residents of the host community, except in cases of government-supported vaccinations.

However, the reactions of IDPs in the two resettlement communities under study were found to vary. Cluster leaders in North Hill Arbours perceived that the Barangay office had an inadequate understanding of the situation in the resettlement community and was not willing to actively address it. While connections to local government officials are crucial for accessing various forms of government assistance, it was observed that due to the large-scale settlements and short-term influx of IDPs into the local government jurisdiction, the relationship between IDPs and the local government office is not as close as it would be in their place of origin.

For this reason, a large number of IDPs retained their former barangay affiliation and were found to have transferred their affiliation to their current place of residence and then back to their barangay of origin. This can be attributed to the fact that assistance is contingent on the relationship between barangay officials and residents. Consequently, residents experience frustration due to their exclusion from assistance, despite having relocated in new barangays. In response to this situation, participants expressed the expectation that barangay officials would visit each cluster in the resettlement community to build closer relationships. Conversely, others argued for a separate barangay captain within the resettlement community, thereby separating the role of the barangay captain from the overall administrative capacity. This negative perception of barangay offices among IDPs was similarly confirmed in regard to the city government, where municipal officials were perceived as indifferent to the problems of IDPs, except during election seasons. Disappointment with the lack of response to repeated requests regarding issues such as water shortages and pollution was also expressed.

On the other hand, the majority of HOA leaders in DREAMVille perceived city government officials, including the barangay office, to be amiable and accommodating. These leaders further perceived the officials to be receptive to the majority of the resettlement community's requests, thereby fostering a positive relationship. Despite the fact that IDPs had established relationships with the barangay office or city government primarily through their HOAs, they reported that they were actively supporting them when problems arose. In some cases, they had established close relationships with the barangay office or city government, even going out of their way to help when needed. However, it was explained that there was still not enough support for essential items related to livelihoods (e.g., livelihood support programs, water shortages, etc.).

However, the findings also revealed that the host community's perception of the IDPs varied somewhat depending on the barangay to which the resettlement community belonged. The barangay office volunteers who participated in the study were a group of people who were both members of the barangay office and members of the host community.

In response to inquiries regarding the circumstances and perceptions surrounding the initial establishment of the settlement, members of the North Hill Arbours host community indicated that residents were not provided with accurate information during the initial stages. The majority of their awareness regarding the commencement of the settlement was acquired through word of mouth or subsequent radio broadcasts. Nevertheless, it was noted that the influx of IDPs into the resettlement community who would had suffered from Typhoon Haiyan was mostly welcomed. While the city government provided the majority of aid from abroad to the coastal victims and not to the residents, the formation of the displaced person settlements has been viewed as a great benefit by the host community, which has built various infrastructure facilities. The establishment of a permanent settlement in the area coincided with a series of positive transformations, including the emergence of amenities such as a gasoline station, a convenience store, and a fast food establishment, along with the presence of

public facilities such as a city hall annex and a health center. It was also explained that the large influx of IDPs, which was well over 10 times the number of previous residents, has led to a significant increase in government assistance[90] , making it the second largest recipient of assistance in Tacloban.

However, recent observations indicate a shift in the prevailing perception of resettlement communities for IDPs. It was acknowledged that the recent escalation of riots was attributable to the influx of IDPs in resettlement communities. Previously, the area was characterized by a peaceful environment, devoid of the pervasive issues that have now become prevalent. The magnitude of the riots has escalated to a point that even local security volunteers (tanods) and police forces are unable to contain. In addition to these riots and other issues, there were concerns about the host community's reputation in the neighborhood due to the social problems caused by IDPs, citing frequently mentioned issues such as drugs, teenage problems, and rape.

The host barangay of DREAMVille exhibited a divergent response to the resettlement of these IDPs. The study participants in the host community, where DREAMVille was located, discussed the devastation experienced by the community in the past due to Typhoon Haiyan. They explained that many of the residents of the host community were also informal settlers who, like the IDPs, were facing livelihood challenges due to poverty. Upon learning of the impending establishment of a resettlement community for IDPs within their locality, they submitted a request to the local government office, expressing their hope that informal residents of the host community would be included among the beneficiaries. However, this request was denied, as the criteria and list of beneficiaries had already been finalized by the government. Furthermore, it was

90) National Tax Allocation (NTA), formerly called Internal Revenue Allotment (IRA).. It is a shar e of national revenues that local governments receive each year, paid quarterly to provinces, cities, municipalities, or barangays. Barangay 106, encompassing North Hill Arbours, has be en identified as a significant beneficiary of the NTA, experiencing a notable surge in popula tion due to the influx of displaced persons from the resettlement community. Currently it is the second largest barangay in Tacloban in terms of NTAs.

determined that the victims of Typhoon Haiyan, who were to be relocated from the beachfront, were already regarded by residents as a group with potential social problems prior to their displacement. This finding confirms that host community residents' preconceived notions of IDPs, as well as resentment due to inequality of benefits, were extremely high prior to their arrival. In particular, at the time of resettlement community formation, the plan was only communicated to a select group of residents of the barangay in a finalized form. It seemed that the host community was not given the opportunity to understand and agree to the formation of the resettlement community, which may have contributed to the resistance and rejection observed.

When asked whether perceptions of IDPs had undergone any changes in recent years, respondents initially exhibited signs of reluctance to share their thoughts on the matter. While some positive perceptions had emerged from interactions with IDPs through volunteer work, albeit in a limited capacity, it was evident that deeply entrenched negative perceptions prevailed, casting them as a potential threat to the peace of the host barangay. These perceptions stemmed from ongoing challenges related to drugs, riots, teenage problems, and the numerous issues that were brought to the barangay office since their displacement to DREAMVille. In addition, complaints about the lack of tangible governmental support for informal dwellers within host communities are still being heard, reinforcing negative perceptions of these IDPs.

This revealed contrasting reactions to the initial perceptions of IDPs by residents of each host community in North Hill Arbors and DREAMVille. These disparities are presumed to be influenced by a multitude of factors in the establishment of resettlement communities. Notably, the provision of housing at the time was exclusively for IDPs, with no consideration given to the needs of the host communities, which were severely impacted by Typhoon Haiyan. This oversight led to dissatisfaction among host community residents, who were confronted with similar livelihood vulnerabilities. It is also expected that having to share their resources with IDPs was a burden, given that barangays continue to experience

shortages of basic infrastructure such as water and electricity. This phenomenon is exemplified by the more favorable response to the influx of IDPs in the North Hill Arbours host community. The residents of the host community exhibited greater stability compared to the IDPs, with the majority of them owning their own homes. The barangay has also experienced indirect benefits from the establishment of the settlement, including the influx of new infrastructure and a significant increase in government subsidies.

It is evident that the process of understanding and acceptance between IDPs and residents must be regarded as a critical component of the resettlement process. This understanding is predicated on a systematic evaluation of the resource endowment of the host community and the potential risks and losses that may ensue from the influx of IDPs. Despite the eight-year presence of the resettlement communities in North Hill Arbours and the five-year presence in DREAMVille, there has been no significant improvement in the relationship between the IDPs and the residents. There is a concern that the current social tensions and conflicts between them are likely to intensify due to various social issues centered on the resettlement communities. This necessitates prompt and appropriate government intervention.

[Table 21] Support for IDPs Across Climate Disaster-Displacement-Resettlement Stages

Name	Stage	Support	Content	Supporting organizations
North Hill Arbours	Climate Disaster	Relief Supplies	-Immediate food and clothing aid (rice, canned goods, water, etc.)	International Aid Organizations
	Resettlement	Migration Support	-Housing Support	Local government of Tacloban
DREAMVille	Climate Disaster	Cash-for-work	-Cash transfer after disaster	Tzu Chi Foundation
	Displacement	Financial Assistance	-Financial aid for securing temporary housing before resettlement in DREAMVille	Catholic Relief Services (CRS)

Name	Stage	Support	Content	Supporting organizations
		Organizational and Leadership Support	-Pre-organized seven clusters of the resettlement community -Leadership establishment and specific training programs offered -Established a IDPs-driven resettlement governance	
		Training Programs for IDPs	-Social behavior improvement training -Livelihood and vocational training -Disaster response training	
		Participation in Resettlement Community Construction	-Housing structure decided based on IDPs' feedback -On-site visits during construction and feedback incorporated	
	Resettlement	SILC (Savings and Internal Lending Communities) Implementation	-System enabling small community members to save money and provide loans to one another	Catholic Relief Services (CRS)

[Table 22] Government Programs Supporting IDPs

Program	Description	Supporting organizations
Modified Conditional Cash Transfer (MCCT)	Conditional Cash Support	Department of Social Welfare and Development
TUPAD (Tulong Panghanapbuhay sa Ating Disadvantaged/Displaced Workers)	Community-based program offering emergency employment for 10 to 30 days to unemployed, informal, and seasonal workers	Department of Labor and Employment
AKAP (Ayuda sa Kapos ang Kita Program) (Aid for those who do not earn enough)	6,000 PHP in cash and 1,000 PHP worth of rice and food support for low-income households	Department of Social Welfare and Development, Tingog

Program	Description	Supporting organizations
4Ps (Pantawid Pamilyang Pilipino Program)	Up to 7 years of conditional cash assistance for low-income families with children aged 0-18 or pregnant women	Department of Social Welfare and Development
AICS (Assistance to Individuals in Crisis Situation)	Financial assistance for medical, funeral, transportation, education, food, or other essential services and needs	Department of Social Welfare and Development
Pag-IBIG Fund (Pagtutulungan sa Kinabukasan, Ikaw, Bangko, Industriya at Gobyerno Fund) (Home Development Mutual Fund (HDMF))	Low-interest mortgage loans for up to 30 years	Central Government

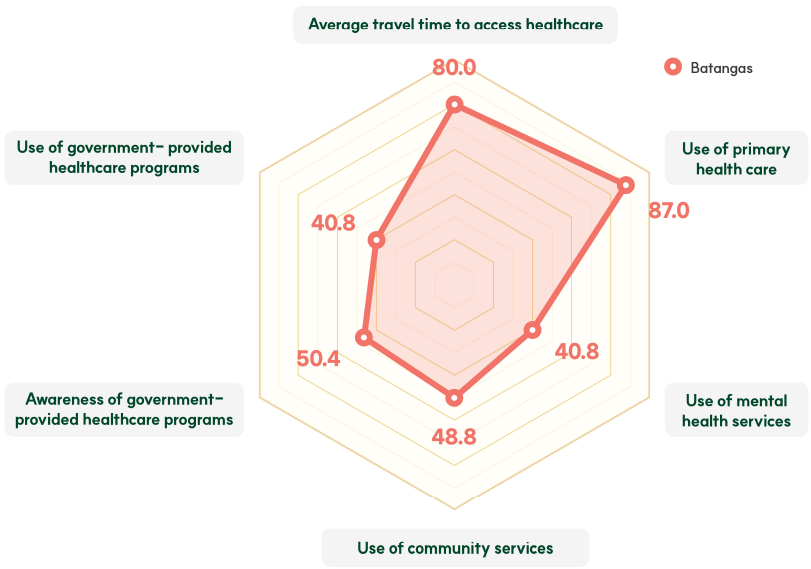
4.3 Key Findings from Vulnerability Analysis in Batangas

4.3.1 Findings from Household Surveys

(1) Health Vulnerability

[Figure 34] Health Vulnerability of Climate-induced IDPs in Batangas

0 (High Vulnerability) ↔ 100 (Low Vulnerability)



An analysis of a survey of Badjao IDPs in Batangas who had been displaced due to climate showed that vulnerability to accessing primary healthcare services was low; however, as the cost of treatment increased, access to treatment became more vulnerable. Furthermore, the survey results indicated that the limited awareness of the health programs offered by the government was a contributing factor to the observed low utilization.

First, the survey results were converted into a score out of 100. The findings indicated a relatively low vulnerability concerning access to and utilization of healthcare services, with the utilization of primary healthcare services receiving 87 points and the average time spent using healthcare services receiving 80 points. Indeed, the accessibility of healthcare facilities in Batangas is comparatively superior to that of the remainder of the Philippines. According to official data from Batangas City, there are currently 71 healthcare facilities operating throughout the province of Batangas, including 16 government-run facilities and 55 privately-run facilities.[91] In Batangas, the density of hospitals per 100,000 inhabitants is 2.24 (in 2020)[92] , which is higher than the national density of 1.57 (in 2020, per 100,000)[93]. Given the prevalence of healthcare facilities in Batangas, it is notable that 83% of IDPs surveyed reported having utilized healthcare services in the past 12 months. A significant proportion of these individuals indicated that these services were for non-communicable diseases (e.g., diabetes, hypertension, cancer, etc.).

Furthermore, 96% of IDPs who reported utilizing healthcare services indicated that they availed themselves of public healthcare services administered by central or local governments. However, 58% of these individuals disclosed that they had witnessed instances wherein their household members were denied treatment due to financial constraints. In addition, an analysis of other opinions on the family

91) chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://lpubatangas.edu.ph/wp-content/uplo ads/2022/01/Batangas-Province-DOH-accredited.pdf
92) (Total number of healthcare facilities, 71) ÷ (Population of Batangas, 2,908,494) * 100,000
93) https://www.statista.com/outlook/hmo/hospitals/philippines#analyst-opinion

members' experience of forgoing treatment revealed that the majority (7 out of 14 cases) relinquished treatment due to financial constraints.

In order to ascertain the present state of affairs with regard to the burden of healthcare expenditures, an independent sample t-test was conducted, with the healthcare costs being divided into personal spending and spending from external sources. The findings indicated that there was no statistically significant discrepancy between the two groups in terms of their utilization of public primary care facilities, which offer complimentary fundamental healthcare services such as consultations. However, there was a difference in perception between those who use external resources to pay for mental health treatment and counseling services and those who personally pay for treatment. The level of agreement among individuals who funded treatment through external sources was 2.91 on a five-point Likert scale (SD=1.65), while those who funded treatment personally scored 2.03 on the same scale (SD=1.53), indicating a statistically significant difference. The findings of an independent sample t-test demonstrated that the discrepancy was substantial, with a t-value of -2.5491 ($p < .05$), suggesting that there was a modest variation in the utilization of mental health treatment and counseling services between external financial resources and personal expenditures. In other words, a statistically significant analysis demonstrated that individuals who personally incur healthcare costs were less likely to utilize mental health treatment and counseling services within their local community compared to those who utilized external resources.[94]

94) For the T-test, expenditures from external sources are analyzed by combining responses such as the Philippine Health Insurance Corporation (PhilHealth) health insurance, private health insurance, government support, support for the treatment of relatives, and loans.

[Table 23] Perception Differences in Access to Health Services Based on Personal vs. External Financial Support[95)]

Category	Personal expenditure (n=32)		External expenditure (n=68)		t(p)
	means	SD	means	SD	
Utilization status of mental health treatment and counseling services	2.03	1.53	2.91	1.65	−2.5491(*)
Primary healthcare service utilization status	4.44	1.01	4.5	0.8	−0.3335

*p<.05, **p<.01, ***p<.001

This suggests that the majority of IDPs have unimpeded access to primary healthcare facilities provided by the public, yet they shoulder substantial healthcare expenses. A notable finding of the study was that households that bear the financial burden of medical treatment themselves have reduced access to healthcare compared to those who utilize external resources to cover healthcare expenses. When converted to a 100-point scale, the score for utilizing primary healthcare facilities, which has a low burden of healthcare expenses (87 points), is considerably lower than the score for mental health services, which has a high burden of healthcare expenses (48.8 points), suggesting a high level of vulnerability (see [Figure 34]).

On the other hand, the awareness of the healthcare services/programs provided by the public was found to be comparatively low, with a score of 50.4 points, and the usage remained at 40.8 points, indicating a relatively high level of vulnerability (see [Figure 34]). Furthermore, access to community services with a close relationship to health, such as parenting programs and childcare, exhibits a slightly lower level of vulnerability, with a score of 48.8. In this regard, there appears to be a necessity to disseminate information regarding health and social services/programs provided by the government to Badjao IDPs in Batangas who

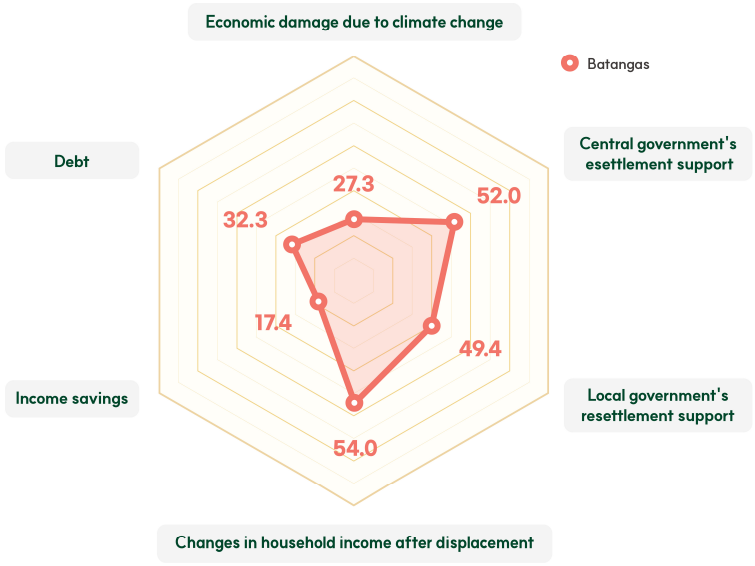
95) The availability and accessibility of mental health treatment and counseling services was ass essed through the statement: "I think counseling and other mental health services are availa ble locally." Responses were measured on a 5-point Likert scale, where: 1 = Strongly disagre e, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree

have been displaced due to climate. It is imperative to ascertain the specific health and social services/programs that are required by Badjao IDPs who have been displaced due to climate-related factors. Furthermore, there is a need to augment or supplement local provisions in areas where deficiencies are identified. Key informant interviews with nurses and midwives at the Malitam Barangay Health Center revealed that the Health Center offers a number of healthcare programs. Specifically, they engaged in weekly visits to the Badjao community, offering a range of services including immunizations, prenatal programs, family planning, sanitation, deworming, tuberculosis programs, and counseling. The health center staff were cognizant of the high incidence of teenage pregnancy, attributable in large part to the Badjao tradition of early marriage. Consequently, they were monitoring mental health issues and gender-based violence (GBV) caused by teenage pregnancy. The interviewees explained that the reason why the Badjao IDPs did not visit the health center was due to the burden of paying for transportation costs and other expenses, as well as misunderstandings and resistance to public health services due to cultural characteristics. Therefore, the Batangas Health Center has been conducting home visits and engaging in individualized communication with Badjao households to effect cultural and attitudinal change, with the objective of persuading them to utilize health services. As a result, immunization rates have exhibited an upward trend in comparison to previous figures. Given that they utilize the Tagalog language when visiting households and elucidating matters, they are incapable of accessing healthcare information other than the information they receive from the health center. This may also impede their ability to obtain information if they are unable to speak Tagalog.

(2) Livelihood vulnerability

[Figure 35] Livelihood Vulnerability of Climate-induced IDPs in Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)



The livelihood vulnerability of Badjao IDPs in Batangas who have been displaced due to climate change is comparatively higher than in other areas, such as health and local adaptation capacity. This relative vulnerability appears to have an organic negative impact on health and local adaptation capacity.

First, individuals displaced to Batangas over the years due to the repercussions of climate change were found to continue to experience significant economic losses, both large and small, as a result of natural disasters triggered by climate change. In order to determine the extent of economic damage caused by climate change, even subsequent to displacement to Batangas, a review of the extent of damage over the past five years was conducted. The vulnerability level was calculated to be 27.3 points, indicating ongoing damage.

Moreover, following displacement, the level of financial assistance from central and local governments proved insufficient to disrupt the cycle of livelihood challenges.

However, the level of support from the central government (52 points) was higher than that from the local government (49.4 points) after resettlement. Nevertheless, both levels were in the small amount range[96] , indicating that the level of support from the central and local governments was somewhat weak.

As such, Badjao IDPs in Batangas who received modest assistance following their resettlement exhibited a negligible change in income, as evidenced by a mere 54-point disparity before and after displacement. However, given their preexisting existence outside the system and their ability to subsist on fishing activities at the level necessary for survival, it is reasonable to hypothesize that their post-displacement lifestyle will remain analogous.

A comprehensive analysis of the sources of income was conducted to ascertain the livelihood challenges faced by IDPs. The findings revealed that a significant proportion of the respondents, 73.3%, derived their income from small business ventures, such as operating a street stall (e.g., sari-sari store). A mere 4.8% of the respondents indicated that their income was derived from wage labor, including seasonal non-regular employment. The majority of the remaining responses, amounting to 21%, were dependent on small businesses, bartering, and begging, rather than stable employment. This suggests that Badjao IDPs in Batangas are more dependent on small businesses, which are vulnerable to individual risks due to economic fluctuations, rather than decent work.

A cross-analysis was conducted to ascertain the association between the risk of households and their primary sources of income, with the analysis being based on the presence or absence of debt. Among households that generate income through small-scale business operations, the number of debt-free individuals (households) was 29 (32.6%), while the number of individuals (households) with debt was 60 (67.4%), a difference of more than two times. This suggests that the majority of

96) The extent to which the central and local governments provided resettlement assistance was measured on a five-point scale, ranging from 0 points (no assistance at all) to 1-24 points (little assistance), 25-49 points (some assistance), 50-74 points (most of the resettlement costs were covered), and 75-100 points (all resettlement costs were covered).

the persons who have been displaced to Batangas due to the effects of climate change are engaged in small business ventures to generate income, though many of them are indebted, indicating a high risk to their livelihoods.

