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Navigating the Paradox of Resilience:
Colonial Legacies, Climate Change, and Hurricanes in Puerto Rico

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Navigating the Paradox of Resilience: Colonial Legacies, Climate Change, and Hurricanes in
Puerto Rico

A THESIS APPROVED FOR THE
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Abstract

Vulnerability is a significant concept in disaster studies because reducing vulnerability is one of the main opportunities for reducing disaster risk and impact. However, the nature of vulnerability is constantly changing and the processes that influence vulnerability are dynamic and rooted in varying conditions. Puerto Rico has remained on the most topmost vulnerable islands to extreme weather events, according to the Global Climate Risk Index, for two consecutive decades. Puerto Rico's vulnerability does not only come from its geographical location. The island nation has a history of harm and unjust caused by colonialism and its continuation, which was unveiled even further by Hurricane Maria of 2017. However, even though coloniality is a recognizable factor, it does not show the full extent to why Puerto Rico has remained vulnerable. The missing component is a framework of disaster resilience, which enhances the explanations of Puerto Rico's vulnerability by exhibiting the additional dangers of framing disaster risk and adaptation as a responsibility by the community. Engaging with a more recent narrative is necessary for a more comprehensive understanding of Puerto Rico's vulnerability to climate change.

Keywords: disaster resilience, disaster capitalism, disaster colonialism, coloniality, Puerto Rico.

Introduction

The hurricane season of 2017 was one of the deadliest for the Caribbean island of Puerto Rico. In early September 2017, Hurricane Irma struck Puerto Rico, and two weeks later, Hurricane Maria made landfall in the Puerto Rican municipality of Yabucoa.¹ The latter hurricane quickly set foot in historical records as one of the worst natural disasters to affect the region in U.S. history.² According to the National Oceanic and Atmospheric Administration's National Centers for Environmental Information (NCEI), in consultation with the National Hurricane Center (NHC), Hurricane Maria is the third costliest storm on record, with more than \$90 billion in destroyed property, as found in the NOAA memorandum *The Deadliest, Costliest and Most Intense U.S. Tropical Cyclones*.³

To Puerto Rico, Hurricane Maria, a category 4 hurricane, caused immediate loss of electricity, cell service, damage to roads and buildings, and other critical infrastructures such as water supplies and medical facilities.⁴ However, hurricanes are no novelty to Puerto Ricans. A hurricane, by definition, is a type of tropical cyclone, and Puerto Rico's location in the heart of hurricane territory has shown a long history with tropical storms. Puerto Rico, located between the Caribbean Sea and the North Atlantic Ocean, facilitates favorable climatic conditions that subject the island to frequent and severe impacts from hurricanes.⁵ Hurricane Maria, the most

¹ Agrelo, Justin. "5 ways Puerto Rico is still struggling to recover from Hurricane Maria." *Grist*. August 29, 2019.

² "U.S. history" is used here because Puerto Rico has been an island territory of the United States since 1898. Although Puerto Rico was officially granted commonwealth status in 1952, I will refer to the island as a territory or a colony of the United States to tie into my arguments of disaster colonialism and disaster capitalism affecting the island's vulnerability to hurricanes; Branigan, A. "Puerto Rico's Death Toll on Par with 9/11 Tourist Attack." *The Root*. August, 2018; Schwartz, E. "Quick Facts: Hurricane Maria's effect on Puerto Rico." Mercy Corps. January, 2018.

³ "Puerto Rico particularly vulnerable to climate change, research suggests." *Stormwater Report*. June 21, 2021.

⁴ Schwartz, E. "Quick Facts: Hurricane Maria's effect on Puerto Rico." Mercy Corps. January, 2018.

⁵ Ramos-Scharrón, Carlos. "A Catalogue of Tropical Cyclone Induced Instantaneous Peak Flows Recorded in Puerto Rico and a Comparison with the World's Maxima." The University of Texas at Austin. May 21, 2021.

recent deadliest hurricane for Puerto Ricans, plunged its 3.4 million residents into a desperate humanitarian crisis. When the debris of Hurricane Maria settled, the storm unveiled a history of vulnerability and structural neglect.

My thesis is guided by the curiosity to explore the causes of Puerto Rican vulnerability to hurricanes. *Vulnerability* is “the characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard.”⁶ *Vulnerability* is a complex concept that broadly concerns susceptibility to harm, the environmental and social conditions that limit the capacity to cope with the impact of disasters, economic factors, psychological factors, and a wide array of systemic inequities.⁷ Vulnerability is a significant concept in disaster studies because reducing vulnerability is regarded as one of the main opportunities for reducing disaster risk and impact. The complexity also arises from the nature of vulnerability as constantly changing because the processes that influence vulnerability are dynamic and are rooted in varying conditions.

I chose Puerto Rico as my case study to analyze the vulnerability discourse for two reasons - one that guides the rest of my thesis and one I include as a personal note. First, the Global Climate Risk Index ranked Puerto Rico as one of the topmost vulnerable islands to extreme weather events from 2000 to 2019.⁸ The Global Climate Risk Index for Puerto Rico is alarming because as illuminated by the most recent Intergovernmental Panel on Climate Change (IPCC)’s 2022 report, climate change impacts, including natural disasters like hurricanes, are expected to intensify.⁹ The IPCC 2022 report shows that climate change is already bringing

⁶ Wisner, Ben. *At Risk: Natural Hazards, People’s Vulnerability, and Disasters*. 2004.

⁷ “Understanding Disaster Risk.” *Prevention Web*.

⁸ “Global Climate Risk Index 2021.” *GermanWatch*. 2021.

⁹ The Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations responsible for advancing knowledge on human-induced climate change. It was founded in 1988 and its headquarters are located in Geneva, Switzerland. “IPCC Sixth Assessment Report.” *IPCC (United Nations)*. 2022.

multiple different modifications, such as intensifying the water cycle, which affects rainfall patterns that increase flooding, and changes to the ocean, including warming and acidification. Puerto Rico, as an already naturally vulnerable and - as I will show in this thesis - politically and socially vulnerable island, faces future risks of intensified coastal flooding, changes to monsoon that might cause more devastating hurricanes, and further harm to an already vulnerable community.¹⁰

Second, as an environmentalist from the Maldives, it is even more disheartening to recognize that Puerto Rico has remained on the global list of the most vulnerable countries to climate change for two consecutive decades. Especially with extensive research and data available from historical hurricanes, like Hurricane Maria, it made me curious as to why and what conditions may persist that continue to make Puerto Rico remain vulnerable to climatic changes and weather events. One of the conditions that prevent the Maldivian islands - and Puerto Rico - from receiving appropriate and adequate global attention and resources to combat the effects of climate change has been a normalization of the archipelago's vulnerability and the expectation to persistently resist harsh weather conditions. I initially intended to focus my research on the Maldives, but, due to the lack of available resources, I switched my focus to Puerto Rico. As luck would have it, hurricane scholarship on Puerto Rico, especially those written by Puerto Ricans, offered an invaluable opportunity to understand a parallel reality as a Maldivian, and solidarity for vulnerable communities in the very present fight against climate change as a result of colonialism and capitalism.

Although I previously highlighted environmental variables that make Puerto Rico vulnerable, I limit the broader conceptual scope of vulnerability to social vulnerability for the remainder of my thesis. *Social vulnerability* includes all the properties of a system that mediate ¹⁰

"IPCC Sixth Assessment Report." *IPCC (United Nations)*. 2022.

the outcome of a disaster, except the hazard itself to which it is exposed. I chose to focus on the social conditions that continue to make Puerto Rico vulnerable to hurricanes rather than the characteristics of the hurricane and its limitations because human activities have significantly amplified the causes and effects of climate change. The United Nations has confirmed a “more than ninety-five percent probability that human activities over the past 50 years have warmed our planet.”¹¹ Without human intervention, natural drivers would have pushed our planet towards an innate cooling period. Human activities are rapidly changing the concentration of atmospheric gasses, making highly vulnerable regions more susceptible to climate change. Therefore, social vulnerability is a clear link between climate change and human influence. Masson-Delmotte, Co-Chair of IPCC Working Group 1 for the 2022 report, highlights that “it has been clear for decades that the Earth’s climate is changing, and the role of human influence on the climate system is undisputed.”¹² Hence, irrespective of the geophysical vulnerability, focusing explicitly on the social vulnerability of Puerto Rico allows me to explore disaster colonialism¹³ and disaster capitalism¹⁴ to analyze how and to what extent colonial legacies and economic structures make Puerto Rico vulnerable to natural events like hurricanes.

As explained by Danielle Zoe Rivera, *disaster colonialism* foregrounds the systems of violence and dispossession at the heart of disaster planning and recovery.¹⁵ *Disaster capitalism*, coined by Naomi Klein in 2005, also shows clear examples of neoliberal capitalism that precipitates and uses disasters as an opportunity to harm the vulnerable community further.¹⁶

¹¹ “The Causes of Climate Change.” *Climate Nasa*. 2022.

¹² “IPCC Sixth Assessment Report.” *IPCC (United Nations)*. 2022.

¹³ Rivera, Danielle Zoe. “Disaster Colonialism: A Commentary on Disasters beyond Singular Events to Structural Violence.” *International Journal of Urban and Regional Research*. September, 2020. See more of my analysis of Rivera’s disaster colonialism concept in chapter one.

¹⁴ Klein, Naomi. “Disaster Capitalism: The new economy of catastrophe.” Also see my reference to *The Shock Doctrine* by Naomi Klein (2007).

¹⁵ Rivera, Danielle Zoe. “Disaster Colonialism: A Commentary on Disasters beyond Singular Events to Structural Violence.” *International Journal of Urban and Regional Research*. September, 2020.

¹⁶ Klein, Naomi. “Disaster Capitalism: The new economy of catastrophe.”

Nonetheless, when I explored Puerto Rico's history of colonialism and its continuity through coloniality, neither frameworks of disaster colonialism nor capitalism by itself captured the unique case study of Puerto Rican vulnerability. Due to the distinctive history of Puerto Rico, coloniality does remain a recognizable factor that heavily politicizes natural disasters.¹⁷ However, a missing component complements the arguments of disaster colonialism and disaster capitalism by exhibiting additional dangers of framing disaster risk and adaptation as a responsibility of the community — the framework of resilience. *Disaster resilience* as a framework is commonly understood to help reduce the impact of climate-related events. Resilience is often associated with bouncing back or withstanding and recovering from natural disasters. However, with the case study of Puerto Rico, I show how overlooking the normalization of resilience-building can also normalize the vulnerability of impacted communities. Therefore, the resilience framework enhances the explanations of Puerto Rico's vulnerability by exhibiting the additional dangers of framing disaster risk and adaptation as a responsibility by the community. Although disaster colonialism and capitalism are essential components, engagement with a more recent narrative of resilience is necessary to comprehensively understand Puerto Rico's vulnerability to climate change.

Thus, I argue that including the concept of resilience in what scholars have already researched about disaster colonialism and disaster capitalism offers a comprehensive explanation of Puerto Rican vulnerability. Disaster colonialism and disaster capitalism broadly cover systemic injustices due to the legacies of colonialism through a timeline starting from Spanish conquistadors in the fifteenth century to present-day colonial conditions under the U.S. My reservations about only considering colonial legacies are not to diminish its importance, but

¹⁷ Atilés-Osoria, J. M. "The criminalization of socio-environmental struggles in Puerto Rico." *Oñati Socio-Legal Series*. 2014. pp. 85-103.

rather to argue that disaster colonialism does not necessarily address more contemporary concepts that usually have a positive connotation, like resilience, that might further harm the community.

