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Targeting the Roots of Disaster:

Community Work Dismantling Vulnerability in Mariana, Puerto Rico after Hurricane Maria

An undergraduate thesis submitted in partial completion of College Honors

Department of Geography

University of Vermont

May 2019

By

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In memory of Zippy and Scout.

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Abstract

Although not always recognized as such, catastrophes are complicated systems that are built on the social production of vulnerability. This thesis considers how responses to catastrophes are usually built on an oversimplified understanding of what they are, and argues that more nuanced, multi-faceted understandings of catastrophes can guide us to more effective solutions. I situate my research in Mariana, a rural neighborhood located on the coastal mountains of south-eastern Puerto Rico, where, in response to the lack of aid received from the federal government following Hurricane María, leaders of the community developed the *Proyecto de Apoyo Mutuo* (the Mutual Support Project – PAM). I explore how PAM articulates and confronts the systems of oppression and marginalization that have produced vulnerabilities in Puerto Rico over decades. Then, using the conceptual framework that I'm calling 'dismantling vulnerability', I analyze the organization's response to catastrophe and the ways in which it has developed actions to address the root sources of vulnerability in efforts to move their community forward from catastrophe.

Introduction

When we think of 'catastrophe' or 'disaster', in our minds we conjure up images or memories of loss, disruption, destabilization and destruction. This is because these terms describe a human experience. As straightforward and simple as that may be, we often lose sight of that. Too often, the phrases 'catastrophe', 'disaster' or 'natural disaster' are used to describe the occurrence of an event – such as a hurricane – when the true disaster lies not in the atmospheric conditions producing a hurricane, but in its implications for human loss and devastation. Catastrophes are best understood as complex, multi-scalar processes that are born from the production of vulnerability, however we often simplify them to singular events that seemingly strike at random. When we do this, we disassociate catastrophes from human actions and influence, and we prevent ourselves from being able to see the spatial and temporal magnitude at which they are produced and experienced.

In this thesis, I explore how an understanding of 'catastrophes' as processes can encourage us to critically examine their root causes, identify their cyclical nature, and establish the groundwork for a new concept I'm calling 'dismantling vulnerability' which seeks to disrupt the cyclical process of vulnerability and disaster. This approach to disaster response goes beyond treating the symptomatic problems that are hyper-evident during a disaster to address the root causes of catastrophe and vulnerability that are embedded in the production and re-production of vulnerability by systems of colonialism and oppression that are entrenched into our social systems.

I contextualize my discussion of catastrophes and vulnerability in the conceptual groundwork that has been developed in the interdisciplinary specialty field of disasters research

and apply it to the case of Puerto Rico and the catastrophe unfolded by Hurricane Maria. Key to approaching this research from a geographic perspective is an analysis of the temporal and spatial scales at which systems connected to the social production of vulnerability form and operate. I also employ critical understandings of how places and communities are created, re-created, and co-created through the forming and strengthening of different kinds of networks. Hurricane Maria, which struck Puerto Rico in September of 2017, is an example of a catastrophe attributable to systematic vulnerabilities that emerged over decades and centuries. In the context of an extremely tumultuous 2017 hurricane season, Hurricane Maria stands out from its' counterparts (Hurricanes Irma and Harvey) because of how deeply it shook Puerto Rico and the severe conditions of disaster and devastation that were ongoing for such a long time following the initial impact of the storm on Puerto Rico.

I then apply the 'dismantling vulnerability' framework to a case study of a community organization called the *Proyecto de Apoyo Mutuo,* Mariana (the Mutual Support Project of Mariana – PAM), based in a rural neighborhood called Mariana in southeaster Puerto Rico where, following Maria, a group of community leaders started responding to the urgent needs of their neighbors when aid and relief didn't arrive.

During the summer of 2018, I spent two months working with PAM in Mariana - an initiative that arose in the wake of Maria in response to the devastating impact of the storm and the negligible aid response on behalf of the U.S. federal government. My research investigates how the PAM's efforts to articulate and confront the systems of oppression and marginalization through their projects have allowed them to develop an approach to responding to disaster that demonstrates and effort to 'dismantling vulnerability' from its roots.

I was connected to the leaders of PAM through a personal connection of my advisor and set up an arrangement with the organization in which I was given access to community organization leaders and volunteers in exchange for supporting the development of their Mariana Emergency Plan project by helping to develop maps for them. While staying in Mariana, I tried to be conscious of how my presence in the community impacted the organization, the volunteers, and the residents and identify the ways in which my presence was extractive so that I could work to mitigate them. It became increasingly apparent that PAM had received a lot of media attention after word about the work they were doing got out and that, because of this, many members of the community were feeling taxed by all the interviews asked of them. Accordingly, I adjusted my data collection approach to first focus on collecting and reviewing as much of the secondary data before conducting time and energy intensive interviews so that I could be informed on what questions I wanted answered and which questions would be redundant. During my stay I also developed a deeper recognition of how my impermanence to the organization's efforts in and of itself was unavoidably disruptive and extractive but hope my help with mapping makes some kind of a valuable contribution to the organization.

Literature Review

INTRODUCING CATASTROPHE

Catastrophes can best be understood as processes rooted in the systemic production of vulnerability, which develop and are experienced over multiple temporal and spatial scales. Because of their complexity, however, they are widely misunderstood as 'natural disasters' that are disassociated from human actions and systems.

The term 'natural disaster' is frequently used to refer to earthquakes, hurricanes, and other "extremes of nature" that are seen as "horrendous tragedies, as accidents or even freak events" over which humans have no control (Fordham et. al, 2013, p. 38). Dominant discourses that often echo through mainstream media outlets perpetuate this understanding of disasters as disconnected from human action and responsibility, portraying "humans [as] passive victims" (Fordham et. al., 2013, p. 31; Aldrich, 2010). Popular understandings of 'natural disasters' rely on the notion of disaster as "an event rather than a process" (Oliver-Smith, 2002, p. 23). This understanding of disaster limits the temporal scale at which we consider *how* disasters come to be, and *what* a 'response' or 'recovery' process entails.

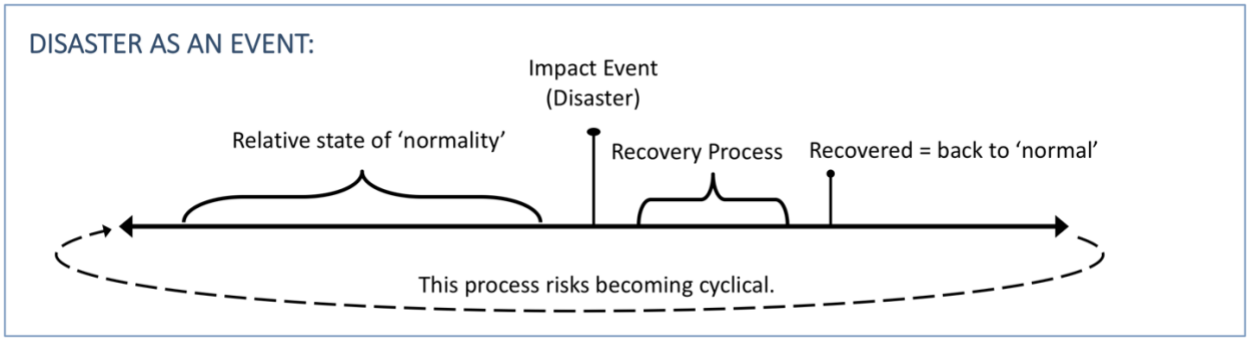


Figure 1 Disaster as an event conceptual diagram

Figure 1 depicts the event-based framing of disaster. As shown, the scale of time starts off with a relative state of 'normality' which is then disrupted by an impact event (such as an earthquake or a hurricane). In this conceptual framework the disaster *is* the impact event, which is then followed by recovery process that ends when things have gone back to normal. However, when we use the terms 'catastrophe' or 'disaster', we are usually talking about and referring to the lived experience of loss, grief, danger, disruption, and destabilization that are experienced by humans, rather than the occurrence of severe weather or impact event. That is to say, it is the loss and pain that communicate to us that something is or was a disaster, not the quantified intensity of a given storm or other impact event. One of the most important problems with understanding disasters as events is that this conceptualization disassociates human actions and systems from the consequences of catastrophe, overlooking the direct connections that exist between them and altogether ignoring the dynamics at play in these human-environment relationships.

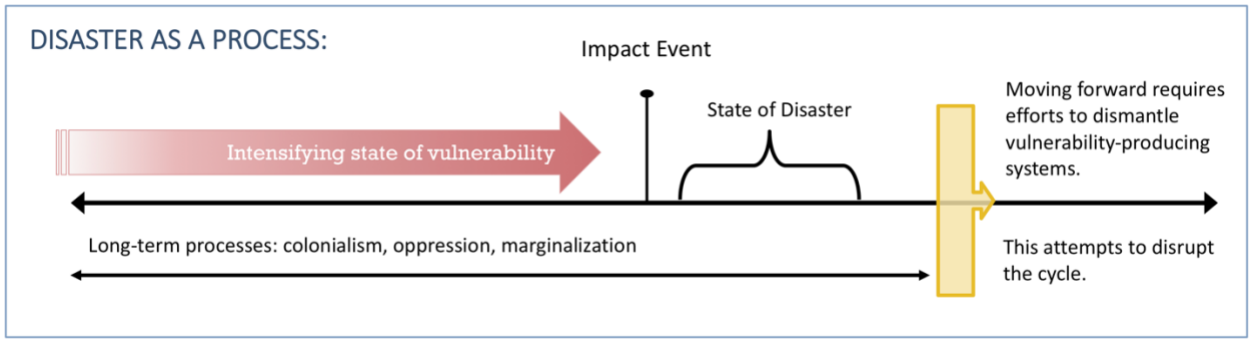


Figure 2 Disaster as a process conceptual diagram

Instead of considering disasters as events, I understand disasters to be processes that develop and are experienced across multiple scales of time and space. As depicted in Figure 2, the process of a disaster starts with the production of vulnerability which results in people

living in unsafe and/or unprotected conditions or circumstances. It is then, in a heightened state of vulnerability that an impact event, like a hurricane, surpasses the capacity of a given place to resist its force and thus a state of disaster unfolds. In this case the 'disaster' is referring to the human experience of loss and destabilization of lives, rather than an extreme weather event.