[Table 24] Differences in Debt Status by Income Source

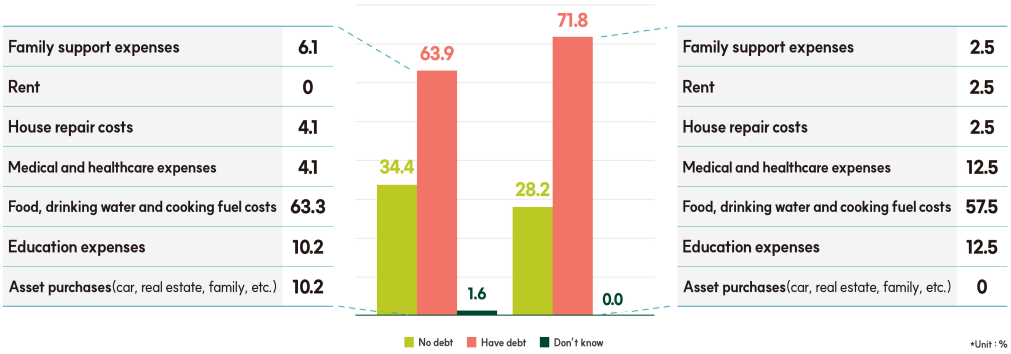
category	Source of Income											
	small scale business		contingent workers		full time		Begging		small scale business+contingent workers		small scale business+asset sale	
	frequency	ratio	frequency	ratio	frequency	ratio	frequency	ratio	frequency	ratio	frequency	ratio
have no debt	29	32.6	1	100	0	.00	1	25	0	.00	1	100
have debt	60	67.4	0	.00	1	100	3	75	3	100	0	.00
total	89	100	1	100	1	100	4	100	3	100	1	100

A study of Badjao IDPs in Batangas revealed that the majority of respondents had accumulated debt to meet basic needs, with 80.6% reporting that they had borrowed money to purchase essential items such as food and drinking water, indicating significant livelihood vulnerability. When the level of debt was converted to a 100-point scale, it was found to be 32.3 points, indicating a high degree of vulnerability (see Figure 36).

Furthermore, when analyzed by sub-region within Batangas, the proportion of debt incurred in Barangay Wawa (71.8%) was 1.12 times higher than that in Barangay Malitam (63.9%), which was located in a more favorable location for the supply of materials, external support, and production activities due to its relatively easier road connection to the mainland. An analysis of the reasons why Badjao IDPs living in the Wawa area are in debt revealed that the percentage of debt incurred due to healthcare services and education costs was significantly higher than that of Malitam.

[Figure 36] Debt Status of IDPs by Barangay (Malitam, Wawa) in Batangas

[number of respondents: Malitam=61, Wawa=39]



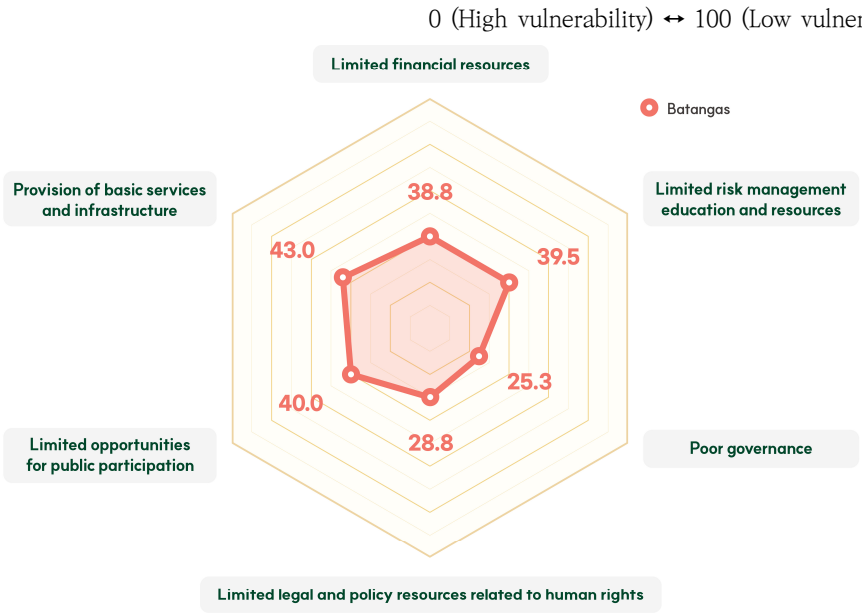
As such, 56% of Badjao IDPs in Batangas reported being unable to obtain loans when necessary due to preexisting debt obligations that were necessary to cover fundamental living expenses and access essential services. In addition, only 43% of respondents were saving, while 42% reported keeping their money at home, away from financial institutions such as banks, which were typically protected by the system. Furthermore, 30% of respondents selected "Other" for their savings, and the analysis revealed that the majority of these individuals cited insufficient income as the primary reason for their inability to save. When the results were aggregated and converted into a composite score representing the degree of income savings, the result was 17.4. This finding suggests that the respondents were subsisting on a limited budget, making it challenging to accrue savings, and consequently exhibiting high vulnerability.

(3) Community Adaptive Capacity Vulnerability Assessment

The vulnerability of each community was meticulously diagnosed and comparatively analyzed by categorizing the capacity to adapt to the community into four distinct categories: 1) the extent to which central government policies and support are implemented, 2) the degree of recognition by community leaders, 3) the degree of belonging to the village, and 4) the degree of disaster awareness and preparedness.

① Central government policy and support vulnerability

[Figure 37] Vulnerability of Climate-induced IDPs in Batangas to Central Government Policies and Support



The Badjao IDPs in Batangas had been living outside the system for a considerable amount of time as a minority in the Philippines. Further research is necessary to determine how these characteristics affect the level of trust in central government policies. However, the results of the survey indicate that the central government's policies pose a high level of risk to local communities. This finding suggests that the level of vulnerability in terms of trust is very high.

Among the identified concerns was the vulnerability of poor governance due to a lack of transparency and corruption, which received a score of 25.25 points. This indicates that the majority of Badjao IDPs in Batangas perceive poor central government governance as increasing the risk of their communities. Moreover, the absence of legal and policy provisions in support of human rights is exemplified by the elevated vulnerability score of 28.75, underscoring the necessity for enhancement. On the other hand, the majority of the central government policies and support, including limited financial assistance, the provision of fundamental

services and infrastructure, constrained public participation opportunities, and deficient risk management education and resources, received scores below 50 points. This finding suggests that the population under study is particularly vulnerable to these factors.

A subsequent analysis of the sub-regions of Batangas revealed significant regional disparities in the level of trust in central government policies. An independent samples t-test was conducted to determine differences in trust in the central government based on current residence. The results of this test indicated that Malitam perceived higher risks than Wawa in terms of restrictions on legal and policy support for human rights and opportunities for public participation. Specifically, when asked on a five-point scale to indicate the perceived risk to their villages in terms of central government policy support,[97] the mean score for the Malitam was 4.1 (SD=1.18), while the Wawa scored 3.46 (SD=1.57), revealing a statistically significant difference. To ascertain the significance of this discrepancy, an independent sample t-test was conducted, which yielded a t-value of 2.1714 ($p<.05$). This finding suggests that there is a discernible variation in the perception of risk across regions, attributable to the central government's restrictions on legal and policy assistance for human rights. Furthermore, the mean score for the Malitam concerning the restriction of public participation in central government policies was 3.7 (SD=1.15), whereas the Wawa exhibited a mean score of 2.87 (SD=1.24), thereby indicating a statistically significant difference between the two barangays. An independent sample t-test was conducted to confirm the significance of this difference. The result was t=3.5570 ($p<.01$), indicating that there was a difference in perception between the two barangays. that the restriction of public participation opportunities increased the risk to the village. In other words,

97) In order to ascertain the extent of risk faced by local communities with regard to central government policy support, the items were meticulously structured into six domains: ① inad equate financial support, ② deficient risk management training and resources, ③ substandar d governance, ④ insufficient legal/policy support related to human rights, ⑤ limited opport unities for public participation, and ⑥ provision of basic services and infrastructure. The ite ms were answered on a five-point Likert scale, with 1 (no risk at all), 2 (mild risk), 3 (moder ate risk), 4 (high risk), and 5 (extremely high risk).

IDPs in the Malitam perceived that the central government's legal and policy support for human rights and the limited opportunities for public participation in policy-related matters increased the risk of community violence in the Wawa.

[Table 25] Perception Differences in Central Government Policy Risks by barangay (Malitam, Wawa) in Batangas

Category	Malitam(n=61)		Wawa (n=39)		t(p)
	means	SD	means	SD	
Limited Legal and Policy Support for Human Rights	4.1	1.18	3.46	1.57	2.1714(*)
Restricted Public Participation Opportunities	3.7	1.15	2.87	1.24	3.5570(**)
Limited Financial Support	3.52	1.13	3.33	1.32	0.7699
Limited Risk Management Education and Resources	3.59	1.17	3.15	1.51	1.6166
Poor Governance	4.16	1.1	3.72	1.64	1.4989
Basic Service and Infrastructure Provision	3.34	1.12	3.18	1.35	0.6596

*p<.05, **p<.01, ***p<.001

② Local Leadership Recognition Vulnerability

[Figure 38] Perceptions of Local Leaders Among Climate-Induced IDPs in Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)



The trust in community leaders among Badjao IDPs in Batangas is generally well-established, and the resulting vulnerability is low. The degree of agreement on whether Barangay officials, city council members, and other leaders in Batangas listened well to the opinions of local residents was converted to a score of 67.5, indicating that their vulnerability to this was somewhat low. Furthermore, the degree of agreement on whether community leaders adequately support community members when needed was converted to a score of 69.25. While this figure was marginally lower, the degree of agreement on the effectiveness and fairness of community leaders' decisions for the community was expressed as 65 points, signifying that the overall trust in community leaders was low.

Notably, a positive correlation has been observed between educational level and levels of trust in community leaders. An independent sample t-test was conducted to ascertain the discrepancy in the level of trust in community leaders based on education level. The mean score of respondents who had not received formal education was 3.57 (SD=1.26) on a 5-point Likert scale when asked if community leaders provide support to regional members when necessary[98], while the mean score of respondents who had received education was 4.14 (SD=1.06), indicating a statistically significant difference. The significance of this distinction was substantiated by an independent sample t-test, which yielded a t-value of -2.2873 ($p < .05$). This finding suggests that there is a discrepancy in the perception of support from community leaders, contingent on whether or not they have received education. In essence, the findings indicated that educated individuals hold the belief that community leaders demonstrated greater support for members of their community in times of need compared to those who lack formal education.

98) To ascertain the extent of community members' trust in the community leader, the items were divided into three domains: ① the community leader's engagement with community members' opinions, ② the community leader's effective and fair decision-making, and ③ the community leader's support for community members. The items were answered on a five-point Likert scale, with 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree).

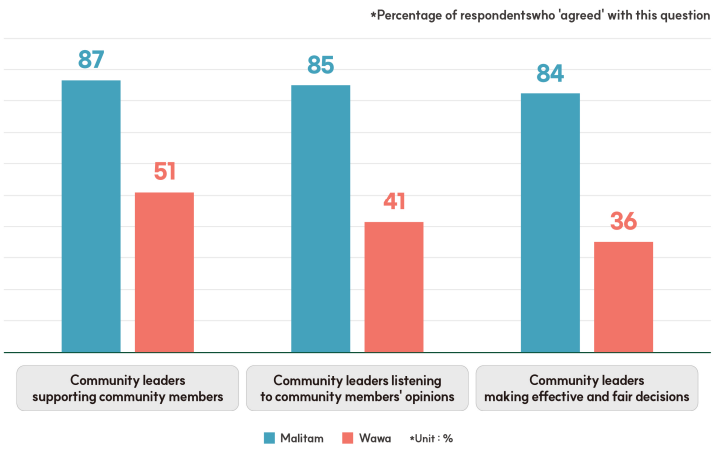
[Table 26] Perception of Trust in Local Leaders by Education Experience

Category	have no education experience (n=65)		have education experience(n=35)		t(p)
	means	SD	means	SD	
Local Leadership Support for Community Members	3.57	1.26	4.14	1.06	-2.2873(*)
Local Leadership Responsiveness to Community Input	3.6	1.63	3.89	1.6	-0.8413
Leadership Effectiveness and Fairness in Decision-Making	3.49	1.32	3.8	1.47	-1.0657

*p<.05, **p<.01, ***p<.001

[Figure 39] Levels of Trust in Local Leaders by Barangay (Malitam, Wawa) in Batangas

[number of respondents : Malitam=61, Wawa=39]



An independent sample t-test was conducted to ascertain whether there is a significant difference in the level of trust in community leaders according to the sub-region of Batangas. The results demonstrated that respondents in Malitam exhibited higher levels of trust in community leaders compared to those in Wawa, as evidenced by responses to all three items: listening to the opinions of community members by community leaders, effective and fair decisions by community leaders, and support for community members by community leaders. First, when asked whether the community leader provided support to the

community members when necessary, the mean score on a 5-point Likert scale[99] was 4.16 (SD = 0.97) for Malitam, which was higher than the mean score of 3.15 (SD = 1.39) for Wawa. The independent sample t-test result for this difference was statistically significant, with a value of t=4.1012 (p<.01). Furthermore, the mean score for the response to the item regarding the extent to which community leaders heed the opinions of community members was 4.38 (SD=1.22) in Malitam, while the mean score was 2.64 (SD=1.6) in Wawa. The difference between these means was statistically significant, with a t=6.1248 (p<.001) When asked whether the community leaders were making effective and fair decisions to run the village, the results showed that the Malitam respondents (average 4.08 points (SD=1.17)) agreed more than the Wawa respondents (average 2.85 points (SD=1.35)) with the community leaders' fair decisions, with a t=4.8453 (p<.001).

[Table 27] Perception Differences in Trust in Local Leaders by barangay (Malitam, Wawa) in Batangas

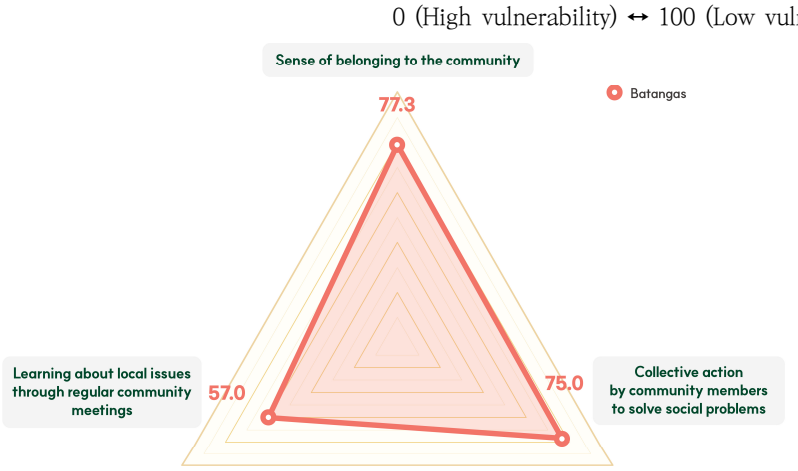
Category	Malitam(n=61)		Wawa (n=39)		t(p)
	means	SD	means	SD	
Community Support by Village Leaders	4.16	0.97	3.15	1.39	4.1012(**)
Village Leaders' Receptiveness to Community Input	4.38	1.22	2.64	1.6	6.1248(***)
Effective and Fair Decision-Making by Village Leader	4.08	1.17	2.85	1.35	4.8453(***)

*p<.05, **p<.01, ***p<.001

99) To ascertain the extent of community members' trust in the community leader, the items we re divided into three domains: ① the community leader's engagement with community mem bers' opinions, ② the community leader's effective and fair decision-making, and ③ the co mmunity leader's support for community members. The items were answered on a five-point Likert scale, with 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agr ee).

③ Vulnerability to Community Belongingness

[Figure 40] Vulnerability of Community Belongingness Among Climate-Induced IDPs in Batangas



The sense of community among the Badjao IDPs in Batangas was 77.25 points. This finding suggested that Badjao IDPs in Batangas exhibited a relatively strong sense of belonging to their community, which in turn resulted in a low level of vulnerability.

To further examine the sense of community, the characteristics of the respondents were subjected to additional subdivisions, and differences were identified through the implementation of independent sample t-tests. As a result, there were differences in the sense of community among those who had suffered economic damage due to climate change and those who had accumulated debt.

First, when queried about the strength of their affiliation with the community, the results indicated that respondents who had not experienced economic damage due to natural disasters caused by climate change in the previous five years exhibited a more positive sense of belonging compared to those who had encountered such damage. Specifically, the mean score of respondents who had not suffered economic damage was 4.37 (SD = 0.74) for the item on a five-point Likert scale[100],

100) The item on whether community members generally felt a strong sense of belonging was answered on a five-point Likert scale, with 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree).

while the mean score of respondents who had suffered damage was 3.97 (SD = 1.17), indicating a somewhat lower degree of agreement with the sense of belonging.

[Table 28] Perception of Community Belonging Based on Economic Loss Due to Climate Change

Category	no economic loss (n=27)		experience economic loss (n=72)		t(p)
	means	SD	means	SD	
Strength of Community Belonging Among Village Members	4.37	0.74	3.97	1.17	2.0027(*)

*p<.05, **p<.01, ***p<.001

Furthermore, the study revealed that the degree of strong sense of belonging exhibited by local members varied according to their debt status. The findings of the independent sample t-test demonstrated that those without debt (mean 4.47 points (SD=0.72)) exhibited a significantly stronger sense of belonging to the community as a member of the village than those with debt (mean 3.94 points (SD=1.17)) (t=2.7700 (p<.01)). These results suggest that Badjao IDPs in Batangas require assistance to overcome economic difficulties and enhance their sense of community.

[Table 29] Perception of Community Belonging Based on Debt Status

Category	no debt (n=32)		have debt (n=67)		t(p)
	means	SD	means	SD	
Strength of Community Belonging Among Village Members	4.47	0.72	3.94	1.17	2.7700(**)

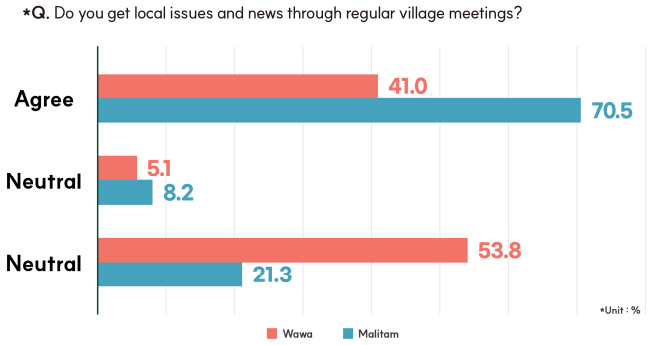
*p<.05, **p<.01, ***p<.001

Meanwhile, the members of the village exhibited a strong sense of community and mutual support, motivating each other to engage in collective actions to address community issues. However, the awareness of problems in the community through regular village meetings was converted into 57 points, indicating a relatively high

vulnerability (see [Figure 41]). A notable finding was that the Wawa region, situated at a considerable distance from the inland of the Philippines, exhibited constrained access to local issues and news through regular village meetings.

[Figure 41] Levels of Awareness of Local Issues and News by Barangay (Malitam, Wawa) in Batangas

[number of respondents : Malitam=61, Wawa=39]



The disparities in the acquisition of local issues through regular meetings between villages (Malitam, Wawa) were also evident in the results of the independent variable t-test. In response to the item[101] , the mean score in Malitam was 3.7 (SD=1.41), while the mean score in Wawa was 2.62 (SD=1.55), indicating a lower degree of agreement. The t-test value was t=3.6310 ($p<.01$), indicating that the difference was statistically significant.

101) The item on whether community members are kept informed of local issues and news thro ugh regular village meetings was answered on a five-point Likert scale, with 1 (strongly disa gree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree).

[Table 30] Perception Differences in Community Belonging by Barangay (Malitam, Wawa) in Batangas

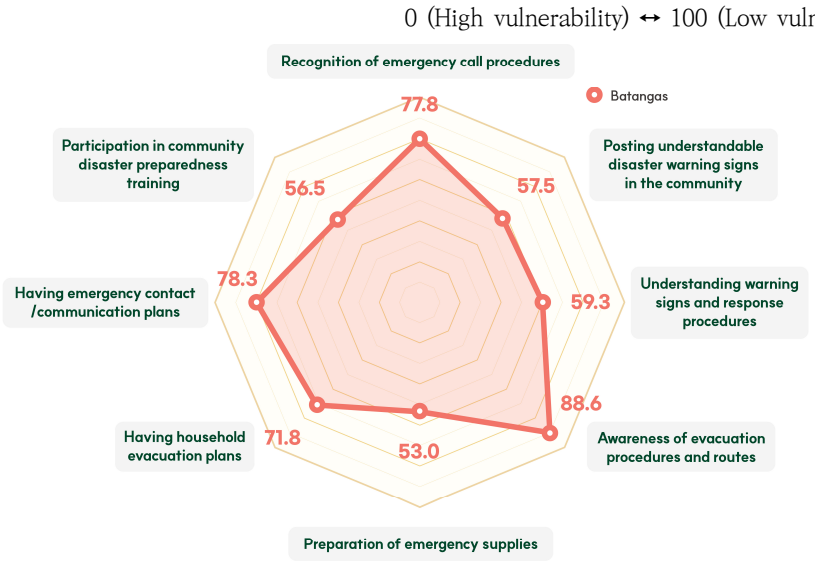
Category	Malitam (n=61)		Wawa (n=39)		t(p)
	means	SD	means	SD	
Strength of Community Belonging Among Village Members	4.13	1.04	4.03	1.16	0.4732
Collective Action for Community Problem-Solving by Village Members	4.07	1.21	3.9	1.23	0.6734
Acquisition of Local Issues Through Regular Village Meeting	3.7	1.41	2.62	1.55	3.6310(**)

*p<.05, **p<.01, ***p<.001

As mentioned earlier, Badjao IDPs in Batangas are willing to go beyond assistance to engage in collective action to solve problems in their communities, so there is a need to strengthen the environment and systems that allow IDPs to regularly discuss community issues.