Resilience as a framework has become a buzzword in Puerto Rico, especially after the devastation of Hurricane Maria.¹⁸ Although the origin of the association of the word resilience with Puerto Rico is unknown, a ‘resilient Puerto Rico’ narrative was abundant.¹⁹ *Disaster resilience* in this context refers to “the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses”²⁰ and “the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure.”²¹ Hence, resilience as a framework commonly offers a rather positive aspiration that allows the enhancement of the anticipation of disasters with better planning to reduce disaster losses. In simpler words, proponents of resilience claim that “although disasters will continue to occur, actions that move the nation from reactive approaches to disasters to a proactive stance where communities actively engage in enhancing resilience will reduce many of the broad societal and economic burdens that disasters can cause.”²²

However, beyond the resilience-driven narratives and policies, a paradoxical element of resilience actually makes already vulnerable communities even more vulnerable by offloading

¹⁸ Wehrman, Jessica. “How ‘resilience’ became a politically safe word for ‘climate change’.” *Roll Call*. September, 2019.

¹⁹ “Discussion Questions: Against The Romanticism of Resiliency.” American Documentary. Words like ‘Pa’lante’ has a history in Puerto Rico because of the migration of Puerto Ricans to United States due to the economic ravages of colonialism in the years after the Second World War. The Young Lords Party is among the most popular Puerto Rican organizations that popularized the term ‘Pa’lante,’ often associated with resilience, regularly reporting on the criminal activities of U.S. imperialism.

²⁰ “Defining Disaster Resilience: A DFID Approach Paper.” *Department for International Development*. 2011.

²¹ “Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.” World Conference on Disaster Reduction. January, 2005.

²² *Disaster Resilience: A National Imperative*. National Academic Press. 2012.

the responsibility onto the affected communities for dealing with natural disasters. In the context of Puerto Rico, common uses of the word resilience, especially by the U.S. governmental officials and agencies, exhibit the importance of building a more resilient community by improving the infrastructure or empowering communities to develop their adaptive capacities.²³ However, shifting the responsibility evades the implications that scholars, like Rivera and Klein, highlight using disaster colonialism and disaster capitalism, creating a paradox in the resilience discourse. Therefore, my thesis proposes an understanding of Puerto Rico's present day vulnerability that combines the frameworks of disaster colonialism and capitalism with an additional attention to the effects of contemporary resiliency discourse.

Methodology and chapter overview

My thesis takes a qualitative approach by first analyzing the academic literature available on disaster capitalism and disaster colonialism in the context of Puerto Rico. In order to fulfill my central argument for this thesis, which highlights the addition of a resilience framework to disaster colonialism and capitalism, I then explore how the word resilience is used on the subject of Puerto Rican hurricanes. Upon noticing the novelty of the framework, especially using a case study of Puerto Rico, I created a database of crucial academic articles post-Hurricane Maria from 2017 to May 2022 to analyze how the concept 'resilience' is applied.

My database, included as an annex in my thesis, consists of 42 articles from 2018 to 2022, covering academic journals with any relevance to the environment, hurricanes, natural disasters, or Puerto Rico. My database helps identify the language associated with a resilient Puerto Rico to determine whether the concept of resilience is either treated as an aspiration or an

²³ "Reimagina Puerto Rico." Resilient Puerto Rico Advisory Commission. 2016.

obstruction to resist future natural disasters and broadly climatic changes. This data is crucial to the argument of how resilience, when used as a positive aspiration, is not captured by disaster capitalism and colonialism frameworks, highlighting the limitations of these frameworks themselves. Using my database, I find that only five journal articles (twelve percent) have addressed how a constant narrative of resilience associated with Puerto Rico avoids the impact of colonialism and coloniality on pre-existing conditions, which hurricanes accentuated, supporting my argument. The remaining thirty-seven articles (eighty-eight percent) support a dominant idea that eagerly facilitates building a resilient community, which unfortunately shifts the responsibility to the community. I critique the latter version of resilience, especially considering the colonial history and the systemic injustices in Puerto Rico, because it reduces the resilient actions of Puerto Ricans to no more than adapting, mitigating, and constantly recovering from natural disasters that are intensified by the colonial conditions rather than preventing the harm in the first place.

My database only consists of academic journals that use Puerto Rico as a case study. Therefore, I am limited in determining whether the dominant discourse of the resiliency framework, regardless of the geographic location or region, includes a positive connotation. In addition to the database, I also use primary sources such as reports and media articles to support my argument.

In the following chapter, I analyze the literature on disaster colonialism, disaster capitalism, and resilience to present the dominant literary discourses of the concepts that overall contribute to Puerto Rico's vulnerability. In chapter two, I show the continuity of coloniality, which includes disaster colonialism and capitalism examples, from a timeline of 1508 until Hurricane Maria in 2017, to argue as one factor that makes Puerto Rico vulnerable. In chapter

three, my analysis of the varied ways resilience applies to Puerto Rico, especially as a regressive paradox, shows another factor that adds to the vulnerability.

My analyses in chapters two and three complement the nature of vulnerability as dynamic and changing. For instance, disaster colonialism and capitalism address the long history of colonial neglect and systemic injustices that make Puerto Rico vulnerable to natural disasters like hurricanes. My inclusion of recent discourse on resilience then contributes to the literature by giving a more comprehensive understanding. My contribution to the literature illustrates that an array of reasons may make an already vulnerable community more vulnerable—i.e., for Puerto Rico, a combination of factors explaining disaster colonialism and capitalism with an added contemporary analysis of the paradox of resilience. Therefore, my thesis plugs a significant gap in a novel framework in academia, resilience theory, by showing how it could be an additional factor that enhances the vulnerability of affected communities alongside the frameworks of disaster colonialism and capitalism. Thus, chapter three offers a critical starting point to include resilience among the many factors that enhance Puerto Rican vulnerability. I conclude by affirming that the reasons that make Puerto Rico vulnerable to hurricanes are unique to the history and context of Puerto Rico. However, my contribution to the literature allows the same lenses to be applied to a similar context, i.e., the Maldives. Further, what makes the resilience framework a paradox is the continued puzzle of the context resilience is framed. Therefore, I also highlight how Puerto Ricans refer to the community as resilient, perhaps as a form of reclamation or internalization, which poses an additional empirical question for future research. Does resilience inform by the sense of agency then naturally challenge my argument that shows the paradox of resilience?

Chapter One: Literature Review

Disaster colonialism and disaster capitalism: an incomplete picture

A dilemma of language: how ‘natural’ are natural disasters?

Disasters have long been the subject of research and concern for academics and those belonging to disaster-prone regions. The earliest discourse on natural disasters takes after the natural-mystical understanding of disasters and an abundance of God-fearing language.²⁴ Historically, almost all-natural disasters were regarded as ‘acts of God.’²⁵ For instance, most colonists viewed natural disasters through the lens of providentialism, and the cause of the disaster was simple—human sin.²⁶ For the providential school of thought, natural disasters have simply been understood as “disasters that result from natural forces.”²⁷ Providential interpretations of natural disasters are also prevalent in religious communities because there is a robust theological perspective and belief that focuses on a higher power to justify the reasoning behind the disaster. For example, there are biblical accounts of disasters and references to natural disasters as a judgment for human sin and as a method of hope and comfort for those affected by disasters.²⁸ However, an element of societal responsibility is omitted or evaded by viewing

²⁴ Steinberg, Ted. *Acts of God: The Unnatural History of Natural Disasters in America*. Oxford University Press. 2000.

²⁵ McCaughey, Hoffman, and Llewellyn. “The human experience of earthquake.” *Individual and community responses to trauma and disaster: the structure of human chaos*. Cambridge University Press. 1994; Kumagai, Yoshitaka, Edwards, John, and Carroll, Matthew. “Why are natural disasters not ‘natural’ for victims?” *Environmental Impact Assessment Review*. January 2006. pp. 106-119.

²⁶ Mulcahy, Matthew. “Making Sense of Disasters in Early America—And Today.” *The American Historian*. February, 2018.

²⁷ Shaluf, Ibrahim Mohamed. “An overview on disasters.” *Disaster Prevention and Management*. Vol. 16. Iss. 5. 2007.

²⁸ O’Mathúna, Dónal P. “Christian Theology and Disasters: Where is God in All This?” *Disasters: Core Concepts and Ethical Theories*. 2018.

disasters as caused by natural forces only and thus beyond the scope of human choices and human affairs. Yet, briefly highlighting natural disasters through the lens of providentialism is appropriate for the case study of Puerto Rico because of the significance of prayer as a symbol of hope, especially after the devastation of hurricanes.²⁹ The *ad repelendas tempestates* prayer, for example, commonly recited during the prime hurricane months of September and October, has been passed on from generations to generations, revealing some of the discourses of the forces of nature making a presence in the way Puerto Ricans articulate hope.³⁰

The argument that disasters are not natural has become more prevalent since the eighteenth century.³¹ Chmutina and Meding's references to the collected writings of Rousseau that highlight the question of 'naturalness' following the aftermath of the 1755 Lisbon earthquake might have been the earliest to make this argument.³² Still, especially in the last forty years, disaster scholars have accepted that there is no such thing as a 'natural' disaster. Jacob Remes and Andy Horowitz call the newer research lenses on disaster as "critical disaster studies."³³ The 'critical' aspect highlights that an autonomous natural order does not define the causes and consequences of disaster, but rather the causes and effects are bound up in human history, shaped by human action and inaction. In light of this, several empirical studies on natural disasters have focused on the power dimensions relating to disaster response, and how natural disasters occur in a political space wherein human actors can affect the prevention, mitigation,

²⁹ Gonzalez-Justiniano, Yara. "Practices of Hope: The Public Presence of the Church in Puerto Rico." Boston University. 2019. [Dissertation]

³⁰ See Schwartz's *Sea of Storms*. This is also mentioned in Philip Morgan, J.R. McNeill, Matthew Mulcahy, and Stuart Schwartz' *Sea and Land: An Environmental History of the Caribbean* book published in 2022. These are some of the most prominent Latin American/Caribbean scholars in the disaster scholarship field.

³¹ Perry, Ronald. "Defining Disaster: An Evolving Concept." *Handbook of Disaster Research*. 2017. pp. 3-22.

³² Chmutina, Ksenia and Meding, Jason von. "A Dilemma of Language: 'Natural Disasters' in Academic Literature." *International Journal of Disaster Risk Science*. 2019. pp. 283-292.

³³ Remes, Jacob and Harowitz, Andy. *Critical Disaster Studies*. 2021.

and damage of natural disasters, even if they cannot affect the likelihood of the intensity or ecological specificities.³⁴

‘Unnatural’ disasters: disaster colonialism and capitalism

Critical disaster studies as a field considers the contexts of history and human (in)action in general; disaster colonialism and disaster capitalism more specifically capture how racial violence and dispossession are due to the legacies of colonialism, capitalism, and the systemic injustices that deepens vulnerability to natural disasters. Disaster capitalism is a framework that understands how natural disasters are produced by social forces. Disaster capitalism, coined by Naomi Klein, contends that neoliberal capitalism both precipitates disasters and employs these same disasters as an opportunity to facilitate its expansion.³⁵ Natural disasters, in the context of disaster capitalism, thus acts as a new business opportunity. For example, the growth of carbon offset markets or the development of peripheral capitalist countries as outlets for the products of the core countries and sources of cheap labor.³⁶ Further, the tourism industry is also often complicit in helping the reconstruction industry take away land from the local people under the guise of offering post-disaster aid.³⁷

³⁴ Boersma, Kees, Ferguson, Julie, Groenewegen, Peter, and Wolbers, Jeroen. “The dynamics of power in disaster response networks.” *Risks, Hazards & Crisis in Public Policy*. Vol. 12. Iss. 4. 2021. pp. 418-433; Cohen, Charles. “The Political Economy of ‘Natural’ Disasters.” *The Journal of Conflict Resolution*. Col. 52. No. 6. 2008. pp. 795-819; Chmutina and Meding (2019).

³⁵ Schuller, Mark and Maldonado, Julie. “Disaster Capitalism.” *Annals of Anthropological Practice*. October, 2016; Klein, Naomi. “Disaster Capitalism: The new economy of catastrophe”; See Klein’s *The Shock Doctrine: The Rise of Disaster Capitalism* as well.

³⁶ Paterson, M. ‘Resistance makes carbon markets’, in S. Böhm and S. Dabhi (eds.) *Upsetting the offset: The political economy of carbon markets*. 2009; Dupuy, Alex. “Disaster Capitalism to the Rescue: The International Community and Haiti After the Earthquake.” *NACLA Report on the Americas*. 2010.