By adopting a 'catastrophe as a process' framework, we are able to develop a more dynamic conceptualization of catastrophe that rejects the idea of 'humans as passive victims' to disaster and acknowledge that "most disasters are more explainable in terms of … the conditions of inequality and subordination in a society rather than the accidental geophysical features of a place" (Oliver-Smith, 2002, p.27). This framework also encourages us to be critical of how we frame and develop disaster response efforts. If we were to follow the more traditional idea of catastrophe, we would expect to see a recovery process which would be completed once there was a return to 'normal'. But if we understand that catastrophes are processes that are built on the production of vulnerability, then returning to 'normal' actually means there is a return to the same state of vulnerability that existed before. This results in a cyclical process that perpetuates the production of vulnerability and the increasing marginalization of the most impacted communities.

Maintaining a multi-temporal perspective when approaching a catastrophe, especially one which includes an impact event such as a storm, can be difficult because there is a need to think both in the short- and long-term to facilitate immediate preparation and response to the given impact, while also recognizing and responding to the sometimes-invisible vulnerability-producing systems at work. Cutter and colleagues apply a temporal variability framework to

categorize events by their rate-of-onset, using it to distinguish “rapid onset events such as hurricanes” from “slow onset hazards” such as “global temperature variations, sea level rise, drought, disease, and famine” (Cutter et al., 2008, p. 602). However, this is a rather one-dimensional understanding of catastrophe because it fails to use the temporal variability framework to take a step beyond to develop an understanding of how so-labeled ‘rapid onset events’ or ‘slow onset events’ are experienced and operate over multiple temporal scales. In contrast Kienberger and colleagues develop a framework for examining vulnerability that employs multiple spatial and temporal scales which help “[highlight] the multi-faceted nature of vulnerability” (2012, p. 1344).

Adopting dynamic frameworks for researching catastrophes across numerous scales of space as well as time allows us to better understand and account for social roots of catastrophes that can reach back to the deep-cutting legacies of colonialism, the large-scale exploitation of a country or state, and the systemic oppression of people. They also help reveal the uneven burden of catastrophes that exists across groups. Connecting catastrophes with the human-driven processes that provoke, cause, or exacerbate them is extremely important because it uncovers how and why marginalized groups are victim to the harshest impacts. Often, the social, economic and political systems in place that produce and perpetuate inequalities and produce vulnerability exist unnoticed by those unburdened by them because of the longer temporal scales and non-localized spatial scales at which they operate. Meanwhile, groups exposed to the consequences of these systems (usually in regions with deep colonial legacies of extraction and oppression) become increasingly susceptible to catastrophic situations when they experience an impact event that disrupts any balance that existed before.

Uncovering these patterns of social differentiation of catastrophe has led many including Oliver-Smith to argue that "the root causes of disaster lay more in society than in nature" and has placed a new emphasis on vulnerabilities research (Oliver-Smith, 2002, p.27).

Understanding Vulnerability

The term vulnerability has a lot of meanings associated with it. Within the field of catastrophes research, vulnerability as a concept became more refined and played a more key role starting in the 1950's, when the term generally referred to "the aspects of society that reduce or exacerbate the impact of a hazard" (Oliver-Smith, 2002, p. 21). Since then many new conceptualizations of vulnerability have emerged – some placing emphasis on the risks associated with living in a particular place and a general level of susceptibility to harm (Adger & Brown, 2009), some describing it as a combination of "biophysical and socially constructed risk" (Oliver-Smith, 2002), and others understanding it as "sets of unsafe conditions" that are "generated through a chain of root causes embedded in ideological, social and economic systems" (Wisner et al, 1994). This final definition is particularly effective because it successfully broadens the relevant temporal and spatial scales of catastrophe in a way that positions impact events like natural hazards as more of a trigger for the pre-existing roots of catastrophe to be exacerbated and brought to new extremes.

Because it is increasingly recognized that catastrophes are intimately tied to human actions and social processes, I will focus my own discussion on the social production of vulnerability. Social vulnerability is the result of "processes of social inequality and historic patterns of social relations that manifest as deeply embedded social structural barriers resistant to change" and which result in certain groups being more exposed to harm from an impact

event (Fordham et al., 2013, p. 12). It also allows us to better identify how, like catastrophes, vulnerability is socially differentiated. Adger and Brown note that vulnerabilities are felt differently – even on the individual level and within the same household – according to age, gender, physical mobility, health status and family situation, among other things (Adger & Brown, 2009, p. 114). This differentiation on the community, household, and individual level is important to keep in mind, especially when developing a response to catastrophe. In most cases, and especially in the case of Puerto Rico as I will argue later, the social production of vulnerability is deeply rooted in the colonialism and oppression that Puerto Ricans have suffered.

Colonialism & Oppression

Colonialism and oppression are two concepts that overlap quite a bit, but which have important distinctions in how they manifest. Identifying patterns and sources of colonialism and oppression through history can be an effective way to shed light on some of the deepest and most fundamental roots of any given catastrophe.

Colonialism is a very broad concept and is one that has evolved over centuries. The Oxford English Dictionary defines colonialism as "the policy or practice of acquiring full or partial political control over another country, occupying it with settlers, and exploiting it economically" (Colonialism, n.d.). This definition of colonialism demonstrates an understanding of Colonialism that has its roots in settler colonialism and the European colonial empires stemming from the 16th century. In contrast, Naomi Klein understands colonialism as "a multi layered system of explicit and implicit controls designed to strip colonized peoples of their culture, confidence and power" (Klein, 2018, p. 28). This definition broadens the concept of

colonialism beyond the material process of controlling and exploiting land, natural resources and human labor to one that incorporates the less tangible realms of the self, of emotions, and of ways of understanding and perceiving the world. It also indirectly suggests that efforts to dismantle long-term, oppressive, and sometimes internalized colonial narratives through the use of empowering language and the reclamation of the right to tell one's own story could liberate the colonized from oppressive ideologies.

The pervasiveness of colonialism can even penetrate shared understandings of concepts like justice. Iris Marion Young points out that "contemporary theories of justice are dominated by a distributive paradigm, which tends to focus on the possession of material goods and social positions" which has the effect of "[obscuring] other issues of institutional organization" (Young, 1990, p. 8). What Young identifies in this material and quantifiable notion of justice is that it, in fact, preserves and protects systems of oppression by focusing on their symptoms rather than their causes. This can even be understood as an unspoken or concealed effort to exclude the redistribution of power from the commonly understood theoretical pillars of justice. A more robust understanding of colonialism can reveal that hidden colonial legacies exist deeply embedded (often unknowingly) in social norms and cultures.

Young approaches oppression as a group of concepts which consist of what she calls the "five faces of oppression": marginalization, exploitation, powerlessness, violence, and cultural imperialism (Young, 1990, pgs. 38, 40). Each of these five dimensions of oppression examines experiences from different positions and together encourage a more comprehensive understanding of how oppression operates and impacts people.

The process of **marginalization** essentially expels a “whole category of people… from participation in social life” and can potentially subject them to “severe material deprivation and even extermination” (Young, 1990, p. 53).

Exploitation, an integral part of any colonial regime, boils down to the continual process of “the transfer of the results of the labor of one social group” to another group, *without compensation*, to allow them “to maintain and augment … power, status and wealth” (Young, 1990, pgs. 49-50). Exploitation is intrinsically tied to the continual loss of power, resources, and autonomy.

Powerlessness is being in the position in which power is exercised over an individual “without their exercising it”, which creates a division of labor and limits the powerless individual from the “opportunity to develop and exercise skills” (Young, 1990, p. 56). Powerlessness, as Macedo notes, prevents people from exercising their “right to be [themselves]” or “to assume direction of their destiny” and ultimately “suffocates… the words of the oppressed – words that unveil the mechanisms of oppression and the distorted or repressed.” (2018, p. 16).

Cultural Imperialism is the experience of having the “dominant meanings of a society render the particular perspective of one's own group invisible at the same time as they stereotype one's group and mark it out as the Other" (Young, 1990, p. 59). In his book *Pedagogy of the Oppressed*, Paolo Freire addresses issues of cultural imperialism in the context of language. He argues that “the fundamental theme of the third world… is the conquest of its right to voice, of the right to pronounce its word” and in doing so, to make others learn how to

pronounce their word and acknowledge the validity of their culture and existence (Freire, [1970] 2018, p. 16).

