“Soon it will be a concrete jungle”: Perceptions and Projected Impacts of ‘El Proyecto Techos de Esperanza’ in Bastimentos, Panamá

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Abstract

"Soon it will be a concrete jungle": Perceptions and Projected Impacts of 'El Proyecto Techos de Esperanza' in Bastimentos, Panamá

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El Proyecto Techos de Esperanza is a state implemented resettlement initiative advertised by Panama's Ministry of Housing to provide homes for underserved communities across the country. This study focuses on one development site on Isla Bastimentos, located in Panamá's Bocas del Toro region, where Black and Indigenous families from the nearby coastal town are being relocated. Made in the absence of local representation, destructive land use practices have incited terraforming and hydrological alterations which this study projects will expose resettled residents to environmentally hazardous conditions amplified by key regional climate change risks, threaten cultural subsistence ties, and limit local adaptive capacities. In addition, this study suggests that top-down procedures of the project entail coercive tactics, negligence towards cultural needs and values, and failures to provide clear and consistent information, orchestrated to oppress opposition, legitimize, and mobilize the development of the resettlement site. This study centers the perceptions and lived experiences of the Bastimentos community confronted by El Proyecto Techos de Esperanza, in defense of Black and Indigenous sovereignty and resilience.

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Introduction

The Bocas del Toro Archipelago is a highly diverse environment which hosts a wide array of ecosystems and communities whose relationality sustains culturally enriched livelihoods. Since Spanish colonization in the 16th century, the region has experienced landscape changes, ethnic

diversity and dissonance, and political economic hardship, all of which continue today (Spalding 2018). Since the 1990s, tourism has grown to be the principal industry because of neoliberal market reforms which open local lands to the global market to attract foreign investment and increase economic development in the region, resulting in increasing land insecurities for Black and Indigenous Panamanians (Thampy 2018; Mollett, 2022).

A new development initiative promoted as "El Proyecto Techos de Esperanza" (EPTE) is a state planned relocation project administered by the Ministry of Housing which aims to provide more dignified housing to underserved communities across Panamá (Miviot, 2023). There are two development sites in the Bocas del Toro Archipelago, one of which being constructed on Isla Colón, which intends to relocate families from a primary Indigenous coastal community called La Solución, to a new development site located towards the center of the island (Figure 1). On the adjacent island, Isla Bastimentos, EPTE is also being established aiming to relocate primarily Afro-Panamanian and Indigenous residents living in the coastal town of Bastimentos, commonly referred to as Basti, into the resettlement site (Figure 2). EPTE provides a stark contrast to the colorful seaside shanty towns from which residents will be displaced (Figure 3), while relocating families into newly developed inland sites once composed of primary growth forests now consisting of uniform rows of concrete houses with no remaining trees or land for subsistence practices (Figure 4).

Figure 1 Satellite image of the coastal town of La Solución relative to the inland EPTE development site

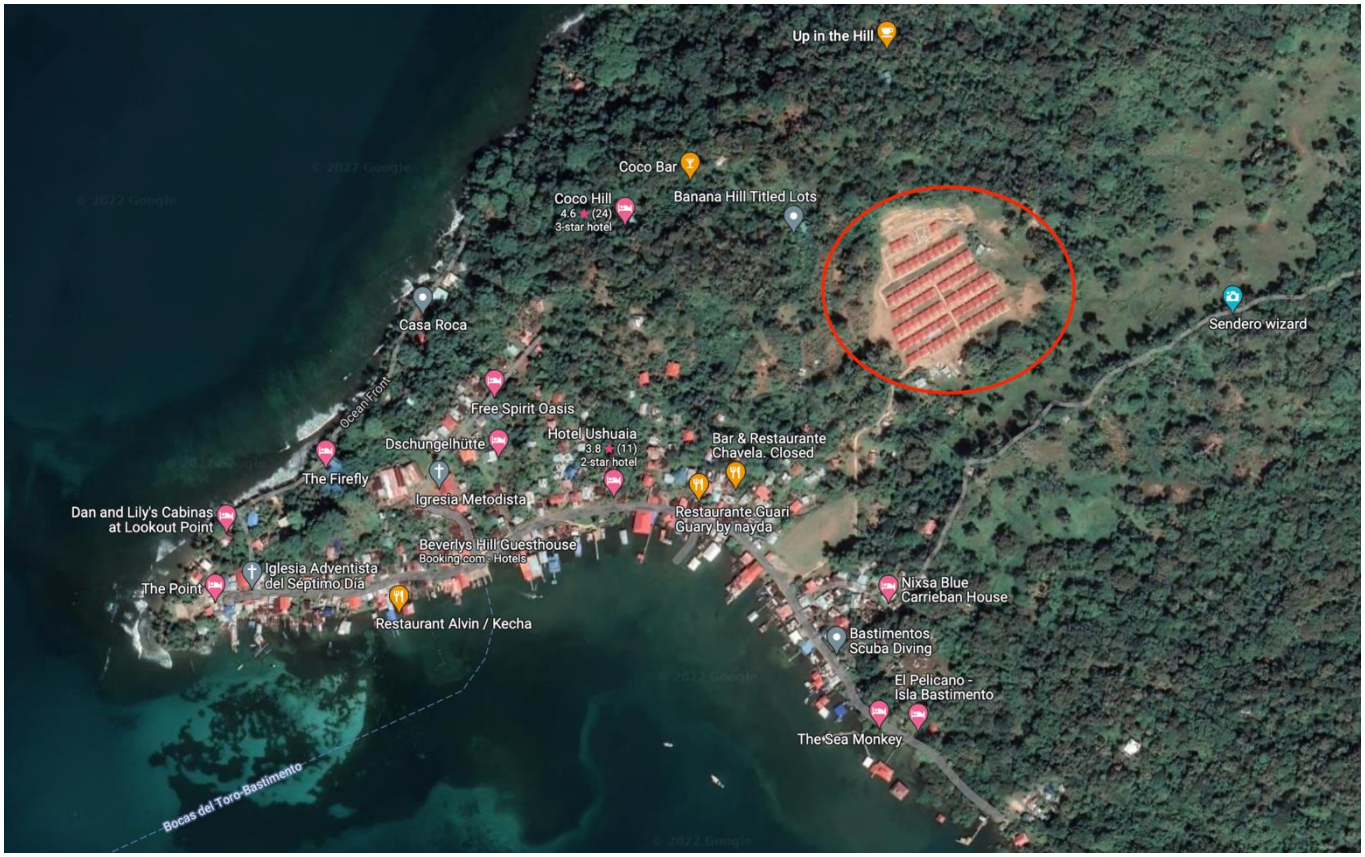

Figure 2 Satellite image of houses dispersed throughout the town of Bastimentos relative to EPTE site circled in red

Figure 3 Seaside view of the town of Bastimentos

Figure 4 Image of EPTE housing

This study centers EPTE as an environmental justice issue by examining the perceptions and experiences of Black and Indigenous residents of Bastimentos living near the project, displaced by the construction of the project, and those subject to moving to the resettlement site. Findings suggest that EPTE has restricted self-determination by prescribing a managed retreat which threatens Black and Indigenous claims to territory, and associated cultural knowledge systems. I will begin by providing background information with a brief historical and ethnographic description of the Bocas del Toro Archipelago, the increasing emergence of tourism in the region, and an introduction to the context of EPTE. Drawing on the findings of this study, Chapter one

will examine the physical parameters of the EPTE development site on Bastimentos while drawing from academic literature to demonstrate the relationship between these dimensions with local environmental conditions amidst changing climate conditions. Regional key risks based on climate projections in Central America including heat waves, water deficit, and landslides (IPCC, 2022) are assessed and related to the terraforming and hydrological changes incited by EPTE which has failed to consider local ecological knowledge and input. I argue that these climate change risks and the procedures of EPTE combine to facilitate extremely hazardous living environments for Black and Indigenous families preparing to move to the resettlement sight. Chapter two will then describe the exclusionary practices used to mobilize EPTE's development in Bastimentos, including the use of privation and tenuous land rights, while restricting opposition to the project through coercion and lack of transparency. I argue that EPTE uses vulnerabilities and misaligned perceptions of poverty to legitimize the need for the resettlement process, while inciting poorly planned and destructive land use practices that sever ecological ties, cultural needs, and knowledge systems, thus perpetuating existing issues and limiting adaptive capacities. By failing to include local autonomy in the decision making process, EPTE demonstrates a site of environmental racism which I argue deliberately disadvantages Black and Indigenous communities through land dispossession and cultural erasure, fostering severe socio-ecological repercussions. While this study primarily focuses on the Isla Bastimentos development site, EPTE is a national initiative affecting communities across Panamá. This case study can help provide insight on the experiences of one community to suggest other injustices associated with the project statewide. Adopting a grassroots approach, which allows action to occur from the local level to achieve constructive change, could better address the gaps in wellbeing for the town of Bastimentos and for communities across Panamá confronted by EPTE.

Background

a. Introducing Bocas del Toro

The Bocas del Toro Archipelago is a group of Islands in the Caribbean Sea off the northwest coast of Panamá (Suman, 2018). The region hosts a mosaic of landscapes and ethnic communities which characterize a diverse set of ecosystems including tropical primary growth rainforests, mangroves forests, coastal wetlands, seagrass beds, and coral reef systems (Suman 2018). Since the arrival of Spanish colonization in 1502, the region has been subject to landscape changes, social conflict, political economic strife, and centralized government neglect, all of which continue today (Spalding 2018). Limited historical accounts indicate that Indigenous peoples populated the Archipelago prior to European colonization, however, by the 1700's when English settlers arrived there were no Indigenous inhabitants (Visser 2021). Beginning in the early 19th century, the first Afro-Panamanians to arrive in the Archipelago were brought as slaves from Jamaica and Barbados. By the end of the 19th century and beginning of the 20th century after Panamá abolished slavery, an influx of West Indian migrants arrived at the Archipelago to work on the expanding banana plantations under the employment of the United Fruit Company (UFC) (Guerrón Montero 2011; Spalding 2016; Visser 2021). UFC employed other ethnic groups as well, creating demographic change and contributing to ethnic diversity in the region, which is now comprised primarily of Indigenous Peoples (mostly Ngäbe), Afro-Panamanians, Latino-Panamanians, Chinese-Panamanians, and a growing number of foreign residents from Europe and North America (Guerrón Montero 2006b; 2011; Spalding 2013; Visser 2021). Ethnic and racial relations follow a hierarchical pattern in the Archipelago (Visser 2021) where high levels of social inequality persist (Suman 2018). The three ethnic groups that most significantly shape the hierarchal structure include Ngäbe with the least social privilege, Afro-Panamanians, and (North-American and European) foreigners characterized as being most privileged (Visser 2021). The Ngäbe are the largest of the seven Indigenous groups in Panamá, and the largest ethnic group in the Bocas del