³⁷ Kousky, Carolyn and Shabman, Leonard. “The Realities of Federal Disaster Aid”; Fletcher, Robert. “Ecotourism after nature: Anthropocene tourism as a new capitalist ‘fix.’” *Journal of Sustainable Tourism*. December, 2017.

For Puerto Rico, disaster capitalism looks like the debt peonage and the long-term capitalist strategy that continues the depopulation of the island.³⁸ However, the application of the concept of disaster capitalism in post-disaster Puerto Rico is often challenged by disaster scholars such as Villanueva and Cobian.³⁹ They echo the argument by Clyde Woods that “disaster capitalism unwittingly obscures the history of these practices by focusing almost exclusively on what has happened since the ‘disaster,’ while obviating continuities inherited from the past.”⁴⁰ They argue that calls for returning to normalcy after disasters are viewed as upholding existing social inequities. Taking this into consideration, disaster capitalism is not enough to explain the continued vulnerability of Puerto Rico because this concept does not look at the long history of colonialism. Disaster capitalism conveniently falls into the narrative of focusing on specific hurricanes, one after the other, and obscures the reality of systemic injustices and harm perpetuating the continuation of Puerto Rico's vulnerability.

Thus, beyond disaster capitalism, disaster colonialism is also an equally appropriate framework for understanding Puerto Rican vulnerability due to the unignorable history of Spanish colonialism and the shift to neo-colonialism under the political administration of the United States.⁴¹ Neo-colonialism essentially describes an independent state with all the outward benefits of international sovereignty, but whose economic system and political policies are directed by external actors. Puerto Rico has been a U.S. territory since 1898. The island's political status is an example of neo-colonialism and the continuity of colonial legacies is still

³⁸ McCune, Nils. et. al. “Disaster colonialism and agroecological brigades in post-disaster Puerto Rico.” TNI. March, 2018.

³⁹ Villanueva, J and Cobian, M. “Beyond disaster capitalism: dismantling the infrastructure of extraction in Puerto Rico's neo-plantation economy.” Antipode Foundation. 2019.

⁴⁰ Woods, Clyde. *Development drowned and reborn: the blues and bourbon restorations in Post-Katrina New Orleans*. Edited by J.T. Camp and L. Pulido. University of Georgia Press. 2017.

⁴¹ Nkrumah, Kwame. *Neo-Colonialism: The Last Stage of Imperialism*. 1965.

present. Therefore, there is adequate ground to analyze colonialism as another explanation for Puerto Rico's vulnerability to natural disasters like hurricanes.

Scholars of disaster colonialism consider disasters as a series, meaning one disaster sets the stage for another, and frame their argument in racial violence and ongoing colonialism. Danielle Zoe Rivera developed the concept of disaster colonialism through her engagements with Puerto Rico by analyzing literature on environmental colonialism and environmental justice. Central to her argument too is that disaster capitalism alone is not enough to explain the case study of Puerto Rico.⁴² Unlike the rest of the Caribbean islands, Puerto Rico's situation is unique. Its long-standing history shows patterns of power emerged due to colonialism and showed evidence of deepened vulnerability even in the most recent hurricanes.⁴³ For example, for Puerto Ricans, European perspectives first under the Spanish then the U.S. dominates the reality of the problems at-hand. Puerto Rico has been cast as a resource-driven territory in need of U.S. investments to survive, tied to a broader strategy of extractivism, and environmentalism has always been heavily politicized in Puerto Rico.⁴⁴ Rose Bird uses the term 'deep colonizing' to demonstrate that even though many formal relations between Native communities and colonial powers have changed over the last few decades, the practice of colonization is still very present.⁴⁵ Hence, disaster colonialism helps reframe narratives of decolonization, mostly the (im)possibility of decolonization in settler colonial settings.

The case study of Puerto Rico as a sustained colonized territory illustrates how the logic of colonialism is perpetuated through the lens of repeated disasters.⁴⁶ Especially after Hurricane

⁴² See Rivera (2020).

⁴³ See Maldonado-Torres (2007).

⁴⁴ See Rivera (2020).

⁴⁵ Veracini, Lorenzo. "Isopolitics, Deep colonizing, Settle colonialism." *International Journal of Postcolonial Studies*. 2011.

⁴⁶ Holleman, Hannah. "De-naturalizing ecological disaster: colonialism, racism and the global Dust Bowl of the 1930s." *The Journal of Peasant Studies*. July, 2016.

Maria in 2017, phrases such as “el desastre es la colonia” [the disaster is the colony] became popular on social media due to the emerging conversations among scholars and activists on how the colonial matrix of power is linked to the social production of disasters, which indeed is a disaster of itself.⁴⁷ Therefore, the case study of Puerto Rico shows what Hurricane Maria has affirmed, which are the forms of structural violence and racio-colonial governance that had been operating in Puerto Rico for approximately 500 years.⁴⁸ For Puerto Rico, the continuity of colonialism looks like the structural neglect by the government of the United States and private corporations to respond to the devastating hurricanes.⁴⁹

However, I argue that disaster colonialism and capitalism do not fully capture how the vulnerability is produced and continued because of the exclusion of other factors, like the dangers of the resilience narrative, that exist outside the scope of these frameworks. Especially when most of the discourses on resilience in the context of Puerto Rico surround the description of building a resilient community, it creates an assumption that the community is responsible for protecting themselves beyond the strict legacies of colonialism. The narrative is also more pertinent to adapting and recovering than preventing future harm. Therefore, understanding Puerto Rico's specific vulnerabilities requires a more complex and comprehensive analysis.

Rethinking vulnerability and resilience to complete the picture

The concept of vulnerability is often employed as a cumulative indicator of the unequal distributions of certain populations in proximity to natural disasters, and their ability to

⁴⁷ Gustavo Garcia-Lopez (2020) and Yarimar Bonilla (2020).

⁴⁸ See Yarimar Bonilla's "The coloniality of disaster: Race, empire, and the temporal logics of emergency in Puerto Rico, USA" (2020). Also see Farhana Sultana's "The unbearable heaviness of climate coloniality" (2022).

⁴⁹ Rodriguez-Diaz, Carlos. "Maria in Puerto Rico: Natural Disaster in a Colonial Archipelago." American Public Health Association. January, 2018.

anticipate, cope with, resist, and recover from them.⁵⁰ The vulnerability paradigm suggests that disasters primarily affect marginalized groups who lack access to resources and means of protection available to the more powerful.⁵¹ In the context of Small Island Developing States (SIDS), like Puerto Rico, vulnerability highlights the growing pressures from the direct risks associated with environmental hazards.⁵²

Interpretations and applications of the concept vary, although the underlying premise is generally agreed on. This divergence stems from a perception of hazards as discrete exogenous events that makes specific communities vulnerable, and an opposite belief that vulnerability is a socially constructed continuum that natural disasters interact with.⁵³ Oliver-Smith et al. captures the latter belief that fits perfectly to the case study of Puerto Rico by highlighting that “disaster risk and eventual disaster are social constructs based on the presence of potentially damaging physical events but seriously and dominantly conditioned by societal perceptions, priorities, needs, demands, decisions and practices.”⁵⁴ Therefore, instead of simply focusing on why Puerto Rico is vulnerable to hurricanes, my thesis shows explanations for the continuity of vulnerability of Puerto Rico. Examining Puerto Rico through the legacies of colonialism, and disaster capitalism answer why Puerto Rico is a vulnerable island to natural disasters to some extent. Nonetheless, it does not consider more contemporary factors that add to the vulnerability.

⁵⁰ Wisner, Gaillard, and Kelman. *The Routledge handbook of hazards and disaster risk reduction*. 2012.

⁵¹ O’Keefe, P., Westgate, and Wisner. “Taking the naturalness out of natural disasters.” *Nature*. 1976. pp. 566-567.

⁵² Pelling, Mark and Uitto, Juha. “Small island developing states: natural disaster vulnerability and global change.” *Global Environmental Change Part B: Environmental Hazards*. June, 2011; Weichselgartner, Juergen. “Disaster mitigation: the concept of vulnerability revisited.” *Disaster Prevention and Management*. 2001.

⁵³ Lavell, A. and Maskrey, A. “The future of disaster risk management.” *Environmental Hazards*. 2014. pp. 267-280; See Lewis (1990) and Lewis (2014).

⁵⁴ Oliver-Smith et al. “Forensic investigations of disasters (FORIN): A conceptual framework and guide to research.” IRDR FORIN Publication No. 2. 2016.

Therefore, determining what makes those vulnerable to natural events even more vulnerable requires looking into neighboring concepts that contributes to the elucidation.

Resilience is a more recent term in disaster scholarship but has been frequently paired with vulnerability in discussions of Puerto Rico, especially post-Hurricane Maria. Both vulnerability and resilience are equally ambiguous concepts, can exist simultaneously, and have contradicting definitions and perceptions. The Intergovernmental Panel on Climate Change, in 2013, defined resilience as “the capacity of a social-ecological system to cope with a hazardous event or disturbance, responding or reorganizing in ways that maintain its essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.”⁵⁵ Therefore, resilience as a framework is closely connected to the idea of building disaster-resilient communities.⁵⁶ Resilience as an aspiration acts as a guiding paradigm for disaster risk reduction and the enabling of disaster recovery through attention to, and investment in, local capacities for adaptation and enhancing the community capacity for resilience.⁵⁷ Thus, from a policy perspective, resilience means bringing long-lasting and transformative changes that have the potential to counteract climate change.⁵⁸

However, little guidance or benchmarks exist to describe whether a ‘resilient community,’ especially in the case of Puerto Rico, has successfully lessened their vulnerability. Furthermore, critics of resilience theory show concern because of the promotion of short-term actions and the focus on short-term recovery issues rather than root causes of risk and

⁵⁵ IPCC fifth assessment report. IPCC. 2013.

⁵⁶ Chang, Stephanie and Shinozuka, Masanobu. “Measuring Improvements in the Disaster Resilience of Communities.” *Earthquake Spectra*. August, 2004.

⁵⁷ Mayer, Brian. “A Review of the Literature on Community Resilience and Disaster Recovery.” *Environmental Disasters*. 2019. pp. 167-173.

⁵⁸ Rubin, Claire. “Review of Disaster Resilience: A National Imperative.” *Environment: Science and Policy for Sustainable Development*. February, 2013.

vulnerability.⁵⁹ For example, some of the short term goals identified by researchers for Puerto Rico's recovery post-Hurricane Maria included objectives such as repairing damaged critical infrastructure and improving governance and fiscal accountability.⁶⁰ However, the short-term goals are simply a temporary fix without creating the grounds that address the systemic inequities and challenges first, even without considering the significant debt crisis and the continuous dependence on the U.S. The nebulous goal of resilience is compatible with neoliberalism in that it shifts responsibility onto communities to 'be resilient,' rather than addressing structural dimensions of vulnerability. Resilience is, thus, a dangerous concept because it promotes returning to normalcy, on which the resilience discourse is often based, and the 'normalcy' are already dangerous living conditions with a high vulnerability that created the risk (and resilience) in the first place. As highlighted by Karen Sudmeier-Rieux, it "promotes a post-disaster band aid approach of sorts, rather than reducing underlying risk factors."⁶¹

⁵⁹ Lewis, J. and Kelman. "Places, people and perpetuity: community capacities in ecologies of catastrophe", *ACME: An International E-Journal for Critical Geographies*, Vol. 9 No. 2. 2010. See also MacKinnon, K. and Derickson, K.D (2012).

⁶⁰ Fischbach et al. "After Hurricane Maria: Predisaster Conditions, Hurricane Damage, and Recovery Needs in Puerto Rico." Rand Corporation. 2020.

⁶¹ Sudmeier-Rieux, Karen. "Resilience—an emerging paradigm of danger or of hope?" Centre for Research on Terrestrial Environments. Disaster Prevention and Management. 2014.