④ Vulnerability of Disaster Awareness and Preparedness

[Figure 42] Vulnerability of Disaster Awareness and Preparedness Among Climate-induced IDPs in Batangas



IDPs in Batangas, who have a long history of displacement due to natural disasters and other issues, demonstrate a relatively high level of disaster awareness. The score of 77.75 indicated a level of awareness among community members regarding the acquisition of emergency assistance in the event of a disaster, suggesting a relatively high level of awareness and a concomitant low level of vulnerability. Furthermore, community members demonstrated a commendable level of awareness regarding evacuation procedures and routes in the event of a disaster, with a score of 88.5.

However, it was found that Badjao IDPs in Batangas with limited education levels were unaware of the disaster risk warning signs and alarms that had been installed in the area. The vulnerability score for this indicator was 57.5, indicating that the signs warning of disaster risks such as floods, typhoons, tsunamis, and landslides were clearly posted in the area in a language that was comprehensible to the local populace. In a similar vein, the capacity to discern warning signals, such as emergency sirens, in the event of a disaster was also relatively high, with a score of 59.25. Consequently, it is imperative to establish educational initiatives regarding disaster warnings and to devise a more accessible guidance system that aligns with the educational level and comprehension of IDPs in Batangas.

In the context of disaster preparedness, it was observed that livelihood vulnerability exerts a deleterious influence on disaster preparedness. IDPs in Batangas, who have experienced multiple displacements due to natural disasters, generally have evacuation plans, including a list of items to pack and escape routes, and thus have a relatively low vulnerability (71.75 points). In a similar manner, the conversion score for the presence of an emergency communication plan, which would be utilized to contact the household in the event of an evacuation due to a disaster, was 78.25. This indicated that the household was also relatively unvulnerable to this potential threat. However, the preparation for disaster preparedness, which involved costs, was rated at 53 points, indicating that the country was somewhat unprepared for such disasters. Furthermore, the level of participation in community disaster drills, which necessitated time and

potentially impacted income generation, was 56.5 points, suggesting that disaster preparedness that influenced livelihoods was marginally inadequate. Consequently, it is imperative to augment livelihood support for displaced individuals, particularly those affected by climate-related disasters, to enhance their resilience and adaptive capacity in the face of increasingly frequent and severe natural disasters.

[Table 31] Key Findings from Quantitative Analysis in Batangas

Category	Vulnerability assessment
Health	· Adequate accessibility to primary healthcare infrastructure with well-established facilities · Limited accessibility to fee-based medical treatments (e.g., mental health services) · Low awareness of central/local government-provided healthcare programs · Low utilization rates of central/local government healthcare programs
Livelihood	· Continued economic losses from climate change-induced natural disasters · Insufficient resettlement support from central/local governments · Primary income generation through small-scale businesses and begging · Frequent debt accumulation for basic survival necessities · Low savings rates due to livelihood difficulties, with most savings kept at home rather than in financial institutions · Frequent inability to access loans when needed
Community adaptive capacity	· Insufficient financial support from central government for local communities · Limited risk management education and resources from central government · Inadequate legal and policy support for human rights from central government · Limited public participation opportunities in central government policies · Insufficient provision of infrastructure and basic services from central government · Adequate receptiveness to community input by local leaders · Satisfactory community support from local leaders · Effective and fair decision-making by local leaders · Established disaster response and evacuation procedures · Poor recognition of local disaster warnings · Insufficient disaster preparedness supplies and low participation in community disaster drills

4.3.2 Findings from Qualitative Research

(2) Vulnerability of IDPs in the displacement and resettlement phases

① Displacement decision phase

The original homes of the Badjao IDPs who participated in the interview were in the Zamboanga and Sulu regions of Mindanao Island in the southern Philippines, and their main livelihood in their original homes was fishing. This finding aligns with the results of a survey of displaced Badjao households, conducted concurrently with a qualitative survey, and with the analysis of existing literature on the subject. According to literature, the Badjao IDPs are considered to be an indigenous people and sea nomads who primarily engage in fishing as their primary means of subsistence and are characterized by their high degree of mobility. The onset of armed conflict in the Autonomous Region in Muslim Mindanao (ARMM) commenced in the late 1960s, pitting armed Muslim rebels against the Philippine government forces. This conflict prompted a mass exodus of the Badjao residing in the region, who began departing their settlements in the early 1970s. Among the interviewees, the elderly who could not recall the precise year or number stated that they had been displaced during the period when Martial Law was declared. The period of martial law declared by President Ferdinand Marcos lasted from 1972 to 1981.[102)]

The most salient cause of the interviewees and their families' departure from their previous place of residence was "food shortages and livelihood difficulties due to armed conflict." The Badjao community historically relied on fishing as their primary source of income. However, armed conflict led to the frequent theft of their catch by pirates, who also destroyed their vessels and killed or kidnapped their fishermen. As a result, the Badjao IDPs have endured the forfeiture of their

102) Given the propensity of older respondents to experience difficulties in recalling numerical data, such as years and ages, the estimation of their age and year was facilitated through the formulation of inquiries concerning various scenarios and contextual backgrounds (e.g., who was the president, and whether there were any national events or disasters that they could recall).

means of subsistence, along with intimations of their personal security. The severity of their economic vulnerability has escalated to an alarming extent. The Badjao IDPs, having encountered not only threats to their livelihoods but also to their lives, made the decision to vacate their current areas of residence in order to maintain their livelihoods and ensure their safety. A survey of respondents from a specific age group revealed that many had firsthand experience with disputes, both personally and within their families. These respondents also reported having encountered threats to their livelihoods and even risk to life safety and acknowledged that the primary cause of their parents' displacement was the challenges they had faced in securing livelihoods due to the ongoing armed conflict.

However, the factors that influenced the displacement of the Badjao IDPs were more complex and occurred gradually. The armed conflict in Mindanao has occurred under a complex socio-political and economic as well as religious background, and climate change is also cited as one of the causes of the intensification of the armed conflict. The confluence of armed conflict and climate change has exerted a deleterious effect on agricultural and fishing yields, engendering resource shortages in the region and concomitant weakening of local governance. As a result, the Badjao fishermen, constituting a minority with no collective capacity to respond, have been subjected to extortion and attacks, marginalized from institutional support and legal protection.

The displacement of the Badjao IDPs was not a national policy or a decision made by the ethnic group as a whole. The decision to relocate was made in small groups, such as individual households or relatives. It is challenging to consider their displacement as entirely voluntary due to the significant push factors that compelled them to relocate.

② Displacement process

The displacement and resettlement of the Badjao IDPs occurred over an extended

period, involving multiple displacements. Approximately half of the interviewees did not proceed directly to Batangas after departing their home region; rather, they traversed multiple regions within the Philippines prior to settling in Batangas. The distance between Zamboanga, where the respondents previously resided, and Batangas, located at the lower end of northern Luzon, was approximately 1,366.55 km in a straight line, which could be traversed in two to three days by boat or bus. However, the majority of the respondents had relocated through frequent displacements over the years. One respondent claimed to have relocated from Zamboanga to Batangas via Cebu, Masbate, and Sorsogon, omitting areas where the respondent had merely brief stays. The displacement routes and the number of displacements were not identical; however, extant literature indicated that the Badjao IDPs moved from their original settlements by boat and thus attempted to move to urban areas with ports.

The Badjao IDPs encountered significant challenges in maintaining their livelihoods due to the displacement of their boats, which served as their primary means of income, along with their other assets and homes. The loss of these resources significantly impacted their ability to secure adequate livelihoods, particularly in areas where they had been resettled and were unable to practice their traditional fishing activities. Moreover, since most regions did not welcome the settlement of the Badjao IDPs, they were repeatedly displaced from the local community and resettled in other regions. While the threat of mortality due to armed conflict may have diminished after departing from the initial place of residence, only a marginal improvement in vulnerability has been observed. The Badjao IDPs have encountered significant challenges in securing livelihoods throughout the displacement process. In addition to being rejected by the original residents, experiencing social isolation and disconnection, and facing housing insecurity, they have not received fundamental protection, including safety, health, and education.

The Badjao are a minority group that makes up about 1% of the population in the Philippines, with different cultures, religions, and languages. Most of them were

not registered with the Philippines government, which has led to their exclusion from institutional support and protection from the community and government before settling in Batangas.

The Badjao IDPs, who hailed from other regions, selected Batangas as their final settlement after acquiring information about the region and receiving recommendations from relatives, family members, and acquaintances who had already been displaced to Batangas due to extreme poverty and complex difficulties. The Badjao IDPs report that life in Batangas is better than their previous life. They explained that they decided to move to Batangas as there were more livelihood opportunities, there were fewer violent situations that threatened their lives, the existing residents of Batangas recognized them as members of the community, and they could receive legal protection and institutional support from the Batangas City government. The displacement of the Badjao IDPs has persisted for approximately five decades, commencing from the initial displacement. The Badjao settlement in Batangas, the focal area of this investigation, has undergone a gradual expansion, reaching an estimated population of 500 households.

③ Resettlement Phase

a) Initial Settlement

The temporal origins of the Batangas City government's acceptance and support policy remain ambiguous. However, it is evident that individuals who relocated subsequent to the initiation of this policy and the establishment of the IDPs settlement encountered more facilitation in their settlement process compared to the initial displaced population. Following their displacement from the area due to recommendations from relatives and neighbors who had already settled in Batangas, they received assistance from these same individuals to facilitate their own settlement. Prior to securing permanent accommodations, many were compelled to reside with relatives or neighbors for extended periods, often spanning several years. This practice frequently resulted in the cohabitation of two

or three families within a single dwelling. The Badjao tribal leader facilitated the registration of residence and birth in the barangay, enabling access to educational and health services. He also provided various information and materials pertinent to daily living. For respondents who have recently experienced displacement or have school-age children, in addition to the need for livelihood, their own education and that of their children were identified as being among the primary motivations for settling in Batangas.

[Figure 43] Changes in Badjao IDPs Settlements - 2006 (Left) and 2024 (Right)



Source : Google Earth

The initial attempt by the Badjao IDPs to establish a settlement in Batangas City was met with rejection. However, upon their second attempt to relocate, the Badjao IDPs were granted permission to settle. During the 1970s, two or three Badjao families relocated to Batangas for the first time. Among the interviewees, the early settlers recalled that the scale of displacement at the time was minimal. The initial settlement areas were Isla Noa Island, which was closest to the sea, and the Simlong area, which was located on the coast and had formed mangrove forests. There was no living infrastructure in this area because it was uninhabited. Furthermore, the Badjao IDPs have undergone multiple displacements and the loss of their homes due to climate change and disasters, even subsequent to their initial displacement to Batangas. Isla Noa Island, one of the initial settlement areas, was destroyed due to typhoons and erosion. A subsequent large fire in the settlement

area led to further displacement. Isla Noa Island, located downstream of the Calumpang River, was the closest island to the sea. However, its area gradually shrank due to continued erosion and rising sea levels caused by climate change. The island was completely washed away by Typhoon Glenda in 2014. Subsequent to this, the Badjao community relocated to the area where they currently reside. At that time, the area was devoid of any infrastructure, compelling the Badjao to undertake the construction of their own dwellings and to establish a foundation for their livelihoods.

However, irrespective of the timing of resettlement, livelihood vulnerability has emerged as the predominant source of hardship and risk for Badjao IDPs during the resettlement process. In the early days of the settlement, when there were no boats for fishing, catching fish, or collecting shellfish, which were the means of livelihood, they made a living through day labor such as begging, portering, cleaning, and manual labor.

b) Post-Settlement

Cascading Effects of Intensified Livelihood Vulnerability

The most significant hardship and risk factor experienced by the Badjao IDPs during the resettlement process was livelihood vulnerability. As previously indicated, the Badjao's traditional means of subsistence involved fishing. They derived income from the capture and sale of fish and shellfish, as well as from the fabrication of jewelry from shellfish shells. However, they forfeited their vessels and all their assets during the displacement. Consequently, they were unable to identify alternative livelihoods that would supplant fishing in the context of repeated displacement. As a result, they primarily survived by living in encampments and begging. Following their resettlement in Batangas, the majority of IDPs expressed a desire to maintain their fishing industry. However, the implementation of a seasonal closure policy by Batangas City, in conjunction with large-scale construction projects, has had a deleterious effect on both catch quantity and

income. In 2021 and 2022, the Department of Public Works and Highways (DPWH) of the Philippines constructed a dike along a segment of the coastline in the Badjao IDPs' residential area. This infrastructure was developed to mitigate the risk of flooding, which had previously posed challenges to the effective protection and management of fishing boats moored along the coast. During the field survey, it was confirmed that a significant number of boats had been placed outside the dike. Prior to the construction of the dike, boats could be brought into the village to protect them in the event of a typhoon. However, since the dike was constructed, it has become challenging to move boats. Consequently, the majority of boats were damaged during the typhoon, leading to the loss of their primary means of income. The interviewees also reported that the most significant challenges they were currently encountering were financial constraints and difficulties in securing adequate livelihoods. They used to make a living by fishing and selling fish. After losing their boats, they made a living by fishing with other neighbors' boats, cleaning markets, doing odd jobs such as carrying luggage, selling their belongings or second-hand goods, and begging. The respondents generally reported that they earned approximately half of the amount necessary to maintain their household's livelihood. They also indicated that the irregular nature of their sources of income was a significant challenge to maintaining their livelihood. The limited educational attainment, linguistic barriers, and cultural customs of Badjao IDPs have impeded their ability to secure alternative livelihoods. As a highly mobile minority, most of the adult Badjao IDPs had a low level of education, as they did not receive timely and appropriate education. This lack of formal education was further compounded by their limited proficiency in Tagalog, the official language of the Philippines. The absence of Tagalog proficiency among the Badjao population significantly restricted their capacity to engage in meaningful communication, severely impacting their ability to participate fully in the country's socio-economic landscape.

The exacerbation of livelihood vulnerability engendered considerable challenges in meeting the financial obligations necessary for their children's education, consequently resulting in their decision to withdraw from formal schooling.

Although the registration of children's births was possible, and they were exempt from fees until high school, which was compulsory education, and the Indigenous Peoples Education Program (IPEd) was also provided free of charge, there were numerous cases in which students were unable to attend school due to their inability to afford the lunch fee, which amounted to 10-15 pesos (approximately USD 0.2-0.25). The actual class attendance rate of Badjao students who have entered elementary school is approximately 60%, and the budget for the school lunch program is inadequate, so it is only supported for approximately two months a year. The interviewees reported that the most significant challenges they are currently facing pertain to financial constraints and limited livelihood opportunities. The majority of the interviewees indicated that their income is approximately half of what is necessary to sustain their households, which has a direct impact on their ability to provide for their families, including the education of their children and the coverage of their children's healthcare needs.

New Disasters Experienced After Displacement

In contrast to the Badjao's traditional dwellings, Batangas was situated along the primary trajectory of typhoons that have been documented in the Philippines. Therefore, Badjao IDPs experienced severe typhoon damage that they had never experienced before after their displacement. In 2014, Typhoon Glenda caused the initial settlement to be washed away, necessitating the displacement of the Badjao. The houses built using bamboo, a traditional housing style among the Badjao, were particularly vulnerable to strong winds and typhoons. In addition, Badjao IDPs have experienced floods, erosion, and rising sea levels. During the settlement process, the Wawa barangay, located in proximity to the sea, experienced severe flooding during each high tide due to typhoons. The area was particularly impacted during the high tides in July and August, as well as when typhoons and high tides occurred concurrently. According to the reports of Badjao IDPs, the effects of sea-level rise are being experienced in this population. The sea-level rise in the Philippines is approximately twice the global average, with recent sea-level rise observed

between 0.2 m and 0.4 m, and sea-level rise expected to reach 1.0 m by 2080 (Pula et al., 2023). Focus group discussions revealed that when creating a village disaster risk map, the entire area of Wawa barangay, located on the coast with no dike, was flooded every time a typhoon or heavy rain caused flooding, and about half of the Malitam area was flooded. In the event of a disaster, the residents experienced damage such as broken houses and isolated areas. They evacuated with the assistance of the local government when a typhoon warning was issued; however, in other disasters, they have become so accustomed to the situation that they do not take any special measures or evacuate.

Unintended Consequences of Government Policies

The implementation of policies and the provision of support for public services and infrastructure in Batangas have contributed to the alleviation of pre-move vulnerability. However, ascertaining the extent to which the lives of IDPs have been enhanced remains challenging. This is due to the fact that the preexisting vulnerabilities were at a level of extreme distress, endangering their lives and livelihoods. Socio-cultural factors of the Badjao (mobility of Badjao IDPs, early marriage culture, etc.) were identified as impediments to the effective implementation of the policy. Furthermore, there were cases where the approaches between policies differed or where there was a lack of policy consistency between local and central governments. Consequently, while some policies achieved the intended purpose of mitigating vulnerability, they concomitantly precipitated the exacerbation of vulnerability in other sectors. For example, the disaster response policy established by Batangas City and the barangay provided early warning systems for typhoons and offered evacuation support, which contributed to a reduction in the actual damage caused by typhoons to the Badjao community, including property loss and human casualties. The City Disaster Risk Reduction and Management Office (CDRRMO) in Batangas City has indicated that the Badjao community is included in the disaster risk analysis of the two barangays. This analysis encompasses the scale of past damage, evacuation centers, evacuation

routes, and information on households to be evacuated. Conversely, the Department of Public Works and Highways (DPWH) of the Philippines constructed a dike[103] subsequent to Typhoon Glenda in 2014 as part of a policy aimed at recuperating from the incurred damage and mitigating flooding. While the dike proved efficacious in reducing flooding in the designated area (Malitam barangay), the opposite was observed in the area where it was not installed (Wawa barangay), where flooding damage intensified. Furthermore, the construction of the dike impeded the Badjao people's ability to manage their boats, which constituted their primary means of income. Consequently, numerous boats were damaged during the occurrence of typhoons, resulting in the Badjao IDPs' loss of their predominant livelihood source. This finding was corroborated through the analysis of disaster risk maps created during the field research period, as well as through multiple interviews with the Badjao IDPs in Malitam and Wawa barangays and focus group discussions. In essence, the government's disaster response policy contributed to the mitigation of disaster vulnerability; however, it concomitantly resulted in the exacerbation of livelihood vulnerability. The 4Ps program,[104] which is supported by the Philippine government, has been instrumental in providing support to the most vulnerable groups in the Badjao community. This program has contributed to alleviating the vulnerability of children in the areas of nutrition and education. Some of the notable outcomes include improvements in the living environment, reductions in illiteracy, decreases in the number of malnourished children, and increases in the number and attendance of public school students (Tamayo & An, 2019). In regard to livelihood support, the Batangas City Social Welfare Program has implemented vocational training programs in various sectors, including baking and sewing. However, a majority of the Badjao IDPs interviewed reported that they did not receive follow-up or additional programs to assist them in securing employment after acquiring skills through these vocational training programs. A

103) Through the Batangas City website and Google Earth, dike construction along the coast next to the Badjao community can be verified between the end of 2021 and 2022.