Lastly, **violence** as oppression happens when "members of some groups live with the knowledge that they must fear random, unprovoked attacks on their persons or property, which have no motive but to damage, humiliate, or destroy the person" (Young, 1990, p. 61). In Freire's childhood, oppressive violence took its form as hunger. He recounted:

> "The problem of hunger [created by social inequality] … was real and concrete hunger that [had] no specific date of departure. On the contrary, our hunger was the type that arrives unannounced and unauthorized, making itself at home without end in sight. … Many of our classmates experienced this hunger and today it continues to afflict millions of Brazilians who die of its violence every year." (Freire, [1970] 2018, p. 13)

Widespread, untreated, and perpetuated hunger of entire populations can be tied to the actions of those who 'have' and their willful negligence that results in the destruction of people, families and communities.

Ultimately, these five faces of oppression dehumanize those who they work against in benefit of the oppressor – whether that is through displacement, alienation, loss of autonomy, or the cheapening of their labor, land, or culture (Patel & Moore, 2017). While often times as visible and evident as the European settler colonialism of the past few centuries, oppression can also manifest into often unseen social, cultural, and political mechanisms that damage the psyche of a group or groups in relative silence.

Justice, Liberation, Freedom

Developing a response to oppression (and in turn the vulnerability it creates) which is adequately positioned to tackle mechanisms and systems of oppression from their roots is a

difficult task – especially, as mentioned before, when even our own notions of justice may be colonized and complicit to the existence of oppressive systems. Young asserts that "justice should refer not only to distribution, but also to the institutional conditions necessary for the development and exercise of individual capacities and collective communication and cooperation" (Young, 1990, p. 39). While she recognizes that "some distributive theories of justice … extend the distributive paradigm to cover such goods as self-respect, opportunity, power, and honor" that have expanded to account for the psycho-emotional impacts of oppression, Young argues that maintaining and adding on to the distributive model for achieving justice doesn't go far enough. Instead, Young suggests that achieving social justice requires a process of identifying systems of oppression and working to dismantle so as to not treat the symptoms but the roots of the problem.

Instead of focusing on justice, Freire frames his response to oppression largely through liberation and freedom. Liberation, according to Macedo, "comes only thorough a process of resolution of tensions and contradictions in the relation between the oppressor and the oppressed" (Macedo, 2018, p. 45). Similarly, Freire argues that "freedom is acquired by conquest, not by gift" and considers it to be "the indispensable condition for the quest of human completion" (Freire, [1970] 2018, p. 47). These two approaches to confronting oppression differ from the expanded distributive models of justice that Young cites in that they outline a process in which both the oppressed and the oppressor have to work together to dissolve the structures of oppression that exist, instead of understanding justice as something that can be dealt out. Freire elaborates this by arguing that "true generosity lies in striving so that" the hands of the "rejects of life … need be extended less and less in supplication, so that

more and more they become human hands which work … and transform the world" Freire, [1970] 2018, p. 45). Taking this kind of approach addresses the fundamental de-humanization that oppression perpetuates and focused on dignified reconstruction of social powers. Understanding liberation and a process of fighting to regain basic human rights makes it very clear that it is not something that can be gifted or distributed, but instead, must be worked or fought for.

Building a Framework of Liberation Through Dismantling Vulnerability

Our responses to disaster are only as comprehensive as our own understanding of how catastrophes operate. Building on the discussion of catastrophes as multi-scale processes that feed off of the social production of vulnerability, I argue that conventional efforts to recover or bounce back are limited in their temporal scope and do not reduce vulnerability to future disasters. The diagram demonstrating the 'disaster as an event' conceptual framework (refer to Figure 1) provides a visual representation of how 'recovering' and going back to 'normal' may only restore the position of vulnerability that the victims had found themselves in before the catastrophe. This kind of response is one-dimensional in its approach to disaster response and is limited to addressing the shorter-termed 'symptomatic' impacts of disaster.

Instead, I argue that real solutions to catastrophes must be developed with the understanding that they are derived from the systemic production of vulnerability, that this process is almost always deeply connected to broader patterns of colonialism and oppression, and that moving forward from catastrophe necessitates a multi-temporal response that both addresses the most urgent needs of the victims while also developing a strategy to curb the

production of vulnerability and end the cycle of disaster, a framework that I call 'dismantling vulnerability'.

Why 'Resilience' Falls Short

In the world of disaster response, the term 'resiliency' has become a buzzword that produces much excitement, yet the popularity of the term has led to the development of so many definitions and conceptualizations of 'resiliency' that it has lost a consistent and "solid theoretical base" (Reghezza-Zit et. al., 2012). One of the difficulties with resilience is that the more subjective the term is, the more political it becomes. Reghezza-Zit and colleagues argue that "from a political point of view, resilience is mainly a discourse" which gets picked up by a multitude of stakeholders with divergent interests, leading to a point where, now, talking about resilience is more about imposing one's views than about opening a real debate" (Reghezza-Zit et al., 2012). For example, In her analysis of resilience policies of Nepal and Scotland, Nightingale argues that an emphasis on biophysical shock in resilience policies tend to overlook the environmental shocks experienced on the local scale that are brought on by top-down policies that change peoples' relationship with the land. (Nightingale, 2015, p. 203). She identifies a "'scale mismatch' between the way policy-makers define reseilience…, and how local people define community resilience and their aspirations for livelihood security" (Nightingale, 2015, p. 183). This mis match can "devalue and sideline local people's own understanding of community, flexibility, adaptation and livelihood security" and favor top-down policies and ideas (Nightingale, 2015, p. 203).

The World Resources Institute defines resilience in two ways. First, they define resilience as "the capacity of a system to tolerate shocks or disturbances and recover" which "depends on the ability of the people to 'adapt to changing conditions through learning, planning and reorganization'" and second, they define it as "the capacity to thrive in the face of challenge" (Joseph, 2013, p. 39). Understanding resiliency in these ways is problematic because it assumes that the position or condition that a given community or individual started in was a good place to begin with, and thus there is only a need to regain that original state of normalcy. This goes back to the shortcomings of the term 'recovery' discussed earlier. These definitions of resilience place the burden of responsibility of recuperating in the hands of the individual or community (resiliency acting as a measure of how well *they* can bounce back) and seemingly do not recognize, consider, or acknowledge the institutionalized systems that are responsible for the production of vulnerability. This devolution of responsibility or recovery to the individual scale is a call back to the neoliberal strategy that assumes a capable 'universal subject' and ignores structural issues of oppression. Shaw and Maythorne express a similar concern: resiliency leaves communities to "fend for themselves" and is "used for an excuse for government to step back" from their responsibilities (2012, p. 14).

Reghezza-Zitt and colleagues cite a number of definitions of resiliency that approach the concept as a property or characteristic. Included in these are resiliency as (I) "the ability to recover and rebuild", (II) "a systems ability to maintain its integrity and to return to its original state", and (III) "a capacity to stay the same through an impact" (Reghezza-Zitt et al., 2012). These definitions are particularly interesting because instead of posing resiliency as being the

antidote to vulnerability, they instead define it as something which feeds into a perpetual cycle of vulnerability, catastrophe, and resiliency based on things going back to 'normal' or continuing without change, meaning the same state of vulnerability that existed to begin with. Overall, the inconsistent meanings and many problematic arguments that arise from some interpretations of 'resiliency' have made the term toxic in some circles.

Building a Just Response

A just response requires a confrontation with the structural problems that produced catastrophe and an empowerment of the victims who bore the burden of vulnerability. This requires efforts to learn from what did and did not work when confronting the strain of an intense impact and a conscious effort to empower highly-impacted communities.

Responding to a catastrophe in a way that addresses the catastrophe as a whole – and not the 'symptoms' of catastrophe – requires a critical look at what existed before the impact event unleashed the catastrophic situation. In her book *Battle for Paradise*, Klein engages with organizations responding to Hurricane Maria hitting Puerto Rico in September of 2017, noting that many Puerto Rican organizers referred to Hurricane Maria as "our teacher" because the storm allowed them to understand and identify not just "what didn't work (pretty much everything)" but also the "few things that worked surprisingly well" (Klein, 2018, p. 10). Klein argues that "if Maria is a teacher… the storm's overarching lesson is that now is not the moment for reconstruction of what was, but rather the transformation into what could be" (Klein, 2018, p. 12). Amongst the organizers that mobilized post-Maria, Klein reports that many voices expressed the need for the "reinvention not re-construction" of Puerto Rico and called for a "just recovery" which would respond to the underlying causes of disaster (Klein, 2018, p.

10). These responses require a multi-dimensional perspective that re-affirms the humanity of those most impacted by the catastrophe.

Just responses to catastrophe must be designed in ways that both address the needs and vulnerabilities of those who bore the heavy burden of vulnerability as well as empower them to be agents of change in their communities. In the context of a place with a deep legacy of colonial oppression, building *ways* of sovereignty or "multiple sovereignties" that ensure local access to and control over essential resources like water, energy, food, and education, among other things, is one way of both empowering and addressing the material needs of those impacted by catastrophe (Klein, 2018). MacKinnon and Derickson develop the concept of 'resourcefulness' that envisions democratic processes that work to "problematize both the uneven distribution of material resources and the associated inability of disadvantaged groups and communities to access the levers of social change" (2012, p. 253). Also key to this framework is an emphasis on a counter systemic mode of thought that focuses on "forms of learning and mobilization based upon local priorities and needs as identified and developed by community activists and residents" (Mackinnon & Derickson, 2012, pgs. 263-4). This effort to restore forms of power to local communities is particularly valuable in a place like Puerto Rico where centuries of occupation have not only stripped people of their sovereignty over material resources and political power, but have also disempowered people through pervasive colonial narratives that have made people "afraid of dreaming" or even "thinking about …governing themselves" (Klein, 2018, p. 29).