Chapter Two: From Colonialism to Coloniality

The Caribbean region, where Puerto Rico is located, has a significant relationship with hurricanes in two unique ways. First, the word 'hurricane' itself originated in the region..⁶² The word hurricane derives from the Taíno word *Juracán* and the Mayan god "*Hurakán*," simply meaning hurricane in the Taíno language and the Mayan deity of wind and storms, respectively.⁶³ Taíno is a pre-Columbian Indigenous population of the Caribbean, and their language is said to have disappeared after the Spanish conquered the region.⁶⁴ Second, hurricanes have a long history of shaping every aspect of the Caribbean. The first known report of a hurricane was written by Christopher Columbus in 1495 when he sailed into a storm and damaged one of his ships.⁶⁵ The first tropical cyclone recorded in Puerto Rico was reported by Juan Ponce de León in 1508, when his ship was also brought to the shore by the high winds and waves.⁶⁶ Juan Ponce de León was the Spanish settler who established the first settlement in Puerto Rico. Puerto Rico has a unique situation compared to the other Caribbean islands due to the continuation of their colonial status, which I refer to here as coloniality. The 406 years of Spanish colonialism is followed by 124 years of colonial status under the U.S., which extended a combination of coloniality, economic modes of extractivism, and disaster capitalism that threatens Puerto Rican

⁶² Schwartz' *Sea of Storms* gives a comprehensive encounter of historical hurricanes, from Columbus to Katrina, over a course of 500 years.

⁶³ "Hurricane Facts, Folklore and Superstitions Abound as Storm Season Looms." *Quake Kare*. April 7, 2017.

⁶⁴ Currently, there are Puerto Rican Taíno indigenous groups seeking to reconstruct the Taíno language. See Sherina Feliciano-Santos' "How *do you* speak Taíno? Indigenous Activism and Linguistic Practices in Puerto Rico."

⁶⁵ Woods, Michael and Woods, Mary B. *Hurricanes*. Lerner Publications Company. 2007.

⁶⁶ Not all tropical cyclones are hurricanes. From my understanding, hurricanes and tropical cyclones are the same, but are given different names depending on where they appear. Hurricanes are tropical storms that form over the North Atlantic Ocean and Northeast Pacific. Cyclones are formed over the South Pacific and Indian Ocean. See more under the BBC article titled, "What's the difference between hurricanes, cyclones and typhoons?"

islands' long-term survival against natural disasters and the broader changing climate. For Puerto Rico, disaster colonialism manifests as a lack of disaster aid and relief, the historical stigmatization of Indigenous weather-tracking knowledge, securitization of meteorology, and anti-Indigenous messaging within aid.

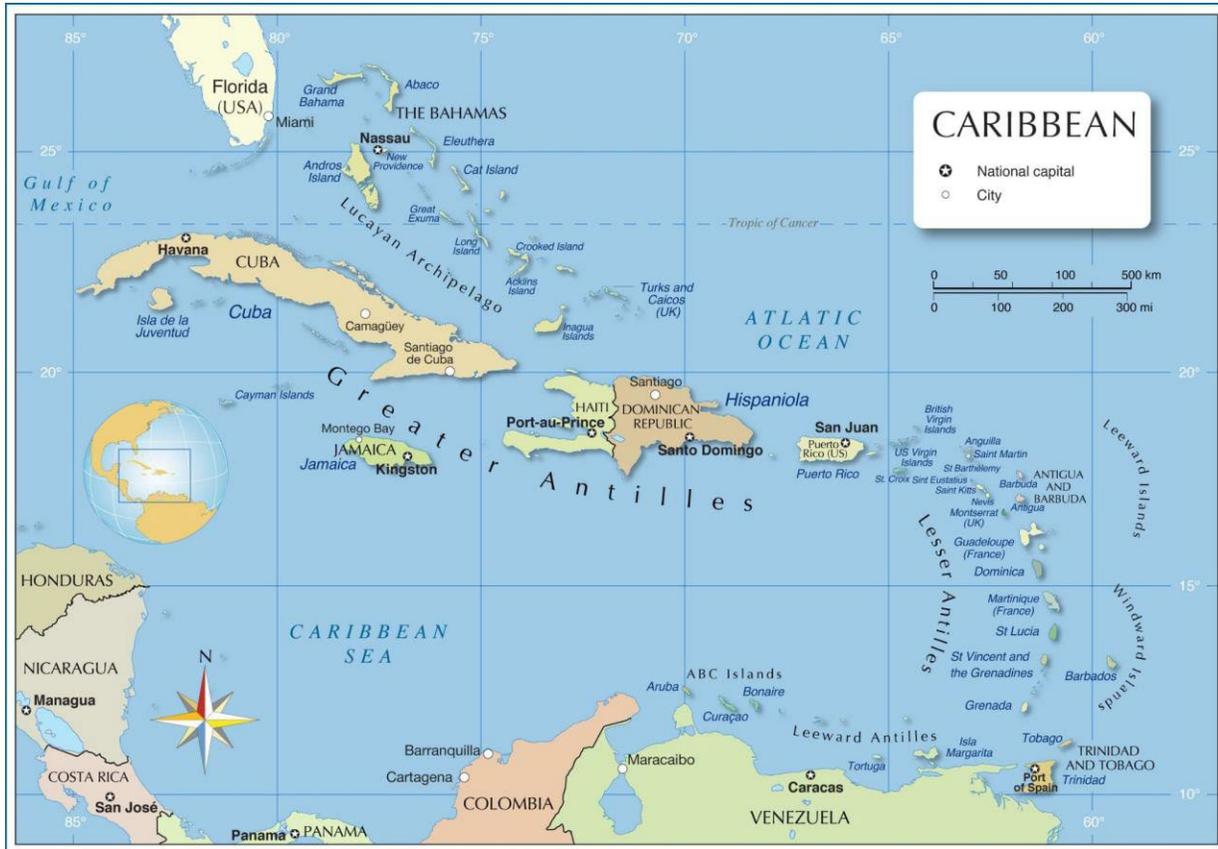


Figure 1.4: Political Map of the Caribbean⁶⁷

⁶⁷ This map includes the Caribbean Sea and, therefore, part of the northern countries of South America, such as Honduras, Nicaragua, Costa Rica, Panama, Colombia, and Venezuela. This research, however, focuses primarily only on Puerto Rico.

Spanish colonialism setting the stage for U.S. coloniality

Hurricane frequency in Puerto Rico is among the highest in the North Atlantic basin.⁶⁸ Although the first-known hurricane from Puerto Rico was recorded in 1508, the prominence of the traditional knowledge and responses to the dangers of the weather makes it apparent that hurricanes have been a phenomena experienced in the region for a long time.⁶⁹ The early colonists were skeptical about the well-informed knowledge of weather changes and hurricane predictability. In fact, the Spanish colonists criminalized the Taino forms of hurricane-tracking. A 1550 investigation of the Puerto Rican governor revealed the punishing of an Indian, alleged as a sorcerer, for knowing to predict the arrival of a hurricane.⁷⁰ Knowledge of hurricanes was regarded as the influence of Indigenous shamans in association with the devil. Until the seventeenth century, Indigenous people of Puerto Rico were thus criticized for reading evident signs such as a red sun or rapid change of the breeze as a forewarning and knowledge aided by the devil. The massive information asymmetries and the criminalization of Indigenous knowledge further harmed the local population. However, by the mid-seventeenth century, the reading of natural signs became a local knowledge observed by colonists and a necessary skill practiced by all.⁷¹

The Spanish colonial administration feared the power of hurricanes to destabilize their governance in Puerto Rico.⁷² They usually responded to the hurricanes by requiring the owners

⁶⁸ Boose, Emery, Serrano, Mayra, and Foster, David. "Landscape and Regional Impacts of Hurricanes in Puerto Rico." *Ecological Monographs*. Vol. 74, No. 2. pp. 335-352.

⁶⁹ The name hurricane also comes from an Indigenous Caribbean word as mentioned earlier, which also confirms that even though the first records of hurricanes were published by European settlers, hurricanes are not a new phenomenon in the Caribbean region.

⁷⁰ Francisco Moscoso, *Juicio al gobernador: Episodios coloniales de Puerto Rico, 1550*, 1998 as cited by Schwartz in *Sea of Storms*.

⁷¹ Schwartz, *Sea of Storms* (2015).

⁷² Schwartz, *Sea of Storms* (2015) and Schwartz, "Hurricanes and the Shaping of Circum-Caribbean Societies" (2005).

of sugar mills, ranchers, and merchants to pay for the roads and ordering all enslaved people to continue working on the city streets and ports. Town councils reportedly requested royal funds to repair government buildings destroyed by hurricanes, and they usually saw natural disasters as a moment of gaining an advantage.⁷³ When the city's elites requested royal funds and policy changes to recover from hurricanes due to the subsequent deaths of many Indigenous people during the aftermath, they were looking to replace the decreased number of their laborers.⁷⁴ Enslaved people in Puerto Rico were placed in the storm's path, often denied access to adequate shelter, resulting in a massive decrease in their population after each storm.⁷⁵ Hurricanes advantaged the town councils to request the suspension of all debts owed to the royal crown for periods to recover from post-hurricane damages. The colonial government's support for the supply of enslaved people, tax relief, and the requests aiding the island's elites exhibits that the royal aim was to assist the privileges of the colonists over locals.

During the Spanish colonial rule in the Caribbean, Puerto Rico was crucial to the Spanish economy as a wealth-producing, slave-based colonial possession. However, during the events of a hurricane, there were damages ranging from destroying buildings to sugar and plantain plantations, deaths due to hunger and diseases, and various illnesses.⁷⁶ Further, New Spain had to send food, materials, and a subsidy obtained in silver for disaster recovery, especially when food prices soared following a storm. For example, following the Santa Ana hurricane of 1825, Puerto Rico could not pay for the recovery, further deepening the dependency on the colonial administration. Thus, powerful hurricanes were an opportunity for colonial powers to demonstrate the benevolence of the administrations and as a method to contain colonies under

⁷³ *Catalogo de Cartas y peticiones del cabildo de San Juan*. 1551.

⁷⁴ Arellano, Ramírez de. "Los huracanes de Puerto Rico." 1932.

⁷⁵ Rivera's "Disaster Colonialism: A Commentary on Disasters beyond Singular Events to Structural Violence."

⁷⁶ Schwartz, *Sea of Storms* (2015).

their control due to the insufficient capacity to repay.⁷⁷ When Puerto Rico was hit by the Hurricane San Narciso in 1867, the disruption from the hurricane coupled with the Spanish colonial government's inaction led to widespread unemployment. The famous 'Grito de Lares' protests erupted a year later, leading to a widespread revolution from the pro-independence movement due to the Spanish government's inaction during the many hurricane devastations.⁷⁸

In 1898, Puerto Rico became a U.S. territory after the Spanish-American War. No Puerto Ricans sat at the negotiation table when the Peace of Paris formally awarded Puerto Rico to the United States.⁷⁹ Spain handed over Puerto Rico to save themselves from the Spanish-American War's spoils and liquidate their debts. For United States, Puerto Rico was simply another territory or a common property intended "to be administered at the common expense and for the common benefit of the States."⁸⁰

Since then, Puerto Ricans have been limited in their access to all areas of governance in the United States. Constitutionally, Puerto Ricans are selectively treated as a foreign country; therefore, the Puerto Rican citizenship legislation's separate and unequal territorial characteristics make Puerto Rico an 'unofficial colony' of the United States.⁸¹ The classification of Puerto Rico as a territory legally allowed the United States to treat Puerto Rico as a Supreme Court approved 'colony.' The *Insular Cases* defined the United States-Puerto Rico colonial relationship, especially the definition of United States citizenship for Puerto Ricans. The three most crucial Insular Cases were the Downes, Gonzalez, and Balzac. The Downes case was a defining moment which excluded the overseas territories from being considered a 'part' of the

⁷⁷ Schwartz, *Sea of Storms* (2015).

⁷⁸ Schwartz, "Hurricanes and the Shaping of Circum-Caribbean Societies" (2005).

⁷⁹ Gonzalez-Cruz, Michael. "The U.S. Invasion of Puerto Rico: Occupation and Resistance to the Colonial State, 1898 to the Present." *Latin American Perspectives*. 1998.