Toro province and the neighboring Ngäbe-Buglé Comarca, Panama's largest Indigenous reserve (Lux 2018, Mckenzie 2019). The Ngäbe have been the main inhabitants of Bocas del Toro who practice traditional subsistence agriculture, hunting, fishing, and foraging (Lux 2018). Previous studies suggest that tribes living in present-day Ngäbe territory have been practicing these methods for at least 1500 years (Cooke 1982; Visser 2021). Even Ngäbe residents who have migrated to township areas cope with urban challenges by visiting or aspiring to return to their "fincas" which translates to farmlands (Visser 2021). Ngäbe participants in a study conducted by Visser (2021) reports that cultivating is the "proper way to live and of what constitutes a good life" (p. 1). Collective labor amongst kin within and across hamlets is highly valued and the land is owned communally by a group of kin (Visser 2021; Young 1971). Hamlets are dispersed to allow adequate space for each household to practice slash and burn agriculture, using a "patchy" approach which does not involve clearing all of the land used, contributing to a forested appearance interweaving within the natural environment (Thampy 2018). User rights depend on the input of labor, and the area must be actively worked to maintain rights to the territory (Thampy 2018; Visser 2021). This traditional use and perception of property fall subject to land grabbing disputes as the area may appear unused by foreign investors, or does not align with mainstream government titling laws (Thampy 2018). Despite their labor in the banana industry, the Ngäbe have been traditionally adapted to a non-monetary economy centered around this swidden agriculture base. For both the Ngäbe and Afro-Panamanian populations in Bocas del Toro, dependence on the cash economy has remained subordinate to agricultural and fishing livelihoods with little interference from other societal sectors, however this has been changing since the introduction of the tourism industry (Thampy 2018; Visser 2021).

b. Rise of the Tourism Industry

Since the 1990s, the Panamanian government has promoted the region as an idyllic location for real-estate and tourism investment to increase economic growth to compensate for the decline of the banana industry (Lux 2018; Spalding 2018; Thampy 2018; Visser 2021). Tourism has become the main industry in the Archipelago (Thampy 2018), resulting in exacerbated marginalization of certain ethnic groups, growing economic inequalities, local reliance on foreigners for employment, influence on foreign attitudes and behaviors on local culture, land use changes, and land dispossession (Mayhem and Jordan 2010; Spalding 2013; Visser 2021). An influx of lifestyle migrants and tourists, predominately from North America and Europe, has further complicated the hierarchical social scene and prolonging colonial legacies (Spalding 2013, Visser 2021).

Tourism development has been facilitated through neoliberal market reforms which open local lands to global market bodies to attract foreign investment and promote development in the region (Thampy 2018). Tax incentives were made accessible for the construction of tourist resorts and marinas which included exonerating landowners from property taxes on lands used for tourist development, and tax breaks to lifestyle migrants to encourage settling in Panamá (Thampy 2018). In 2009, The Government of Panamá passed Law No. 80 to regulate Rights of Procession (RoP) if proof of residence and use of land could be demonstrated, however Thampy (2018) argues this only amplified environmental racism by failing to acknowledge Indigenous concepts of property rights and accelerated land separation through the titling process. Negligent institutional regulation allows for RoP over a territory when another person, family, or entire community is already living on that property who never formally applied for RoP, promoting feasibility for land scams and conflict. Law 80 is publicized as a "better," "modern," and "improved" way to advance the value of coastal and island resources (World Bank 2009), but Mollet (2023) contends that the notion of "better" devalues existing subsistence and small-scale, market-oriented land uses in favor of settler ideals (Mollett 2023; Spalding 2017). The underlying neoliberal philosophy behind these land

reforms aim to activate the land market for short-term economic gains by transferring the land to the most productive users, while viewing communal traditional tenure arrangements and informal and inefficient uses of land thus undermining the legitimacy and values of local communities (Spalding 2013; Thampy 2018). In addition to lack of legal framework regarding titleship of highly desirable insular lands, and different cultural perspectives on property rights (Spalding 2018), land titles are conceded to tourism developers despite Indigenous people already living in, cultivating, and honoring an area for generations (Thampy 2018). Through the transfer of land to foreigners, tourism and lifestyle migration has contributed to displacement of local communities and traditional cultural subsistence land uses (Spalding 2018).

Land security issues are documented to most heavily affect Ngäbe communities who lack formal land titles, and face disadvantages in negotiating and obtaining their claims to land (Spalding 2013; Suman 2018; Thampy 2018; Visser 2021). Spalding (2018) notes that the social impacts of foreign inundation entail "the reinforcement of existing social and class systems by privileging English-speaking Afro-Caribbeans over Indigenous groups in various aspects of day-to-day life. In doing so, the long history of internal racism was perpetuated, while the Ngäbe Indians continue to experience marginalization in Bocas society" (p. 39). The Ngäbe are largely underrepresented across academia (Visser 2020), but I argue that Afro-Panamanians are even more so. As literature is beginning to focus on the social inequities faced by the Ngäbe, particularly pertaining to land insecurity amidst rising foreign invasion, little attention has been directed towards rising injustices across Afro-Panamanian communities who have been depicted as less threatened by the racial and ethnic hierarchies in the region. Visser says "Although the Afro-Antillean population has historically been marginalized and discriminated against, they have generally enjoyed higher socio-economic status and greater access to resources and education than Ngäbe" (p. 168). This paper emphasizes the escalating land crisis amongst insular Ngäbe populations while also

documenting that Afro-Panamanians face similar threats deriving from the same sources of colonial suppression in the Bocas del Toro region.

c. Introducing the Context of El Proyecto Techos de Esperanza

Bordering Bocas Town, the major tourist resort and capitol of the Bocas del Toro Archipelago on Isla Colón, is a small settlement called La Solución. The enclave is nestled in a seaside mangrove forest inhabited primarily by Ngäbe families who have constructed their own houses from recycled wood and colligated metal, which are connected by wooden planks which serve as paths to traverse through the neighborhood. The settlement has received criticisms from the government for being "precarious, unhealthy, and poor" (Visser 2021, p. 213), as there exists no sanitation services or provisions of garbage removal, and waste runs from the houses directly into the marsh. However, results from Visser's study suggest that the State's representation of the neighborhood does not align with residents' own perspectives, and that the majority of Ngäbe residents do not consider their homes to be precarious nor inadequate. Although respondents acknowledged that improvements could be made to their neighborhood, they commonly reported "we are fine here." Participants in the study perceived the sanitation discourse and housing improvement plan not to be the true incentives for relocation, but rather as tactics to dislocate the community so that the land can be developed for tourism purposes (Thampy 2018; Visser 2021). Residents first received threat of eviction in the mid-2000's when a tourism developer set sights on purchasing the mangrove area of La Solución to construct a marina, and the government attempted to remove residents from their location. Under a change of presidency, the community was assured of receiving improvements to the neighborhood instead, but when Varela took office in 2014 the topic of relocation returned (Visser 2021). The new government initiated EPTE managed by the Ministry of Housing. El Proyecto Techos de Esperanza translates to "The Roofs of Hope Program"

which is a state planned relocation pursuit advertised to provide “Decent housing for a better quality of life” for families living in conditions deemed unsuitable by the Panamanian government (Miviot, 2023). According to Visser, the project “has represented La Solución as an unhealthy, poor, and unfit place to reside. It has further portrayed the Ngäbe homes in the neighborhood as “precarious, improvised, and inadequate” (Visser, 2020, p. 213) and argues this discourse on precariousness has been used to mobilize the relocation of these residents. Visser’s study incorporates the projected relocation into a study focused on hierarchical inter-ethnic relations and discriminatory political approaches engendering experiences of marginalization amongst urban Ngäbe residents in La Solución. This study builds off Visser’s findings by solely focusing on EPTE and the potential impacts of the resettlement process on Black and Indigenous families living in Bastimentos.

Methodology

Semi-structured interviews were conducted primarily in and around the town of Bastimentos over the course of six weeks from June through July, 2022. The sample size includes 30 interviews conducted primarily across Afro-Panamanian (n=14) and Ngäbe participants (n=13), in addition to some Latino-Panamanians (n=3). Interviews were mostly conducted with residents projected to move to the resettlement site, residents of the town who are affiliated with these families, as well as individuals who are being dislocated from their homes on the site of EPTE. Three interviews were also conducted with construction workers involved in the project, and one government employee. Participants in the study were asked their opinions on EPTE and it’s recent development in their neighborhood, but due to the contentious nature of the project which became apparent

amidst data collection, some interviews were adjusted to avoid asking directly about EPTE itself to instead ask residents their opinions on what is most needed in the community, which I then apply to the context of EPTE in this paper. Interviews were conducted in English and Spanish. Interviews with Afro-Panamanians were conducted in English which their primary language called Wari-wari is reflected in their vernacular (Democracy 2006). These responses have been left unaltered in this study to preserve the integrity of this dialect. For interviews conducted in Spanish, a key informant was invaluable in translating the responses.

Positionality Statement

As a White United States citizen leading this study, my experience in the Bocas del Toro region is limited and only provides a brief lens of the recent happenings related to EPTE and its effects on nearby communities. Funded by the Ocean Nexus Center through the University of Washington, I recognize the privileges of my position as a foreign researcher which has enabled this work to highlight environmental justice issues occurring in Panamá. With training in equity issues from a progressive university, I hope that my findings can provide new insight and perspectives to foster awareness of the described current events and help facilitate advancements to safeguard ecosystems and communities threatened by EPTE.

Chapter 1: Land Use and Hydrological Changes of EPTE in Relation to Climate Change Impacts

More frequent and extreme weather events related to climate change present varying adverse impacts on ecosystems, people, and settlements. Specific to South and Central America, regional key climate change induced risks include increased water scarcity, risk to food security due to droughts, and damages to life and infrastructure due to floods, landslides, sea level rise, and storms

(IPCC 2022). These risks are projected to increase especially in places already exposed to high temperatures, along coastlines, or with high vulnerabilities. In combination with the high exposure of the region, limited adaptive capacity will also contribute to climate change risks (IPCC 2022). The devastation of ecosystems and their services by societal negligence is shown to increase the vulnerability of communities that depend on these resources. Therefore, unsustainable land use practices, land cover change, natural resource use, and deforestation hinder the establishment and adaptive capacities of ecosystems and the communities. The IPCC warns that "If trends in urbanization in exposed areas continue, this will exacerbate the impacts, with more challenges where energy, water and other services are constrained" (p. 13). This chapter describes the physical characteristics of EPTE, and demonstrates how terraforming practices and hydrological changes incited by the project may interact with local environmental conditions to amplify projected climate change impacts, amounting to hazardous living conditions for families undergoing resettlement.