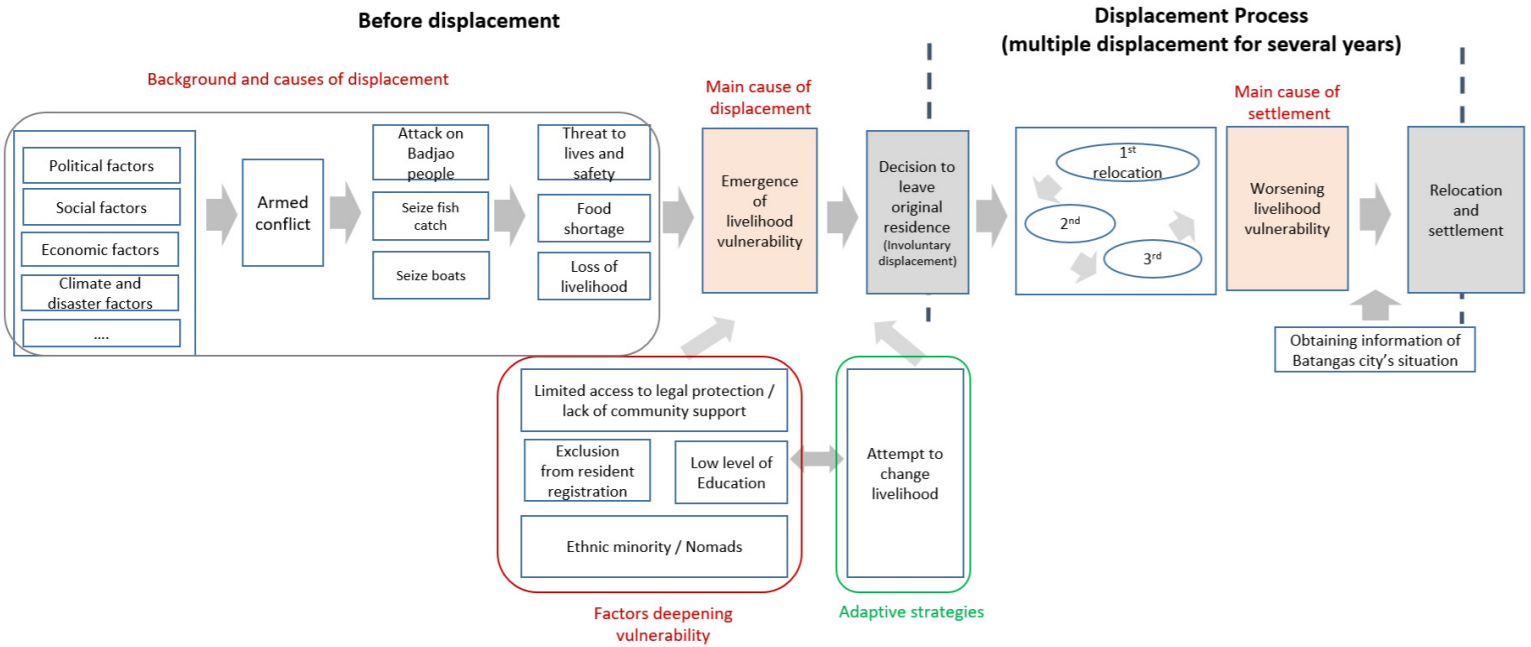
104) The 4Ps program is administered by the Department of Social Welfare and Development (DSWD) in collaboration with the Department of Health (DOH) and the Department of Education (DepEd).

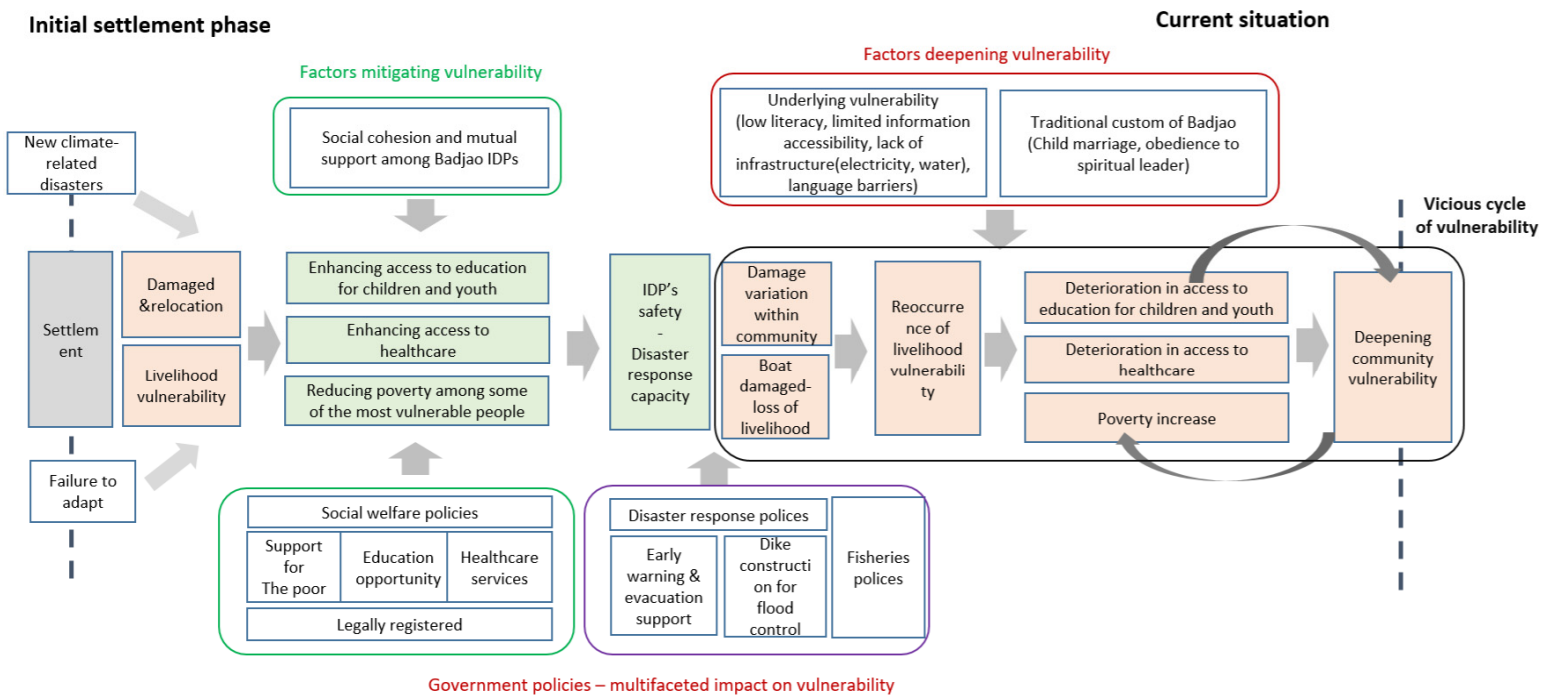
2019 study of the outcomes of the Batangas City government's Badjao IDP support program revealed that livelihood support programs exhibited substandard performance in comparison to other programs, including health and education initiatives (Tamayo & An, 2019).

[Table 32] Changes in Vulnerability Through Support Policies During Displacement Processes

	Original Residence	On the move & Initial Settlement		Policy and Support		Current Situation
Livelihood	Severe Vulnerability (Conflict and Exploitation)	Severe Vulnerability (Loss of Traditional Livelihood	⇒	-4P Program(Limited cash transfers to selected poor households Basic social support systems)	⇒	Persistent Severe Vulnerability (4P support continues but insufficient Loss of boats and livelihood means, Decreased household income)
Disasters	Not Reported	Intensified Vulnerability (Additional relocation due to natural hazards)	⇒	-Typhoon early warning system -Evacuation assistance -Dike construction	⇒	Partial Vulnerability Reduction
Health	Not Reported	Vulnerability Reduction (No protection and institutional support)	⇒	-Free public health service	⇒	Partial Vulnerability Reduction (Medicine Cost Issues)
Education	Not Reported	Vulnerability Reduction (No protection and institutional support)	⇒	-Free education -Indigenous Peoples Education (IPEd)	⇒	Partial Vulnerability Reduction (Economic Barriers to Education)
Safety	Severe Vulnerability	Vulnerability Reduction (Escape from armed group but discrimination from host communities)	⇒	-Barangay management -Security and conflict management mechanism (Barangay Public Safety Officer)	⇒	Vulnerability Reduction

[Figure 44] Vulnerability Factors at Each Stage of Displacement and Resettlement for Badjao IDPs




Initial settlement phase
Current situation
Factors mitigating vulnerability
Factors deepening vulnerability
New climate-related disasters
Social cohesion and mutual support among Badjao IDPs
Underlying vulnerability (low literacy, limited information accessibility, lack of infrastructure(electricity, water), language barriers)
Traditional custom of Badjao (Child marriage, obedience to spiritual leader)
Vicious cycle of vulnerability
Settlement
Damaged &relocation
Livelihood vulnerability
Failure to adapt
Enhancing access to education for children and youth
Enhancing access to healthcare
Reducing poverty among some of the most vulnerable people
IDP's safety - Disaster response capacity
Damage variation within community
Boat damaged-loss of livelihood
Reoccurrence of livelihood vulnerability
Deterioration in access to education for children and youth
Deterioration in access to healthcare
Poverty increase
Deepening community vulnerability
Social welfare policies
Support for The poor
Education opportunity
Healthcare services
Legally registered
Disaster response polices
Early warning & evacuation support
Dike construction for flood control
Fisheries polices
Government policies – multifaceted impact on vulnerability

Sense of community and cohesion

The Badjao IDPs maintained their sea-based identity and demonstrated a strong commitment to upholding their ethnic traditions and shared values. The Badjao IDPs persist in their interactions and communication with the Badjao people who remain in their original settlement area of Zamboanga. The analysis of the IDPs' community revealed a high level of trust, inclusion, and participation among its members, indicative of a robust social cohesion. In particular, during the settlement process, family members, relatives, and IDPs with close relationships gathered together, and the cohesion within the displaced person community was quite strong. The survey and qualitative research indicated that Badjao IDPs exhibited elevated levels of trust in their tribal leaders and internal members. They asserted that these leaders provided assistance and support to one another in addressing grievances and overcoming difficulties. Collective action, defined as cooperative behavior such as lending money, living together in a house, and sharing a boat, was employed to address challenges faced by the community, including financial constraints and the potential risk of disaster. This cohesion has had a positive effect on the settlement and problem-solving of IDPs in Batangas. On the other hand, the lifestyle and cultural practices that have persisted since their settlement have also impeded the enhancement of the community's response capacity. The practice of marrying at the age of 13-15 has led to the discontinuation of studies among adolescents in the community and has had a detrimental effect on securing a better life and livelihood for young people. Badjao youths dropped out of school and got married to preserve their ethnic traditions and follow the advice of their elders, even if they did not want to get married at an early age. They were unable to graduate and were experiencing difficulties in finding a suitable job and making a living. Furthermore, the determination to maintain residence in coastal areas served to exacerbate the destruction caused by typhoons and rising sea levels. Therefore, the development of strategies, including the implementation of awareness-raising initiatives, is imperative to ensure the enhancement of local communities' resilience.

Leadership and Governance Perception

The community governance that affects Badjao IDPs can be analyzed by dividing it into three categories: the internal governance of the Badjao community, the barangay where Badjao IDPs belong, and Batangas City. In addition to the governance structure present at the local level, a governance system centered on community leaders from the Badjao community has been established, thereby creating an additional layer of governance.

The Badjao community is governed by a system of tribal leadership, which facilitates communication and coordination between the Badjao community and their respective barangays. According to the findings of the study, Badjao IDPs perceived the role of tribal leaders to be threefold: problem solving, mediation, and support for grievances. The IDPs reported that they obtained information through tribal leaders in the community, including resident registration, policy support, and participation in programs. Moreover, when conflicts and problems arose in the community of IDPs, they were resolved through a dialogue-based mechanism, similar to a roundtable conference, centered on tribal leaders. The early settlers of Batangas exhibited a leadership structure that was transmitted through the generations within the family unit. The patriarch of the family assumed the role of the official tribal leader, with responsibilities that encompassed problem-solving and formal communication. Concurrently, other family members participated in an informal capacity, contributing to the coordination and support of IDPs.

(Barangay-level governance) The cohesion of the Badjao as members of the barangay and Batangas to which they are administratively attached was relatively lower than their internal cohesion, but they also showed a compliant attitude to governance at the barangay level. Host community members reported that when Badjao IDPs encounter problems that they cannot solve on their own, they seek and accept the policies or guidelines of the barangay. Badjao IDPs, who reside in a unified community, exhibited a cognizance of their barangay (Wawa, Malitam), particularly with regard to the provision of educational opportunities, healthcare services, and evacuation support by Batangas City and their respective barangay.

The host community elucidated that the Badjao frequently partake in the annual general meeting.

However, the Badjao community's decision-making process appears to have a negative impact on the community's ability to respond. Presently, the residences of the Badjao IDPs are privately owned rather than government-owned, thereby rendering it impossible to create an address and build under the central government's No Build Zone policy. Therefore, the Batangas City government proposed the relocation of the Badjao community to safer inland areas, with the objective of mitigating their housing insecurity and disaster risk. However, the Badjao IDPs conducted an internal vote and opted not to relocate. Furthermore, the community's high dependence on its leaders had a significant impact on the vulnerability of its members. Due to their substandard literacy levels, the majority of Badjao IDPs have considerably restricted access to information and data presented in written form. Consequently, they depend exclusively on oral information disseminated through barangay and government officials and leaders. Given the absence of electricity, the utilization of the Internet and related technologies was rendered unfeasible. On sporadic occasions, it was observed that certain individuals remunerated a fee to access electricity from the residences of nearby residents in Batangas, subsequently employing the electricity to recharge their mobile phones. Consequently, access to information was significantly constrained. In the course of this process, it was determined that information distortion and the dissemination of falsehoods (e.g., the purported demolition of villages) were pervasive, and Badjao IDPs were being adversely affected by such distorted information. Furthermore, there were cases where parents opted not to enroll their children in school, following the counsel of spiritual leaders who claim to possess the ability to predict the future of the local community.

Coexistence and integration with the host community

There has been no serious physical conflict or violence identified between the Badjao community and the host community. The host community regarded the

Badjao IDPs as integral components of the community. Over the course of several decades, marriages between Badjao IDPs and Batangas residents, the host community, were established, gradually altering the prevailing perception. It was elucidated that the Badjao residents have been in attendance at the Barangay annual general assembly and that they have been known to serve as representatives of the Barangay in sporting competitions. The host community and Badjao IDPs engaged in collaborative sessions with participants of the 4P Program (poverty support program) and other communal venues, such as schools. However, the degree of integration of Badjao IDPs into the host community remained limited. It was observed that Badjao IDPs did not engage in local residents' organizations or associations (e.g., women's groups, fishermen's groups, farmers' groups, etc.) led by residents of the host community. The host community and the Badjao community exhibited distinct housing styles and were geographically isolated from one another. The projects provided by the Barangay were divided, and it was found that they did not actively participate in joint activities (such as cleaning). There were also potential sources of conflict, such as the Badjao students having experienced discrimination in spaces or situations where the two communities, including schools, were integrated. Alternatively, the host community might have been concerned that the image of the community would be negatively impacted by the presence of Badjao IDPs. These conflict elements were addressed by conflict resolution mechanisms at the school, Badjao community, and barangay levels.

The youth groups of the two communities exhibited varying degrees of integration. The Badjao youth generation, who were born in Batangas or relocated there during childhood, received education as Batangas citizens and maintained regular employment that generated income in Batangas, exhibiting a distinct sense of belonging and identity, lifestyle, and social networks compared to their parents' generation. In particular, the youth were interacting and networking through the school. A college student who participated in the focus group discussion of the host community explained that he had participated in a program in which he and his friends formed a group and visited Badjao to meet their friends. An NGO that supports Badjao youth regularly provides youth leadership programs to support

capacity building and organization. From a long-term perspective, it is reasonable to hypothesize that the current generation of the youth will assume a leading role in community integration and change.

Community Adaptive Capacity

As for the Badjao community, a voluntary settlement that had been established was subsequently recognized and accepted by the relevant authorities. This settlement, which initially existed outside the purview of government policies and institutions, was subsequently integrated into these structures. Given their exclusion from the realm of government support and policies, settlement and government policies and interventions are regarded as a social safety net in the lives of the Badjao IDPs. The provision of legal protection was identified as a critical foundation for enhancing the response capacities of Badjao IDPs. The Batangas City government demonstrated a commitment to supporting the Badjao IDPs by facilitating their registration as residents (voters), as well as facilitating the registration of their births. This initiative not only granted them legal status but also provided access to the 4P program, a comprehensive poverty support initiative that offers health and healthcare support for disadvantaged populations and educational opportunities. Additionally, it has been confirmed that the barangay and Batangas City are receiving support from the government in the form of early typhoon warnings and advance evacuation in the event of a disaster. The 4P program is supported by the national Department of Social Welfare and Development (DSWD), poverty support by the City Social Welfare and Development Office (CSWDO) of Batangas, education support by schools in the barangays, and disaster evacuation support by the City Disaster Risk Reduction and Management Office (CDRRMO) of Batangas and the barangays.

Batangas City, in particular, has assumed a pivotal role in this regard, leveraging its comprehensive understanding of the field and the unique characteristics of the Badjao community to facilitate the implementation of central government policies aimed at the Badjao IDPs. This commitment has also led to the provision of

essential services, ensuring that the fundamental needs of the Badjao community are being met. Furthermore, endeavors were undertaken at the local government level. The Batangas City Social Welfare Department designated a specific budget for Badjao assistance, and the Barangay Health Center conducted on-site visits to the Badjao community to dissuade residents who feared healthcare services and to administer vaccinations. According to Badjao IDPs, their lives after displacement were better than their lives in their previous areas of residence, especially with regard to education and health programs. These programs were considered essential support for the lives of their children by the parents of Badjao IDPs. Nonetheless, there have been instances in which the alignment between central and local government policies has been inadequate or inconsistent, resulting in adverse consequences for the local community. It has been observed that circumstances in which livelihoods are particularly vulnerable and fundamental needs such as the cost of medicine and school lunches are not being met can impede the enhancement of the local community's capacity to respond effectively.

[Table 33] Support and Programs Provided to Badjao IDPs in Batangas

Category	Content
Legal protection	- Resident registration, voter registration, and birth certification - Essential prerequisites for voting rights and public service access
4P program	- Family education programs for low-income households - Conditional cash transfers per child (contingent on continued education)
Goods support	- Intermittent support with rice and food supplies
Health	- Free vaccination programs - Free medical consultations and treatments at public health facilities (Barangay Health Centers, public hospitals) (Medication costs require payment)
Education	- Free primary and secondary education tuition (Additional costs require payment) - Alternative Learning System for low literacy individuals - Specialized Indigenous People's curriculum
Disaster response	- Pre-typhoon early warning systems through barangay - Evacuation assistance during severe typhoons Dike construction

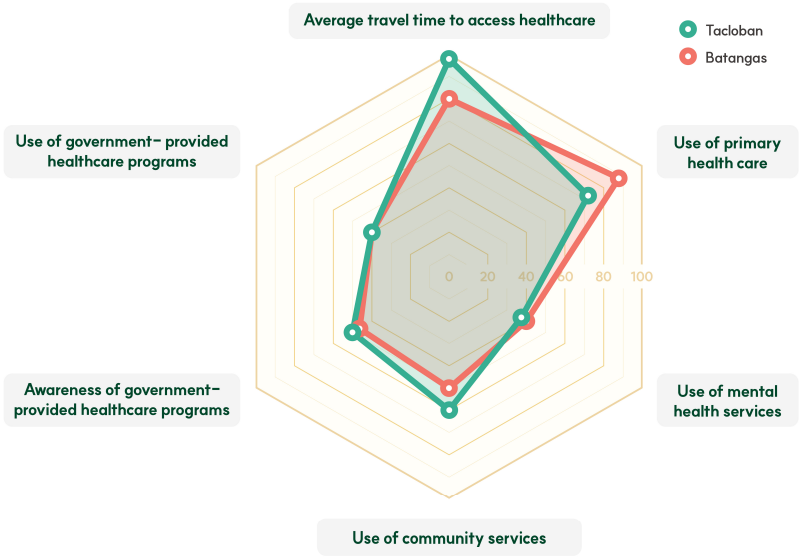
4.4 Comparative Vulnerability Analysis between Tacloban and Batangas

4.4.1 Comparative Findings Using Radial Charts

(1) Health Vulnerability

[Figure 45] Comparative Analysis of Health Vulnerability in Tacloban and Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)



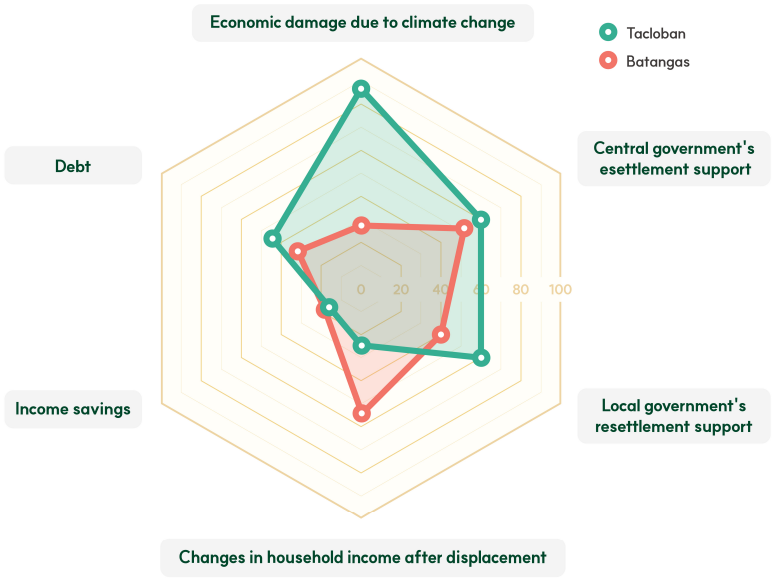
A comparison of the health vulnerability of the two regions, converted into 100-point scores, revealed analogous patterns, with only minor discrepancies in accessibility. In Tacloban, the average travel time to access healthcare services was less severe than in Batangas. However, both areas were analyzed as having a low level of vulnerability, with both exceeding 80 points (average travel time of less than 30 minutes). However, a low average travel time does not necessarily mean that access to healthcare is good. The adequacy of travel time affecting access to healthcare facilities varies from person to person, and several factors, such as the cost of travel to healthcare facilities, may affect access. Meanwhile, vulnerability to access to primary healthcare services was minimal in both regions. However, in Batangas, where the density of healthcare facilities exceeds that of the rest of

the Philippines,[105] the utilization of healthcare services was observed to be higher, indicating enhanced access compared to Tacloban. However, in both regions, the awareness and utilization of mental health services and health programs provided by central and local governments fell below 50 points, indicating a need to enhance vulnerability reduction measures.