My research builds on the work that has already been done to develop a conceptual framework of catastrophe that approaches it as a dynamic, multi-layered process that is built

on the social production of vulnerability. Applying this framework to the case of Hurricane Maria, I explore how vulnerability has been produced in Puerto Rico after the last 120 years and I connect those vulnerabilities to the catastrophe that Hurricane Maria unveiled. I then explore how, by applying the concept of catastrophe as a process, we are better able to identify and address vulnerability-producing systems using the framework of 'dismantling vulnerability'. In this conceptual progression, I examine how the efforts by the *Proyecto de Apoyo Mutuo* (PAM) to respond to catastrophe in the neighborhood of Mariana target the roots of catastrophe and embody a dismantling vulnerability approach.

Regional Context

Puerto Rico

In this section I give a very brief overview of Puerto Rico's colonial history in which I focus predominantly on the United States (U.S.) control of the archipelago and the strategies the U.S. has used to build, strengthen, and exercise its control over Puerto Rico. In this discussion, I draw from Young's conceptual framework of oppression, which identifies marginalization, exploitation, powerlessness, cultural imperialism and violence as the five faces of oppression, and I also draw from Klein's understanding of colonialism, which examines the loss of culture, confidence and power of a people from the multi-layered systems of control of their colonizers. Through this discussion I will demonstrate how, over multiple scales of time and place, the U.S. has systemically produced vulnerability in Puerto Rico through economic, political, and cultural oppression.

Understanding Puerto Rico's geopolitical position provides valuable context to the creation and propagation of these systems of control. Throughout the past 500 years, Puerto Rico has been under constant colonial control. The Spanish first arrived in 1493 and controlled the island until the Spanish-American War, which ended in 1898 with the Treaty of Paris after which the U.S. assumed control over the territory. Since then, the legal status and relationship of Puerto Rico and Puerto Ricans to the U.S. has fluctuated a fair amount and has operated in a constitutional gray area. In 1900 the Foraker Act "created a new territorial status affirming the U.S. annexation of Puerto Rico while simultaneously establishing law and policymakers to selectively govern the island as a foreign country for constitutional purposes" (Venator-

Santiago, 2013, p. 58). In other words, the United States established a civilian government in the territory but continued to treat it as a *somewhat* foreign entity. The ambiguity of this legislation sparked a series of cases known as the Insular Cases (1901-1922), which explore and further defined the relations between the United States and its territories (Venator-Santiago, 2013, p. 59). For Puerto Rico, Downes v. Bidwell (1901) is the most impactful of the insular cases. It established that "the insular territories were simultaneously foreign and domestic" because "the mere act of territorial annexation had not automatically triggered the collective naturalization of Puerto Ricans and Filipinos" (Baldoz & Ayala, 2013, p. 84-5). The case also determined that so long as the "fundamental" personal rights were granted to Puerto Ricans, Congress had the power to selectively grant constitutional powers to the territory (Venator-Santiago, 2013), p. 59). Baldoz and Ayala also point out that Puerto Ricans were legally categorized as "nationals" which meant they were neither foreigners nor citizens (Baldoz & Ayala, 2013, p. 85).

While Puerto Rico remained a territory and continued to hold a legal status that is often described as 'foreign in a domestic sense', Puerto Ricans gained citizenship in 1917 through the passing of the Jones Act. This act was passed in the midst of World War I, and many have argued that the U.S. granted citizenship to Puerto Ricans in order to enlist a total of 18,000 soldiers that went on to fight in the war. This act was highly controversial and a key provision to passing the act through congress was the "assurance that the grant of citizenship would not trigger the incorporation of Puerto Rico as a state and that Puerto Ricans living in the territory would not be able to vote in U.S. elections" (Baldoz & Ayala, 2013, p. 99). Venator-Santiago describes this kind of political maneuver as "a new form of inclusive exclusion" that allowed

Puerto Rico to continue to exist as an unincorporated territory and only have access to the rights that the U.S. congress found acceptable or convenient to grant the territory (2013, p.71). While this legislation granted Puerto Ricans with citizenship, it was a contingent citizenship that applied differently according to their geographic location, meaning that for the most part, Puerto Ricans continued to be politically disenfranchised and remained without substantial power over their nation.

Along with continued political disenfranchisement, Puerto Ricans experienced extended cultural imperialism and powerlessness as direct impacts of U.S. laws. Returning to the Jones Act of 1917, one particularly notable provision of the act was that it established English as the official language of Puerto Rico (Denis, 2015a). This alienated the entire population from many aspects of their daily lives that now had to be conducted in a language unfamiliar to them, serving to further marginalized them by limiting their access to certain jobs and reducing their ability to advocate for themselves. This kind of linguistic imperialism was accompanied by the U.S. control of Puerto Rico's education system, which also enforced an English-only policy and controlled curriculum. Textbooks spread idealized narratives of the U.S. and emphasized Puerto Rico's subordinate relationship to its colonizers (Denis, 2015b). In the same vein, from 1948 to 1957, the Gag Law criminalized Puerto Rican expressions of patriotism as well as any sign of support of Puerto Rican independence – which included having or possessing a Puerto Rican flag (Denis, 2015a). This further impaired Puerto Ricans' rights to expression and disempowered them to express their ideas, beliefs, and organize their communities to advocate for themselves and their political beliefs.

Puerto Rican interests and lives have never been valued or regarded as a priority for the U.S. On August 8th, 1899, less than one year after the US acquired Puerto Rico from Spain in the Treaty of Paris, Puerto Rico was hit by a massive hurricane, one of the worst storms on record for the nation. Hurricane San Ciriaco was a category 4 major hurricane and the longest-lived Atlantic hurricane on record. It entered Puerto Rico through the town of Guayama on the south-east coast of the island (about 25 miles southwest of Yabucoa, where Hurricane Maria would also enter 118 years later). The hurricane is estimated to have caused at least 3,400 deaths in Puerto Rico alone and wiped out the island's entire coffee crop – which along with tobacco and cane sugar, was one of the most important crops and industries of that time. The United States did not send any aid (Denis, 2015a). Instead, the U.S. responded by creating the American Colonial Bank to shift the national currency from the Spanish peso to the U.S. dollar. In this process, the U.S. devalued the Spanish peso by 40 percent, which by international standards had been at equal value to the dollar. This massive devaluation was devastating for Puerto Ricans, especially the owners of small farms who had been wrecked by San Ciriaco and needed to re-build and re-plant their farms. Many small farm owners were then subjected to very high-interest loans from the banks and, as a result, most if not all defaulted on their loans within 10 years and the banks took ownership of the lands (Denis, 2015a). Instead of responding to the hurricane with a helping hand, the United States chose to ignore the suffering of Puerto Ricans – a form of violence by inaction – and to use the disaster as an opportunity to advance U.S. economic interests and further expand its control over Puerto Rico through the bank's major land grab; a perfect example of exploitation and economic marginalization.

This land grab laid the way for the US to continue to build a monopoly over sugar plantations in Puerto Rico. By the 1930s, the U.S. had gained control of close to 80% of the sugar industry in Puerto Rico (which also meant they controlled the majority of farmable land) and had a captive workforce who had lost their land and had very few political protections, including no minimum wage law (Denis, 2015a). Then President of the American Federation of Labor and Congress of Industrial Organizations (AFLCIO), Samuel Gompers, testified to congress that "the salaries paid to Puerto Ricans are now less than half what they received under the Spanish" (Denis, 2015a). This pattern of economic exploitation and general powerlessness of Puerto Ricans can be seen again and again throughout the 120 years that the U.S. has controlled the archipelago and is aided by the political marginalization and loss of voice that has remained a reality for Puerto Ricans for decades.

The U.S. was very successful in producing a captive workforce through the political and economic marginalization of Puerto Ricans, and accordingly has developed other strategies to continue to benefit economically from their colony. The domination of Puerto Rican land by U.S. sugar companies and large-scale cash-crop productions has reduced the territory's ability to produce enough of its own food to sustain itself. This lack of 'food sovereignty' has led to widescale dependence on food imports that have continued to increase. Before Hurricane Maria hit Puerto Rico in 2017, the amount of imported food had reached 85%, and post-Maria it reached to 95% of all consumed food (Lim, 2018). Exacerbating this problem is a provision of the Jones Act of 1917 that "stipulates that goods imported to Puerto Rico must be shipped in vessels built, owned, and operated by American companies" (Tormos-Aponte & Martínez, 2017). This means that the U.S. controls what enters Puerto Rico and Puerto Ricans have to pay

higher prices for foods and goods due to the additional costs of shipping. To exacerbate this, high taxes and tariffs have made food even more expensive, have helped maintain a high cost of living, and have further exacerbated Puerto Rican poverty. This demonstrates how U.S. interests have continued to favor profit and power over the wellbeing of Puerto Ricans and how its untempered control of economic and political policies has continued to exacerbate vulnerabilities in the Puerto Rican population.