1.1. Impervious surfaces

According to respondents in the study and *in situ* observations led by residents in a private tour through of the resettlement site, the construction has entailed large scale clearing of a primary growth forest which has been paved with impervious surfaces and concrete housing, with no remaining trees or plant life (figure 5). As listed by Barnes et al. (2001), five broad interrelated impacts associated with impervious surface development include: 1) alteration of local and regional hydrological cycles (changes in water quantity); 2) changes in water quality; 3) changes to local energy balances and microclimates; 4) habitat degradation, loss, and fragmentation; and 5) changes to stream and landscape aesthetics.

Figure 5 Street view photograph of EPTE

Alongside the pre-existing hazard of extreme and worsening heat waves in the area due to climatic changes, the addition of urban heat islands is likely to worsen the threat of increasing temperatures. Paving watershed areas with concrete produces “desert-like” hydrological and microclimatic conditions (Barnes et al. 2001). Replacing vegetated landscapes with impervious surfaces induces excess heat capture, and restricting tree coverage which provides shading and additive moisture to the environment further exacerbates heat affects (Coutes et al. 2012). Relative to vegetated areas, urban impervious surfaces have higher thermal conductivities and heat storge potential (Barnes et al. 2001; Christopherson 2001). As increasing temperatures already threaten the health of the community in the face of climate change, it is important to recognize the environmental

implications of this development in relation to these projections and the threats that extreme heat phenomena may have for families that will be living in these units.

On a global scale, deforestation and forest degradation rates are high and in some cases increasing (Baccini et al. 2017), this is important to note given that protecting primary forests contributes to climate change mitigation through circumventing emissions caused from land use and land use change, reinforcing a stable carbon reservoir, and allowing a substantial carbon sink (Funk et al. 2019; Mackey et al. 2019). Biophysiological interactions associated with tropical forests collectively function as not only water curators, but also allow for oxygen and carbon dioxide regulation and adjustment of local and global climates (Wang et al. 2020). As described by respondents, the area used for the development site was a forested swamp composed of primary growth trees. Mackey et al. (2019) defines primary forests as a "naturally regenerating forest of native tree species, whose structure, composition and dynamics are dominated by ecological and evolutionary processes" while noting that this does not mean uninhabited by humans, but rather that "tropical primary forests are the customary homelands of Indigenous Peoples who continue to play a critical role in their protection and conservation management" (p. 765). After the development event, no trees were left on the premises which had been covered entirely with concrete housing and pavement as demonstrated by the quotes below.

> "There were old primary trees, they took them down…There are different ways to help people here that doesn't break the nature."
> "The house was vibrating. Many times I was crying during that time because I didn't know how someone had the heart to cut down those trees."
> "They chopped down more than 100 big trees."

Careful land management which considers the significance of forested swamp areas consisting of primary growth trees are essential to the health of the ecosystem and community in the face of rising climate risks and future development.

1.2 Water health

Thermal characteristics associated with impervious surfaces have profound impacts not only on microclimates, but also on watershed health (Barnes et al. 2001). Many pollutants from a range of sources accumulate across these surfaces, which in the event of floods are carried into nearby waterbodies, affecting water quality and aquatic life. During hot seasons, storm water runoff temperatures are substantially increased, also contributing to thermal water pollution (Barnes et al. 2001). One respondent described that due to the hydrological changes insighted by the project, a stream that once ran through the site has been stripped of its water supply and what little is left of it consists of water contaminated from the construction of the project. Others discussed their concern for pollution with the addition of an over eighty-five house subdivision when the island is not equipped with a garbage removal system, and where septic systems are limited.

> "There was a big creek that ran into the sea. It doesn't run anymore. The water is black, infected, contaminated. [His friend's] children are getting infected in the water. They get rash."
> "They burn the garbage here. I will tell you why I am scared about that. No one have septic. People close to sea. Put garbage in the creek and the sea so the current take it. I love this place but I want to go because of the destruction….No recycle for the garbage. Fifty percent of people here have septic, fifty percent don't. Seventy percent burn the garbage…I worry about the garbage with 85 more houses. They will throw all the garbage on the side of the project."
> "There's intoxication with the water. I tried to get help to inspect the project, but I needed money. There was no inspection for the nature."

In a coastally dependent community, which heavily relies on nearby fish stocks for subsistence and livelihood purposes, it is crucial to consider the implications of additional pollutants within the system and its services when the town already in place is deprived of basic amenities.

1.3 Water Deficit

Impervious surfaces prevent water infiltration, leading to runoff which is exported out of the system. These areas faced with intense storms can produce vast runoff, flash floods, followed by water deficit in these areas (Barnes et al. 2001; Christopherson 2001; Coutts et al. 2012). This runoff and vegetation removal reduces water available for evapotranspiration, therefore converting incoming solar energy, which is used to evaporate water, into sensible heat instead, consequentially increasing temperatures of surface and overlying atmospheric temperatures (Barnes et al. 2001; Christopherson 2001). Freshwater availability throughout Central America is already projected to decrease due to the culmination of lower precipitation, higher abstraction rates, and sea-level rise intruding into coastal aquafer systems. Regarding EPTE's development site, one respondent noted that the forested swamp was previously "The spot was where the town got it's water." Failing to recognize the significance of this location as a water reservoir for the community calls attention to the lack of concern for community needs and values, particularly in the face of climate induced risk.

Given the controversial nature of the project, some interviews were adjusted to avoid asking directly about the project itself, to instead inquire about the most pressing needs of the Bastimentos community according to those living there. The most highly ranked issue was based on water scarcity, as illustrated below.

> "[The mayor] is just focusing on the project and not the town. [The project] have separate water, but no reservation of water for the entire community."
> "There's not enough water. They don't prepare for the dry season."
> "We need more water. That is the problem. The water. We have to try to find water, ice, to get more water for the town. We get water from the creeks or the mountains. Dry time is really rough for everyone. There has been less water lately for everybody."
> "Here all the time there is water problems. Right now, we have water, but when we don't have rain, we don't have water."
> "When it's sunny we have a lot of problem with the water. When it don't rain it dries."
> "The problem with the project is the water. There is no water."

> "Water is the biggest issue. Everything the government say they will fix, they don't. Not clean. When it rains it gets dirty. In the summer it gets dry. Biggest problem in Bastimentos. Got worse. The population more plenty. More house, more hostel, more hotel, more people."
> "The mayor, he is also the pastor. He is spending money building churches when people don't have water."
> "The distribution of water is a problem. The town's water is not here on top of the hill. People need to organize better. There's natural taking of water, by rain water, and near the beaches."

One respondent agreed with the prosect of the project but pointed to the concern of water. He said, "The only problem is water. The water comes from the ground, and there is no infrastructure for water. For now, there is no water, but they will make it."

As pre-existing water scarcity issues already pose as significant threats to the area, in addition to considering the implications of hydrological and land use change such as developing over a forested swamp which supported water supply to the community, it is important to evaluate the possible repercussions of adding over eighty-five more housing units to this area as resources are already stressed for the current community. It is not the aim of this study to discourage additional housing for families in need, but rather to do so mindfully to ensure water supply to new arriving families while also providing for the pre-existing community. One respondent noted:

> "First you didn't have water problems. When the population got more bigger that's why we have water problems now. First the town was small. Water right now is the biggest problem. We have to buy bottled water to get a good drink."

Promoting reliance on bottled water which must be retrieved from the neighboring Isla Colón presents further issues, as Bastimentos is not provided with a garbage removal system which can attribute to further burning of waste or depositing it in coastal waters.

In a region where high intensity heat extremes, risks of drought, and increased aridity are already experienced and projected to increase due to the impacts of climate change (Reyer et al. 2017), it

is necessary to consider careful land-use management to ensure the safety of water supply for families living in or nearby the project.

1.4 Landslides

As climate change is expected to increase the magnitude of severe rainfall events, which are primary influencers of rapid-moving landslides, there is an increasing number of people subject to landslide risk in response to climate projections (Gariano and Guzzetti 2016). Alongside climate change inducement, land use changes are recognized as leading contributors to rainfall-stimulated landslides (Glade 2003). Landslides are a disturbance phenomenon in which part of a soil or rock mass is displaced along an unfortified plane under the effect of rainwater seepage, human activity, or earthquakes (Cheng 2003; Wang et al. 2020). In tropical rainforest zones where plant species are abundant, vegetative protection along the surface helps strengthen the slopes by maintaining soil and water (Wang et al. 2020). Root structure reinforcement provided by forested areas serves as a protective method against slope failure, which is then left unguarded when the forest system is removed (Glade 2003; Wang et al. 2020). The development site on Isla Bastimentos is positioned throughout the scope of a hill, with layers of tiers on which rows of houses are placed (Figure 6 and 7). The site was densely forested area, however post development no trees remain on the premises.

Figure 6 Image of hill on which EPTE is placed

Figure 7 Image of tiers on which rows of houses are placed

Whether respondents were in support of the project or not, the issue of landslides was commonly reported in association with its development as demonstrated below.

> "I don't feel good about the project. It wasn't the right spot for it. There is danger because of the hill. They destroy the nature. I think it will come down in a few years…..with the sun and no trees there now, it will dry and tear it down more."
> "The hill will destroy everything there."
> "Bad, bad, bad landside."
> "I don't know when, but the hill will tear it down."

Respondents remarked that the hydrological alterations incited by the development have disrupted the natural water systems on the site by building over a forested swamp and changing stream flow as depicted in quote and figures (8-10) below:

“The water will destroy everything with landslides. The water is trying to find another way to go, another direction, not the direction that the project is trying to manipulate it to go. The water problem will be big and wash away everything in a few years.”

Figure 8 Interviewee demonstrating changes to the natural water system

Figure 9 Image of water compiling at base of hill where houses are placed on top of wet soil without foundational support

Figure 10 Image of water accumulating behind houses

One respondent reported that the project was declared to open in January of 2022, however the release date has been postponed due to the occurrence of a landslide which has destroyed two existing houses, yet the construction of additional housing persists.