(2) Livelihood Vulnerability

[Figure 46] Comparative Analysis of Livelihood Vulnerability in Tacloban and Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)



For IDPs in Tacloban, the economic damage caused by climate change over the past five years has been less severe than in Batangas. A comparative analysis of IDPs reveals that those who relocated to Tacloban due to natural disasters caused by climate change and under the initiative of the government and NGOs were found to be relatively less affected by climate change in the region. However, Badjao IDPs in Batangas were still found to be experiencing economic damage

105) In Batangas, the hospital density per 100,000 population was 2.24 (as of 2020), which was higher than the hospital density for the entire Philippines of 1.57 (as of 2020, per 100,000).

caused by climate change.

In addition, an analysis of the support received by Tacloban and Batangas revealed that Tacloban received more support from the central and local governments in the post-resettlement phase. This discrepancy can be attributed to the fact that, in contrast to the situation in Batangas, where IDPs have resided outside the system as a minority, Tacloban's settlements were established and populated under the guidance of government authorities and non-governmental organizations (NGOs). Consequently, there is a notable difference in the level of government support provided to these two distinct settlements.

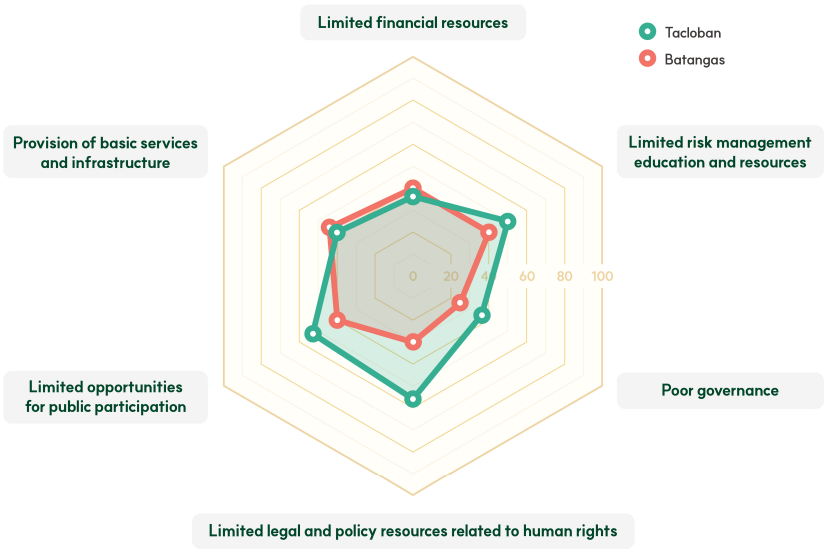
However, an analysis of the data reveals that IDPs in both Tacloban and Batangas have high levels of debt and low levels of income savings, indicating a high degree of vulnerability with respect to their livelihoods. However, subsequent to the displacement, changes in household income were measured with greater weakness in Tacloban, due to diminished income changes. It is challenging to assert that the standard of living in Batangas surpasses that of Tacloban. A significant proportion of Badjao IDPs in Batangas have been living outside the system for an extended period, constituting a minority group that faces considerable challenges in securing livelihoods. Despite their displacement to Batangas, their economic situation remains largely unimproved, suggesting that there is no discernible change in their income levels.

(3) Vulnerability of Community Adaptive Capacity

① Vulnerability to Central Government Policies

[Figure 47] Comparative Analysis of Vulnerability to Central Government Policies in Tacloban and Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)

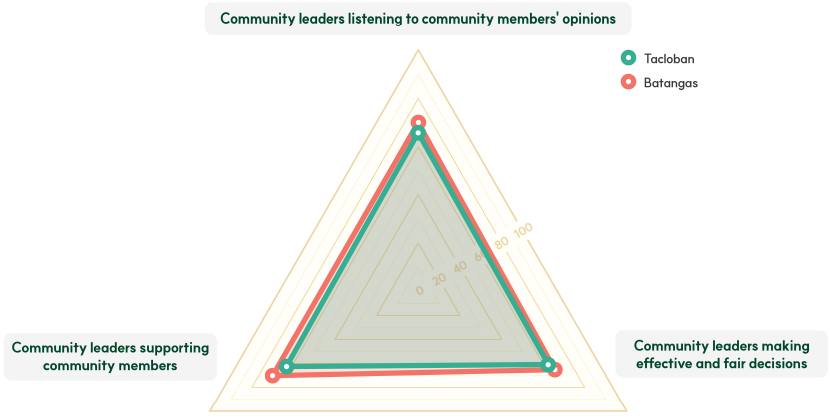


In both regions, the overall level of trust in the central government was found to be minimal. In particular, both groups of IDPs perceived the limited financial support from the central government as increasing the risk in the local community. They also viewed the lack of basic services and infrastructure that the central government should provide as increasing the risk in the local community. This perception was shared by both groups of IDPs, who regarded central government governance as significantly deficient and whose confidence in it was notably tenuous. However, IDPs in Batangas, who have been marginalized for an extended period as a minority outside the system, are more cognizant of the risks associated with human rights violations compared to those in Tacloban. This is primarily due to the limited legal and policy assistance they receive from the central government.

② Vulnerability of Trust in Local Leaders

[Figure 48] Comparative Analysis of Trust in Local Leaders in Tacloban and Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)

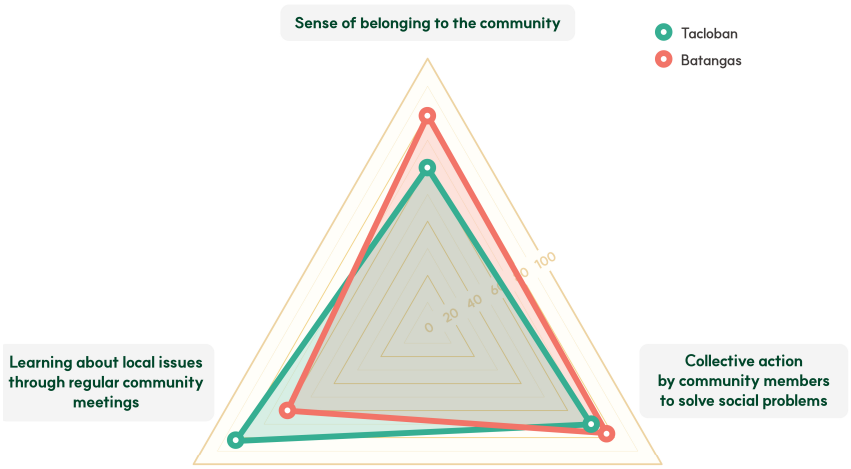


In comparison with the level of trust in the central government, the majority of IDPs in both regions expressed high levels of trust in community leaders. The study found that the level of trust in community leaders among both groups of IDPs was consistently measured at 65 points or more, indicating a relatively robust level of trust in this area. In particular, both groups of IDPs expressed satisfaction with the effectiveness and fairness of community leaders in making decisions and providing support.

③ Vulnerability of Community Belongingness

[Figure 49] Comparative Analysis of Community Belongingness in Tacloban and Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)



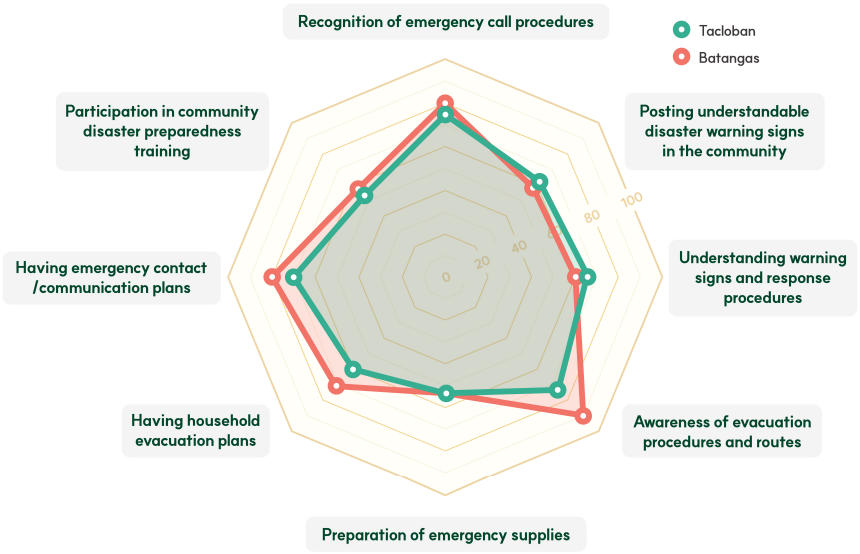
The sense of community in Batangas was 17 points higher than in Tacloban, indicating a lower level of vulnerability. Tacloban was also diagnosed as having a somewhat low level of vulnerability, with a community belongingness score of 60.73. However, it was interpreted that IDPs in Batangas, who had experienced repeated failures to settle in various regions over a long period of time, had a stronger sense of belonging to their community. This was due to the prolonged settlement process of the Badjao community in Batangas.

Furthermore, both groups of IDPs reported that the members of the village were willing to take collective action to solve social problems in the community. However, unlike in Tacloban, Badjao IDPs in Batangas were found to be less likely to learn about local issues through regular village meetings. This disparity underscores the necessity for measures to be implemented to address this discrepancy. For IDPs in Batangas, the level of education and literacy is suboptimal. Thus, the creation of a system or environment that would allow them to learn about local issues and issues that are relevant to IDPs is necessary.

④ Vulnerability of Disaster Awareness and Preparedness

[Figure 50] Comparative Analysis of Disaster Awareness and Preparedness in Tacloban and Batangas

0 (High vulnerability) ↔ 100 (Low vulnerability)



The degree of disaster awareness and preparedness vulnerability of IDPs in the two regions was found to be at a similar level. The majority of IDPs in both regions have already experienced natural disasters, such as the effects of climate change. Consequently, they are aware of the risks and have a good understanding of how to call for emergency assistance or evacuate in the event of a disaster.

However, both groups of IDPs exhibited a lack of awareness regarding the disaster warning signs that were well-understood in the area. Consequently, it is imperative to assess whether disaster warning signs are disseminated without considering the education level, comprehension, and literacy of displaced individuals. Furthermore, it is essential to provide advance warnings through a range of channels that are more accessible and inclusive. A subsequent analysis revealed the necessity of providing IDPs with low literacy levels in Batangas with advance warnings of disasters in a variety of ways, such as through pictures and sirens. There is an

imperative to meticulously evaluate the degree of education or comprehension regarding the local context, subsequently providing tailored guidance to suit the level of the displaced individual.

Furthermore, both regions were found to be somewhat vulnerable to disasters. The survey revealed that individuals were less inclined to acquire disaster supplies, which could incur financial expenses, and engage in community disaster drills, which could entail time commitments and potentially disrupt their livelihoods. In order to enhance climate resilience, it is imperative to engage in proactive preparedness for increasingly prevalent natural disasters. Consequently, there is a necessity to fortify support mechanisms for IDPs, empowering them to make informed preparations.

4.5 Summary

[Table 34] Key Findings and Implications by Research Methodology

Site	Quantitative analysis	Qualitative analysis	Spatial analysis
Tacloban	· Limited financial accessibility to healthcare services (e.g., treatment abandonment due to cost burdens) · Significant decrease in household income levels compared to pre-migration conditions. · Need for preparedness against emerging climate disasters, such as heatwaves. · Coexistence of trust and caution among community members, with limited participation in formal networks; however, a relatively strong willingness to collaborate on resolving public issues within the community. · Insufficient recognition of disaster warning signals and signs, coupled with low participation in disaster preparedness training.	· Provision of housing has ensured the safety of IDPs from climate disasters. · However, migration has led to restricted livelihood opportunities and weakened social networks, exacerbating vulnerabilities. · Poor operation and dysfunction of initially established IDPs community governance structures. · Increased likelihood of tension and conflict with host communities due to social security issues. · Absence of strategic responses to emerging climate disasters.	· Identification of urban heat island effects, flood vulnerabilities, and disparities in disaster response infrastructure accessibility across resettlement communities in Tacloban. · Recognition of differences in disaster response safety based on urban design characteristics.
Implication	· Strengthen healthcare and livelihood support systems for IDPs facing economic difficulties. · Create opportunities to build mutual trust among IDPs to reinforce trust-based relationships.	· Enhance local governance through leadership training and improving governance linkages between barangays and municipal governments. · Support social integration and network connectivity within IDPs communities,	· Propose urban design improvements to enhance climate disaster resilience, including vegetation restoration, relocation of low-lying areas, and construction of emergency facilities.

Site	Quantitative analysis	Qualitative analysis	Spatial analysis
	· Improve disaster warning systems tailored to IDPs' education levels and comprehension capabilities. · Expand the diversity and accessibility of disaster training programs. · Provide an integrated, systematic employment roadmap and self-reliant livelihood support policies.	establishing care systems and capacity-building initiatives for future generations, and strengthen security systems through collaboration with host communities. · Expand adaptive disaster response infrastructure and establish response systems and guidelines (e.g., for heatwaves, landslides), while enhancing integrated information delivery systems and awareness campaigns.	
Batangas	· Relatively high accessibility to medical services due to a dense concentration of hospitals, but financial barriers to healthcare remain significant (e.g., treatment abandonment due to costs). · Low awareness and utilization of government healthcare programs. · Low trust in central government policy support, contrasted with high trust in community support provided by local leaders. · High sense of community belonging, with a relatively strong willingness to collaborate on resolving local issues (e.g., Wawa area lacks channels such as village meetings to address local concerns). · Strong awareness of disaster risks and	· Improved quality of life in Batangas compared to previous residences. · Local government programs in education, healthcare, and poverty alleviation have contributed to reducing vulnerabilities. · Despite these improvements, livelihood vulnerabilities persist. Central government disaster response policies have exacerbated economic hardships, underscoring the need for better policy alignment between central and local governments.	· Exposure to urban heat island effects and flood risks remains significant. · High population density in IDPs resettlement communities.

Site	Quantitative analysis	Qualitative analysis	Spatial analysis
	evacuation procedures, but vulnerabilities in disaster preparedness persist due to cost-related barriers. · Limited recognition of disaster warning signals and signs, coupled with low participation in disaster preparedness training.		
Implication	· Establish sustainable livelihood support systems within the community, including the creation of decent jobs. · Enhance the provision of information on healthcare services and programs. · Expand channels for learning and addressing local issues. · Adapt disaster warning systems to account for varying levels of education and literacy.	· Implement livelihood support initiatives focused on income generation. · Develop context-sensitive policies that reflect local realities and strengthen coordination capacities of local governments. · Foster an understanding of how social cohesion contributes to resilience building. · Strengthen support programs for future generations that focus on fostering integration and resilience.	· Explore flood vulnerability mitigation through urban design modifications. · Conduct further research on IDPs resettlement communities, guided by detailed and comprehensive data.

4.5.1 Tacloban

The vulnerability caused by climate disasters does not appear to affect everyone in the same way. The response, degree of vulnerability, and resilience to similar disasters may vary depending on the social attributes of the group in question. The IDPs in Tacloban constitute a group that experienced involuntary displacement due to a sudden-onset climate disaster. These individuals are known as urban poor who resided in informal settlements along the coast prior to the displacement. While displacement has been regarded as an adaptive strategy in the face of climate disasters, the process of displacement and resettlement has been observed to have the effect of partially mitigating the threat posed by past climate disasters for socially vulnerable IDPs. However, this process has also been found to exert a negative influence on all aspects of life, both directly and indirectly, through various channels.

In the aftermath of the climate disaster, an examination was conducted of the IDPs residing in the resettlement community. It was determined that livelihood vulnerability is profoundly intertwined with vulnerability factors in diverse domains, thereby serving as a foundational element in the lives of IDPs in the Tacloban area. The findings of the household-level survey indicated that IDPs in Tacloban exhibited signs of livelihood vulnerability, as evidenced by their reports of a substantial decline in income following their displacement. These individuals primarily relied on small businesses or intermittent wages to meet their basic needs. In fact, IDPs were still barely surviving by moving to distant places every day after displacement to resettlement communities because they could not find new sources of livelihood. This was confirmed by field research, which revealed that IDPs were exposed to another form of climate disaster risk. In the context of this economic environment, a significant proportion of IDPs are compelled to seek financial assistance from informal sources, such as loan sharks, to meet their basic needs. A notable trend among IDPs is the minimal or non-existent savings behavior, even among those who do engage in saving. Furthermore, IDPs

encountered difficulties in evading economic hardship due to the inadequate support they received from central and local governments during the resettlement process. These various vulnerabilities to livelihoods were also identified as factors that cause IDPs to disengage from resettlement after moving to a resettlement community. It has been confirmed that many IDPs are repeating irregular movements and displacements due to livelihood issues and eventually choosing to relocate again to find another source of livelihood.

This difficulty in livelihood is also linked to the point where financial accessibility is not high in health vulnerability. The predominant rationale for IDPs in Tacloban relinquishing treatment is the financial burden associated with accessing healthcare facilities, rather than the physical distance to these locations. According to survey results, the majority of IDPs who utilize healthcare facilities are financially responsible for their treatment, often paying for services with personal funds. This economic hardship also limits the access to healthcare services for IDPs.

A further vulnerability experienced by IDPs in Tacloban was found to be related to various forms of disaster. According to IDPs, the most prevalent community risk factors include drug abuse, theft, and riots. These social problems have been observed to disseminate from the resettlement community to the host community, engendering social tension and jeopardizing community security. The pervasiveness of these social problems is attributable to the fact that a significant proportion of these cases are attributable to teenagers. Research and policy support on the vulnerability of IDPs, which is currently focused on the adult population, must be expanded to include a systematic understanding of the anxiety, shock, and vulnerability experienced by future generations, including youth, during displacement due to climate disasters. It was also found that IDPs remain vulnerable to various climate disasters even after displacement to resettlement communities. In the aftermath of displacement, climate disasters of a novel and distinct nature are impacting the entire resettlement community in an irregular manner. These areas are identified as necessitating practical and

systematic support at the community level.

Specifically, the survey revealed that while most respondents demonstrated a satisfactory understanding of disaster response and evacuation procedures, their familiarity with the warning signs and signals in their community was found to be inadequate. In fact, the results of the qualitative survey demonstrated that many individuals rely on their personal experiences with climate disasters to assess disaster risk, determine response timing, and establish response methods. These factors can serve as limiting factors in their awareness and response capabilities to disasters. In addition, the vulnerability of IDPs to disasters was revealed in the preparation of disaster preparedness items and participation in disaster drills, indicating that IDPs are encountering challenges in effectively preparing for disasters.

In the context of climate-induced displacement, the role of social capital in enhancing the resilience of IDP communities warrants consideration. The quantitative survey results indicate that IDPs in Tacloban exhibit a multifaceted attitude toward the villagers, characterized by both trust and caution. This suggests that the establishment of a comprehensive trust relationship within the community has yet to be fully realized. IDPs engage with organizations and networks to a modest degree, thereby acquiring emotional support and economic assistance. However, there are discernible deficiencies in their networks. This phenomenon indicates that IDPs who are confronted with social vulnerability encounter constrained access to broader social resources and information. A field survey revealed the absence of ongoing interaction between IDPs and host community residents, indicating that the social capital of IDPs has not been established in terms of their relationship with the host barangay. However, the perception of host communities towards IDPs has been found to vary by settlement. This suggests that the consideration of the level of resource endowment of host communities and the process of understanding and accepting various changes, including potential risks and losses due to the influx of IDPs, are important.

4.5.2 Batangas

Moreover, enhancing the resilience of Badjao IDPs who have settled in Batangas following multiple displacements necessitates a heightened awareness of and preparedness to respond to escalating climate change and recurrent disasters. The analysis of the survey and interviews revealed that the majority of Badjao IDPs demonstrated a commendable degree of awareness regarding evacuation routes and response methods in the event of a disaster. This heightened awareness can be attributed to the IDPs' firsthand experience with disaster damage. However, with the exception of disasters that cause serious damage, such as typhoons, disasters such as floods, rising sea levels, and erosion have already become commonplace, and low levels of education and literacy seem to lead to a low level of understanding of Tagalog disaster warning signs and disaster response systems posted in local communities. In particular, apart from the verbal evacuation warnings given just before a disaster, Badjao IDPs lacked access to disaster information channels. Furthermore, the preparation of disaster supplies, which would incur costs, was also deficient. These factors have the potential to impede the disaster response and climate adaptation capacity of Badjao IDPs. Therefore, it is essential to enhance awareness-raising initiatives and disaster response training to facilitate access to disaster and climate information for this demographic. Furthermore, efforts should be made to deepen their understanding of local government disaster response systems.

Badjao IDPs constitute a group that has been endeavoring to ameliorate the crisis and vulnerability they face by ultimately opting for the method of displacement in vulnerable conditions and environments. In essence, the analysis indicates that Badjao IDPs have not opted to migrate for the purpose of establishing permanent residency. Rather, their initial decision to depart from their existing residences was driven by a strategic effort to mitigate the risk factors they confronted. Consequently, the state of being "on the move" persisted for a duration ranging from months to years, characterized by recurrent movements and temporary settlements between the time of departure and the time of settlement. While on

the move, Badjao IDPs experienced rejection from local governments and communities and lived in precarious conditions, which exacerbated their vulnerability. Furthermore, for approximately five decades following their settlement in Batangas, the Badjao IDPs have repeatedly encountered alleviation and increase in vulnerability due to various factors and interventions. Interactions and cycles between vulnerabilities have been observed. The customs and characteristics of the Badjao have been identified as contributing factors to their vulnerability. Significant progress has been made in addressing these vulnerabilities through policy measures and interventions by various government ministries. However, some policies and the absence of comprehensive coordination among different policies have emerged as challenges, potentially exacerbating existing vulnerabilities. The survey results indicated that livelihood vulnerability was a significant factor in the weakening of health and community adaptation, thereby reducing resilience.