The economic history of Puerto Rico during the 20th and 21st centuries is complex and turbulent. Over the past century there have been a number of economic programs, policies, and tax incentives developed by the U.S. to supposedly bolster the Puerto Rican economy, such as Operation Bootstrap developed to industrialize the Puerto Rican economy (see Santana, 1998) and Section 936 of the tax code which gave U.S. businesses tax incentives to re-locate or set up locations in Puerto Rico. However, the dominant trends have continued to demonstrate widespread unemployment, poverty, a growing diaspora, and devastating national debt. Amidst growing debt and Puerto Rico's inability to make its loan payments, President Obama signed PROMESA or the Puerto Rico Oversight, Management and Economic Stability Act. This was an alternative to filing for bankruptcy, which for Puerto Rico, was not an option since 1894, when the U.S. congress adopted a new definition of "State" in the U.S. Bankruptcy Code which excluded Puerto Rican municipalities from bankruptcy (Centro Center for Puerto Rican Studies, 2017). PROMESA created a Financial Oversight and Management Board (also called *la Junta*) which was given full powers over Puerto Rico's budget, taking away the territory's fiscal autonomy, which Tormos-Aponte and Martínez argue, was Puerto Rico's "only remaining source of sovereignty" (Tormos-Aponte & Martínez, 2017). Under the advising of *la Junta*,

economic decisions in Puerto Rico have continued to prioritize external economic interests over the wellbeing of Puerto Ricans through severe public spending cuts and the increasing privatization of services.

Another dimension of the U.S.'s colonial oppression of Puerto Ricans is violence – both physical and emotional. Between the 1930's and 1970's, US physicians and drug companies used Puerto Rican women to test out new birth control pills and IUDs (Denis, 2015a). Some doctors also performed tubal ligation surgeries without their patients' knowledge or consent (Denis, 2015b). This four-decades long mass-sterilization of Puerto Rican women demonstrates how the U.S. dehumanized Puerto Ricans. There is also a long-standing history of military and police violence in Puerto Rico with examples including the Rio Piedras Massacre of 1935 and the Ponce Massacre of 1937 (in which 17 unarmed Puerto Rican civilians were killed and over 200 more were injured when police opened fire on a peaceful march in support of imprisoned Nationalists including Pedro Albizu Campos), and the occupation, contamination, and continual bombing of the Puerto Rican islands of Culebra and Vieques by the US Navy (Denis, 2015a). These examples of physical, overt violence are accompanied by forms of indirect violence including the example of the U.S. neglecting to provide any support or aid after Hurricane San Ciriaco tore through Puerto Rico. Even the racist narratives depicting Puerto Ricans as lazy, corrupt, dishonest, and inept which have been spread by the U.S. (often through control of educational materials) are a form of emotional violence as they have served to degrade the confidence of Puerto Ricans, devalue their cultures, silence their voices, and crush hope. Violence in this form can sometimes become internalized by the oppressed, making it even harder to identify, but it may be just as consequential as the physical violence. Regardless of its

form, violence is a classic tool used by oppressors and colonizers to disempower and control colonial subjects.

Although this is by no measure a complete review of US control over Puerto Rico, it does demonstrate how the U.S. has continually favored its own economic and political interests over, and usually to the severe detriment of, the lives and wellbeing of Puerto Ricans. By drawing from examples that vary in spatial and temporal scales, which are experienced on different scales (individually or collectively as a family, community, or nation), and which produce and reproduce both tangible and intangible or embodied vulnerabilities, I demonstrate that vulnerability is complex, that it manifests in many ways, and that it is produced by human-built systems of oppression.

Mariana, Humacao

Mariana has a humble recent history. In my interview with Alvaro[1], he shared with me that when his parents were children, Mariana didn't have roads and the residents didn't own cars, so people went to the city center of Humacao on foot. He described that when someone got sick, they would get carried in a hammock down the mountain to town, which usually took multiple family members, neighbors, and whoever else could help.

Through the first half of the 20th century, Mariana's landscape was dominated by agriculture. The hills that are now mostly covered by thick vegetation were once completely planted with crops of coffee, tobacco, and sugar. Along with these crops, most families living in Mariana also planted their own subsistence crops which featured root vegetables and fruits.

[1] I am using pseudonyms to protect the privacy of the participants.

Starting around the 1940s and 50s, with a general push for industrialization across Puerto Rico, many people started working in factories instead of farming while others migrated to the U.S. to serve as low-wage labor picking fruits and vegetables on American farms.

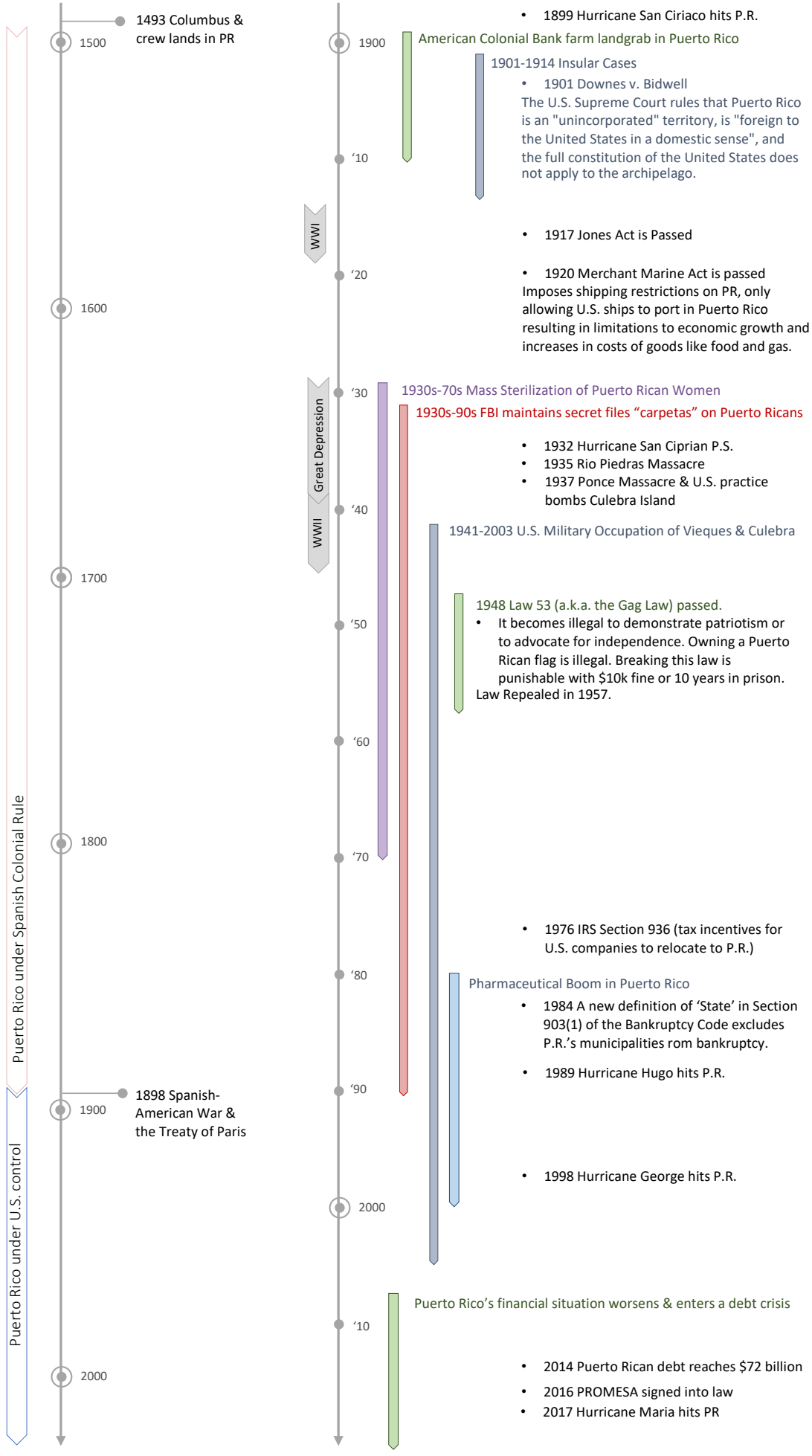
Across Puerto Rico, economic policies imposed by the U.S. made it really hard for Puerto Ricans to make a living off of agricultural products, largely because they could not compete with the low prices of subsidized crops from the U.S. Today, many people continue to work in factories, but at the same time issues of chronic unemployment are increasing in Mariana, and more broadly throughout Puerto Rico.

As a poor, rural neighborhood of a small city in Puerto Rico, Mariana has historically been underserved and overlooked. Ernesto shared with me that ARECMA formed because residents of Mariana needed to fight for better living conditions, saying that the services and schools of the neighborhood were terrible. In fact, until the residents of Mariana built an aqueduct themselves, the neighborhood didn't have running water. They also had to fight to get telephone service in the neighborhood, a school bus route for students that would pick them up near or at their houses, trash collected, and much more.

ARECMA, which formed in the mid 1980's, became a force of advocacy in the neighborhood especially for educational and recreational initiatives. The organization led the charge to get guidance counselors, social workers, and teachers for fine arts classes in the local school, along with sports teachers and parks where kids could play. These efforts did not come easily.

Mariana, like many communities, is highly fragmented by politics and religion. Historically, it has been hard for community leaders to get everyone on board with any given project, or even to get leaders from across the community to sit down with each other to strategize, coordinate and collaborate. Still, there have been moments in Mariana's history when a unifying force has brought everyone to the table and has allowed the neighborhood to move forward and accomplish a common goal. Today, the most reliably unifying event during the year is the Pana Festival (Breadfruit Festival) which ARECMA hosts at *la Loma*, their hilltop headquarters.