> "Two houses dropped because of the rain. Because of climate change, it is so different now. The sea is different. The rain is different. They have erosion now….The man who lives on top of the hill has a cacao farm. He lost a half an acre of plants and land because of erosion from the project."
> "[The project] was to open in the beginning of the year, but they have issues, houses falling down. They are trying to build 8 more houses. Two already fall. I never wish nothin' bad for anyone here but I see that the jungle will come back even though the concrete houses."

During an interview with the construction worker overseeing the development of the site, he was asked if anything had hindered the progress of the project, to which he responded "Nature. A lot of water do a landslide to the earth and now we have to repair it." When asked if he thought it would happen again he responded, "No, because we fix it."

Landslide disasters in tropical rainforest zones are increasing in severity, and are being further aggravated by human activity (Wang et al. 2020). Uncontrolled land cover conversion such as EPTE which has removed all vegetative cover and placed housing on top of tiers throughout the hill can pose serious threats to families moving to these structures. Evidence provided by community members living in proximity to the development, as well as workers involved in the project, show that this environmental hazard has already occurred which heightens concern for possible future disasters. Where climate change is projected to increase the frequency and magnitude of floods, landslides, heat waves, and drought, it is crucial to consider careful land use planning that prioritizes the needs of the local community. While the ministry of housing promotes the project to provide housing "for a better quality of life" (Miviot 2023), I argue that the project exposes families to hazardous conditions through poorly planned land use strategies and indifference to community input, health, and safety.

1.5 Disproportionate Impacts and Double Exposure Associated with Climate Change

Across all regions, the most vulnerable communities are observed to be disproportionately affected by climate change (IPCC 2022). Vulnerability ranges across systems driven by varying patterns of intersecting socioeconomic development, unstainable ocean and land use, inequity, marginalization, colonialism, and governance (IPCC 2022). Human and ecosystem vulnerability dependently co-arise, exposing them to greater climate hazards in tandem with unsustainable development patterns. Systems facing poverty, governance challenges, limited access to fundamental services, and consisting of climate sensitive livelihoods such as fishing communities and agriculturists, are categorized as being most sensitive to climate change impacts (IPCC 2022). Considering the interplay between globalization and global climate change, O'Brien and Leichenko (2000, 2009) identify a conceptual framework called "double exposure." Arguing that that equity and connectivity animate the framework, they highlight that not all communities, regions, and nations will be equally impacted by climate change. When addressing equity issues, this concept identifies how social, economic, and ecological responses to globalization are stratified across different communities where some are disproportionately vulnerable to climate-related events or poverty resulting from global economic integration (Finley-Brook et al. 2010). Global economic, cultural, political, and environmental processes culminate to produce multilayered effects specific to different local contexts, signifying climate change as a risk multiplier which increases the impact of a variety of risks not directly related to global environmental change (Christoplos 2010). For instance, O'Brien and Leichenko (2000) note that urban poor are amongst the groups most susceptible to climate change disaster since hillside systems are prone to mudslides and flooding which are projected to increase in magnitude and frequency in correlation with climate change.

1.5.1 Overlooked Resilience

Presten (2012) prescribes heightened vulnerability to people living in the global south based on three converging categories. Firstly, "*Geographically increased vulnerability to climate change*," describes how climate change "wreaks the greatest havoc and destruction on the lives of the global poor partly as a result of nothing more than geographical bad luck (Preston 80-81)." Second, "*Economically increased vulnerability to climate change"*. Situated squarely on top of the geographical bad luck is the fact that persons who lack resources and economic mobility are less capable of extricating themselves from life threatening situations (Preston 80-81)." Third, "*Historical responsibility*. The geographic and economic vulnerability of the poor nations to rising temperatures is particularly unfortunate given their lack of historical responsibility for creating the problem in the first place" (Preston 80-81). Within this assessment, Indigenous peoples are also marked as vulnerable due to their continued dependence on local ecosystems, and their lifestyles being attributed to being more vulnerable to the environmental change. Indigenous scholar Kyle Whyte (2016) argues that "this idea suggests that it is by dint of Indigenous peoples own choosing or simply happening to live in certain places and living in certain ways that they are at risk." He refutes the compounding of these histories which creates the "bad luck view" arguing that "thinking about climate injustice against Indigenous peoples is less about envisioning a new future and more like the experience of déjà vu. This is because climate injustice is part of a cyclical history situated within the larger struggle of anthropogenic environmental change catalyzed by colonialism, industrialism and capitalism—not three unfortunately converging courses of history" (p. 13). Vulnerability is also based on socio-economic conditions from legacies of colonialism, such as low-employment and lack of strong infrastructure, which will fail to protect communities from drought and sea-level rise. Whyte argues that this misrepresents climate change impacts to impact populations who have socioeconomic problems by a matter of coincidence. Rather than interpreting climate change as a new phenomenon that rests on top of these histories, Whyte

contests that vulnerability is caused by colonial institution's facilitation of carbon-intensive economic activities (extractive industries) and deforestation producing deleterious affects, *in addition to* hindering Indigenous people's capacity to adapt to these adverse impacts. Although climate change impacts relate to Indigenous lifestyles and socioeconomic constraints to amount to increased severity of injustices, little mention of colonialism is made other than its legacy. Settler colonial institutions have left Indigenous communities more vulnerable to harmful health outcomes, cultural degradation, and political unrest, while cyclically reducing their adaptive capacity to environmental changes (Whyte 2016). When considering climate change vulnerability, it is also necessary to observe the inherent resilience of populations whose lives are disproportionally affected and allow space for adaptive capacities through a decolonial lens.

I argue that EPTE is a colonial manifestation of a racialized social hierarchy in Bocas del Toro Panamá. The resulting ecocide will generate a precarious living environment which will hinder Black and Indigenous adaptive capacities to climate change as well as exacerbate pre-existing vulnerabilities and climate change impacts. Whyte (2016) argues that "climate injustice occurs when settler and other colonial institutions inflict rapid environmental change on Indigenous peoples" (p 11). The current and projected impacts of climate change expected to accentuate pre-existing vulnerabilities in Latin American countries (Reyer et al. 2017), combined with the implementation of EPTE which has instilled adverse environmental changes and ignores community needs, can lead to disastrous scenarios for families that will be living within or nearby the new development. In Shishmarif, Alaska, Marino (2012) points out that colonial resettlement strategies inflicted on Indigenous Kigiqitamiut communities have hindered traditional adaptation strategies, explaining that lack of input in decision making processes led to building of infrastructure in already marginal and increasingly exposed location. Marino says, "Contemporary vulnerability to increased erosion and flooding is therefore linked to historical development

decisions made in the absence of local representation" (p 378). Maldonado (2013) makes a similar point for the Biloxi-Chitimacha-Choctaw Indians who were displaced original homelands and took to the Isla de Jean Charles, now undergoing similar threats. "Today, the communities' culture and water-based settlements and livelihoods are threatened by both the causes and consequences of climate change" (Maldonado 2013, p 605). The findings of this study suggest similar events in modern-day Bocas del Toro region, where local environmental knowledge has been dismissed contributing to the hazards described in this chapter. One respondent said "I tried to convince them that it's not safe for anybody." Practices such as deforestation, that contribute to climate change, are the same practices that will increase vulnerability to climate change within the new development.

EPTE is a mechanism designed to hinder traditional adaptive capacities, intentionally or not. The possible environmental impacts including water deficit and landslide risk, can interact with the pre-existing vulnerabilities of the region considering the social, economic, and demographic profiles, and climate change susceptibility. While I argue the project exposes Black and Indigenous peoples to greater environmental risks, it also restricts their capacities for resilience toward climate change events by prescribing living environments which strips them of their traditional cultural practices. The following chapter further explains how these destructive land use practices facilitated by EPTE were paved by settler colonial strategies, and describes the social injustices embedded in the project and their possible repercussions.

Chapter 2: Environmental Justice Concerns

Bordering a vast clearing composed of concrete houses stands a hand-built house of wood, colligated metal, and plant materials, surrounded by banana and cacao trees amongst other staple plants used in traditional Ngäbe agricultural practices (Figure 11). One evening on the outskirts of

town I interviewed the man who lives in the house, referred to here as George. He was coming home from his job at a hotel joined by a couple of friends. George had moved from the Comarca, the largest Indigenous reserve in Panamá, in search of work twelve years ago. He has since built his house where he, his wife, and five children have, until recently, been living in the forest amongst primary growth trees. The trees are now cut down by the development of EPTE. George said that he has a verbal agreement for the land on which he resides but no legal documentation and confided that in a couple of months he will be removed from his house to avail more space for the development. He said "The mayor never came to my house to tell me about the project. I built this house by hand, and I am getting kicked out. [The mayor] never came, I was never told anything, there was no support, and now I have to leave soon. More houses are being built. I was given the land and was told that I will always have the right to live there, but then it was sold to the government."

At the beginning of the interview, George and his friends shared that they would like to be included in the project, however later in our conversation they revealed that they didn't agree with it and proceeded to list their concerns of its safety. They confided that the project is not safe for their families for reasons explained in the previous chapter including water scarcity, and landslide devastation. In addition, they all shared that the allotment does not provide enough room for their families. Later in the conversation they all expressed that they don't want a house in EPTE. George said "even if we did want a house, we would not get one, because we do not vote for the mayor, so he does not support us." They also shared that they are skeptical of the provisions of the project. Despite its advertisement to be free aside from a $200 initial payment, they feared that they would have to keep paying for the house. George said "I have always had a problem with the project. I tried to fight it because of the noise from cutting the trees when my children were trying to sleep.

But I never got rights. I'm very sad because they came and tore down all the trees. I tried to convince them that it's not safe for anybody. I thought it would be better. No one inspected the land. They tore down the best part of the hill. A better spot could have been chosen. Big destruction of the nature. No more monkeys, birds, no more animals. I don't know when, but the hill will tear it down. Use the town instead, old houses can be replaced, there is space in the town."

George and his friends confided that having to work low wage jobs for long hours from 6 am to 4 pm has made them too tired to practice their love of farming and fishing. They said they wish to have jobs that require less time; however they are lacking the property to do so. George said, "I would love to farm more than anything, but I don't have the property." They shared that they would love to develop a community project to raise pigs and chickens sustainably, in addition to a gardening project to help support a farming lifestyle.