The analysis of livelihood vulnerability demonstrated that the majority of climate IDPs continued to be impacted by climate change even subsequent to their relocation to Batangas. Furthermore, it was observed that these individuals were encountering an escalation in the frequency and severity of the disasters they faced, resulting in economic hardship. A particular focus of the analysis was the Badjao IDPs, a minority group that has historically depended on the sea for its livelihoods and remains outside the system. Despite having settled in Batangas, these IDPs continue to live below the subsistence level by engaging in small-scale fishing activities and selling the fish and shellfish they catch. Consequently, the proportion of households that are indebted to acquire necessities such as food to sustain a basic livelihood is also high. The majority of these households are ineligible for loans from financial institutions with guaranteed safety when they require funds, which further exacerbates their livelihood difficulties.

These livelihood difficulties were found to also affect health vulnerability. Indeed, Batangas boasts a well-established primary healthcare system, a notable advancement in comparison to the rest of the Philippines. This system affords IDPs

relatively facile access to healthcare. Nevertheless, the greater the time spent by IDPs traveling to healthcare facilities or expending financial resources on medicine, the more constrained their access to healthcare becomes. Furthermore, the health awareness among Badjao IDPs is found to be limited, resulting in the underutilization of health programs administered by both central and local governments. The nature of IDPs in Batangas, having resided outside the system for an extended period, may result in a relative lack of awareness regarding the policies and programs implemented within the community compared to the general local population. Moreover, due to inadequate levels of education and literacy, coupled with residing in regions characterized by limited access to electricity and the internet, individuals encounter constrained access to and utilization of information. Consequently, there is an imperative to employ more accessible and comprehensible methods and channels to enhance information accessibility and program utilization.

Meanwhile, Badjao IDPs in Batangas showed higher trust in local governments than in the national government. For instance, respondents perceived a deficiency in financial assistance from the central government to the local community, inadequate infrastructure and fundamental services, and a lack of legal and policy support concerning human rights. As a minority group, the Badjao IDPs were excluded from government support and legal protection. The Badjao IDPs' settlement in Batangas was not a product of central or external planning; rather, it was the result of the Batangas City government's acceptance of the Badjao IDPs, who had been displaced in a sequential manner. It has been analyzed that the Badjao IDPs have a higher level of trust in local governments and community leaders than in the central government. While the Batangas City government's policies have met and closely supported the needs of Badjao IDPs, the Disaster Risk Reduction (DRR) project implemented at the central government level has deepened the livelihood vulnerability of the local community. Therefore, when the central government is formulates policies, it is imperative to comprehensively consider the characteristics and context of the local community so that the

implementation of these policies can be more effective within the local community and create synergy. A strategy is required to enhance the well-being of IDPs and facilitate their integration into the local community. This strategy must ensure the consistency and effectiveness of policies while also empowering local governments with the knowledge of the local community's context and situation. These governments must be entrusted with the authority and capacity to spearhead the coordination of the overall process.

The social capital in the Badjao community appeared differently depending on the scope of the community. Within the Badjao community, there was strong trust and cohesion among community leaders and members, active networking and exchanges, and adherence to cultural characteristics and lifestyles. These characteristics have had a positive impact on the settlement of IDPs, the maintenance of livelihoods, social cohesion, and the resolution of common problems. Due to linguistic limitations and the division of residential areas, interaction with the host community was relatively minimal. Communication and information sharing were conducted through Badjao community leaders. They exhibited a passive attitude with regard to participating in joint activities, including environmental purification and cleaning throughout the barangay. These characteristics are identified as constraints to integration with the host community and to more stable settlement and resilience. However, a positive aspect of this relationship is the recognition of each other as members of the local community by Badjao IDPs, which suggests a degree of acceptance and integration. The absence of significant conflicts or clashes between the host community and Badjao IDPs is also regarded as a positive indication. It is necessary to establish networks and promote social integration from a long-term perspective. The provision of a venue for the promotion of exchanges, including joint programs and organization based on generation, livelihood, and demand, is expected to foster trust and a sense of community throughout the entire community. In particular, Our findings reveals that children and adolescents from the Badjao and host communities were experiencing interaction and integration at school. The younger generation of

Badjao have a certain degree of identity as Batangas citizens and are beginning to gain stable job opportunities through education, thereby contributing to household livelihoods. It is reasonable to hypothesize that they will play a leading role in strengthening the resilience and social integration of the Badjao community in the long term. This underscores the necessity for the implementation of future generation support and social integration programs.

5. Proposed Model for Strengthening Community Resilience of IDPs in the Philippines

5.1 Action Framework for Enhancing Community Resilience

Key Components

Sustainable Livelihood Support: Addressing the intensified livelihood vulnerabilities following migration requires a shift from merely alleviating existing vulnerabilities to empowering IDPs to overcome challenges and actively drive their own improvement and transformation. This approach should focus on long-term, proactive income generation and livelihood enhancement that contribute to community-level changes rather than short-term, passive participation in livelihood support. Livelihood support should leverage and maximize the strengths, resources, capabilities, and knowledge already present within IDPs communities.

Climate Adaptation Capacity: Despite migration due to climate change and disasters, IDPs remain vulnerable to new hazards and the impacts of climate change post-settlement. Both regions have experienced severe damage from hydrological disasters such as floods and typhoons. Systematic improvements, such as the establishment of climate-adaptive infrastructure to fundamentally reduce disaster impacts, are expected to positively enhance community-level disaster response and climate adaptation capacities.

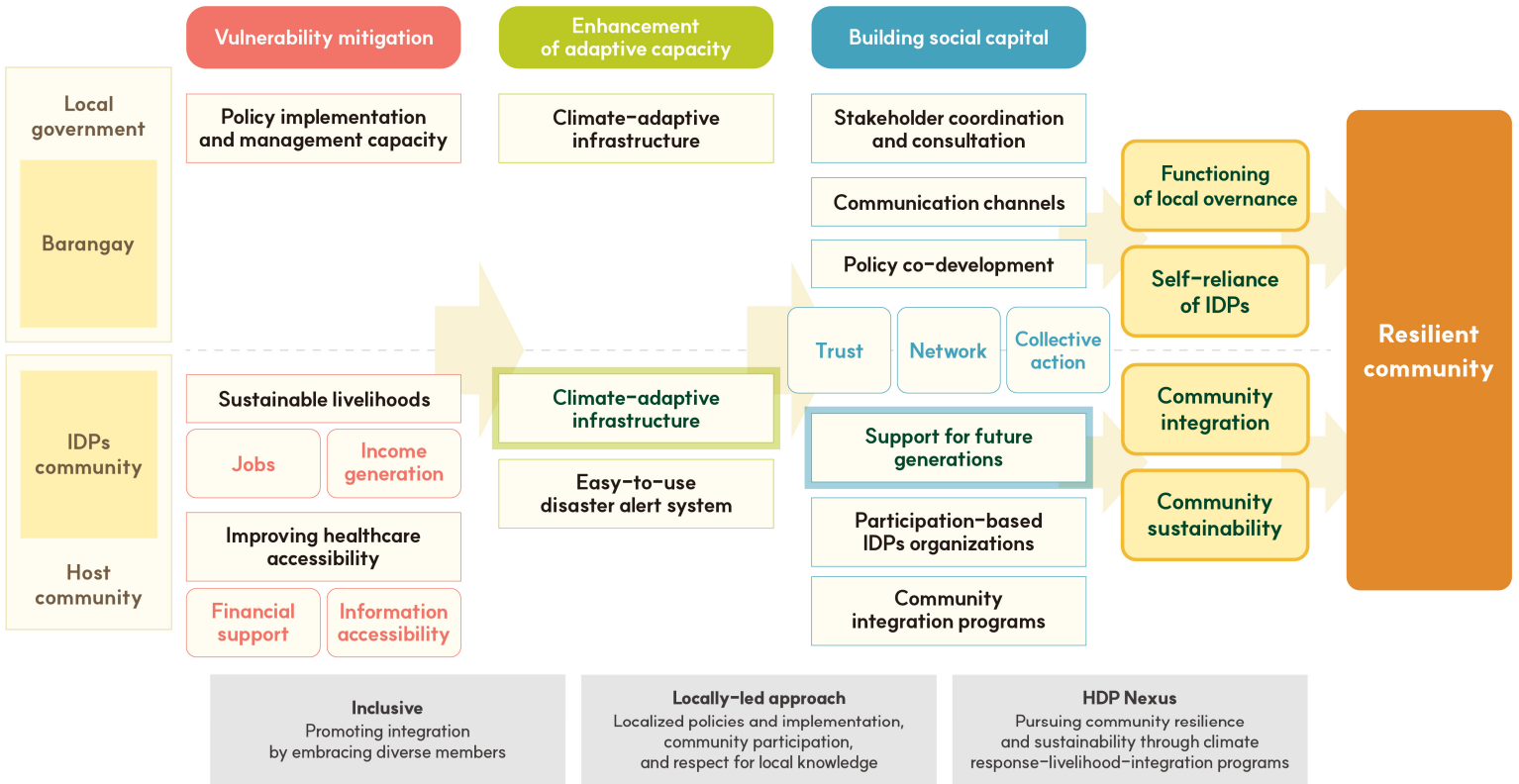
Social Capital as a Driver of Resilience: IDPs communities must integrate into their new locales and become part of the host community. Social capital plays a crucial role in strengthening overall community resilience. Supporting the development of social capital beyond physical assistance can transform communities into networks capable of trust-building, networking, and collective action. This involves implementing diverse social capital-building initiatives, such as age- or theme-specific integrated programs (e.g., youth integration programs, senior

gatherings, fishermen's associations, women's groups) and fostering organizational diversity within IDPs communities. On a governance level, stakeholders can create spaces for coordination and dialogue, establish regular communication and information-sharing channels, and institutionalize these processes.

Key Principles

Inclusive Support: Efforts should promote interaction and integration to ensure that IDPs are accepted and included socioeconomically and culturally in their host communities, thereby creating a sustainable and stable settlement environment. Support for "community resilience" must extend beyond IDPs communities or specific groups to enhance resilience for all community members.

[Figure 51] Proposed Action Framework for Enhancing Community Resilience of Climate-Induced IDPs in the Philippines



Locally-Driven Solutions: Solutions that are led by local governments and communities, which are familiar with the regional context and on-the-ground realities, can yield practical results and strengthen resilience. Policies and interventions must be localized and inclusive, engaging the entire community. This process respects and utilizes local knowledge and resources identified during solution development.

Contribution to the HDP Nexus: IDPs communities affected by climate change and disasters face complex vulnerabilities that cannot be resolved through humanitarian assistance alone. Comprehensive interventions addressing their need for humanitarian aid, livelihoods, development, and conflict resolution during settlement are essential to strengthening community-level resilience and achieving the HDP Nexus.

5.2 Proposed Project Models

5.2.1 Development of Climate-Adaptive Infrastructure

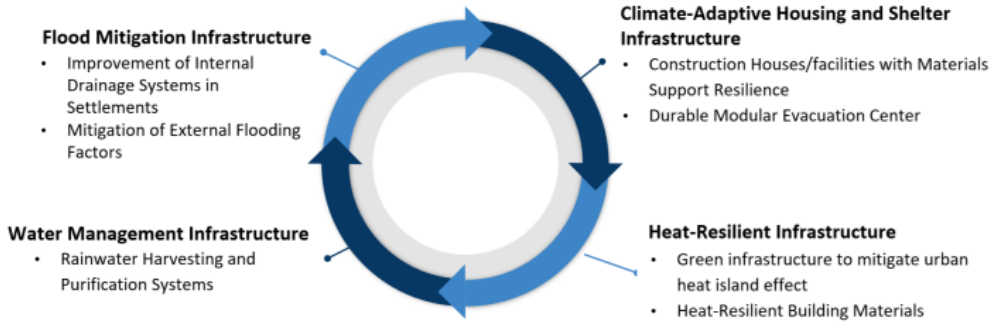
- **Background:** Climate-induced IDPs remain exposed to various climate-related disasters even after settling in new locations, exacerbating vulnerabilities within their communities. In particular, the intensifying hydrological disasters, such as typhoons and heavy rainfall driven by climate change, necessitate institutional and policy-level support that transcends individual or community-level reactive measures. To proactively prevent and prepare for these disasters, it is crucial to strengthen community-wide disaster preparedness and resilience. Establishing climate-adaptive and disaster-ready infrastructure based on assessments of local climate and disaster risks will enable IDPs communities to settle more securely and sustainably, fostering long-term stability and resilience.

- **Objective:** The initiative aims to mitigate the impacts of climate change and disasters on IDPs communities by improving and constructing climate-adaptive infrastructure. This will reduce vulnerabilities and enhance the stability of IDPs

communities, promoting sustainable livelihoods and long-term resilience.

- **Implementation Timeline:** Ideally, climate-adaptive infrastructure should be integrated during the planning and construction phases of resettlement areas. However, in cases of unplanned settlements or issues identified post-migration, mid-term interventions are inevitable. As the focus is on enhancing climate adaptation capacity through comprehensive infrastructure improvements rather than immediate, reactive measures, a long-term approach is necessary. Implementation should begin with thorough climate and disaster risk assessments and feasibility studies to select suitable infrastructure solutions. Pilot applications should be conducted first to verify the effectiveness before scaling across the community. Through a process of continuous verification and refinement to ensure synergistic effects between infrastructure components, climate-adaptive infrastructure can be developed that truly meets community needs.

[Figure 52] Community Climate-Adaptive Infrastructure Development Project Model



[Table 35] Detailed Activities for Community Climate-Adaptive Infrastructure Development Models

Flood Mitigation Infrastructure	Enhance flood mitigation infrastructure in IDPs communities aims to prevent inundation, reduce human and property losses, and enhance the stability and security of settlements. This effort supports the sustainable settlement and residential stability of climate-induced IDPs. **Improve Internal Drainage Systems in Settlements:** Assess and upgrade the drainage systems within IDPs communities to address vulnerabilities and ensure efficient water management.

	Address External Flooding Factors: In areas where rising sea levels and erosion exacerbate flooding risks, implement nature-based coastal defenses such as mangrove forest restoration and beach nourishment. These measures help mitigate flood impacts, protect residential areas, and prevent the loss of settlements.
Water Management Infrastructure – Rainwater Harvesting and Purification Systems	Due to the lack of proper water supply infrastructure during the development of IDPs communities, residents often rely on hand pumps, distributed drinking water, or purchased water from external sources. This has resulted in persistent water shortages and associated problems, such as financial burdens, hygiene issues, and increased disease risks. **Rainwater Storage Tanks:** Establish locally-adapted rainwater storage tanks and purification systems to secure both domestic and drinking water supplies. These systems are climate-adaptive, as they mitigate the impacts of climate change on communities, including heatwaves, droughts, and floods. Additionally, by reducing energy consumption in traditional water treatment and transport processes, these solutions also contribute to climate mitigation efforts.
Climate-Adaptive Housing and Shelter Infrastructure	**Climate-Resilient Structural Design and Materials:** For communities frequently exposed to diverse climate-related disasters, adopting climate-adaptive structural designs and materials can mitigate vulnerabilities and enhance community stability. Using durable materials, such as Fiberglass Reinforced Plastic (FRP)—notable for its resilience in marine and water-prone environments—and Cross-Laminated Timber (CLT), a sustainable and climate-friendly construction material, is key to supporting climate-adapted communities. **Resilient Community Structures:** Constructing houses and community facilities with materials that can withstand high winds and typhoons supports the creation of climate-resilient societies. These structures not only ensure the safety of residents but also contribute to the long-term viability of the region. **Durable Modular Evacuation Centers:** For areas frequently requiring mass evacuations due to earthquakes or typhoons, establishing durable modular shelters designed to withstand these events provides rapid and safe refuge. Modular shelters are built using standardized construction modules that are easy to assemble, disassemble, and relocate. Their flexible design allows for size adjustments and additional modules to accommodate varying numbers of evacuees, making them ideal for disaster-prone and humanitarian crisis scenarios.

	These approaches emphasize proactive preparation and infrastructure resilience, reducing disaster-related risks and fostering long-term sustainability in vulnerable communities.
Heat-Resilient Infrastructure	As rising temperatures due to climate change exacerbate heatwaves, the health, safety, and living conditions of local communities can face severe threats. Thus, incorporating heat-mitigation measures into infrastructure development is essential. **Green Infrastructure Development:** Establish parks, rooftop gardens, and green spaces within resettlement communities. These green infrastructures reduce urban heat island effects, provide shade, and enable residents to engage in outdoor activities even during extreme heat. **Heat-Resilient Building Materials:** Use specialized materials for buildings to moderate indoor temperatures and minimize heat absorption: -Cool Roof Materials: Roof materials designed to reflect solar radiation, such as metal roofing, reflective tiles, and reflective coatings or paints, can significantly reduce heat retention. -Reflective Exterior Cladding: Apply reflective coatings or install reflective panels (e.g., aluminum panels, fiber cement) on exterior walls to reflect heat away and maintain cooler interior temperatures. These measures not only protect community health and safety during heatwaves but also enhance the sustainability and resilience of local infrastructure to climate change.

5.2.2 Capacity-Building Programs for Local Governments

- Background: The role and capabilities of government officials supporting IDPs communities are critical for the stable settlement and self-reliance of these communities. Particularly, local governments that understand the context and challenges of climate change, disasters, and migration, and are directly involved in implementing policies and providing services, have a direct impact on IDPs communities. Strengthening the capacity of local government officials in policy planning and implementation, establishing communication and coordination channels, and promoting collaborative policy development can enhance their awareness and capabilities. Additionally, fostering trust between local governments and IDPs communities is essential. These efforts collectively contribute to building resilient communities.

- **Objective:** To strengthen local governments' capacity for responding to climate change and disasters, coordinating policies related to IDPs community settlement and support, and establishing communication channels with communities. This initiative aims to mitigate climate and disaster risks faced by IDPs communities and facilitate their settlement, self-reliance, and integration into the broader community.

- **Implementation Timeline:** Capacity-building programs for local governments should be conducted year-round and aligned with government policy schedules. In cases where local government officials frequently rotate positions, these programs should be provided on a regular basis. As the processes of policy formulation, planning, implementation, and evaluation occur continuously throughout the year, offering support programs in sync with the policy execution timeline can help ensure that the knowledge, skills, and information acquired are effectively applied in practice. This approach is expected to enhance the overall effectiveness and impact.

[Figure 53] Local Government Capacity-Building Program Model



[Table 36] Detailed Activities for Local Government Capacity-Building Program

Capacity-Building Program for Government Officials	The program aims to strengthen the competencies of local government officials from relevant departments to implement effective policies and enhance their impact. It focuses on improving climate and disaster response capabilities, policy planning, execution, and evaluation skills, as well as fostering communication and coordination expertise. **Climate and Disaster Response Training** - Enhance understanding of national climate and disaster response policies and strategies. - Build awareness of local climate and disaster characteristics and vulnerabilities. - Provide practical training to strengthen hands-on response capabilities in climate and disaster scenarios. **Policy Implementation and Evaluation Capacity Building** - Develop skills to assess local vulnerabilities and community needs. - Train in analytical methods for policy planning, including needs assessments and feasibility studies. - Strengthen capabilities for policy formulation, implementation, monitoring, and evaluation, including feedback mechanisms for improvement. **Community Communication and Coordination Skills Training** - Deepen understanding of the backgrounds and contexts of IDPs communities. - Teach methods to establish communication channels tailored to local communities. - Provide training on negotiation, facilitation, and coordination techniques to manage community relations and foster collaboration effectively.
Information Sharing and Communication Channel	IDPs often face challenges such as language and cultural differences, broken networks, and disrupted social relationships, making their access to and acquisition of information lower than that of existing residents. Without proper channels to voice their opinions or needs, IDPs' risk becoming marginalized, which exacerbates their vulnerabilities and hinders community integration. Therefore, local governments must establish communication channels to support the settlement and integration of IDPs communities. **Communication and Information Channels** - Establish feedback mechanisms tailored to the language and characteristics of IDPs communities to gather opinions and address grievances. - Provide accessible channels for disseminating information about government policies, services, and programs to IDPs communities. Utilize QR codes, online surveys, or social media platforms for information-sharing where electricity and mobile phone usage are -feasible. Ensure multilingual communication by including languages understood by the IDPs communities.

	Regular Consultative Meetings - Operate regular consultative forums where stakeholders from various segments of the community (host residents, IDPs, and representatives across gender, age, and ethnic groups) can engage in dialogue. - These meetings aim to maximize community integration and inclusiveness, fostering a resilient and cohesive community.
Community-Driven Policy Co-development	The co-development of policies by residents and the government holds significance in both process and outcomes. Residents, with their localized knowledge and resources accumulated through direct responses to climate change and disasters, can devise the most effective solutions. Participation in policymaking enhances understanding, acceptance, and commitment to the policies, improving outcomes and sustainability over time. This approach also fosters government trust, builds social capital, and promotes ownership among residents, who are more likely to implement policies they helped create. Collaborative processes encourage a sense of community, prevent conflicts, and drive social integration, ultimately contributing to community resilience. **Participatory Workshops** - Conduct workshops to collect experiences, opinions, and ideas from community members. - Use these workshops to design, implement, and evaluate policies, leveraging localized expertise to identify the most effective solutions. - Regular workshops ensure continued community involvement, enhancing the practicality and sustainability of policies. **IDPs Community Organizations** - Establish and support IDPs community organizations to enhance internal communication, interaction, and trust-building. - These organizations can foster a sense of belonging and enable IDPs to actively participate as members of the broader community.