⁸⁰ Ramos, Efrén Rivera. "The Legal Construction of American Colonialism: The Insular Cases." *Rev. Jur. UPR* 65 (1996): 225.

⁸¹ Venator-Santiago, Charles. "Yes, Puerto Ricans are American citizens." *Puerto Rico Syllabus*. 2017.

United States.⁸² The Insular Cases essentially legitimized a colonial citizenship, which became a fundamental instrument that determined the colonial nature of the territory, especially in terms of its membership and participation.⁸³

The following year, in 1899, Puerto Rico was hit by Hurricane San Ciriaco, the most destructive natural disaster in Puerto Rican history. It rained for 28 days straight, approximately 3,400 people died, and Hurricane San Ciriaco initiated the long-standing history of disaster response and aid from the United States to Puerto Rico.⁸⁴ Even during Hurricane San Ciriaco, there was a recognition that the environmental history through the lens of hurricanes had already been unfortunate for Puerto Ricans. Following San Ciriaco, the U.S.-led post-disaster reconstruction was to tighten control over the island through military force, weakening Spanish political systems and furthering Indigenous disenfranchisement.⁸⁵ Hurricane San Ciriaco was the first major hurricane Puerto Ricans had to experience under the control of the U.S. administration. During the aftermath of San Ciriaco, the United States carried overtly anti-Puerto Rican rhetoric to policy by denying direct aid, arguing to avoid supporting ‘lazy’ *jibaros*,⁸⁶ which is a rhetoric that was prevalent even during the aftermath of Hurricane Maria in 2017.

U.S. coloniality pre-Hurricane Maria

When the United States exerted its influence in the Caribbean, meteorology became a matter of security. Meteorological data, critical to track the predictability and movement of

⁸² Torruella, Juan R. "The Insular Cases: The establishment of a regime of political apartheid." *U. Pa. J. Int'l L.* 29 (2007): 283.

⁸³ Meléndez, Edgardo. "Citizenship and the Alien Exclusion in the Insular Cases: Puerto Ricans in the Periphery of American Empire." *Centro Journal* 25, no. 1 (2013).

⁸⁴ "Hurricane San Ciriaco." *LOC*. 2011.

⁸⁵ Rivera's "Disaster Colonialism: A Commentary on Disasters beyond Singular Events to Structural Violence" (2020).

⁸⁶ Rivera explains *jibaros* as a "Puerto Rican term for rural, mountain residents from the interior of the main island, tinged at times with either national pride or with anti-Puerto Rican stigmatization." The definition is taken from Rivera's "Disaster Colonialism" article from 2020.

hurricanes, were regularly withheld from Puerto Ricans and neighboring Caribbean countries.⁸⁷ Until May 1990, the U.S. Army generals ruled Puerto Rico and reported to the War Department. The political system established by the Spanish colonial administration was disbanded, and the incoming U.S. laws gave federal courts jurisdiction in Puerto Rico. The U.S. Congress enacted the Foraker Act in 1901, strengthening the federal government's control over Puerto Rico and denying Puerto Ricans any meaningful role in governing their country.⁸⁸ The Foraker Act established that "Puerto Rico belongs to the United States, but it is not the United States, nor a part of the United States."⁸⁹

Since the U.S. established colonial rule over the island, the outcome has been mostly disastrous for Puerto Rico, especially to its economy. For instance, in 1920, the United States introduced the Jones Act, requiring all goods shipped between U.S. ports to be transported on a U.S.-built, U.S.-owned, and U.S.-manned vessel. Products sold in Puerto Rico are often double what they fare in the U.S. mainland.⁹⁰ The Jones Act of 1917 and the imposed citizenship on islanders also established the new colonial administration by reasserting the unlimited powers of the federal government to administer Puerto Rico as a territorial possession and affirmed that Puerto Ricans were incapable of governing themselves.⁹¹

Even in the twentieth-century, disaster colonialism was embedded beyond meteorological institutions to include U.S.-based emergency management institutions. A notable example of the continuation of coloniality through institutions is the role of the Office of Civil Defense, which then became the Federal Emergency Management Agency (FEMA). The Office of Civil Defense merged cold war politics into emergency management systems in Puerto Rico between 1941 and

⁸⁷ Mahony and Endfield. "Climate and colonialism." Wiley Interdisciplinary Reviews: Climate Change. 2018.

⁸⁸ Caban, Pedro. "Puerto Rico, Colonialism In." University of Albany. 2005.

⁸⁹ Fernandez, Ronald, Mendez Serafin and Cueto, Gail. Puerto Rico: Past and Present. 1998.

⁹⁰ Reichard, Raquel. "How Puerto Rico's Colonial Status Impairs Hurricane Relief." Remezcla. 2017.

⁹¹ Caban, Pedro. "Puerto Rico, Colonialism In." University of Albany. 2005.

1979 to reward pro-statehood organizations and individuals while reinforcing statehood in their materials.⁹² In the 1950s, specifically, the Office of Civil Defense was responsible for directly responding to anti-colonial political movements emerging from the establishment of the Common States. In the case of Puerto Rico, the strong emphasis on anti-colonial rhetoric from the United States inevitably repressed post-independent efforts and continued on to the vulnerability of Puerto Rico. Following the colonial practices of the Office of Civil Defense (OCD), FEMA was founded in 1979, which acted as a new agency that inherited the same security-focused and militarized emergency response tactics employed by the OCD.⁹³ Further, the 2008 global financial crisis also hit Puerto Rico especially hard. With the recession further lowering tax revenues, the territorial government implemented austerity measures, including layoffs of public workers, that sent unemployment soaring. It also crafted dubious deals to balance its budget, including letting government agencies borrow from one another to pay back bonds.⁹⁴ For instance, during Hurricane Maria, although the hurricane caused more damage in Puerto Rico than Hurricane Harvey in Texas, Texas still received three times more aid workers from FEMA.⁹⁵ Significant post-disaster reconstruction funding was withheld from Puerto Rico after Maria, and FEMA also perpetuated appalling stereotypes of ‘lazy’ Puerto Ricans waiting for handouts, as the reasoning behind the nearly fifty percent rejection rate for individuals and households program assistance.⁹⁶

⁹² Rogriguez-Silva, I.M. “The office of civil defense and colonialism as a state of emergency.” *Modern American History*. 2019. pp. 175-178.

⁹³ Rivera’s “Disaster Colonialism.”

⁹⁴ Cheatham, Amelia and Roy, Diana. “Puerto Rico: A U.S. Territory in Crisis.” *Council on Foreign Relations*. February, 2022.

⁹⁵ Willison, Singer, Creary and Greer. “Quantifying inequalities in US federal response to hurricane disaster in Texas and Florida compared with Puerto Rico.” *BMJ Global Health*. 2019.

⁹⁶ Molinari, S. “Authenticating loss and contesting recovery: FEMA and the politics of colonial disaster managements.” In Y. Bonilla and M. LeBron (eds.), *Aftershocks of disaster: Puerto Rico before and after the storm*. Haymarket Books. 2019.

Hurricane Maria: coloniality = vulnerability

When Hurricane Maria struck Puerto Rico, Puerto Ricans were stunned by the severity of the devastation, and the great loss of life and massive destruction they had to encounter as an aftermath. Due to its territorial status, Puerto Ricans had to rely on their dependency on the United States for their everyday lives and disaster recovery. Before Hurricane Maria, Puerto Rico's physical and human infrastructure was severely in disrepair. Governments and public corporations had ignored spending to maintain critical systems, especially the electrical grid. The neglect of infrastructure coincided with the budget cuts towards education, health and hospitals, sanitation, and nutrition services—all equally important for the pre-disaster preparation and post-disaster recovery.⁹⁷ The government also cut investments in water-treatment facilities, building and maintaining roads, and other critical infrastructure from \$2.4 billion in 2012 to \$906 million in 2017, decreasing by twenty percent.⁹⁸

As a U.S. territory, Puerto Rico does not have the authority to control its political economy, limiting the efforts put in place to reduce its vulnerability to natural disasters. Puerto Rico was sued by bondholders in 2016, ruling that federal law superseded the Puerto Rican bankruptcy law.⁹⁹ Further, since Puerto Rico is not considered a sovereign state, it cannot join the International Monetary Fund (IMF) to obtain emergency lending or development funds from multilateral lending institutions. Puerto Rico does not have voting rights in the U.S. Congress. Hence, most of these rules and regulations are enacted without the consent of Puerto Ricans and without the option to challenge or support them, making Puerto Ricans indefinitely dependent on

⁹⁷ Caban, Pedro. "Hurricane Maria's Aftermath: Redefining Puerto Rico's Colonial Status." University at Albany, State University of New York. 2019.

⁹⁸ Caban, Pedro. "Hurricane Maria's Aftermath: Redefining Puerto Rico's Colonial Status." University at Albany, State University of New York. 2019.

⁹⁹ Puerto Rico is prohibited from filing for relief under Chapter 9 of the federal bankruptcy code. See Pedro Caban for more.

the American corporate capital and federal transfers. Therefore, the continuity of the colonial legacies precludes the fundamental right to self-determination for Puerto Ricans.

Puerto Rico's status as an unincorporated territory of the United States does guarantee Puerto Ricans the U.S. citizenship. However, the U.S. federal government's response to Hurricane Maria was considerably slower than the government response to the hurricanes Harvey and Irma in Texas and Florida.¹⁰⁰ The year before Hurricane Maria, in 2016, the U.S. Congress authorized the 2016 Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA), which called for creating a Financial Oversight and Management Board (FOMB) for Puerto Rico to oversee Puerto Rico's finances.¹⁰¹ Colloquially known as *La Junta*, the FOMB became one of the most harmful aspects of contemporary U.S. colonialism in Puerto Rico, compounding the impacts of natural disasters. Therefore, these austerity programs showcase the imperialist form of governance that makes Puerto Ricans more vulnerable to any global issue, let alone the frequency of hurricanes in the region. In other words, Puerto Rico lost the already-restricted power it had to steer its economy, deepening its colonialism relationship with the United States. Rather than addressing the roots of Puerto Rico's economic troubles, *La Junta*, as the board is scathingly called on the island, has instead concentrated on short-term austerity measures that directly harm the Puerto Rican people, including increasing taxes on the working poor, cutting wages, closing hundreds of schools, educational programs, as well as providing tax breaks to entice U.S. investors.¹⁰²

¹⁰⁰ Sou, Gemma. "Reframing resilience as resistance: Situating disaster recovery within colonialism." *The Geographic Journal*. Vol. 188. Iss. 1. September, 2021.

¹⁰¹ Rodríguez-Díaz CE, Lewellen-Williams C. Race and racism as structural determinants for emergency and recovery response in the aftermath of hurricanes Irma and Maria in Puerto Rico. *Health Equity*. 2020;4(1):232-238.

¹⁰² Reichard's article titled "How Puerto Rico's Colonial Status Impairs Hurricane Relief" (2017).

One month after Hurricane Maria, aid had still not been approved by the U.S. government.¹⁰³ The Trump administration responded to the request by Puerto Rico with reminders of the island's debtor status to the U.S. and the rhetoric that Puerto Ricans have been too dependent on the U.S. for disaster relief. However, a colony that has remained a colony in various capacities for over 500 years shows a shift in blame by the U.S. government for Puerto Rico because the discourse on Puerto Rico's debt obligation is somewhat conflated.¹⁰⁴ Before Hurricane Maria, Puerto Ricans have mentioned a feeling that registers more in the imagination rather than the reality, which is the feeling of being part of the United States, or being a citizen of a wealthy nation. However, after Hurricane Maria, the violence experienced at the hands of the colonial state, showed otherwise.¹⁰⁵

Cascading disasters, enhancing vulnerability

Disaster capitalism occurs post-disaster in a disaster-affected location, as distinct from other expropriation and exploitation.¹⁰⁶ The tourism industry is often complicit, helping the reconstruction industry to take land from people under the guise of providing post-disaster aid.¹⁰⁷ Naomi Klein uses 'disaster capitalists' in her book *The Shock Doctrine* to highlight those who swoop in to profit from destruction. In the case of Puerto Rico, as Klein explains, the United States already treats Puerto Rico as a colony, as a captive market. Puerto Rican labor is useful to the U.S. Following Hurricane Maria, one of the responses has been taking Puerto Ricans out of Puerto Rico and not giving them return tickets home, which fitted in neatly with Trump's agenda

¹⁰³ García-López, G.A. The multiple layers of environmental injustice in contexts of (un)natural disasters. *Environmental Justice*. 11(3). 2018. 101–108.