George's lived experience around EPTE demonstrates several key points which I will discuss in greater detail throughout this chapter. Community members undergoing forced removal *from* the construction site, as well as residents that will moving *to* the resettlement site have had no say in the decision-making processes, let alone been aware of the development until the first day of construction. While the previous chapter exposes the environmental risks which threaten families being relocated to EPTE, this chapter will describe the exclusionary practices which have been used to mobilize the top-down state prescribed resettlement. This chapter will describe how tenuous land rights, withheld resources, and misaligned perceptions of poverty have generated conditions used to legitimize the construction of EPTE, in addition to the use of deceitful and coercive tactics and lack of transparency to restrain opposition to the project contributing to conflicting opinions of the project across the community and within singular interviews. By failing

to consider local needs and knowledge systems, EPTE demonstrates a site of environmental racism which I argue deliberately disadvantages Black and Indigenous communities though land dispossession and cultural erasure, while excluding local autonomy from decision making process and inciting destructive land use practices prone to severe socio-ecological repercussions.

Figure 11 Image of George's house encroached by EPTE

2.1 Introducing Environmental Justice

"Broken places and people of color go hand in hand" (Szu, 2020, p 57). Szu mobilizes cross racial comparisons of African Americans and Native Americans to demonstrate racist ideologies of anti-blackness and settler colonialism, explaining that trends linking these populations within precarious environments is a result of racism, capitalism, colonialism, and land theft. Environmental injustices such as pollution exposure, toxic contamination, and environmental

destruction are not accidental, but are entrenched in systems that value some lives more than others as distinguished by race, class, immigration status, or other measures of difference and hierarchy. Bullard (1993) defines environmental racism as "any policy, practice, or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or color. It also uses exclusionary and restrictive practices that limit participation by people of color in decision-making boards, commissions, and regulatory bodies" (p 23). The physical factors of the project listed in the previous chapter, including increased susceptibility to heatwaves, water deficit, and landslides, concurs that EPTE will place Black and Indigenous populations in locations of increased environmental risk, while this chapter will describe the exclusionary practices used throughout its development.

Whyte (2016) defines colonialism as "a system of domination that concerns how one society inflicts burdensome anthropogenic environmental change on another society." More specifically, settler colonialism refers to "a system (or structure) of oppression by which one society settles the territories of another society" (p 5). This involves the oppressing society to exact dominion over the territory according to it's own political and cultural ideals and the cancelation of the Indigenous population and their cultural ties to the ecological conditions. Colonial efforts to eliminate Indigenous peoples have been executed in part through dispossession of land, removal, and the confinement of Indigenous peoples (Denetdale 2008; Whyte 2016), as well as environmental destruction and the rupturing of Indigenous ecological relations and knowledges (Gilio-Whitaker, 2019). Through mechanisms such as the Dawes act of 1887, U.S. settlement contained Indigenous communities in small reservations which allowed expanses of land to be available for terraforming and hydraulic engineering to meet settler desires (Jessee 2022; Whyte 2016). Other forms of containment are prevalent in the damages of capitalist economics such as deforestation, water pollution, the clearing of land for large scale development which disrupt the ecosystems and render

them very different from their original state (Whyte 2016). These actions weaken traditional knowledge systems, adaptive capacities to environmental changes, and the Indigenous people's ability to cultivate and honor the land. By destroying these landscapes and implementing development by ways that the government sees fit, local systems in the Bocas del Toro region suffer from threat of detachment to plants and animals on which their customs and knowledge systems rely, while reducing their adaptive capacities to the effects of climate change. North American Indigenous scholar Iako'tsi:rareh Amanda Lickers (Turtle Clan, Seneca) explains, "If you're destroying and poisoning the things that give us life, the things that shape our identity, the places that we are from and the things that sustain us, then how can you not be poisoning us?" (Coté, 2022, p 15).

2.2 Subsistence Ties

2.2.1 Subsistence Agriculture

One participant in the study is a 33-year-old single mother of 7 children who survives solely by virtue of foraging. She used to be able to gather a bountiful amount of fruit from wild trees, but confided that increasing development from foreign investors has greatly hindered her ability to do so. Her family used to be able to fish from shore, however the recent developers with interest in the coastal front have removed the mangrove trees and replaced them with "houses for white people." Growing up her family also survived off agricultural practices, however over time they have had to use their plot of land to construct housing for the growing family which has replaced the land available for cultivation. To supplement subsistence harvesting she said she would love to have more land for cultivating, but said she will not focus on that because she feels that is not something she can obtain.

This description demonstrates the removal of vital ecosystem resources inherent to cultural practices, and their replacement with settler ideals. Sakakibara (2020) describes the subsistence activities as more than a way of life to meet spiritual, physical, and economic needs of a community, but rather it serves as a practice to "link many generations and the extended family into a complex network of kinship and obligations… subsistence is more than a means of survival; it is a universe that constitutes a complex grid of partnership, obligation, mutual respect, and reciprocity that keeps nature in balance" (p 9). The way settler colonialism differs from colonialism is that it includes both displacement *and* replacement (Coté, 2022). I argue that EPTE is directly intwined with these practices by inciting destructive land use changes that have ruptured the local ecosystem effectively disconnecting relationships to these vital resources, for purpose of constructing resettlement sites aimed to further disconnect and displace Black and Indigenous families from their lands to access more space for economic use. EPTE represents the state incising its own ecologies onto the land dismantling the Indigenous and local ecologies that were already inscribed there, thus undermining the pre-existing relationships which have bolstered the continuance of these communities. Whyte et al. (2018) defines ecologies as "systematic arrangements of humans, nonhuman beings (animals, plants, etc.) and entities (spiritual, inanimate, etc.), and landscapes (climate regions, boreal zones, etc.) that are conceptualized and operate purposefully to facilitate a society's capacity to survive and flourish in a particular landscape and watershed" (p 159). The construction of EPTE has involved terraforming and hydrological changes inscribed by the State onto the Ngäbe people's homelands, severely disrupting their ecologies. Colonial government's attempts to sever these ecological ties through the disconnection of land, culture, and community serves as the key to the process of colonization (Coté 2022). The disruption of the biodiversity which sustains livelihood practices such as fishing and foraging described above poses a threat to Black and Indigenous food sovereignty, which has been defined

as “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems.” (Declaration of Nyéléni, the first global forum on food sovereignty, Mali, 2007).

Another threat to food sovereignty is the limit on agricultural practices that EPTE will place on residents. As described in the background information, Ngäbe people’s lifestyles are strongly connected to cultivation which is inalienable from their culture. According to George “the only way I think to have property, is to farm.” Young (1971) identifies swidden agriculture to be the primary productive activity of Ngäbe which constitutes the foundation for much of their social order, including their dispersed settlement pattern, living ideals, emphasis on household autonomy and reciprocity, the practices of labor and marriage exchange, kinship-based distribution system, and the facilitation of ritual events. Subsistence agriculture is heavily practiced on Bastimentos, especially amongst the Ngäbe who use a widespread polyculture system which incorporates into the natural environment (Figure 12 and 13). Young suggests that a small Ngäbe family needs a minimum five hectares of land for annual subsistence needs. According to the project manager of the development on Bastimentos, each unit in EPTE will provide only .014 hectares. In addition, one interviewee reported that chemicals were sprayed onto the land to prohibit plant growth. I suggest the small and baron allotments of land provided by the project (Figures 14-16) will hinder Black and Indigenous family’s rights to practice traditional ecological cultivation and knowledge systems. This reduction in land quantity and quality needed to practice subsistence needs may induce cultural loss and proletarianization by forcing Ngäbe residents to prioritize wage labor.

Stull et al. (2016) defines environmental apartheid as “The deliberate use of the environment to marginalize racially defined groups, as well as the subsequent consequences of that marginalization” (p 370). For example, in South Africa, even though legal apartheid is concluded,

environmental apartheid continues to oppress Black South Africans, delivering devastating consequences for their health, livelihoods, and ecosystems. Stull et al. explains that the term Apartheid in Afrikaans means "separateness" which is built on racial hierarchies that enforce economic and political inequities though the use of space and can be seen in other settings of racial hierarchy with economic and political incentives. Under the Native lands Act of 1913, tribal authorities were granted seven percent of lands as reserves in South Africa. However, these reserves were spaces that the government deemed not suitable for white settler use (Stull et al. 2016). The allotment of these lands that were too dry to practice sustainable agricultural needs, causing struggle across Black South Africans to safeguard their lifestyles, a devised scheme to promote their compliance work low-wage jobs for White-owned farms, mines, factories, and homes. The idea of organized separateness is demonstrated by the subdivisions devised by EPTE observed on Isla Colón and Isla Bastimentos, consisting of allotments placed inland away from the coastal towns in which families are currently living. Regarding the placement of the project, one correspondent replied:

> It's a problem. It brings "help", but it's gonna be a pain in the ass later down the road. It will be dangerous for the people living there. It was a swamp, no one was gonna use it.

The point that the land was deemed unsuitable for uses other than a state determined relocation site has striking resemblance to the allotment of lands in South Africa in 1913. I argue that stripping residents of their knowledge systems, land stewardship, and sovereignty, while using deceitful tactics to promote complacence to the relocation- which I will describe later in this chapter- will promote their compliance to work low-wage jobs, and threaten local and traditional cultural survival and knowledge practices.

Figures 12 and 13 Horse and cow grazing in vegetated pastures

Figures 14 and 15 images of space and quality of land in EPTE

Figure 16 Participant demonstrating soil health

2.2.2 Coastal Dependency

As removal *of* natural resources poses as a threat to food sovereignty, so too does the removal of people *from* these natural resources. Studies conducted over the last century exemplify that forced migration for development or land conservation due to social political phenomena is correlated with a host of deleterious outcomes such as community fragmentation, social disarticulation, impoverishment, increased homelessness, and increased landlessness, health risks, and loss of traditional skills (Maldonado et al. 2014; Marino 2012). Many interviewees reported strong livelihood ties and knowledge systems centered around the coastal environment which they rely on to catch finfish, lobster, and octopus, as well as for many recreational and transportation purposes. The quotes and figures (17-20) below indicate how EPTE's displacement of families from their coastal homes and their relocation further inland will disrupt their culturally significant ties to the coastal environment where livelihood practices are heavily centered around fishing for food and income:

> "There's a lot of people who will be missing the water. A lot of people fish here. Some for work, some for food."
>
> "Here everyone live off the ocean, here everyone. That's what we work after. Fishing, tours, diving. We use it more to survive. To swim, to surf. We use everything here."
>
> "The whole town live off the ocean. They use it for transportation, fishing, diving, snorkel, many things."

I suggest that relocating residents whose lives are sustained by coastal relationships is likely to expose them to significant lifestyle changes which can illicit adverse impacts to their knowledge systems and community wellbeing.