5.2.3 Support for Future Generations of IDPs Communities

- Background : The settlement and self-reliance of communities displaced by climate change and disasters require a long-term approach beyond immediate relief efforts. In the short and medium term, efforts should focus on gradually reducing vulnerabilities in livelihoods, health, and disaster preparedness. Over the long term, sustainable community integration and development necessitate investment in future generations—children and youth—who will ultimately bear responsibility for the survival and resilience of these communities. Children and

youth in IDPs communities often face challenges such as disrupted education, limited access to health services, and reduced opportunities during the processes of displacement and resettlement. These barriers exacerbate socioeconomic inequalities and can perpetuate cycles of poverty and vulnerability. Therefore, providing adequate protection and support to children and youth in IDPs communities is an essential strategy for building resilience and sustainability within these communities.

- **Objective:** To provide children and youth in IDPs communities with enhanced educational and capacity-building opportunities, foster psychosocial stability, and support social integration. The goal is to empower these future generations to lead the long-term settlement, resilience-building, and sustainable development of their communities.

- **Implementation Timeline** : Programs to support future generations should adopt both short-term and long-term perspectives and be delivered consistently. Interventions should target all environments where children and youth operate—home, community, and school—employing a comprehensive and layered approach that includes both individual-focused and community-wide initiatives.

Children and youth in IDPs communities have evolving needs and vulnerabilities influenced by external conditions. Therefore, the program must address immediate needs that arise post-migration and provide sustained support for healthy development and growth. Through this process, the future generations of IDPs communities will transition from settling and achieving self-reliance to becoming active contributors to a resilient and sustainable society.

[Figure 54] Community Resilience Strengthening Project Model Through Future Generation Support in IDPs Communities



[Table 37] Detailed Activities for Strengthening Community Resilience Through Future Generation Support in IDPs Communities

Integration with Public Education and Ensuring Learning Opportunities	- Support children and youth in IDPs communities to participate in formal education without restrictions by simplifying school registration processes, providing educational resources, and offering financial assistance. Initiatives such as supplementary classes and teacher capacity-building programs ensure that children and youth have access to appropriate learning opportunities and minimize disruptions in education. - Schools serving as public education facilities can foster interaction and natural integration between host community students and those from IDPs communities. This dual-purpose function of schools promotes broader social cohesion and contributes positively to overall community integration.
Child and Youth Programs within IDPs Communities	- In cases where vulnerabilities in livelihoods and health deepen, children and youth often face difficulties in continuing their education and learning. As the most vulnerable group, they are at risk of experiencing or contributing to social problems within the community. - To mitigate such risks and support their development, communities must invest in creating spaces for learning and play, youth programs, and cultural activities tailored to children and adolescents. These efforts should aim to protect them from exposure to negative environments or social issues and enable their growth into active, empowered members of the community.
Caregiver Support	- Assist parents and caregivers in understanding the importance of supporting their children's upbringing and education while enabling them to perform their roles effectively. Caregivers with low literacy levels, emotional vulnerabilities, or significant livelihood challenges may not actively encourage their children's education or provide adequate support at home. This lack of support often results in lower academic achievement, higher dropout rates, and increased exposure to other social problems within the community. - Programs such as parental education, violence prevention workshops, caregiver networks, and resources for educational support can help build the necessary

	skills and capacities for effective caregiving. These initiatives aim to enhance caregivers' abilities to foster a conducive learning and growing environment for children and youth while addressing critical needs.
Health and Nutrition Programs	- Many children and youth in IDPs communities face poor nutritional conditions, often being unable to afford school lunches or consuming unbalanced diets. Addressing their health and nutritional needs is critical to supporting their overall development and well-being. - Partnering with schools to implement meal programs, conduct regular health check-ups, and provide targeted nutritional interventions can significantly improve the health and educational outcomes of children in IDPs communities. These efforts can increase school attendance, enhance academic performance, and improve graduation rates, contributing to the long-term development of these communities.
Psycho-social Support	**Trauma and Psycho-social Well-being:** Children and youth often experience trauma, anxiety, and stress during migration. Providing emotional stability can help reduce social problems, promote community integration, and contribute to sustainable development. - Individual Counseling and Therapy: Offer regular counseling sessions and psychological support through experts from specialized institutions. These may include creative therapy activities, stress management education, and emotional development support. Link individuals to local hospitals or external professionals for advanced care and ensure case management for long-term psycho-social support. - Community-based Psycho-social Support Networks: Establish peer counseling programs to foster mutual support among children and adolescents. These networks aim to create a long-term and sustainable psycho-social support structure that connects individual well-being to broader community stability. - Caregivers and Teachers Training: Strengthen the psychological support capacities of teachers and caregivers by providing training on communication, psycho-social support strategies, and managing stress or trauma in children.
Climate Adaptation and Disaster Preparedness	**Building Resilience:** Equip children and youth with the skills to cope with climate change and disaster risks. Focus on reducing their vulnerability during emergencies and enhancing the community's long-term resilience. - Education and Training: Offer education on climate change awareness, disaster preparedness, and prevention. Conduct disaster simulations to teach practical safety measures and adaptive behaviors. - Empowerment through Knowledge: Provide actionable insights into addressing climate-related challenges to empower children and youth as active contributors to community recovery and resilience.
Vocational Training and Skill Development	**Break the Cycle of Poverty:** Children and youth in IDPs communities often face difficulties in continuing their education, resulting in inter-generational poverty. Supporting their economic independence is crucial.

	- Targeted Training: Provide vocational and technical training tailored to local market demands. Equip youth with skills that lead to meaningful employment or entrepreneurial opportunities. - Supportive Programs: Implement career counseling, mentorship programs, job placement services, and entrepreneurship support to guide youth toward stable careers. These initiatives aim to alleviate economic vulnerabilities in IDPs communities and contribute to social integration and economic development.

5.3 Implications and Policy Recommendations

The communities of IDPs affected by climate change, as examined in this study, have experienced migration due to a combination of climate disasters and other complex factors. Even after relocation, these communities continue to face multifaceted vulnerabilities, including climate-related risks. Accordingly, this study defines "resilience" as the capacity to adaptively respond to and improve upon various challenges, including those posed by climate change. Moreover, since IDP communities are integrated into local governance structures after resettlement, "community" in this study encompasses not only IDPs communities but also the host communities, barangays, and local governments, representing various levels of governance.

An assessment of vulnerabilities in Tacloban and Batangas IDP communities revealed that livelihood insecurity significantly exacerbates vulnerabilities in health, social adaptation, and other areas, creating a cyclical negative impact.

First, addressing livelihood insecurity, which underpins all vulnerabilities, is critical to enhancing the resilience of climate-induced IDPs. Most climate-induced IDPs rely on low-income and unstable small businesses for survival, underscoring the urgent need to create sustainable and higher-paying job opportunities. Beyond providing livelihood training or programs, the focus should be on fostering environments that lead directly to income generation. Furthermore, many IDPs incur debt for basic necessities like food, highlighting the need for systems that alleviate financial burdens. Facilitating access to financial services, such as microloans, for IDPs currently excluded from formal financial institutions is also

essential. Evidence indicates that without sufficient external support, IDPs struggle to overcome livelihood vulnerabilities that arose during the displacement and resettlement phases. Policy interventions should prioritize reducing these burdens, with timely and demand-based support provided during early settlement stages. Over the long term, efforts should align with broader community integration strategies to ensure sustained support for livelihood and self-reliance.

Second, Climate-induced IDPs in both Tacloban and Batangas remain vulnerable to disasters and environmental issues, even post-resettlement, experiencing frequent climate-related disasters like floods and new challenges like extreme heat. Strengthening disaster mitigation infrastructure and developing systematic response plans are essential. Governments and communities should not only address immediate climate-related disasters but also prepare for long-term climate scenarios by implementing comprehensive disaster management strategies. This would mitigate the negative impacts of climate change on IDPs communities and bolster their resilience. Efforts to improve understanding of warning signs and increase participation in disaster preparedness training should include multilingual support, visual aids, diverse communication channels, and tailored approaches to ensure inclusive and effective disaster management systems.

Finally, it is crucial to establish mechanisms that empower IDPs to actively participate in policymaking and implementation processes, rather than merely being passive recipients of policy benefits. Both Tacloban and Batangas showed low levels of trust in government and limited awareness or use of government programs. Enhancing policy accessibility and comprehension, as well as integrating IDPs' needs and feedback into policy development and implementation, is vital. With climate migration and displacement expected to increase, prioritizing IDPs support in policymaking is imperative. Policies must account for changing needs across the migration lifecycle. During the initial migration decision phase, information dissemination and capacity-building to address risk factors are necessary. During migration, ensuring access to safety and legal or social services is critical. In the early settlement phase, infrastructure development, initial

livelihood support, and community integration programs to foster mutual understanding between IDPs and host communities are key. In the stabilization phase, efforts should focus on building social capital and addressing ongoing vulnerabilities to enhance resilience.

Policy consistency from the central government to local communities must be maintained, ensuring that policies are not only well-designed but also effectively implemented to benefit IDPs. This comprehensive approach will support sustainable integration and resilience in climate-induced IDPs communities.

5.4 Future Research Suggestions

This study aims to identify the vulnerabilities experienced by climate-induced IDPs in the Philippines through quantitative and qualitative analyses under the key elements of health, livelihood, social capital, and community adaptation capacity. Furthermore, it seeks to propose an institutional action framework and project models to enhance resilience. However, there are limitations in diagnosing the vulnerabilities of climate-induced IDPs solely under these four elements. Future research should expand the scope to include broader dimensions, such as gender and education, to identify how these factors influence community adaptation and resilience.

Specifically, this study aims to provide a comprehensive understanding of the vulnerabilities of climate-induced IDPs and propose measures to enhance resilience. Tacloban and Batangas were selected as case study sites, where IDPs have settled, for detailed analysis. While the two regions differ in settlement formation processes and demographic-sociological structures, this study did not conduct a comparative analysis or propose differentiated action frameworks for the two areas due to limitations such as insufficient field data and prior studies. As a result, the research primarily focuses on comprehensively understanding and presenting the vulnerabilities of climate-induced IDPs, providing an institutional

action framework to enhance resilience. Future research could examine region-specific responses and policies, considering differences such as government-led versus voluntary migration.

Additionally, it is essential to further investigate flood risks and urban heat island effects in the Tacloban and Batangas IDP settlements by collecting more detailed local data. Such research would identify specific climate and environmental factors that hinder settlement stability and increase vulnerabilities. This understanding would support the development of policies tailored to the unique circumstances of IDPs, thereby enhancing their resilience against the increasing frequency and severity of climate-related disasters.

The study also acknowledges its limitations, primarily focusing on diagnosing vulnerabilities following resettlement due to constraints in local data collection and limited survey subjects. Based on the findings, subsequent research should analyze vulnerabilities at different stages of migration, identifying the specific support needs at each stage. This would facilitate the formulation of detailed project plans to address these needs and propose targeted solutions that align with the realities of IDPs and their circumstances.

6. Research Partnership Framework

6.1 Research Collaboration Structure and Participants

This study aimed to actively engage in mutual knowledge sharing and capacity building through collaborative partnerships with local research institutions. The research was designed in collaboration with the Resilience Institute of the University of the Philippines (UPRI). UPRI, established to serve as an innovative hub for national efforts in climate change mitigation and adaptation, is committed to strengthening community capacity through multidisciplinary activities aimed at enhancing resilience. UPRI provided expertise and consultation in designing the overall research framework, focusing on the climate change and IDP issues, community resilience, and the specific context of the Philippines.

The study also partnered with university research teams in the field sites to implement research methodologies and operational collaboration, aiming to enhance research capabilities and conduct community-oriented studies. By engaging local researchers closely connected to the study areas, the research sought to gain a deeper understanding of the communities under investigation. In particular, close communication and collaboration were emphasized to ensure that the local knowledge provided by the communities translated into meaningful research outcomes.

For the Tacloban field study, a research team from Tacloban University collaborated on the project, while for Batangas, the research was conducted in partnership with a team from the University of the Philippines Los Baños. Ewha Womans University managed the overall research project, spanning literature review, spatial analysis, and field investigations, and designed the study to facilitate collaboration among various partners throughout the research process. Additionally, Ewha's research team collaborated with George Mason University's

spatial analysis team to perform spatial analyses on social capital and flood risk factors.

6.2 Field Data Collection Process

The research collaboration spanned the entire process of study design, data collection, analysis, and deriving conclusions. Fieldwork for data collection was conducted in three main stages: a pre-visit phase, a quantitative survey (1st main investigation), and qualitative research (2nd main investigation). The Ewha Womans University research team actively participated in the pre-visit and qualitative research phases, conducting interviews and focus group discussions directly. The local research teams, comprising pre-trained enumerators, were responsible for administering the survey during the quantitative phase and provided support during the pre-visit and qualitative research stages alongside the Ewha team.

During the survey, the Ewha research team monitored real-time data collection remotely from Korea via Kobo Toolbox. Challenges arose in communication between partners during the data collection phase, requiring continuous coordination to address misunderstandings and ensure effective collaboration. To maintain the quality of research outcomes, the Ewha team conducted additional field investigations.

The actual fieldwork conducted by research partners, compared to the original research plan, is summarized below.

[Table 38] Field Research Data Collection Results

Tacloban		
	Original Plan	Final implementation
HH Survey	2 sites, 200HH	2 sites, 198HH
Focus Group Discussion	12 groups	10 groups
In-Depth Interview	12 interviewees	13 interviewees
Key Informant Interview	12 interviewees	9 interviewees
Batangas		
HH Survey	1 sites, 100HH	1 sites, 100HH

Focus Group Discussion	6 groups	4 groups
In-Depth Interview	10 interviewees	11 interviewees
Key Informant Interview	12 interviewees	12 interviewees

6.3 Data Refinement and Transcript Preparation for Quantitative and Qualitative Analysis

The information gathered through field data collection, along with large-scale quantitative and qualitative data, was refined and processed through data cleaning and script preparation in collaboration with research partners. Due to the challenging conditions in the study areas, additional work was required to identify and correct data errors. Furthermore, as the residents of both regions predominantly spoke ethnic languages rather than Filipino, the surveys were conducted using translations between English, Filipino, and the respective ethnic languages. This necessitated a time-intensive process of transcribing recordings and preparing scripts to ensure accurate content representation.

The Ewha Womans University team continuously monitored the work conducted by the Filipino partners to maintain quality standards. The Filipino partners, in turn, collaborated closely with the Ewha team, incorporating their feedback to enhance the accuracy and quality of the final outputs. This iterative process of monitoring, feedback, and improvement underscored the commitment to producing high-quality results.

6.4 Data Analysis

The Ewha Womans University research team conducted statistical analysis on the quantitative data and performed in-depth analysis of the qualitative data based on a pre-established analytical framework. Additionally, spatial analysis was utilized to assess the vulnerabilities of the surveyed areas, providing empirical evidence to inform the findings and implications. To derive comprehensive insights, the statistical analysis incorporated diverse perspectives and approaches, while the

qualitative analysis focused on meticulously examining the extensive data collected and emphasizing the inclusion of voices from the field.

The results of the analysis were aligned with the research questions and further used to extract various implications and actionable insights. To support the data analysis process, the Filipino research partners facilitated communication with local institutions to gather additional secondary data as required. This collaborative effort aimed to ensure that the research outcomes were both rigorous and reflective of the local context.

6.5 Development of the Action Framework

The final output of the study involved the design of an action framework aimed at enhancing the resilience of domestic climate-induced IDPs and the development of project models tailored to the local context. Research partners actively contributed throughout the process by leveraging their field expertise to provide insights not only for data analysis but also for the conceptualization of the action framework and project models. This collaborative approach ensured that diverse perspectives and practical ideas were integrated into the research outcomes.

6.6 Mutual Learning and Capacity Building

The Ewha Womans University research team prioritized mutual learning and knowledge sharing rather than one-sided capacity building or educational opportunities. From the early stages of the project, the teams actively engaged in collaborative activities to facilitate knowledge exchange and mutual learning. This included enhancing the Philippine research team's capacity to utilize data collection tools such as KoboToolbox and improving the Ewha team's understanding of domestic climate-induced IDPs and their communities.

The teams began by conducting online meetings during the research design and

preparation stages, exchanging ideas and insights on the research framework and tools. Through this process, the Philippine team gained detailed knowledge of research design and methodologies, while the Ewha team deepened its understanding of the sensitivities and local knowledge (local knowledge) crucial for conducting community-based research. Notably, three lead researchers from the Philippine team had published papers in the book *Climate Emergency in the Philippines* (March 2024) on topics such as resource mobilization during climate crises, climate change and food security, and post-Typhoon Haiyan resettlement and climate crises. The Ewha team studied these papers to better understand the Philippine context of climate change and disasters.

The teams also organized meetings and seminars focused on spatial analysis and KoboToolbox, enhancing overall research capacity. Even after the field investigations, the researchers continued to learn from localized sampling strategies and other field-applied methodologies, exchanging knowledge to strengthen the practical applicability and contextual relevance of the research. This iterative exchange ensured that the research process was grounded in the realities of the field while fostering a culture of mutual learning and collaboration.

6.7 Risk Management

[Table 39] Risk Management and Responses in Research Partnership

Situation		Response
Delays in reviewing and finalizing the Memorandum of Agreement (MoA) between the two universities raised concerns about potential disruptions to the overall field investigation schedule.	⇒	To address this, the research partner's agreement signing authority was shifted to an institution within the University of the Philippines Los Baños campus, which had prior experience collaborating with Korean partners.
The commencement of the field investigation was delayed due to the academic schedules of local consultants (faculty	⇒	To manage the investigation schedule, preliminary investigation activities, such as interviews and parts of the main survey, were conducted during the pre-survey phase.

Situation		Response
members).		
Delay in research fund transfer from Ewha Womans University, causing concerns about initiating the field investigation	⇒	Research partners utilized reserve funds for preliminary expenditures
Challenges in collaborating with local partners during the field investigation	⇒	Requested the University of the Philippines Resilience Institute (UPRI) to mediate and ensure ongoing communication; Ewha team conducted additional investigations for quality research
Flooding in the survey area	⇒	Prepared items such as boots and raincoats and distributed them to the survey team; Adjusted schedules to accommodate unforeseen changes
Participant no-shows or changes in survey participation	⇒	Recruited alternative participants with similar characteristics or identified other participants within the area
Delayed submission of refined data and final scripts by research partners	⇒	Adjusted the overall research schedule to accommodate delays while encouraging timely completion

[Appendix 1] Global Support for IDPs

1. International Organization for Migration (IOM)

- The IOM has established the "Migration, Environment and Climate Change Strategy 2021-2030" to address migration issues caused by climate change, environmental degradation, and natural disasters through a comprehensive, rights-based approach. This strategy focuses on developing systematic migration solutions, providing support and protection during migration processes, and creating sustainable environments for settlement.

- Philippines Operations: IOM has been supporting IDPs affected by climate change and disasters such as typhoons, volcanic activities, and earthquakes within the Philippines. Beyond providing assistance to disaster-induced displaced persons and implementing climate adaptation and community resilience projects, IOM also engages in policy advocacy. In March 2023, they organized a policy dialogue in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) to examine the interconnections between climate change, conflict, and migration. In collaboration with the Korean government, IOM has also implemented disaster response and recovery programs, including reconstruction activities in Marawi City.

2. United Nations High Commissioner for Refugees (UNHCR)

- UNHCR's "Climate Action Strategy 2024-2030" aims to ensure international protection and environmental preservation. The strategy focuses on guaranteeing access to climate-friendly services, supporting community climate resilience, and minimizing the organization's own environmental impact.

3. International Committee of the Red Cross (ICRC) and International Federation of Red Cross and Red Crescent Societies (IFRC)

- The ICRC and IFRC have established the "Climate and Environment Charter for Humanitarian Organizations," providing guidelines for responding to climate change and environmental degradation. The charter is open to humanitarian organizations worldwide, with 370 organizations having signed as of July 2023.

- The IFRC's 2021 report on "Migration in the Context of Climate Change" examines IDP support cases in 11 countries, including Mozambique, Samoa, and Fiji. For instance, Samoa facilitates inland migration through improved road infrastructure and supports climate adaptation in settlement areas by providing drinking water and rainwater harvesting tanks.

4. World Bank

- Through its "Groundswell" report, the World Bank has identified climate change as a major driver of human mobility and analyzed its impact on vulnerable nations. In 2019, they released an "Action Plan on Climate Change Adaptation and Resilience," outlining key objectives including expanding climate adaptation financing, implementing government-wide program approaches, and developing evaluation systems to track international adaptation and resilience progress.

- Development Response to Displacement Impacts Project (DRDIP): The World Bank has achieved significant results supporting over 5.5 million people through a $630 million investment in Kenya, Uganda, and Ethiopia, improving access to basic services such as education, health, water, and sanitation.

5. USAID

- USAID is implementing comprehensive policies to enhance understanding of migration patterns and support urban planning improvements and local infrastructure development, recognizing that climate-induced IDPs require

permanent resettlement solutions. In Honduras, following the 2020 hurricane impact, USAID provided psychosocial support, GBV prevention, and child rights protection services to youth and displaced persons.