¹⁰⁴ Willison, C.E., Singer, P.M., Creary, M.S. & Greer, S.L. Quantifying inequities in US federal response to hurricane disaster in Texas and Florida compared with Puerto Rico. *BMJ Global Health*. 2019.

¹⁰⁵ See Rosa Ficek (2018).

¹⁰⁶ Wright, Kelly-Ann, Kelman, Ilan, and Dodds, Rachel. "Tourism development from disaster capitalism." *National Library of Medicine*. October, 2020.

¹⁰⁷ Cohen's article on "Tourism and land grab in the aftermath of the Indian Ocean tsunami" (2011).

of getting political mileage out of deporting immigrants. But, quietly, Puerto Ricans are coming in and filling the labor hole.¹⁰⁸

According to Klein in her new book, *The Battle for Paradise: Puerto Rico Takes on the Disaster Capitalists* (2018), the aftermath of Hurricane Maria gave the perfect opportunity for exploiting the disaster and post-storm chaos. For example, the governor of Puerto Rico, Ricardo Rossello, announced in January 2018 that the electrical grid would be privatized. The process represents a prime opening of the market for profit-motivated private energy companies. In March, while thousands were still without lighting or reliable water and having their insurance claims rejected, a hedge fund manager hosted the Puerto Crypto conference to promote the island as the center of the blockchain and cryptocurrency industries and as a tax and corporate haven. Disaster capitalism, thus, created a unique environment in which corporations and investors thrive because it is all up for grabs: health, transport, education, identity, etc. Therefore, as Klein highlights, the vulnerability of Puerto Rico does not lie with the island or its lack of resources, but with the vicious cycle of dependence imposed by the federal government, which has kept the island in a seemingly perpetual crisis. As Klein puts it, “Puerto Rico finds itself locked in a battle of utopias. The Puertopians dream of a radical withdrawal from society into their privatized enclaves.” On the other side, community groups “dream of a society with far deeper commitments and engagement— with each other, within communities and with the natural systems, whose health is a prerequisite for any kind of safe future.”¹⁰⁹

As a result, disaster capitalism sees the implementation of an economic system in the shadow of a disaster. Disaster capitalism is merely the last rendition of a long legacy of colonial capitalism. Naomi Klein explains in an interview, “What I found really moving in Puerto Rico

¹⁰⁸ Doherty, Mike. “Naomi Klein on ‘disaster capitalism’ in Puerto Rico.” *Maclean’s* (Online). June, 2018.

¹⁰⁹ Wold, Mike. “A case study for disaster capitalism: Puerto Rico.” *Street Roots*. September, 2018.

was seeing the capacity to organize under such impossible circumstances, and I think that speaks to the island's deep, deep history of resistance to colonization, and the [activist] infrastructure that predated Maria, in terms of the resistance to what Puerto Ricans call La Junta, the fiscal control board."¹¹⁰

Therefore, Puerto Rican vulnerability is determined by the 500 years of colonialism, decades of economic decline, and limited resources for securing the infrastructure and strengthening social services. Several hurricanes that hit Puerto Rico over the years have blown away roofs and walls of ninety percent of the homes at times.¹¹¹ When scientists credit the United States as a wealthy country that "brings abundant resources to bear in adapting to climate change,"¹¹² Puerto Ricans affirm experiencing disdain through the ample demonstrations of the unequal and discriminatory application of disaster recovery assistance, especially during the 2017 hurricane season.¹¹³ Puerto Ricans are reminded of the famously epitomized image of then-President Trump tossing paper towels at hurricane refugees at a shelter in the disaster-struck Puerto Rico. The White House aides reacted and reported the incident as something Puerto Ricans enjoyed and declared victory for how the administration handled the disaster recovery processes.¹¹⁴ Yet, Puerto Ricans reported feeling disgusted and felt the lack of empathy from the Trump administration.¹¹⁵

¹¹⁰ Laughland, Oliver. "'I'm not fatalistic': Naomi Klein on Puerto Rico, austerity and the left." *The Guardian*. August, 2018.

¹¹¹ Rudner, Nancy. "Disaster Care and Socioeconomic Vulnerability in Puerto Rico." *Journal of Health Care for the Poor and Underserved*. May, 2019.

¹¹² Hess, Jeremy, Malilay, Josephine, and Parkinson, Alan. "Climate Change: The Importance of Place." *The health impacts of climate change*. Vol. 35. Iss. 5. November, 2008. pp. 468-478.

¹¹³ Garriga-López, Adriana Maria. "Compound disasters: Puerto Rico confronts COVID-19 under US colonialism." *Social Anthropology*. 2020. pp. 269-270.

¹¹⁴ Nakamura, David and Parker, Ashley. "'It totally belittled the moment': Many look back in dismay at Trump's tossing of paper towels in Puerto Rico." *The Washington Post*. September, 2018.

¹¹⁵ Keller, Megan. "José Andrés: Trump's Puerto Rico denial shows his 'lack of empathy'." *The Hill*. 2018.

Disaster colonialism explains how procedural vulnerability is deepened through the continuity of disasters.¹¹⁶ Natural disasters like hurricanes allow the continuation of racial violence and structural injustices. Disaster mitigation and adaptation should be ongoing, dynamic processes with critical attention to the timing and uplifting frontline communities to prioritize effective solutions.¹¹⁷ Thus, the accentuated vulnerability of the colony is characterized not only by neglect and disposability, but the intentionality of exploiting. Thus, the racialization of Puerto Ricans as colonial subjects¹¹⁸ and the change in Puerto Rico's status in the American empire over time made the island particularly vulnerable to the more recent hurricanes.¹¹⁹

The expectation of vulnerable communities, like Puerto Rico, to cope and adapt also highlights the paradox of resilience. Resilience is a common word used in disaster studies, meaning the ability to manage and survive. However, resilience has become a buzzword and an aspiration for civil society groups and regional governments to achieve amidst decades of systemic oppression and marginalized inequities. Within the first year of Hurricane Maria, the word 'resilient' became famously associated with Puerto Rico among scholars and politicians. However, with a historical record of more than nineteen strong storms and hurricanes similar to Hurricane Maria, Puerto Ricans question whether it is their resilience or the conditions they have to act on to overcome the effects before the next natural disaster. The association of Puerto Rico with a 'resilient' nation, in reality, deviates from the first step in solving a problem, which is accepting that a problem exists. According to many Puerto Ricans, the truth is that Puerto Rico is

¹¹⁶ Rivera, Danielle. "Disaster Colonialism: A Commentary on Disasters beyond Singular Events to Structural Violence." *International Journal of Urban and Regional Research*. Vol. 46. Iss. 1. 2020. pp. 126-135.

¹¹⁷ Nelson, Maria. "Getting By and Getting Out: How Residents of Louisiana's Frontline Communities Are Adapting to Environmental Change." *Housing Policy and Climate Change*. 2021.

¹¹⁸ Ficek, Rosa. "Infrastructure and Colonial Difference in Puerto Rico after Hurricane Maria." *Transforming Anthropology*. Vol. 26. Iss. 2. September, 2018. pp. 102-117.

¹¹⁹ Caban, Pedro. "Hurricane Maria's Aftermath: Redefining Puerto Rico's Colonial Status." University at Albany, State University of New York. 2019.

not as resilient as what is implied.¹²⁰ Because if they are, then why has Puerto Rico remained one of the most vulnerable countries to climate risks for two decades consequently?

¹²⁰ "Puerto Rico No Es Tan Resiliente." Medium. 2018.

Chapter Three: The Dangers of a “Resilient” Puerto Rico

In Puerto Rico, resilience discourse is a double-edged sword. First, the resilience discourse in Puerto Rico enables governments to shift the responsibility onto Puerto Ricans to better their communities, effectively denying the government’s responsibility and addressing the systemic power dynamics.¹²¹ Through the following examples, the case study of Puerto Rico illustrates that efforts centered on building a more resilient community is not limited to the U.S. government or Puerto Rican political institutions either.

My first example of how ‘resilience’ is portrayed in popular disaster risk and recovery efforts in Puerto Rico is the ReImagina Puerto Rico project. ReImagina Puerto Rico is a blue-print co-created by Puerto Rican professions from interdisciplinary fields that seeks to provide sets of recommendations “for building holistic resilience and ensuring billions in relief funds to have the greatest possible impact.”¹²² ReImagina Puerto Rico is led by the Resilient Puerto Rico Advisory Commission (RPRAC) with ninety-seven actions and recommendations to rebuild Puerto Rico by making the island stronger and better prepared for future challenges. Dr. Rajiv J. Shah, the president of The Rockefeller Foundation, commented on the project by saying “all of us want to see a Puerto Rico that is more equitable for our American brothers and sisters, more resilient to shocks and disasters, and provides opportunity for all Puerto Ricans in good times and bad.”¹²³ However, the narrative of resilience in the context applied by the ReImagina Puerto Rico project does not explicitly address the colonial legacies discussed earlier. Disregarding the colonial legacies is simply ignoring the reasons that continued to limit the

¹²¹ Figueroa and Rolon. “Clashing Resilience: Competing Agendas for Recovery After the Puerto Rican Hurricanes.” *Science Under Occupation*. (Does not have a clear publishing date)

¹²² “Resilient Puerto Rico Advisory Commission Releases ‘Reimagina Puerto Rico’ Strategy.” Press release by the Rockefeller Foundation. June, 2018.

¹²³ “Resilient Puerto Rico Advisory Commission Releases ‘Reimagina Puerto Rico’ Strategy.” Press release by the Rockefeller Foundation. June, 2018.

Puerto Rican access to essential services and the opportunity for quicker recovery after disaster aftermath.

Second, the devastating impacts on Puerto Rico post-Hurricane Maria sparked action among the Puerto Rican diaspora, who live in the continental U.S., and their goals aligned with the narrative of building community resilience as well. A group of Johns Hopkins University affiliates collaborated to initiate emergency aid “so that [Puerto Ricans] could recover from the hurricane as well as other challenges that might arise in the future.”¹²⁴ The initiative became known as Puerto Rico Stands, and the co-founder commented that “we really believe the best way to do this is by providing communities with the resources, skills, and tools they need to enact change themselves...You are empowering [Puerto Ricans] by building from within, and meeting a community where they are, not where you want them to be.”¹²⁵ Therefore, there is a heavy focus on community efforts that inherently implies that disaster risk prevention and preparation are the island communities' responsibility. In the Puerto Rico Stands example specifically, the involvement of the Puerto Rican diaspora is interesting because the diaspora itself developed a strong sense of community after Hurricane Maria. For example, since the initial impact of Hurricane Maria, the diaspora moved to organize supply drives, fundraisers, and coordination of other events to provide help to Puerto Rico.¹²⁶ Social media became a significant tool in highlighting the visibility of the devastation through messages from the diaspora, like, “I am here, but my heart is in Puerto Rico.”¹²⁷ Although not the focus of my thesis, it is worth mentioning to allude to how the concept of resilience applies to the Puerto Rican diaspora on the

¹²⁴ “Building Resilience in Puerto Rico.” Bloomberg American Health Initiative. Johns Hopkins Bloomberg School of Public Health. October, 2020.

¹²⁵ “Building Resilience in Puerto Rico.” Bloomberg American Health Initiative. Johns Hopkins Bloomberg School of Public Health. October, 2020.

¹²⁶ Martinez, Victor. “The Diaspora Helps Rebuild Puerto Rico.” Center for Puerto Rican Studies. [Published date unknown].

¹²⁷ Martinez, Victor. “The Diaspora Helps Rebuild Puerto Rico.” Center for Puerto Rican Studies. [Published date unknown].