Puerto Rico History Timelines



METHODS

My research seeks to answer the question: How does an understanding of 'catastrophes' as processes encourage us to critically examine their root causes, identify their cyclical nature, and work towards 'dismantling vulnerability'? I break this overarching question down into three sub-questions (see Figure 3) which each focus in on the core concepts I employ in my research. The first question seeks to understand how the process of catastrophe is based in the production of vulnerability, the second question explores the concept of vulnerability and how it is socially produced, and the final question explores how identifying and targeting systemic vulnerability and its roots allow us to dismantle vulnerability and work to end the cycle of catastrophe. Thus, for this framework I focus on three key terms: catastrophe, vulnerability, and 'dismantling vulnerability'.

I applied this conceptual framework to a case study of Hurricane Maria and, more specifically the Proyecto de Apoyo Mutuo (PAM – Mutual Support Project) in Mariana. I first sought to understand *how* and *why* such an intense state of catastrophe was unveiled in Puerto Rico when Hurricane Maria hit. This required research into identifying the vulnerabilities that existed in Puerto Rico (and Mariana) and what their root causes were. I did most of this research using secondary sources however some of my interviews and experiences in Mariana informed this research.

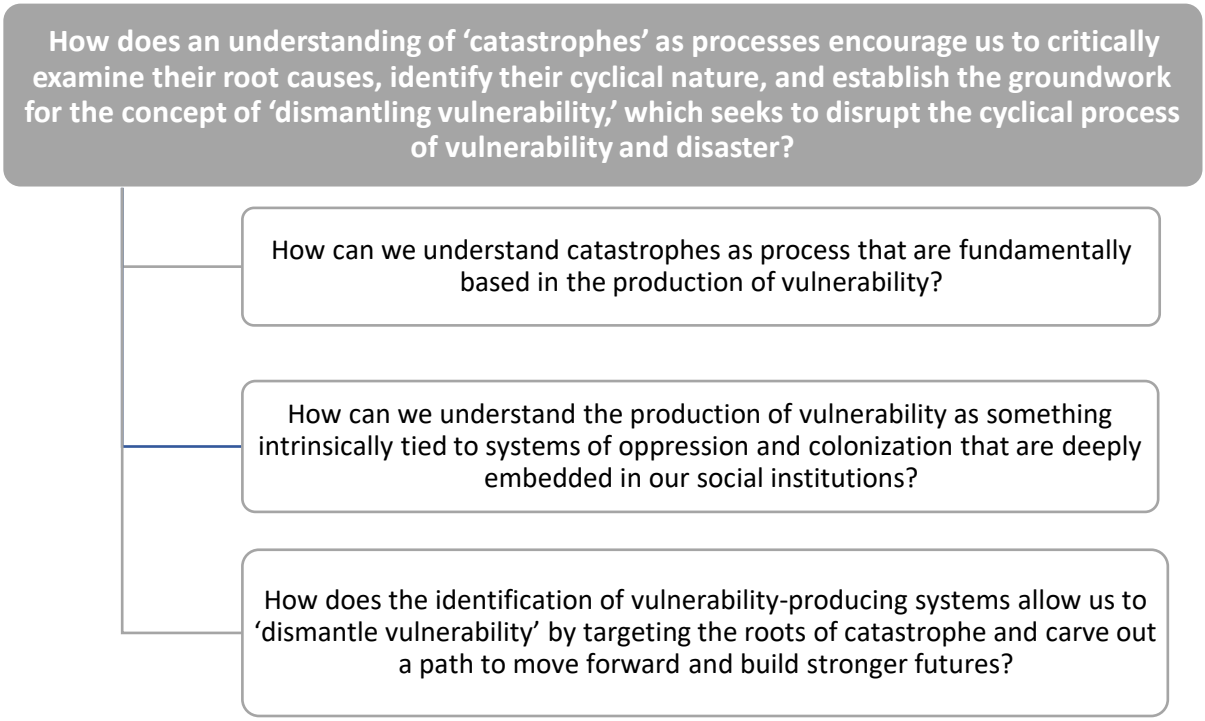


Figure 3 Research question and sub-questions

As part of my case study of PAM, I investigated how the organization's response to Hurricane Maria went beyond conventional shorter-term 'recovery' efforts and was taking a long-term approach with their response that was aimed at developing a stronger, less vulnerable community in the future. I started addressing this question by identifying what vulnerabilities existed in the neighborhood and how they were being produced. During my limited time living in Mariana, I was able to identify some potential vulnerabilities that were present in the neighborhood through my observations and experiences. More importantly, however, I was able to gain insight into the vulnerabilities that PAM identified in Mariana. This was expressed both explicitly, as was the case in my interview with one of the co-founders of PAM, as well as implicitly, sometimes inadvertently when talking about 'needs' as well as through their projects that worked to target vulnerabilities. I also wanted to understand *how*

PAM addressed these vulnerabilities through their community projects. As part of this I wanted to understand *what* the principal goal of the projects were – e.g. establish energy sovereignty through the installation of PAM/ARECMA owned solar panels – how they framed their efforts and how these projects and efforts were perceived by different people with different degrees of involvement with the organization.

In the spring of 2018, I applied for and was granted the Simon Family Public Research Fellowship through the FOUR office at UVM. In the application process, I developed an MOU with PAM that outlined the intended goals and projects. Then in June, I applied for and received IRB approval to conduct my interviews. The IRB process was somewhat difficult because I didn't have a clear understanding of the lay-of-the-land in Mariana and was unsure of exactly which methods would be possible, acceptable or useful before arriving.

Data Collection

To answer these research questions, I used multiple data collection techniques and sources. When approaching this research, I was trying to be mindful of the extractive effect certain data collection techniques, like interviews, can have on participants. Because I was conducting my research in a community that had recently undergone a traumatic event and had already had a whole host of people come for interviews, I collected as much secondary source materials as possible to reduce redundancy in my research and questions and to limit the amount of time and energy I took from participants (see Table 3 for a list of secondary sources and descriptions of what information they offered.) Only after I was familiar with the

content already available regarding PAM, ARECMA, and Mariana did I proceed with conducting interviews.

Table 1 Primary Data Types & Information

Data Type	Description of *kinds* of information gathered
Interviews with Mariana residents	- Description of the Mariana community and/or its history - Perspectives on PAM/ARECMA initiatives and projects in Mariana - Perspective on the involvement and participation of community members / fellow residents - Personal experiences of participating in PAM/ARECMA initiatives - Hopes for the future of Mariana, PAM and/or ARECMA
Interviews with organization leaders (PAM or ARECMA)	- Description of the Mariana community and/or its history - History of advocacy in Mariana/ARECMA - Organization dynamics in ARECMA - Vision for PAM/ARECMA projects in Mariana - Personal experience of community organizing/being a leader in Mariana - Perspectives on what is necessary for PAM to accomplish its goals - Assessment of Mariana/ARECMA's strengths/weaknesses - Organization values and key principles - Dynamics between ARECMA and Mariana residents
Photos	- Emergency Plan mapping process and development - Key PAM/ARECMA hubs: La Loma & Center of Imagination - PAM/ARECMA physical resources – solar panels, water filtration towers, community farm, laundromat - Landscape - Public art – painted murals, mosaic murals etc.
Participant Observation	From assisting with projects and tasks with ARECMA, I gained insights into: - The relationship between PAM and ARECMA - The dynamics within the ARECMA organization - The general level of community involvement/participation in PAM or ARECMA volunteering days or recreational activities - The development of different projects within ARECMA - The vision of PAM leaders for the future of Mariana - The 'sense of place' at la Loma and in Mariana more broadly - The impacts of volunteers and visitors coming-and-going in the neighborhood

Interviews

I conducted a total of five interviews while in Mariana. While it would have been preferable to interview even more people to incorporate more perspectives, I chose not to do so because of timing constraints and my desire to limit the impact and inconveniences that being interviewed can have on people. To make up for the limited number of participants I was able to interview, I employed purposeful sampling methods. Baxter and Eyles (1997, p. 515) define purposeful sampling as a strategy used by qualitative researchers that puts emphasis on finding "information rich cases" and recruiting participants "until 'redundancy' or 'saturation'" occurs making it so that "credibility need not be threatened by low sample sizes". They also argue that not all strategies used for purposeful sampling are equally useful, and prefer a "stratified purposeful sampling" method that "ensures that all sub-groups within a research setting are given a voice" over convenience sampling, which can introduce more bias (Baxter & Eyles, 1997, p. 513).

Because of how I was situated in the community of Mariana and in relationship to PAM and ARECMA, I had little-to-no access to residents of Mariana who were not at least somewhat involved with the organizations. Because of this, the perspectives of community dynamics and/or the 'sense of place' felt by residents of Mariana, as well as broader perceptions of ARECMA and the projects proposed by PAM from people at least somewhat disconnected from the organization is limited. Still, the majority of my research is focused on PAM's response to disaster and its proposals for future projects, so interviewing people who are either leaders, volunteers who are actively involved, or at least somewhat connected to the organization is valuable. When reaching out to people and inviting them to participate in interviews, I made an

effort to contact people with different degrees of involvement in PAM and/or ARECMA to help include different perspectives of the organization. See Table 2 for brief descriptions of the participants interviewed.