[Appendix Table 1] Major Donors' Support for Climate-Induced IDPs

No.	기관	내용
1	World Bank	Action Plan on Climate Change Adaptation and Resilience (2019) Case: Support Displaced Persons in Africa through the Development Response to Displacement Impacts Project (DRDIP) in the Horn of Africa
2	USAID	Root Causes Strategy (2021) Collaborative Migration Management Strategy (2021) Case: Psycho-social Support, GBV Prevention, Migration Awareness Enhancement, and Child Protection for Hurricane-affected Youth and Displaced Persons in Honduras (2020)
3	IOM	Institutional Strategy on Migration, Environment and Climate Change 2021-2030 Case: Policy Dialogue in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) to Examine the Interconnections between Climate Change, Conflict, and Migration, and to Strengthen Socioeconomic Resilience
4	IFRC&ICRC	The Climate and Environment Charter for Humanitarian Organizations Case: Support for Climate-Induced Inland Migration in Samoa (Installation of rainwater harvesting systems; Health risk reduction activities related to climate change impacts; Support for inland resettlement)

[Appendix 2] Summary of IDPs Related Content in Philippine Climate Change Policies

1. National Adaptation Plan (NAP) 2023-2050

- Summary: The Philippine National Adaptation Plan envisions enhancing adaptive capacity and resilience of communities, ecosystems, and the economy against natural disasters and climate change by establishing national adaptation priorities. It aims to continuously reduce climate-related losses and damages, optimize climate change mitigation opportunities, promote transformative adaptation, and facilitate resilient and sustainable development. The key sectors for adaptation action and cross-cutting adaptation strategy themes are as follows:

[Eight Key Sectors for Adaptation Action]

1) Agriculture, Fisheries, and Food Security
2) Water Resources
3) Health
4) Ecosystems and Biodiversity
5) Cultural Heritage, Population Displacement, and Migration
6) Land Use and Human Settlements
7) Livelihoods and Industries
8) Energy, Transport, and Communications

[Five Themes for Cross-cutting Adaptation Strategies]

1) Strengthening Infrastructure Resilience
2) Safeguard livelihoods with social protection and regulations
3) Empower local governments and communities to take adaptation action
4) Mainstream integrated adaptation governance
5) Scale up nature-based solutions

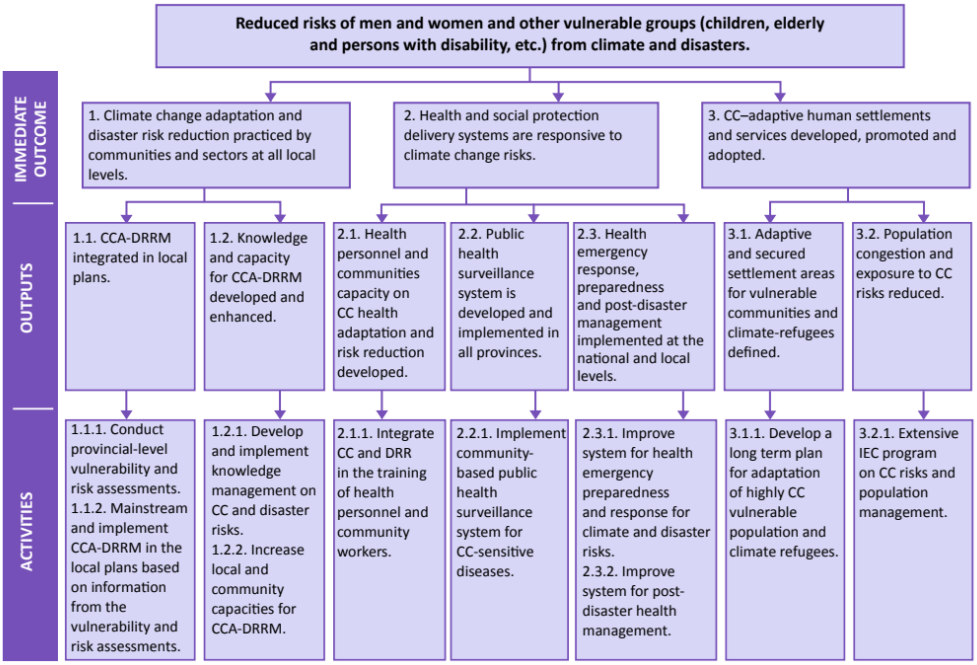
2. National Climate Change Action Plan (NCCAP) 2011-2028

- Summary: This plan serves as a baseline for designing national priority programs that address the needs of the most climate-vulnerable sectors. It establishes basic strategies and programs in consultation with global climate change management efforts, mainstreams climate risk reduction into national, sectoral, and local development plans and programs, facilitates vulnerability assessments and capacity building, and develops fundamental strategies and programs aligned with global climate change management initiatives.

[Key Strategies]

- Food Security: Vulnerability assessment of agriculture and fisheries, development of climate-adaptive agricultural technologies, enhancement of community adaptation capacity
- Water Sufficiency: Restructuring water management, vulnerability and risk assessment, development of water resource/infrastructure climate adaptation plans
- Ecological and Environmental Stability: Development of ecosystem climate change adaptation/mitigation strategies, improved protected area management, strict environmental law enforcement
- Human Security: CCA-DRRM integration, strengthening health and social protection systems, development of climate-adaptive housing and services
- Climate-Smart Industries and Services: Climate-smart industries/services, green jobs, sustainable cities and local governments
- Sustainable Energy: Energy efficiency and conservation, renewable energy, sustainable transportation system development
- Knowledge and Capacity Development: Education and information provision on climate change and disaster risk management, capacity development

[Appendix Figure 1] Strategic Actions for Human Security in the Action Plan



3. National Framework Strategy on Climate Change (NFSCC) 2010-2022

- Summary: This is a mid to long-term strategy established by the Philippine government to address climate change. The main objective is to transform the Philippines into a nation with greater resilience and adaptability to climate change impacts.

[Key Areas]

- Adaptation: Strengthening community adaptation capacity to reduce vulnerability to climate change risks (Including adaptation strategies across various sectors such as agriculture, fisheries, water resource management, health, and infrastructure)
- Mitigation: Development and implementation of greenhouse gas emission reduction strategies (Including increased use of renewable energy, improved energy efficiency, forest protection, and reforestation projects)

- Knowledge Management and Communication: Enhancing climate change awareness and facilitating information exchange, developing educational programs
- Climate Change Finance Mechanism Development: Mobilizing domestic and international financial support and investment for climate change response

[Appendix 3] Analysis Overview of Household Survey

(1) General Characteristics of Survey Respondents

The following summarizes the general characteristics of survey respondents who participated in this study. The survey was conducted with 300 representatives of IDPs households (200 from Tacloban and 100 from Batangas). Following the Institutional Review Board (IRB) criteria, the final analysis included 298 respondents (198 from Tacloban and 100 from Batangas), excluding respondents under 18 years of age and duplicate responses.

In Tacloban, regarding gender distribution, female respondents accounted for 82.0% (165 persons), significantly higher than male respondents at 18.1% (36 persons), with 1.0% (2 persons) identifying as other. By age group, those in their 40s represented the largest proportion at 27.6% (55 persons), followed by those in their 30s at 20.6% (41 persons). The remaining age distributions were: 50s at 16.1% (32 persons), 60s at 15.1% (30 persons), 20s at 12.1% (24 persons), 70s at 5.0% (10 persons), and 80s at 2.0% (4 persons). Regarding relationship to the household head, 48.2% (96 persons) of respondents were household heads themselves, while 38.2% (76 persons) were spouses, 9.5% (19 persons) were children, 1.0% (2 persons) were sons/daughters-in-law, and 0.5% (1 person) was a grandchild.

The characteristics of respondents from Batangas were as follows. The gender distribution showed a marked predominance of female respondents at 95.0% (95 persons) compared to male respondents at 5.0% (5 persons). By age group, those in their 30s comprised the largest segment at 33.0% (33 persons), followed by those in their 20s at 25.0% (25 persons), 50s at 19.0% (19 persons), 40s at 16.0% (16 persons), teens at 5.0% (5 persons), and 60s at 2.0% (2 persons). Regarding relationship to the household head, 51.0% (51 persons) of respondents were household heads themselves, while 33.0% (33 persons) were spouses, 8.0% (8 persons) were parents, 7.0% (7 persons) were children, and 1.0% (1 person) was a son/daughter-in-law.

[Appendix Table 2] General Characteristics of Survey Respondents

Demographic Distribution of Respondents		Tacloban		Batangas	
		Response(s)	Ratio (%)	Response(s)	Ratio (%)
Gender	Male	36	18.2	5	5.0%
	Female	160	80.8	95	95.0%
	Others	2	1.0	-	-
Age	10s	3	1.5	5	5.0%
	20s	23	11.6	25	25.0%
	30s	41	20.7	33	33.0%
	40s	55	27.8	16	16.0%
	50s	32	16.2	19	19.0%
	60s	30	15.2	2	2.0%
	70s	10	5.1	-	-
	80s	4	2.0	-	-
Relationship to Household Head	Household Head	96	48.5	51	51.0%
	Spouse	76	38.4	33	33.0%
	Child	18	9.1	7	7.0%
	Son/Daughter-in-law	2	1.0	1	1.0%
	Grandchild	1	0.5	-	-
	Parents	1	0.5	8	8.0%
	Parents-in-law	1	0.5	-	-
	Siblings	2	1.0	-	-
	Others	1	0.5	-	-

(2) Survey Analysis Methodology

The survey responses were analyzed by converting Likert scale scores to a 100-point scale to compare vulnerabilities.

Many research studies convert Likert scale survey response values to a 100-point scale for intuitive result presentation and comparative analysis. However, the validity of this method has not been fully verified and has certain limitations. There hasn't been sufficient research on whether Likert scale items with different numbers of options can be meaningfully compared on a uniform 100-point scale. Some studies even suggest limitations in comparing 4-point, 5-point, and 11-point Likert items using linear conversion to a 100-point scale.

Nevertheless, numerous studies indicate that when the difference in the number of scale options is not substantial, the frequency of statistical differences is also not significant (Han & Keum, 2017).[106] Specifically, the frequency of statistical differences between 4-point and 5-point scales is lower than comparisons between 4-point and 11-point scales or 5-point and 11-point scales, thus increasing the comparative validity through 100-point conversion. In this context, the Likert scales used in the survey for this study primarily consist of 2-point, 4-point, and 5-point scales, resulting in relatively low frequencies of statistical differences when converted to a 100-point scale, making the comparison of results relatively valid.

[Appendix Table 3] Key Components of Likert Scale Used in This Study Survey

Vulnerability	Components
Health Vulnerability	· Average Travel Time to Access Healthcare Services · Access to Primary Healthcare Services · Access to Mental Health Services · Access to Community Health Services · Awareness Level of Government Healthcare Programs · Utilization Rate of Government Healthcare Programs
Livelihood	· Extent of Economic Loss Due to Climate Change · Scale of Central Government Resettlement Aid · Scale of Local Government Resettlement Aid · Post-displacement Household Income Changes · Household Savings Rate · Household Debt Level
Community Adaptive Capacity	· Limited financial support from the central government · Limited disaster risk management education and resources from the central government · Poor governance at the central government level · Limited legal and policy support for human rights from the central government · Limited opportunities for public participation provided by the central government · Provision of basic services and infrastructure by the central government · Local leaders' attention to community members' opinions · Effective and equitable decision-making by local leaders · Support for community members from local leaders

106) Han, H., & Keum, H. (2017). A study on the comparability of satisfaction measurement met hods: Focusing on 4, 5, and 11-point Likert scale items in public service satisfaction. Survey Research, 18(1), 61-96.

Vulnerability	Components
	· Degree of strong community belonging · Level of collective action by village members to address social issues · Degree of local issue awareness through regular village meetings · Awareness of emergency contact methods · Display of easily understandable warning signs within the community · Understanding of warning signals and response procedures · Knowledge of evacuation procedures and routes · Preparedness with disaster supplies · Possession of household evacuation plans · Possession of emergency contact/communication plans · Participation in community disaster drills

The conversion method of the Likert scale to a 100-point scale is generally divided into three types (refer to [Appendix Table 4]). This study employed the following conversion formula, as the response intensities of the minimum and maximum values in 2-, 4-, and 5-point scales are generally equivalent:

(Measured Value - 1) x 100 / (Number of Options - 1)

[Appendix Table 4] Major Conversion Formulas for Likert Scale to 100-Point Scale

Conversion Methods	Measured Value × 100 / Number of Options	(Measured Value - 1) × 100 / (Number of Options - 1)	Utilizing the Median Value of the Scale
4 pts	25, 50, 75, 100	0, 25, 75, 100	20, 40, 60, 80
5 pts	20, 40, 60, 80, 100	0, 25, 50, 75, 100	17, 33, 50, 67, 83
Features	Maintains the interval ratios of Likert scale items after conversion, focusing on the proportions of response intensity For example, a score of 1 on a 4-point scale has the same response intensity as 1.25 on a 5-point scale	Converts scales under the assumption that the minimum and maximum values of different scales have equivalent response intensities A score of 1 on 4-point, 5-point, and 7-point scales all carry the same response intensity	Used with arbitrarily fixed minimum and maximum values

Source: Adapted from Han, Hyeok & Keum, Hyunseok (2017)

The Likert scale responses from household-level surveys conducted with climate IDPs in Tacloban and Batangas were converted to a 100-point scale using the aforementioned conversion formula. This enabled the assessment and comparison of vulnerabilities focusing on health, livelihood, and community adaptation capacities. For ease of comparison, the scores for each category were standardized so that values closer to 0 indicate higher vulnerability, while values closer to 100 indicate lower vulnerability.

[Appendix 4] Qualitative Research Participants Information

1. Tacloban

(1) Research Participants Information

[Appendix Table 5] Focus Group Discussion in Tacloban : IDPs

No.	Resettlement village	Categories	Duration of residence(year)	Age
1	DREAMVille	Female group	4	42
2			4	46
3			4	48
4			4	46
5			4	40
6			4	69
7		Male group	5	45
8			4	19
9			3	37
10			4	29
11			5	57
12			4	54
13			4	51
14		Community leaders	4	51
15			4	64
16			5	61
17			4	38
18			5	42
19			4	44
20	North Hill Arbours	Female group	8	48
21			8	51
22			8	28
23			8	35
24			5	29
25			8	34
26			8	34
27			6	36
28		Male group	8	57
29			8	65
30			3	19

No.	Resettlement village	Categories	Duration of residence(year)	Age
31			6	20
32			7	75
33			5	32
34			7	36
35			7	33
36			7	45
37			8	68
38			9	51
39		Community leaders	8	62
40			7	54
41			8	32
42			6	54

[Appendix Table 6] Focus Group Discussion in Tacloban : Host community

No.	Barangay	Category	Duration of residence(year)	Age
1			18	44
2			42	46
3		Female group	16	32
4			35	45
5			33	54
6	Barangay 93 Bagacay)*		61	61
7			68	68
8		Male group	34	55
9			57	57
10			61	61
11			50	50
12			34	34
13			37	55
14		Female group	52	52
15			21	56
16			58	58
17	Barangay 106 (Sto. Niño)**		67	67
18			16	34
19			35	62
20		Male group	47	47
21			27	60
22			45	56

*Barangay 93: Host community of DREAMVille

**Barangay 106: Host community of North Hill Arbours

[Appendix Table 7] In-depth Interview (IDI) in Tacloban

No.	Resettlement village	Original place of residence	Duration of residence(year)	Age	Gender
1	DREAMVille	Barangay 69	4	39	Female
2		Barangay 66-A	4	19	Female
3		Barangay 70	4	45	Male
4		Barangay 69	4	34	Female
5		Barangay 66-A	4	53	Male
6		Barangay 69	3	19	Female
7		Barangay 65	5	55	Male
8		Barangay 69	4	35	Male
9	North Hill Arbours	Barangay 88	6	20	Female
10		Barangay 52	6	63	Male
11		Barangay 51	6	54	Male
12		Barangay 83-A	6	36	Male
13		Barangay 52	7	36	Female

[Appendix Table 8] Key Informant Interview (KII) in Tacloban

No.	Affiliation	Position	Employment duration
1	Catholic Relief Services	Program Manager 1	10
2	Barangay 93 Office	Barangay Service Point Officer	14
3	Barangay 93 Office	Barangay Captain	5
4	GMA Kapuso Health Center	Nurses Supervisor	4
5	Tacloban North Extension Office	Community Coordinator	7
6	Barangay 93 Office	Barangay Secretary	6
7	Anibong Elementary School	Principal	5months
8	Barangay 106 Office	Barangay Secretary	26
9	DREAMVille Homeowner's Association	Chairperson of the Board of Trustees	4

2. Batnagas

(1) Research Participants Information

[Appendix Table 9] Focus Group Discussion (FGD) in Batangas : IDPs

No.	Resettlement village	Category	Gender	Duration of residence (year)	Age (year)
1	Malitam	Badjao IDPs	Female	-	20
2			Female	30	49
3			Female	30	-
4			Female	30	38
5			Female	15	28
6		Host community	Male	49	49
7			Female	19	19
8			Female	56	56
9			Male	75	75
10			Female	19	19
11			Male	36	36
12	Wawa	Badjao IDPs	Female	25	-
13			Female	20	35
14			Female	30	31
15			Female	27	-
16			Female	9	26
17			Female	25	42
18		Host community	Male	48	58
19			Female	65	65
20			Female	28	47
21			Male	59	59
22			Female	54	54

[Appendix Table 10] In-depth Interview (IDI) in Batangas

No	Gender	Age	Barangay	Resettlement Period	Original place of residence	Number of displacement
1	F	27	Wawa	2017 (7yrs ago)	Davao	2
2	F	37	Wawa	1997 (27yrs ago)	Zamboanga	3
3	F	58	Wawa	long time ago	Zamboanga	1
4	F	24	Malitam	2021(3yrs ago)	Palawan	1
5	F	-	Malitam	Martial Law (1970-80s)	Zamboanga	5
6	M	27	Malitam	2013 (11yrs ago)	Zamboanga	1
7	F	55	Wawa	1999 (25yrs ago)	Zamboanga	1
8	F	38	Malitam	2015 (9yrs ago)	Sulu	2
9	M	59	Malitam	1997 (27yrs ago)	Zamboanga	1
10	M	57	Malitam	Martial Law (1970-80s)	Zamboanga	4
11	M	27	Wawa	2010s (14yrs ago)	Zamboanga	-

[Appendix Table 11] Key Informant Interview (KII) in Batangas

No	Affiliation	Position	Employment duration(year)
1	Badjao Day Care Center	Day care worker	16
2	Barangay Wawa	Barangay Captain	11
3	Barangay Malitam	Barangay Captain	10
4	CSWDO(City Social Welfare and Development Office)	Social Worker	2
5	DSWD(Department of Social Welfare and Development)	Social Worker	7
6	Barangay Malitam	Public Safety Officer	11
7	Mangrove Eco Park/ Badjao Day Care Center	Receptionist / Day care worker	10
8	CENRO(City Government of Batangas - Department of Eenvironment and Natural Resources)	Presient	16
9	CDRRMO(City Disaster Risk Reduction Management Office)	Director	25
10	Malitam Elementary School	School teacher (Grade 2)	7
11	Barangay Malitam Health center	Midwife	30
12	Barangay Malitam Health center	Nurse	5months

[Appendix 5] Photographic Documentation of Field Research Sites

Pre-visit

1. Tacloban

1) North Hill Arbours

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Intersection within North Hill Arbours</td><td>Entrance to North Hill Park & Community</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Residential units in North Hill Arbours</td><td>Residential units in North Hill Arbours</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>North Hill Arbours Integrated School (K-12)</td><td>North Hill Arbours Integrated School (K-12)</td></tr>
</table>

	
Tacloban North City Hall Extension Office	Modern Jeep (Tacloban ↔ Kawayan)

2) DREAMVille

	
DREAMVille residential units	Unoccupied abandoned house
	
Two-story residential unit	Welcome sign

	
Trash disposal area & community bulletin board	Water tank
	
Food stall	Food stall
	
Community center & basketball court	Anibong Elementary School – DREAMVille

	
Catholic church	Host community (Barangay 93/Bagacay) donation vehicle
	
Barangay Hall (Bagacay) – Health center, Barangay services, Barangay rescue for DRRM, etc.	Barangay Bagacay ambulance
	
Anibong community	Tricycle waiting area

	
Private tricycle	Pedicab

2. Batangas

	
Barangay Mallitam Entrance	Foot Bridge of Barangay Malitam
	
Barangay Wawa Multipurpose Hall	Barangay Mallitam Multipurpose Hall

	
Mayor Beverley Rose A+ Dimacuha Type School Building	Mallitam Elementary School Building
	
Batangas CSWD(City Social Welfare and Development Office)	Barangay Malitam Health Center
	
Badjao Community Daycare Center	Health Center inside Badjao Community



Badjao Community Traditional Houses



Badjao Houses in Coastal Area



Water Pumps in the Badjao community



Motorcycle in Badjao Community



Local market in Badjao Community



Fishing Boats of Badjao Community

Field Research



Focus Group Discussion(FGD) in Tacloban



Focus Group Discussion(FGD) in Tacloban



In-Depth Interview in Tacloban



Focus Group Discussion(FGD) in Batangas



In-Depth Interview in Batangas



Key Informant Interview in Batangas

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