Figure 17 Children playing in the town of Bastimentos

Figure 18 Tour boats on dock in town of Bastimentos

Figure 19 Sea view of Bastimentos

Figure 20 Man walking to his boat

2.3 Tactics Used to Mobilize EPTE

2.3.1 Privation

Tentative and conflicting support for the project seemed highly based on tenuous land rights and the denial of support and resources from state and local governance. Because of the government's neglect to provide basic services, on top of ambiguous and tenuous land rights as described in the background information, the promised provisions of EPTE advertise a glimmer of hope, as promoted in the name, for some form of government assistance. One woman who adamantly opposed EPTE still applied for a house within the project. She said "I'm a single mother, I'm Panamanian, I have rights, so I applied. I don't own a house." The following quotes illustrate similar experiences:

> "I have two kids, a wife, and myself living together in one room. I hope to move there to have my own house, but I don't know anything about it."
> "[EPTE] came to help a few families. Not help completely but it helps a percentage. 85 houses, 85 families. I think it came in a positive way. It's helping because the majority of people live in big families, have kids, have kids, have kids."
> "There are more citizens living on the island that don't have a house. That project will help make our generation bigger, and give more place to stay."
> "A lot of people don't have house so the government give them that."
> "I would love to get a house, my mom built this house for me, but I would like my own…but we are excluded from the project. We get no help from the mayor for anything. I would like a house there because I have three kids. The government doesn't come this way to see if we need anything. They offer no help to us, [the mayor] never comes this way.
> "We are happy to move there because we never had a house. It is the one hope for this family. I have a job but the pay is not good, it makes only a very small amount of money for this family. The government is helping because the house is totally free."

An interview with a Ngäbe man with 7 children reported that he has constructed his home on the property in which he lives, however he does not have legal documentation to his land rights. He has enrolled in housing in EPTE, but he said "I don't want to abandon this place." Ideally, he said he would love to get support from the government to help him build for his family. Despite asking for assistance the only help he has received is a house in EPTE. In addition, he said he would love

to acquire more land for agriculture but has been unable to since all the land has been sold. The descriptions listed above indicate that rather than EPTE directly fitting community needs, tentative participation in the project has been garnered from tenuous land rights, placing resident in precarious situations causing them to resort to the top-down prescribed assistance.

2.3.2 Coercion

Interviews also revealed that deliberately violent fear tactics were used to restrict opposition to the project. Prior to understanding the contentious nature of the EPTE and the severity of its repercussions, interviewees were openly asked their opinions of EPTE. The first respondent in the study said "It is political stuff, I don't want to talk about it." He returned my question by quizzically asking what *my* opinion of the matter was, to which I responded that I knew little of it and was aiming to gather the resident's opinions. He agreed to speak with me, while cautiously keeping an eye on our surroundings and continued in a very low voice. He explained that the project is aimed to benefit people who don't have land which has become very expensive. "Every piece of land has an owner now. They have sold it all." He shared that he thinks the project is better for him, because he is living with his sister and a lot of people in one house. He said 'It's better than now" due to rent being too expensive for him at $100/month. "For me it is better, but I don't know how it will be later, what the intentions of the government will be later. I have fear about the intentions later."

This conversation highlights several reoccurring themes throughout the study. For those that were in support of the project, participant's opinions seemed to be either garnered from the government's neglect of assisting basic community needs as shown above, or from political fear tactics, as the following quotes will convey. Given these privations, some correspondents were in support of the advertised aid posed by the government. The Ngäbe respondents who agreed with

the project seemed to do so tentatively or gave conflicting answers, while others selected not to engage in the interview. One woman responded "There are many problems, but I don't want to talk about them." Another said "I don't have words for it, it's from the central government." Building more trust with interviewees could have relaxed the situation to welcome more in-depth viewpoints, but also conducting interviews outside of the town to evade the threat of potential onlookers also invited more open and honest insights. Many responses approving the development appeared fastened to an overarching fear mongering scheme rather than being reflective of individual opinions. Correspondents who openly opposed the project highlight these intimidation tactics as follows. When asking a woman on her opinion of EPTE, she responded:

> "Wow!" She paused. "I don't want to give my opinion on that. I don't like it. I don't want to get in the mess….I doubt you can find one person who is against it. If someone is against it, they are not going to tell you, because the mayor runs this town. Only me against it."

Further interviews revealed that she was not alone with this opinion, as more people spoke against the issue. Although EPTE is statewide plan implemented by the central government, many interviewees placed blame on the local government. Another woman presents her opinions of the political motivations and procedures around the development as shown below:

> "The mayor is not good. He wants to convert this community into a district to get more money. He wants to steal money and he's paying off his favors…He's buying favors so that new people come here to support him…he gives properties to many people here by steeling properties in the name of the community." [The mayor] would like to intimidate people. He has a group of bad people here."

A young man who I will refer to as Gabriel was living in a house next to the construction site when the project commenced in 2019. He recounts the hardships he encountered in his attempts to confront the development.

> "When they started they just come with a bunch of machines and they never said they were gonna do that project. They just said they were looking for a pathway. The community never knew what was going on until the first problem."

Gabriel explained that after standing in defiance, 20 people came to his house and said "we are working for [the mayor], and explained that one tried to fight him. Gabriel said:

> "They told me nothing about the project. The mayor said that if I didn't move he would pass the machines over me. I asked 'where is God?'"

Following this instance Gabriel said he was forced to pay a two-hundred dollar bill for disrespect against the government. He said "Two-hundred dollars in ten days or I go to jail." During the start of construction Gabriel left for a few days, and returned to his home where twenty of his chickens were killed, all his cacao trees were cut down, and his water supply was cut from reaching his house, but he managed to find another line. He said that "No one did nothin' about it." Gabriel further explains:

> "[The mayor] put all the people against me. He put me in the paper that I was stopping the benefits for the whole community. Everybody come to my house to protest. The girl from the office said I need to be careful. 'I tried to help you.' She said."

Regarding the communities' perceptions of the mayor, Gabriel said "they scared of him. They never express how they feel. He's not a good person…he use them like slaves." This is comparable to Visser's (2021) recount of Ngäbe opposition to the project on the neighboring Isla Colón, where resident's resistance to the planned relocation was de-rationalized as unwillingness to cooperate. Asserting opposition as uncooperativeness to something claimed to be beneficial is a form of pathologisation which aims to de-legitimize or pathologize resistance (Theodossopoulos, 2014; Visser, 2021). I suggest that Gabriel's experience exemplifies an even more extreme case of these destructive strategies which acted to villainize him for his defense of his home. These violent acts demonstrate that the penalties for speaking against the project have served as effective and devastating tools to restrain community opposition to the project while silencing the voices of effected community members.

2.3.3 Lack of Transparency

2.3.3.1 Financial Cost of Living

Another barrier to community engagement has been the government's failure to provide residents with clear, comprehensive, and consistent information on the costs of living within the project. Although EPTE is advertised as an altruistic endeavor aimed to provide housing for families in need, mixed results on the reported cost of a house in the project varied across participants. This suggests that misleading information and lack of transparency is being used to promote community advocacy for the development. When interviewing the lead construction worker on the details of the project he said:

> "It's for social interests. Pay two-hundred dollars at first. Persons who don't have property can get their own property. Nowhere in the world will you have a house for two-hundred dollars. Single mothers, full families moving in… No problem. Everyone here is in love with the project. Everyone supports the idea of getting a free house. The government is doing an excellent job making true the project. People here don't have the facility to buy a house, buy property, build a house. The government make it free for you."

Most interviewees reported similar answers that the cost of the entire living arrangement is two-hundred dollars which is used to secure a house in the project. This initial payment is believed by most residents to account for the full extent of any related expenses, however one man reported having to pay four-hundred to secure a house. Another man reported that the project is "good if they can pay for it" explaining that families entering the contract will be charged $50,000 in credit.

Visser (2021) also reports limited and inconsistent details provided by the state regarding the costs of the relocation on Isla Colón. Visser's study reveals that residents in La Solución were initially informed that allotments in EPTE was free of charge. The prospect of a "free house" garnered support across community members, however they later learned that they were required to purchase the house with a mortgage of around $30,000, and if they were unable to do so they

would have to pay a monthly or bi-weekly fee. Several respondents in Visser's study confided that they signed paperwork that affirmed their consent to the relocation project, without being aware of the criteria they were signing. Visser's report combined with the results of this study indicate that EPTE avoids providing residents with clear and comprehensive information about the details of their relocation, suggesting that coercive and deceitful tactics are being implemented to limit community autonomy and facilitate the resettlement process. If residents are at risk of being coerced and deceitfully led into affirming their participation in the project, and if the cost is not free as advertised and requires a mortgage, residents will not have the financial means to purchase the house. In addition to stripping them of their coastal and agricultural livelihoods, I argue that that EPTE may serve as a devised scheme to instill their compliance to work low-wage jobs in support of the settler economy resulting in proletarianization similar to the repercussions of the Native lands Act of 1913 as witnessed in South Africa. Alternatively, if allotments in EPTE are indeed free, one woman reported that this can still come with harmful repercussions.

> "People living there is free. We need work for survival. To make a house, to build a community. The government says 'I put a house for you and you won't pay for it.' I have a business, I'm working, that is empowering. If you pay $200 and wait for the government to pay the rest, knowledge is lost."

This point demonstrates the importance of safeguarding local knowledge systems and bolstering community autonomy. Regardless of houses being free or not, community members need to be fully informed and involved throughout the full spectrum of the decision-making process so that they can openly voice their opinions without oppression from fear or lack of awareness.

2.3.3.2 Reasons for Relocation

The majority of Ngäbe residents in this study have constructed their homes with their own knowledge and labor, using wood, corrugated metal, and plant materials. Although there have been

various advertised motives for the resettlement project, the following quotes provided by the lead construction worker on the project, as well as a local government employee demonstrate one rationality is to provide "better" housing for the Ngäbe people living in and around the village:

> "Indigenous people living in the community never had a real house so it help that class of people. A better quality of life for a few of them. Something developed the right way. It can be concrete. They are used to just living in places with natural roof. More like real houses now with water, electricity, concrete roads."
> "Is excellent for the locals. For the better conditions of the local people who live here. Different because they are cement, not wood. There will be water, treatment plant, not sea front…. Conditions is totally different. It's going to be like living in a city….it's totally different than what has been seen before."