U.S. mainland versus the island, showing the potentiality for a future comparative and in-depth analysis of Puerto Rican resilience.

Another significant example that narrates the need for resilience in Puerto Rico is through building more resilient infrastructures and self-reliant basic necessities. For example, grassroots groups like Comedores Sociales and communities like Tao Baja are taking steps on their own to build their capacity to respond to disasters. Grassroots initiatives after Hurricane Maria have created their own power grid and cultivated their own food, which is significant because eighty-five to ninety percent of food is imported to Puerto Rico.¹²⁸ ¹²⁹In the small town of Toa Baja, residents have opened health clinics with the help of foundations and charities that are entirely powered by solar panels so as not to be reliant on the island's damaged infrastructure in another storm.¹³⁰

Therefore, these examples from the post-Hurricane Maria period show extensive examples, often varied, of how the term is applied to different disaster recovery or risk preparation efforts. However, the narrative that I just showed that centers the responsibility on the already vulnerable community illustrates a contesting idea that Puerto Ricans are so good at being resilient. Gonzalez Martizes highlights that there is a larger focus on celebrating resilience rather than questioning why resilience is needed in the first place.¹³¹ Resilience through such a narrative is dangerous because it shows “the idea that if you have a group of people who are struggling and trying to recover from a natural disaster and then, even though the state does not

¹²⁸ Figueroa, “Clashing Resilience: Competing Agendas for Recovery After the Puerto Rican Hurricanes.” Greg Allen and Maria Penaloza’s article for the reference on Toa Baja (2019).

¹²⁹ Hoppough, Tomas. “Puerto Rico’s change towards food sustainability.” Denver 7 ABC. August, 2021.

¹³⁰ Allen, Greg and Penaloza, Marisa. “‘I Don’t Feel Safe’: Puerto Rico Preps For Next Storm Without Enough Government Help.” NPR. July, 2019.

¹³¹ Martinez, Erica Gonzalez. “Will the Media Get Past the ‘Resiliency’ of Puerto Ricans?” Women’s Media Center. March, 2021.

respond adequately to their needs,”¹³² then surviving in the face of adversity feels like something worth celebrating.

However, the narrative of resilience that centers the community responsibility or frames resilience as a celebration masks the undue trauma of hurricanes Puerto Ricans have experienced through centuries of neglect and colonial legacies. Resilience, therefore, is also understood as a form of trauma due to the years of abandonment by local and federal governments, which resulted in the conditions in which communities were forced to take care of themselves.¹³³ According to Puerto Ricans who challenge the initial discourse of resilience I highlighted in this chapter, “although the innovative and effect communal responses developed by organizations across Puerto Rico are certainly worthy of praise, narratives of resilience obscure the U.S. and Puerto Rican government’s failure to provide Puerto Rican citizens with adequate resources, infrastructure, and support.”¹³⁴ In this case, then, resilience was born out of necessity. But through the colonial contexts and the continuity of coloniality I illustrated in chapter two, forced to sustain themselves is not new to communities living in colonized conditions. For example, even through the grassroots and community-driven initiatives I highlighted earlier, there is a clear neglect of governmental institutions that makes Puerto Ricans fend for themselves at times of crises. Especially in the case of Hurricane Maria and Puerto Rico, the Trump administration severely downplayed the severity of Hurricane Maria in notable ways. According to an interview by a Puerto Rican, following the event where Trump noticeably threw the paper towels at disaster-struck Puerto Ricans in a refugee shelter, she commented remembering “when Trump case, he was just like, ‘Oh, you only have like, I don’t know, 20 people died.’ And I was like,

¹³² Martinez, Erica Gonzalez. “Will the Media Get Past the ‘Resiliency’ of Puerto Ricans?” Women’s Media Center. March, 2021.

¹³³ Boyles, Christina. “Resilience, Recovery, and Refusal: The (Un)tellable Narratives of post-Maria Puerto Rico.” Enculturation. November, 2020.

¹³⁴ Boyles, Christina. “Resilience, Recovery, and Refusal: The (Un)tellable Narratives of post-Maria Puerto Rico.” Enculturation. November, 2020.

‘No, those numbers are not real.’ But it also has to do with our government. Because I—don’t think they have been as transparent as they could.”¹³⁵

In addition to the frustration, Puerto Rican comments on the constant need to be resilient also reveals how Puerto Ricans have historically developed responses to fight against injustices. Therefore, the examples from Puerto Rico illustrate a futuristic dimension of resilience as an adaptation that occurs in the post-disaster phase as a strategy to mitigate future disasters. Although there is a lack of scholarly literature on the dangers of resilience specific to Puerto Rico, there are other examples such as communities in the Zambezi Valley of Zimbabwe, which exhibit similar findings. For example, Zambezi Valley of Zimbabwe has a drought-stricken community who have adapted to unreliable rainfall by growing a drought-resistant type of millet, ‘nzembwe,’ produced in response to drought spells experienced during the rainy season.¹³⁶ Thus, any example that shows resilience as a desired outcome or a process leading to the desired outcome orients the responsibility towards the community that is already in harm. However, admittedly, resilience is a novel discourse in disaster scholarship, but still helps us to obtain a more complete explanation of vulnerabilities.

¹³⁵ Boyles, Christina. “Resilience, Recovery, and Refusal: The (Un)tellable Narratives of post-Maria Puerto Rico.” *Enculturation*. November, 2020.

¹³⁶ Manyena, Siambabala Bernard. “The concept of resilience revisited.” *Disasters*. 2006.

Conclusion

In conclusion, I used the case study of Puerto Rico with a specific focus on Hurricane Maria to assess some of the broad explanations of why Puerto Rico is vulnerable to hurricanes. Narrowing the conceptual framework of vulnerability only to include social vulnerability, the concepts of disaster colonialism and capitalism not only show why Puerto Rico is vulnerable but also illustrate why Puerto Rico has remained vulnerable for decades. Through my examples across the timeline from the first recorded hurricane in Puerto Rico by the Spanish colonists in 1508 to Hurricane Maria in 2017, Puerto Rico has a unique situation of coloniality that illustrates one factor, disaster colonialism, contributing to its vulnerability. However, more contemporary elements, such as the concept of resilience, explicitly highlight the shift of responsibility on affected communities rather than governments to address issues of disaster prevention and preparedness. My findings show that the current predominant narrative of resilience in Puerto Rico takes a reactive approach to disasters rather than focusing on preventing future disasters and further harm.

My contribution to the literature is the additional elements of resilience along with the discourses of disaster colonialism and capitalism that makes a more comprehensive argument to explain the vulnerability of Puerto Rico. Highlighting the reactive approach to disasters and the missed opportunity to focus on preventing natural disasters is exceptionally relevant to Puerto Rico due to the projections of further vulnerability as a result of the increased risks of climate change. For Puerto Rico, climate change is not a threat to the future. The sea levels have continued to rise by about an inch every fifteen years, tropical storms have gradually become more intense, and the changing climate is likely to increase in intensity in how it affects vulnerable island communities like Puerto Rico. Placing the responsibility of building resilience

to climate change on the affected communities disregards the history of colonial violence and systemic injustices. Projecting the vulnerability of Puerto Rico to future climate threats, a 2019 study already reported that the climate crisis strengthened precipitation caused by Hurricane Maria in 2017, highlighting the potentiality for more intensified future natural disasters.¹³⁷ When climate change projections for the broader Caribbean region suggest longer dry periods interrupted by more intense storms, then Puerto Rico, the Caribbean island most vulnerable to Climate Risk Index, is looking towards a future of more devastation.

From my analysis, I fill the gap of describing disaster colonialism and capitalism as past undertakings by showing that its legacies are still continued in how contemporary narratives are framed and used in Puerto Rico. A relevant topic for future research is breaking down the conceptual framework of vulnerability to assess how specific groups within the affected communities are more vulnerable than others. For example, even though Hurricane Maria hit Puerto Rico the hardest, even within the island, Puerto Rican women faced unique challenges signifying that women typically pay a higher price during and after a disaster with their lives and labor.¹³⁸ Therefore, breaking the hierarchy of the vulnerable groups, even within the most vulnerable communities, allows for more effective disaster prevention and broader climate solutions. Outside the scope of social factors specific to Hurricane Maria, the hurricane aftermath also correlated with the devastation and increased gender-based violence in Puerto Rico.¹³⁹ Hence, all of these additional layers of factors would give an even more comprehensive understanding of Puerto Rican vulnerability during and after natural disasters.

¹³⁷ Rodriguez, Meghie. "Puerto Rico Adapts to a Changing, Challenging Environment." EOS. April, 2021.

¹³⁸ Calma, Justine. "Hurricane Maria hit women in Puerto Rico the hardest. And they're the ones building it back." Grist. March, 2018.

¹³⁹ Vigaud-Walsh, Francisca. "Hurricane Maria's Survivors: 'Women's Safety Was Not Prioritized.'" Refugees International. September, 2018.

Another crucial empirical question for relevant future research is how the role of the diaspora and their demonstration of resilience fits into the broader narrative. Since the very beginning of the hurricane crisis, the Puerto Rican diaspora demonstrated a great sense of unity and community by actively advocating for the island nation. The diaspora showed up by coordinating events to fundraise and help with supplies and participating in social media campaigns to raise awareness about the devastation.¹⁴⁰ The diaspora's embracing of shared national identity alludes to the paradox of resilience when framed as empowering language by Puerto Ricans to reclaim their power to tell their own story. Seeing their potential and power to strengthen how affected communities deal with natural disasters is a simple method of coping with adversities. Although the agency is not to be confused with who is responsible for the continued vulnerability, the paradox is essential to highlight.

Further, my research is also generalizable to other locations, like the Maldives, which also has a reputation for being vulnerable with normalization of being vulnerable. The Maldives has significant landmarks of advocacy and activism to change how the rest of the world perceives the island nation. The first school strike for climate change was held in 1989 in the Maldives ahead of the first-ever Small States Conference on Sea Level Rise in Male' City, Maldives.¹⁴¹ However, the most widely known school strike started in August 2018, almost three decades later, alongside Greta Thunberg, the Swedish teen credited for being the first climate activist.¹⁴² Again, I am not disregarding the strength of the 2018 movement and how it influenced many young people across the globe to be more aware of climate change. Instead, I am merely highlighting the normalization of vulnerable communities as simply vulnerable and expected to

¹⁴⁰ Martinez, Victor. "The Diaspora Helps Rebuild Puerto Rico." Center for Puerto Rican Studies, Hunter College.

¹⁴¹ Black, Conrad. "The moving targets of the climate change movement." *The Hill*. 2021.

¹⁴² Kraemer, Daniel. "Greta Thunberg: Who is the climate campaigner and what are her aims?" *BBC*. November, 2021.

continue to fit into the narrative of enduring the vulnerability. The Maldives also held the world's first underwater cabinet meeting in 2009, demonstrating the great length to which small island nations have to display our vulnerability to receive adequate attention. Therefore, my research on the causes of vulnerability and the framework of resilience in the context of Puerto Rico applies to other small island nations like the Maldives in myriad ways.

As the effects of climate change continue to intensify, it will become even more crucial to understand why and how affected communities are more exposed to and impacted by natural disasters and climate-related events. Although climate change impacts - or will impact - us all at some point, no matter where we live, it does not mean that it will affect us equally. Therefore, analyzing the multitudes of ways island nations, like Puerto Rico, is and has remained vulnerable to natural disasters present a short window of opportunity to act on preventing future harm and threats. Disaster colonialism and capitalism offer part of the explanation of how colonists and their conquerors built and maintained the foundations of colonialism and structural injustices responsible for the vulnerability. However, a missing piece of the puzzle is also looking into the more contemporary narratives, like resilience, especially those that have paradoxical meaning to achieve a more comprehensive understanding of vulnerability. An equitable and intersectional approach to combat the harmful effects of climate change is the ultimate solution to the issue. Therefore, understanding all the many reasons why Puerto Rico is vulnerable centers the community to be able to prevent harm rather than react to it.