Four of five of the interviews that I conducted were audio recorded, and four out of five were conducted in Spanish. I transcribed the four interviews I audio recorded, three of which were in Spanish. I chose to only directly translate quotes in Spanish that I found particularly important and directly cited[2]. Member checking is a technique used in qualitative research in which collected information, in this case a transcript or notes from an interview, are returned to the participant for them to verify the accuracy of the information and/or expression of ideas. This technique "addresses the co-constructed nature of knowledge" and can be used as a trust-building tool that creates more opportunities for the participant to give input on the data collection process (Birt et al., 2016). Some interviews I found most useful for providing historical context to the neighborhood and I did not use personal information or details from them, so I did not member-check them. The interviews that I did directly cite and which spoke more to the feelings and perceptions of the Mariana community and PAM's innitiatives I did member check. Please refer to Table 2 for indications of which interviews were recorded, were conducted in spanish, and were member checked.

[2] This is a place where my subjectivities on what is/is not important influence what I included. Although I follow a conceptual framework and am looking to answer a set of questions, my own bias cannot be completely removed.

Table 2 Interview information and basic participant information

Participant	Brief description	Audio Recorded (Y/N)	Language	Member Checked (Y/N)
"Ernesto"	Long-time board member of ARECMA and life-long resident of Mariana. He has a long history of political activism.	Y	Spanish	N
Christine Nieves	Co-founder of PAM. Resident of Mariana for less than 5 years.	Y	English	Y
"Sara"	Long-time resident of Mariana. Was disconnected from ARECMA until Hurricane Maria after which she started volunteering with PAM/ARECMA. Very involved volunteer – shows up every day to help out with whatever tasks are available.	N	Spanish	Y
"Alvaro"	Life-long resident of Mariana. Has been associated with ARECMA in the past but never highly involved. Became more engaged with ARECMA when PAM was started following Maria but was a little less involved than Sara.	Y	Spanish	N
Participant not directly referenced.	Grew up in Mariana, now lives in another mountainous neighborhood in Yabucoa. Occasional volunteer of ARECMA when there is a construction project that needs hands and had been more a little more involved with the organization in the past.	Y	Spanish	N

*Names in quotation marks indicate psudonyms.

Participant Observations

Apart from interviews, I relied on my own observations and experiences of living and working in Mariana. The observations I made can be categorized in three main ways:

observations I took while socializing (e.g. chatting, sharing a meal, hanging out in a community space), observations I made while doing volunteer activities (e.g. helping in the garden, cleaning out former classrooms etc.), and observations I made during my participation in the development of the Mariana Community Emergency Plan. By spending so much of my time in community spaces while I was in Mariana, I was able to observe the patterns of movement in key places like La Loma and get a better idea of the sense of place that the neighborhood had. It was often the case that casual conversations that I was a part of that were not related to my research allowed me to gain an even better understanding for the social dynamics of the neighborhood and organization.

I recorded my observations and field notes either in journal format or as an audio recording of my reflections, which was sometimes an easier way for me to reflect on what happened. In the first couple of weeks when I was living in Mariana, I recorded a lot of observations about the rhythm of the neighborhood, the landscape, and some of my first reflections on some of the actors involved in the organization. My journal entries and recordings became less consistent for a few weeks when I was already much more familiar with the rhythm and landscape of the neighborhood, and was focusing in on some of the more independent elements of my work – specifically, when learning how to use QGIS (a free open-source geographic information system (GIS) software (https://www.qgis.org/en/site/), similar to the ESRI software I learned to use at UVM) and using it to develop a map of the neighborhood. Once this was complete and I started the more collaborative part of the mapping project I went back to taking more consistent notes. I also made a point of recording my own reflections and reactions to some of the interviews I conducted. This was particularly

important for me to do after the interview I conducted in which I did not get permission to take an audio recording. After I left Mariana, I took a few days to write some reflective notes on my experiences. This was valuable for me because it allowed me to notice and understand some things better because I had more context than I did at the beginning of my time in Mariana.

Mariana Community Emergency Plan

As part of my involvement in the development of the community emergency plan for Mariana I was included in many ARECMA/PAM meetings, I directly collaborated with la Maraña (an organization collaborating with PAM that, among other things, was bringing in money for the creation of a kids' park at *la Loma*), and I went on a driving tour of the neighborhood with a few members and volunteers of ARECMA who described which areas were, or were not considered part of Mariana. Being a part of these activities offered insights on how 'community' was conceived and built in Mariana. For example, after going on the driving tour of Mariana, I learned that part of the way residents of Mariana conceptualize *where* Mariana is located and where its limits are is based on the 'official' boundaries or borders of the neighborhood, and it is clearly the case that any area/zone included in the 'official' boundary of Mariana is also included in the way people connected with ARECMA conceptualize Mariana. However, there are some areas, most notably those that are close to or surround *la Loma* that are *also* included as a part of the Mariana community because of their involvement with ARECMA. This leads me to believe that ARECMA and *la Loma* have a very strong impact on residents' sense of place, community, and identity and that these feelings are strongest in the areas that directly surround *la Loma* (which includes neighborhoods of the municipality of Yabucoa).

Photos

I noticed that a lot of the values of the organization were built into the physical environment at *la Loma* and the Imagination Center in the form of murals, gardens, or spaces for residents, volunteers and other members of the community to spend time and socialize. Accordingly, I took a number of photos that highlight some of the key elements found in these spaces and which I believe demonstrate some of the core values of the organization. Photos 1 and 2 are of a large mosaic mural that can be seen when entering *la Loma*. It celebrates Mariana's sense of place through symbols of Mariana, its cultural identity, and some of the key values – including pride in workers, a connection to the land, and a celebration of local arts and cuisines. Photos 3 and 4, which were also both taken at *la Loma*, show expressions of celebration of Puerto Rican identity, solidarity, and power. Photos 5 and 6 show different working spaces at *la Loma* where values of connecting and sharing have been built into their form. Lastly, Photos 7 and 8 show murals painted on the walls at the former elementary school *Juan de Dios López* (now turned Imagination Center), which feature members of the Mariana community and volunteers of ARECMA. These and the murals at *la Loma* both celebrate and empower the community as well as demonstrate a strong value and belief in the arts and the role they play in political and decolonial efforts.

Photo 2

Photo 1

Above: Photos of a mural that can be seen when entering La Loma. Photo 1 features two people, both working, one wearing a shirt with a flag that has been used to symbolize Puerto Rican independence. Between the two people is the seal of Mariana which features a sugar processing plant (known as a 'central'), a breadfruit leaf, and the shape of the Mariana neighborhood. There is also a music bar representing both the musical traditions of the neighborhood and alluding to the Mariana neighborhood hymn. Photo B has the saying "Glory to the hands that work" and features a breadfruit in the center.

Photo 4

Photo 3

Above: Photo 3 -"We gather at la Loma in Mariana because we are in a space of solidarity. We respect each other and cook with love. Here everyone eats well". This has been a part of the decorations at la Loma since PAM first started in October 2017. Photo 4 shows a building with bathrooms and storage at la Loma. *POR MI PATRIA.* FOR MY COUNTRY. The mural on the left features Julia de Burgos, a renowned Puerto Rican poet.

Photo 5

The view from a hilltop looking down onto the main community space at *la Loma*. The metal roof shelters a series of tables at which people eat lunch, chat, and plan projects. The white tent is where community events, meetings, and gatherings are held.

Photo 6 Part of the community garden at *la Loma.*

Photo 8 A mural of three women, all volunteers at the ARECMA communal kitchen.

Photo 7 Two murals of teenagers from the neighborhood.

Secondary Sources – Compilation and Analysis

I used a variety of secondary sources to help develop context on Puerto Rico, Mariana & ARECMA, Hurricane Maria, and both local and federal responses to Hurricane Maria. (See Table 3 for types of secondary sources and brief descriptions of each.) Sources included radio and news broadcasts, journal and newspaper articles, books, and webpages, however the two most important secondary sources I used were Facebook and a story-telling project called the Portrait Story Project.

Proyecto de Apoyo Mutuo, Mariana Facebook Page: One of the key sources for information that I used was PAM's public Facebook page: Proyecto de Apoyo Mutuo, Mariana (https://www.facebook.com/PAMHumacao/). I started by combing through the posts and collecting those that included updates on the disaster response efforts, the status of projects, or messages of empowerment and/or encouragement. Using this compilation of Facebook posts, I selected some to put in a narrative analysis timeline (see Appendix 1) and otherwise extracted information to create a timeline of PAM's response to Maria, which I compare to some of the federal response efforts (see Appendix 2).

Table 3 Secondary Source Types and Descriptions

Source Type	Source	Description
News articles, Op-eds, and Videos	Various	Most press coverage from 2017, with more time since Maria, fewer articles/videos were published.
Portrait Story Project	Francesco "Cesco" Lovascio "Vascio" de Santis & participating residents of Mariana or volunteers	- Descriptions of lived experiences during and directly after María hit - Post-disaster reflective thoughts - Expressions of hopes for the future
Facebook Posts/Updates	PAM's official (public) account/page. See Appendix 1 for timeline.	- Log of work/achievements post-Maria (in the form of daily posts) - How PAM frames their projects/efforts - PAM's effort to galvanize residents and increase participation - PAM narratives around Maria, the relief process, and the project - Empowering Narrative
Organization Websites	PAM official webpage, ARECMA official webpage	- History of organization & statements of intent - Brief descriptions of projects - Introductions to organization leaders

Photo 9 Portrait Stories hanging at the Center of Imagination

Portrait Story Project of Mariana: The Portrait Story Project (PSP), as the name suggests, is a mobile art and storytelling project led by artist Francesco Lovascio de Santi. The project was carried out in Mariana from December 2017 to March 2018, during which 56 people chose to participate (See Photo 9 for some examples from the PSP). The participants (also referred to co-generators of the portrait-stories) told their stories of Hurricane Maria – reflecting on their experience, their thoughts and feelings, their loss and often, the silver lining that they were able to find. These portrait stories are publicly displayed in Mariana and, according to the MOU signed by ARECMA and the Portrait Story Project, anyone may photograph them and "high resolution digital images…should be visible online for free viewing on ARECMA-associated websites" (Lovascio & Participants, 2018). I drew from these stories to learn more about the lived experience of surviving the hurricane as well as how it changed peoples' perceptions of their community, their country, and their identity. These portrait stories were also conveyed how people were feeling and what they were thinking just a few months after the hurricane and allow me to understand how things may have changed between the time they were produced and when I arrived to Mariana in June 2018.