By categorizing Ngäbe ways of living as underdeveloped, these statements illustrate the disregard for Indigenous customs while delegitimizing their cultural practices to fabricate the need to relocate Ngäbe families through the imposition of colonial ideals and standards. The premises of EPTE seem to vary across communities and ethnic groups. While the project announces providing Ngäbe residents with higher living standards, Afro-Panamanian residents were told the project aims to offer additional housing. On the neighboring island, Isla Colón, the reason for resettlement was based on La Solución being an unhealthy and unattractive neighborhood, by which the ministry of housing would correct by providing better, safer, and more dignified arrangements. Although the Ngäbe are reported to be the poorest ethnic group in Panamá (Jaén 2001), Visser (2020) suggests that the Ngäbe do not always consider their living conditions to be poor, and that labeling them as such can cause adverse impacts. The state's characterization of La Solución did not correspond with resident's perceptions, and labels such as "precarious" or "inadequate" undermines the Ngäbe resident's achievements and values around establishing a home (Visser 2021).

For the Bocas del Toro region, the ministry of housing's methods of selecting inland locations as resettlement sites has not been attributed to climate adaptation measures to combat sea-level rise.

However, a recent CBS report released on April 22, 2023 announced that one-thousand Guna Yala tribe members are being forced to relocate from their island home of Cardi Sugdub, which the tribe fled to hundreds of years ago to escape Spanish colonization and the Panamanian government. Now due to sea-level rise, the community is undergoing one of the largest climate change migrations in modern history. CBS news reports "There is a place for the tribe to relocate to, but it's a stark, cookie-cutter subdivision with rows of houses that could not be more different than life on Cardi Sugdub." The referenced area is another EPTE development site which is being built on tribal lands. The same colonial pressures which have forced the Guna Yala from their homelands are the same pressures which have created their vulnerabilities to anthropogenic induced climate change that they are experiencing now. As the Guna Yala tribe once fled to the island to escape colonial imposition, they are being forced once again to retreat by design of managed resettlement which has stripped them from their rights of self-determination. Implementing EPTE on Guna Yana's mainland territory without community involvement further threatens their adaptive capacity and may place them in further dangerous conditions as shown by the findings of this study focused on Bastimentos. According to the CBS reporter and the lead of the Ministry of Housing, "there is no other way."

The identical state implemented project which targets Black and Indigenous communities across Panamá demonstrates that EPTE adjusts its motives for development to legitimize resettlement processes, while prescribing the same treatment across communities. The following segment will argue that EPTE is not "the only way" to assist communities. Instead, more focus can be given to the unequal power relations that create and amplify condition of poverty, while highlighting the necessity of community involvement, values, and knowledge in decision making processes to secure local Black and Indigenous identity, sovereignty, and dignity, while better serving community needs.

2.4 Community Engagement

Chief Parfait-Dardar of the Grand Caillou/Dulac Band of Biloxi- Chitimacha-Choctaw Tribe says, “The only people who should be managing a retreat, if that is what they so choose, is the community and they should be in charge of the terminology and ways of thinking about their resettlement." (Jessee, 2022: 280) Indigenous leaders have denounced “managed retreat” as an intrinsically top-down continuation of the colonial systems which devastated ecosystems in the first place. For example, Jessee describes how lifeways, knowledges, relations, and initiatives have been disrupted by the State of Louisiana’s Isle de Jean Charles resettlement initiated under climate change threats. He describes this planned retreat as a colonial adaption measure which decontextualizes the resettlement from "an act of cultural survival" to a scalable model which reproduces “a frontier dynamic whereby colonial and capitalist futures are once again rested upon the erasure of Indigenous peoples” (p. 4). I argue that EPTE has used decontextualization as a colonial strategy to facilitate managed retreat by advertising the relocation as a social initiative while overlooking community knowledge, needs, and values. In doing so, the managed resettlement serves as a platform for extraction, assimilation, and removal in disguise. While it is beyond the scope of this study to assert the government’s intentions behind displacement, perceptions of community members are surfaced to indicate the needs that are being overlooked and possibly exacerbated by the project.

Maori scholar Linda Tuhiwai Smith says, “It angers us when practices…are still employed to deny the validity of Indigenous people’s claims to existence, to land and territories, to the right of self-determination, to the survival of our languages and forms of cultural knowledge, to our natural resources and systems for living within our environments” (Coté, 2022, p. 6). This study contends

that EPTE has restricted self-determination by prescribing a managed retreat which threatens Black and Indigenous claims to territory, and associated cultural knowledge systems. The results below offer alternative measures that could be taken to better serve the targeted communities over a planned retreat. One resident replied, "There are different ways to help people here that doesn't break the nature." Other residents felt similarly and reported that rather than relocating people, greater efforts could be invested into pre-existing neighborhoods, as shown below:

> "I think that having the houses for people is good, but that's not the way to do it. For [the mayor] is perfect."
>
> "[The mayor] is just focusing on the project and not the town. [EPTE] have separate water, but not reservation of water for the entire community."
>
> "A better spot could have been chosen…I don't know when, but the hill will tear [EPTE] down. Use the town instead, old houses can be replaced, there is space in the town."
>
> "A lot of houses here are falling down. Maintain this town. But instead [the mayor] destroy everything. When working with the community it should not be like that. Invest in the community instead of destroying the nature for no reason. Improve current conditions. **Why you do that when you have issues here? He create more problems**."

Others asked for materials that would allow them to make improvements to their own homes which they have already build by hand:

> "The only thing I wish for is material from the government. No help form anyone. No boat if someone feels sick. No help form government, or anybody.
>
> "I'm always waiting for help, working for five kids is not enough. Just have a roof. I would love help form the government, from anyone, to support."

These quotes illustrate that rather than providing alternative housing, community members may benefit more from solutions that assist their current living conditions in ways that provide their own decision-making skills and local autonomy.

According to Thampy (2018) “The systematic hacking off of their subsistence base through dispossession of their lands in the name of economic development has led to widespread ghettoization and proletarianization” (p 69). Results of this study suggest a similar point that by creating additional housing without tending to conditions within the current community, some residents confided that they think it will only worsen existing problems in addition to introducing more:

> “[EPTE] will bring more vandalism and delinquents. Many people want to come here.”
> “For me, it’s ghetto. I don’t imagine people planting nothing. I imagine destruction between peoples. I don’t wish it but I imagine. That’s my experience in other similar projects. Loud music. Fighting. Not cute, not easy, not nice. No work there. Extreme poor. Ghetto lifestyle.

These quotes suggest that introducing crowded urban living conditions as seen in EPTE may increase the chance of community erosion.

As stated earlier, due to the fear-based responses regarding community perceptions of EPTE I found it more revealing of community needs to avoid asking about the project directly and alternatively inquire what they felt was most needed in Bastimentos. Despite EPTE’s claim as a social initiative to address community needs, the need for additional housing was not reported by any residents as a problem. Even though tenuous land rights pose serious threats to the community which I argue is used as leverage to implement the project, land rights were more conversation matters and were not reported directly as tangible issues. As reported in Chapter one, water deficit is the most pressing reported issue that the community faces, which is expected to increase in severity based on climate change projections. The other primary community concern was educational needs. One mother reported that having a school for her kids was her greatest concern, as well as having projects for the children including guitar lessons, and medicinal plant education. The quotes below from other respondents demonstrate similar notions:

> "Next to water, education is first. I will tell you something sad. The mayor built a church when kids at school don't have a library, toilets, don't have water. It's so sad when people don't see the reality of what's going on."
> "A place for the children to play, we don't have that."
> "The school is important for the children. It's important to have somewhere for the children to relax, play ball."
> "More work, food, and education for the children. The school doesn't have a library, or food in the cafeteria. Right now it's not sufficient."

After listing her struggles with food security and education concerns, when asked about EPTE, one mother replied "I prefer they support what we have here. I am happy here." This suggests that primary topics of concern in Bastimentos can best be ameliorated by directing focus to the communities current living conditions, rather than implementing a managed retreat disguised as an act of philanthropy. Although respondents have identified many pressing needs within their town, results of this study indicate that EPTE as a top-down procedural method will fail to address these concerns despite its advertisement as a social initiative. I argue that EPTE uses these vulnerabilities to mobilize and legitimize the need for the resettlement process, while using destructive land use practices that will perpetuate existing issues. Adopting a grassroots perspective, which allows action to initiate at the local level, would ensure community wellbeing for the town of Bastimentos, as well as other towns across Panamá confronted by EPTE. Ensuring land rights and providing resources that allow residents to develop their own solutions, based on their culture and knowledge, would lead to better socio-ecological outcomes in Bastimentos.

Conclusion

This study investigated perceptions of the state planned relocation pursuit 'El Proyecto Techos de Esperanza' of residents living near the project, those displaced by the project's construction, and those subject to moving to the resettlement site on Isla Bastimentos, Panamá. While this paper has discussed some of the disadvantages Bastimentos faces portraying the susceptibility of Black and Indigenous people in the community, I would like to acknowledge that Bastimentos exists outside

of this narrative and hosts a biological and culturally rich, diverse, and resilient landscape inherent to Afro-Panamanian and Ngäbe people's livelihoods. Therefore, it is crucial to also acknowledge the emergence of EPTE and the impacts it may have on this community's environment, ecosystems, and cultures. Although EPTE is promoted to provide underserved communities with more dignified housing, the findings of this study suggest that poor land management which has neglected community input, knowledge, and needs will disadvantage Black and Indigenous families projected to relocate to the EPTE site from their coastal towns. These families will be exposed to hazardous environmental conditions amplified by climate change such as water scarcity, heatwaves, and landslides. The project will harm significant cultural and subsistence ties and hinder Black and Indigenous adaptive capacities to climate change. Using privation to fabricate the need for a resettlement process, and coercion and deceitful tactics to suppress opposition, EPTE mobilizes destructive practices which threaten both cultural and biological diversity. Ensuring security to land rights and providing resources that allow residents to develop their own solutions can better fit the needs of the socio-ecological system. Assistance from NGOs and media coverage may further help surface these issues. While this study solely examines the development in Bastimentos, it perhaps can provide a lens for the procedures associated with EPTE occurring across Panamá. Despite the continuation of colonial power structures working to contain communities, resilience is immersed in the cultures and ecosystems of Bastimentos. Decisions should be centered in the sovereignty and self-determination rights of Black and Indigenous people.