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Annex: Database of ‘Resilience’ Literature

Year	Author/s	Title	Publication Company	±	Keywords/Phrases
2022	Mellie Torres, R et. al	¡Estamos Bien, Puerto Rico! Young Adults and the Impacts of Compounding Disasters	Syracuse University	positive	But young people also have other capacities that can make them resilient and important contributors to community recovery.
2022	Pena, Alexander	The Resilient Island - Revitalizing a Broken Home	University of Maryland	positive	What type of resiliency is needed and what could help the islanders better prepare for environmental impacts?
2022	Sayers, Elizabeth L. Petrun et. al	‘We will rise no matter what’: community perspectives of disaster resilience following Hurricanes Irma and Maria in Puerto Rico	Journal of Applied Communication Research	positive	...the importance of infrastructure, particularly communication infrastructure, to promote community resilience
2022	Deil-Amen, Regina	Cultivating hope through creative resistance: Puerto Rican undergraduates surviving the disasters of climate and colonization	International Journal of Qualitative Studies in Education	positive	creative and artistic means to critically reflect on their experiences and the ways that not just resiliency, but also resistance captured their actions
2022	Pulwarty, Roger et. al	Risk to Resilience: Climate change, disasters and the WMO-UNDRR Centre of Excellence	World Meteorological Organization	positive	The Centre of Excellence will focus attention on highly vulnerable and fragile contexts where needs are greatest, but obstacles make resilience building especially challenging.
2022	Rueda, Gabriela Manrique	Resilient infrastructure in the Anthropocene	Advance: social sciences & humanities	positive	...this article explores the impacts of natural disasters...to create resilient infrastructures in the Anthropocene...

2022	Rivera-Crespo, Omayra et. al	Resilient housing in Puerto Rico: resisting disaster by redefining housing.	Revista de Arquitectura (Bogotá)	positive	purpose of this reflection article is to investigate the concept of resilience as a resistance enhancer in the case of housing in a natural and socioeconomic post-disaster context, in Puerto Rico.
2022	Contreras, Santina and Niles, Skye	Building resilience through informal networks and community knowledge sharing: post-disaster health service delivery after Hurricane Maria	Environmental Hazard	positive	Furthermore, our research illustrates how deficient government support and systematic failings shift the burden of resilience building onto community members and organisations.
2022	Baggerly, Jennifer et. al	Cultural adaptations for disaster response for children in Puerto Rico after Hurricane María	Journal of Multicultural Counseling and Development	positive	We recommend cultural adaptations for training mental health professionals and providing children's disaster response in Puerto Rico.
2021	Andrade, Elizabeth et. al	Resilience of Communities in Puerto Rico Following Hurricane Maria: Community-Based Preparedness and Communication Strategies	Cambridge University Press	positive	This study aimed to examine factors that may have contributed to community disaster resilience following Hurricane Maria in Puerto Rico.
2021	Sou, Gemma	Reframing resilience as resistance: Situating disaster recovery within colonialism	The Geographic Journal	negative	This paper challenges resilience literature, which often strips grassroots actors of their political agency and reduces their resilient actions to no more than adapting, mitigating or recovering from an exogenous hazard.

2021	Crisman, Thomas et. al	RESILIENCE OF ENVIRONMENT, INFRASTRUCTURE, COMMUNITIES, AND GOVERNANCE IN PUERTO RICO AFTER HURRICANE MARIA AND THE NEED FOR COMMUNITY EMPOWERMENT TO DEVELOP DECENTRALIZED, NATURE-BASED SOLUTIONS TO SUSTAINABILITY	Journal of Emergency Management	positive	Their strong interrelationship is key to developing decentralized, nature-based solutions to address immediate and projected threats to resiliency and sustainability of communities in Puerto Rico
2021	Rivera, Fernando	ANALYSIS OF PRE- AND POST-DISASTER MANAGEMENT AND RECOVERY IN PUERTO RICO FROM HURRICANE MARIA	Journal of Emergency Management	positive	As the frequency and intensity of major weather events continues to rise there is a need for a holistic understanding for emergency managers to better mitigate, prepare, response, and recover to disasters and emergency situations.
2021	Chapel, Alison et. al	Relationships Between Distribution of Disaster Aid, Poverty, and Health in Puerto Rico	SSRN	positive	Findings are expected to provide new insights to inform development of economic policies that build social resilience and manifest improved public health.

2021	Daza, Luis et. al	Developing Case Studies for a Repository for Resilient Infrastructure and Sustainability Education following a Natural Disaster	ASEE	positive	...resiliency and sustainability in the build environment
2021	Deng, Yang	Building disaster resilience of water supply with household water treatment	Water Environment Research	positive	...building disaster resilience
2021	Chen, Shen-En et. al	Resiliency of Power Grid Infrastructure Under Extreme Hazards - Observations and Lessons Learned from Hurricane Maria in Puerto Rico	GeoChina 2021 Conference	positive	The field information and data presented in this paper provide insight to help the engineering community adapt and improve design and construction practices to improve resiliency of our infrastructure and lifelines.
2021	Cordova, Amado and Stanley, Karlyn	Public-private partnership for building a resilient broadband infrastructure in Puerto Rico	Telecommunications Policy	positive	Puerto Rico is rebuilding and making more resilient its telecommunications sector, which was devastated by hurricanes in 2017.
2021	Chandrasekar, Divya et. al	Recovery Capacity of Small Nonprofits in Post-2017 Hurricane Puerto Rico	Journal of the American Planning Association	positive	...a phenomenon that has already led to formalization of their role in national and global disaster resilience initiatives.
2021	Garcia, Ivis et. al	Nonprofit Response to Concurrent and Consecutive Disaster Events in Puerto Rico	University of Colorado Boulder - National Hazards Center	positive	...and how nonprofit organizations could be made more resilient in the face of multiple disasters.

2021	Best, Michelle and Gonzalez, Jose	Community Resilience in the Face of Natural Disaster: Puerto Rico's Adventure Tourism Industry	Managing Crises in Tourism	positive	Resilient people are pivotal to community resilience.
2021	Aros-Ver a, Felipe et. al	Increasing the resilience of critical infrastructure networks through the strategic location of microgrids: A case study of Hurricane Maria in Puerto Rico	International Journal of Disaster Risk Reduction	positive	We develop a methodology to evaluate the potential of microgrids to increase the resilience of critical infrastructure (CI) networks, and mitigate the impact of catastrophic failure in disaster situations
2021	Scott, Blake and Masys, Anthony	Vulnerability Analysis to Support Disaster Resilience	Sensemaking for Security	positive	Additionally, this chapter will evaluate how these incidents impact security and how sensemaking can be used to increase disaster resilience.
2021	Noel Jr, Richard and Torres-R uiz, Jose	Integrity and resilience in the face of multiple crises: commentary from Puerto Rico	Forensic Sciences Research	positive	We believe that showing consideration for our students, staff, faculty and research participants and being transparent about our decisions has helped to foster resilience and solidarity.
2021	Sotolong o, Marisa et. al	Using environmental justice to inform disaster recovery: Vulnerability and electricity restoration in Puerto Rico	Environmental Science & Policy	positive	Our research recommendations include further study to identify possible environmental variables that might better correlate with natural disaster resilience, such as land ownership and green space,
2020	Weir, Tony and Kumar, Mahendr a	Renewable energy can enhance resilience of small islands	Natural Hazards	positive	This paper summarizes some of the ways in which increased use of renewable energy can reduce vulnerability of nations and communities to hydro-meteorological disasters (i.e. enhance their resilience).

2020	Cortes, Leslie Maas et. al	The Caribbean Strong Summit: Building Resilience With Equity	Cambridge University Press	positive	The objective of the Caribbean Strong Summit was to plan an intersectoral summit to address the equity of community health and resilience for disaster preparedness, response and recovery and develop a set of integrated and actionable recommendations for Puerto Rico and the Caribbean Region post Hurricanes Irma and Maria.
2020	Yabe, Takahiro et. al	Understanding post-disaster population recovery patterns	Journal of the Royal Society Interface	positive	Despite the rising importance of enhancing community resilience to disasters, our understandings on when, how and why communities are able to recover from such extreme events are limited.
2020	Serrano-Garcia, Irma	Resilience, Coloniality, and Sovereign Acts: The Role of Community Activism	American Journal of Community Psychology	negative	So-called “resilience” also allowed Puerto Ricans to avoid the impact of colonialism and coloniality on pre-existing conditions which hurricanes accentuated. In this context, community activism played a major role.
2020	Bonilla, Yarimar	The swarm of disaster	Political Geography	negative	Rhiney suggest that Puerto Rico has become an emblem for the “repeating disaster” of the Caribbean.
2020	Roque, Anais Delilah et. al	The Role of Social Capital in Resiliency: Disaster Recovery in Puerto Rico	Risk, Hazards & Crisis in Public Policy	positive	This paper explores how barrios (small legal divisions) can use social capital to recover and potentially increase resilience before after a disaster.
2020	Bonilla, Yarimar	The coloniality of disaster: Race, empire, and the temporal logics of emergency in Puerto Rico, USA	Political Geography	negative	It concludes that while resiliency can be coopted in service of a neoliberal recovery, it can also be the site for gestating new forms of sovereignty and new visions of postcolonial recovery.

2020	Krantz, David	Solving Problems like Maria: A Case Study and Review of Collaborative Hurricane-Resilient Solar Energy and Autogestión in Puerto Rico	Journal of Sustainability Research	positive	...communities through hurricane-resilient solar energy to help create...
2019	Kim, Karl and Bui, Lily	Learning from Hurricane Maria: Island ports and supply chain resilience	International Journal of Disaster Risk Reduction	positive	Tactical, operational, and strategic actions can increase resilience of island port facilities.
2019	Sánchez, José G. Ardila et. al	A Descriptive Analysis of the Effects of Weather Disasters on Community Resilience	Behavior and Social Issues	positive	At the applied level, identifying these factors can potentially inform future weather disaster-related preventive recovery and adaptive measures and procedures.
2019	Hayward, R. Anna et. al	“Todo ha sido a pulmón”: Community organizing after disaster in Puerto Rico	Journal of Community Press	positive	Specific goals for this challenge include community-based adaptation and resilience building, disaster mitigation, and specific training on disaster preparedness and response for social workers
2019	Borges-Mendez, and Ramon and Caron, Cynthia	Decolonizing Resilience: The Case of Reconstructing the Coffee Region of Puerto Rico After Hurricanes Irma and Maria	Journal of Extreme Events	negative	For resilience to be a useful conceptual device, we argue for decolonizing resilience and show the relevance of such an argument through a case study of the island’s coffee-growing region.
2019	Moradi, Saeed et. al	A REVIEW OF RESILIENCE VARIABLES IN THE CONTEXT OF DISASTERS	Journal of Emergency Management	positive	The increasing impacts of disasters, caused by more frequent extreme events coupled with the growth of adverse anthropogenic activities, has raised the importance of fostering more resilient communities.

2018	O'Neill-Carrillo, Efrain and Rivera-Quinones, Miguel	Energy Policies in Puerto Rico and their Impact on the Likelihood of a Resilient and Sustainable Electric Power Infrastructure.	Centro Journal	positive	This paper strives to remind policymakers (local and federal) of recent local policies and discuss how their outcomes exemplify the challenges that need to be addressed for a transition to a more distributed, sustainable and resilient electric infrastructure while truly fostering local socio-economic development.
2018	Torres, Brenda	After María, Resilience in Puerto Rico	NACLA Report on the Americas	positive	These multiple risks materialized immediately as barriers to the country's reconstruction, and thus, its resilience.
2018	Sandifer, Paul and Walker, Ann Hayward	Enhancing Disaster Resilience by Reducing Stress-Associated Health Impacts	Frontiers in Public Health	positive	A primary goal of many disaster preparedness, response, and recovery plans is to reduce the likelihood and severity of disaster impacts through increased resilience of individuals and communities.
2018	M. de Onis, Catalina	Fueling and delinking from energy coloniality in Puerto Rico	Journal of Applied Communication Research	negative	I critique four rhetorical problems in the wake of the 2017 hurricane season related to 'natural' disasters, rebuilding, resilience, and experimentation.