Recommendations

The results of this study indicate that the pursuits of the Panamanian government via EPTE are deliberate. Surfacing the lived experiences of nearby communities and forecasting the projected

impacts through photographs, reports, and interviews to gain media attention can pressure the Panamanian government to correct their procedures. Additionally, local NGOs can help engage with targeted communities to communicate their rights and attempt to unearth information on the project's parameters to increase transparency. NGOs can also consider providing resources such as building materials for families as alternatives to moving to the project and focus on land rights to help secure stable living conditions for families threatened by tenuous land rights. While this study primarily focuses on developments on Isla Bastimentos, EPTE is a large-scale event occurring across Panamá. The results of this case study demonstrate the socioecological repercussions faced by one community, which can shed light on the governance behind the initiative to suggest possible state-wide outcomes. Greater attention to the experiences of other communities affected by EPTE can help surface the injustices of the project.

Figure 21 Youth of Bastimentos playing

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References:

Baccini, A., Walker, W., Carvalho, L., Farina, M., Sulla-Menashe, D., & Houghton, R. A. (2017). Tropical forests are a net carbon source based on aboveground measurements of gain and loss. *Science*, *358*(6360), 230-234.

Barnes, K. B., Morgan, J., & Roberge, M. (2001). Impervious surfaces and the quality of natural and built environments. *Baltimore: Department of Geography and Environmental Planning, Towson University*.

Bullard, R. D. (Ed.). (1993). *Confronting environmental racism: Voices from the grassroots*. South End Press.

CBS News report. April 22, 2023. *Climate change threatens to relocate residents of Panamanian Island.* [Video]. CBS News. https://www.cbs.com/shows/video/F4boW1rxWH1aWR3Avq4chftuQ3RqGpVB/

Cheng Y (2003) Current situation and developments of landslide study in China in recent twenty years. J Geol Hazards Environ Preserv 04:1–5

Christopherson, R. W. 2001. Elemental Geosystems. 3rd ed. Upper Saddle River, NJ: Prentice-Hall.

Christoplos, I. (2010). Understanding climate change adaptation: lessons from community-based approaches.

Cooke, R. 1982, "Los Guaymíes si Tienen Historia" in *El Pueblo Guaymí y su Futuro*, eds. CEASPA & Comite Patrocinador del "Foro sobre el pueblo Guaymi y sy futuro", Centro de Estudios y Accion Social Panama (CEASPA).

Coté, C. (2022). *A drum in one hand, a Sockeye in the other: Stories of indigenous food sovereignty from the northwest coast*. University of Washington Press.

Coutts, A. M., Tapper, N. J., Beringer, J., Loughnan, M., & Demuzere, M. (2013). Watering our cities: The capacity for Water Sensitive Urban Design to support urban cooling and improve human thermal comfort in the Australian context. *Progress in physical geography*, *37*(1), 2-28.

Democracy, R. (2006). ATLNTI OCEA> NATIONALISM IN PANAMA'. *Ethnology*, *45*(3), 209-228.

Denetdale, J. (2008). New Indians, Old Wars. *Wicazo Sa Review*, *23*(2), 105-107.

Finley-Brook, M., & Thomas, C. (2010). Treatment of displaced indigenous populations in two large hydro projects in Panama. *Water Alternatives*, *3*(2), 269.

Funk, J. M., Aguilar-Amuchastegui, N., Baldwin-Cantello, W., Busch, J., Chuvasov, E., Evans, T., ... & van der Hoff, R. J. (2019). Securing the climate benefits of stable forests. *Climate Policy*, *19*(7), 845-860.

Gariano, S. L., & Guzzetti, F. (2016). Landslides in a changing climate. *Earth-Science Reviews*, *162*, 227-252.

Gilio-Whitaker, D. (2019). *As long as grass grows: The Indigenous fight for environmental justice, from colonization to Standing Rock*. Beacon Press.

Glade, T. (2003). Landslide occurrence as a response to land use change: a review of evidence from New Zealand. *Catena*, *51*(3-4), 297-314.

Guerrón Montero, C. 2006, "Tourism and Afro-Antillean Identity in Panama", *Journal of Tourism and Cultural Change,* vol. 4, no. 2, pp. 65-84.

Guerrón Montero, C. 2011, "On Tourism and the Constructions of 'Paradise Islands' in Central America and the Caribbean", *Bulletin of Latin American Research,* vol. 30, no. 1, pp. 21-34.

Hugo, G. (2011). Future demographic change and its interactions with migration and climate change. *Global Environmental Change*, *21*, S21-S33.

IPCC, 2022: Summary for Policymakers [H.-O.Pörtner, D.C.Roberts, E.S.Poloczanska, K.Mintenbeck, M.Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. In: *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, UK and New York, NY, USA, pp. 3–33, doi:10.1017/9781009325844.001.

Jaén C. B. 2001. *Plan estratégico para el desarrollo de la Comarca Ngóbe-Buglé : sistematización y análisis de la información : aspectos legales, institucionales, políticos, organizativos, sociales y económicos de la Comarca Ngóbe-Buglé,* Proyecto Agroforestal Ngöbe, San Félix, Chiriquí.

Jessee, N. (2022). Reshaping Louisiana's coastal frontier: managed retreat as colonial decontextualization. *Journal of Political Ecology*, *29*(1), 277-301.

Lux, J. (2018). Expanding Ngäbe linkages: The Case of the Chan-75 Hydroelectric Project in Bocas del Toro, Panama. In D. Suman, and A. Spalding (Eds.), *Coastal Resources of Bocas del Toro, Panama: Tourism and Development Pressures and the Quest for Sustainability.* (pp. 76-104). University of Miami.

Mackey, B., Kormos, C. F., Keith, H., Moomaw, W. R., Houghton, R. A., Mittermeier, R. A., ... & Hugh, S. (2020). Understanding the importance of primary tropical forest protection as a mitigation strategy. *Mitigation and adaptation strategies for global change*, *25*(5), 763-787.

Maldonado, J. K., Shearer, C., Bronen, R., Peterson, K., & Lazrus, H. (2014). The impact of climate change on tribal communities in the US: displacement, relocation, and human rights. *Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions*, 93-106.

Marino, E. (2012). The long history of environmental migration: Assessing vulnerability construction and obstacles to successful relocation in Shishmaref, Alaska. *Global environmental change*, *22*(2), 374-381.

Mayhem, C. & Jordan, O. 2010, *Panama is in Breach of its Obligations to Indigenous Peoples under the Convention on the Elimination of All Forms of Racial Discrimination*, A shadow report respectfully submitted to the United Nations Committee on the Elimination of Racial Discrimination On the occasion of its consideration of the 15th to 20th Periodic Reports of Panama, Alianza para la Conservación y el Desarrollo, Panama.

McKenzie, P. D. (2019). The Place in Displacement: Stories of Loss from the Chan-75 Dam.

Miviot 2023, Proyecto Techos de Esperanza [Homepage of Ministerio de Vivienda y Ordenamiento Terrretorial], [online]. Available: https://www.miviot.gob.pa/proyecto-techos-de-esperanza/ [Accessed June, 22, 2022].

Mollett, S. (2022). Racial Geographies of Land and Domestic Service in Panama. *Annals of the American Association of Geographers*, 1-16.

O'Brien, K. L., & Leichenko, R. M. (2000). Double exposure: assessing the impacts of climate change within the context of economic globalization. *Global environmental change*, *10*(3), 221-232.

O'Brien, K. L., & Leichenko, R. M. (2009). Global environmental change, equity, and human security. *Global environmental change and human security*, 157-176.

Preston, Christopher J. "Solar Radiation Management and Vulnerable Populations: The Moral Deficit and Its Prospects " *Engineering the Climate: The Ethics of Solar*

Radiation Management. Ed. Preston, Christopher J. Lanham, Md.: Lexington Books, 2012. 77-95. Print.

Sakakibara, C. (2020). *Whale snow: Iñupiat, climate change, and multispecies resilience in arctic Alaska*. University of Arizona Press.

Spalding, A.K. 2013, "Lifestyle Migration to Bocas del Toro, Panama: Exploring Migration Strategies and Introducing Local Implications of the Search for Paradise", *International Review of Social Research,* vol. 3, no. 1, pp. 67-86.

Spalding, A. K. 2017. Exploring the evolution of land tenure and land use change in Panama: Linking land policy with development outcomes. Land Use Policy 61:543–52. doi: 10.1016/j.landusepol.2016.11.023.

Spalding A. K. (2018). *Re-Making Lives Abroad: Lifestyle migration and Socio-Environmental Change in Bocas del Toro, Panama.* In D. Suman, and A. Spalding (Eds.), *Coastal Resources of Bocas del Toro, Panama: Tourism and Development Pressures and the Quest for Sustainability.* (pp. 31-43). University of Miami.

Stull, V., Bell, M. M., & Ncwadi, M. (2016). Environmental apartheid: Eco-health and rural marginalization in South Africa. *Journal of rural studies*, *47*, 369-380.

Sze, J. (2020). *Environmental justice in a moment of danger*(Vol. 11). University of California Press.

Thampy, G. S. 2018, Tourism, Land Conflicts, and the Ngäbe in Bocas del Toro, Panama. In D. Suman, and A. Spalding (Eds.), *Coastal Resources of Bocas del Toro, Panama: Tourism and Development Pressures and the Quest for Sustainability.* (pp. 44-75). University of Miami.

Theodossopoulos, D. 2014, "On De-Pathologizing Resistance", *History and Anthropology*, vol. 25, no. 4, pp. 415-430.

U.S. Food Sovereignty Alliance. Food Sovereignty. [Homepage] Available through: http://usfoodsovereigntyalliance.org/what-is-food-sovereignty/#:~:text=“Food%20sovereignty%20is%20the%20right,own%20food%20and%20agriculture%20systems. [Accessed June 22, 2022]

Visser, D. B. (2021). *" We Are Fine Here": Ngäbe Perspectives on Urban Living, Poverty, and Well-Being in Bocas Del Toro, Panama*. University of Kent (United Kingdom).

Wang, L., Li, W., & Li, H. (2020). Decision-making for ecological landslide prevention in tropical rainforests. *Natural Hazards*, *103*, 985-1008.

Whyte, K. P. (2016). Is it colonial déjà vu? Indigenous peoples and climate injustice. In *Humanities for the Environment* (pp. 102-119). Routledge.

Whyte, K., Caldwell, C., & Schaefer, M. (2018). Indigenous lessons about sustainability are not just for "all humanity.". *Sustainability: Approaches to environmental justice and social power*, *149*.

World Bank. 2009. Inspection panel report and recommenda- tion: Panama Land Administration Project. 49004-PA. Washington, DC: World Bank. https://documents. worldbank.org/pt/publication/documents-reports/documentdetail.

Young, P.D. 1971, *Ngawbe: Tradition and Change among the Western Guaymí of Panama,* University of Illinois Press, Urbana.