Press coverage: As a supplement to my interviews, I collected and reviewed any press coverage of PAM or ARECMA that I could find – which included blogs, articles, videos, segments of documentary series, and radio broadcasts. I referenced these sources in conjunction with my own interviews as a part of my strategy to reduce the amount of drain my research caused on the leaders of the organization. Doing this also allowed me to fill in some background information and better structure my own questions to cover topics and ideas that had not yet come up in interviews. While drawing on the press coverage was helpful, I was mindful of the

impact a journalist's own perspectives can have on the way a story is told or framed. With this in mind, I used only parts of the interviews that I judged were being fully articulated by the PAM affiliate. My own experience of working with PAM and living in Mariana made me better able to spot reporter biases. Because of my use of other interviews, in the following section there are some quotes by Nieves in which I cite a source other than my own interview with her.

Data Analysis

When processing my data, I mostly relied on two analytical techniques – coding and discourse analysis – and adjusted my approach according to the data set that I was working with. For example, when analyzing PAM's Facebook posts (See Appendix 1) I relied more heavily on discourse analysis which focuses on how the uses of language "influence social identities, social relations, and social institutions, as well as systems of meanings" (Cope & Kurtz, 2016, p. 659). This is because, as an official platform for the organization, the topics or themes of the posts did not vary much from one to the other, but through the posts, I was able to identify patterns of messaging that were being used to motivate and empower community members as well as project developments that insinuated a shifting of temporal scale to take on longer-term projects. With the Portrait Story Projects as well as other secondary sources that I used, I focused on coding, which mostly resulted in 'descriptive' codes or themes. I found these codes to be a helpful starting point from which I could develop more analytical codes and they also helped me fill in context and supporting information for themes that I had developed from my analysis other data sources, what Baxter and Eyles (1997) describe as triangulation.

When analyzing my interviews, I started by developing and employing descriptive codes, which are categorical codes that refer to simple or obviously stated patterns (Cope & Kurtz, 2016, p. 651). This led me back to many of the same themes/codes that I developed from analyzing the Portrait Stories and other secondary sources. The more I worked with the interviews, the more I understood the patterns that developed between the different interviews that I had conducted and acknowledging this allowed me to see broader patterns and develop more analytical codes like “unevenness”.

As I worked, I re-organized a number of thematic categories as I adjusted my approach. I used a number of themes and concept to sort and organize my data. These themes can be broken down into four main categories: community, vulnerability, and empowerment. In the table below I show what sub-themes were developed within each of these categories and how those themes were developed.

Table 4 Coding themes

Community	Vulnerability	Empowerment
Dynamics	In Puerto Rico	Controlling the narrative
Sense of place & history	In Mariana	Leadership
Inclusion/Exclusion	Explicitly identified by PAM	Participation
Participation & solidarity	Implicitly identified by PAM	Leaderful future
Perspectives on PAM	My observations	Inspiring hope
Unevenness	Direct experiences with Maria	Ownership & responsibility

Hurricane Maria hits Mariana

Catastrophe is Unveiled.

The 2017 Atlantic hurricane season went on record as an extremely active and impactful season. NOAA reported it as the "the seventh most active season in the historical record dating to 1851" and as "the most active season since 2005" (Vaccaro, 2017). During the season, three major hurricanes made landfall in the US and its territories including Harvey, which hit Texas, Irma, which hit Florida, Puerto Rico and other Caribbean islands, and Hurricane Maria, which hit Puerto Rico and other Caribbean islands as well as some parts of the southeastern continental U.S. to a lesser extent (Vaccaro, 2017). Hurricane Maria hit Puerto Rico on September 20th, 2017. The storm entered as a category 4 hurricane through the Yabucoa valley on the southeastern coast and crossed the entire island, exiting from the Northeastern coast (See Figure 4). The impacts of Maria were absolutely devastating.

Figure 4 Map of Hurricane Maria's path through Puerto Rico (Almukhtar, Block, Fessenden, & Patel, 2017). Mariana location detail added by myself.

The death toll in Puerto Rico ranged from 2,900 to 3,100 deaths, with the official death toll set by the Puerto Rican government at 2,975 deaths based on a study conducted by George Washington University (Centro Center for Puerto Rican Studies, 2017). This number is somewhat contested and has fluctuated a lot (having started at only 16 certified hurricane-related deaths) due to the fact that many of the lives lost were from lack of access to medical care, electricity, or clean water in the days, weeks, and months after Maria hit. This underlines how inadequate the immediate response to Maria was on the part of the U.S. federal government.

In terms of infrastructure, Maria completely wiped out Puerto Rico's electrical grid and took down 95% of the cellular networks (Centro Center for Puerto Rican Studies, 2017). This caused a communication blackout in which people, companies, and organizations started relaying on local radio signals to disseminate and access information. This meant people

couldn't contact family members to see if they were alright, people were unaware of what was happening outside of their immediate surroundings, and it became a lot harder to access the resources, information, and medical care needed to stay alive.

In the midst of this communication blackout and relative state of immobility that people found themselves in due to blocked or otherwise unsafe roads, limited access to gasoline, and in some cases, the loss of their cars, the response of the U.S. federal government was excruciatingly slow, ineffective, and disorganized. It took over a week for President Trump to (temporarily) lift the Jones Act to facilitate the easier shipment of aid to the territory (Chokshi, 2017) creating an unwarranted stall in the delivery of aid to the territory, and the act was only lifted for a total of 10 days (Bendery, 2017) which greatly reduced the impact and benefit lifting the act was able to have for Puerto Rico. As the U.S. response to Maria continued to be inadequate, increased media attention started covering the situation, commenting on FEMA's negligence and unpreparedness to respond to the disaster (F. Robles, 2018), and the unfavorable treatment Puerto Rico was receiving compared to response seen in Texas after Hurricane Harvey just one month before (Vinik, 2018). The negligence on the part of the U.S. federal government can be considered an act of violence by negligence, which, although not quite as extreme, could be compared to the 1899 San Ciriaco hurricane that devastated Puerto Rico and to which the U.S. did nothing to aid in recovery.

Puerto Rico took a long time to regain any measure of stability. One month-post Maria, 83% or residents and businesses in Puerto Rico were still without power, a third of the population still lacked running water, and only half of cellular networks were functional (Centro Center for Puerto Rican Studies, 2017). By late February 14.36% of Puerto Ricans were still

living without power, and the power grid wasn't completely restored (99.99%) until August 14th, 2018, 11 months after Maria hit (Centro Center for Puerto Rican Studies, 2017). To add insult to injury, FEMA is legally restricted to only replace what was damaged and not make improvements on what existed before, which applies even when what existed before was broken and would cost more to replace than a new and improved option.

Those living in Mariana, Humacao could have watched the eye of the hurricane pass right pass right by them if their houses weren't completely boarded up. Mariana sits on the hills that divide the valleys of Humacao and Yabucoa, the latter being the valley through which the eye of Maria passed. Mariana's steep, curvaceous hills caused spirals of wind to get trapped in cyclones that lifted houses and cars and caused ferocious amounts damage to the landscape. During the storm, some mudslides carried away houses from their original resting places. By the end of the storm, the vibrantly green hills were described as looking as if they were covered with burnt matchsticks.

In Mariana aid did not come for a long time, and when it did come there wasn't much to it. On October 2nd, 2017, twelve days after Maria hit, a truck dropped off 'meals' in Mariana which consisted of a small packet of NutriGrain bars, Vienna Sausages, Skittles and four 16 oz. bottles of water per family (M. G. A. Hsu, 2018). It then wasn't until November 10, 2017 that FEMA showed up to Mariana, arriving at *la Loma*, where they set up shop and borrowed the Wi-Fi PAM had acquired to fill out their forms. By then, PAM had already started meeting the community's most urgent material needs – including clean water, nutritious food, hygiene kits, solar lamps etc. – and had started bringing in mental health professionals, doctors, teachers, and other professions who offered their services to the residents of the neighborhood. (See

Appendix 2 for a timeline of responses to Hurricane Maria by the federal government and by PAM). The neighborhood of Mariana finally had its power completely restored on June 16th, 2018, one day before I arrived.

The Lived Experience

Numbers and measurements do very little to express the power of the storm compared to the accounts that survivors gave of their lived experience of the storm. The Portrait Story Project of Mariana (PSP) gives testimony to the brute force of the storm and the traumas that people experienced at Maria's passing. This project was a storytelling activity where participants had their portraits painted by a visiting artist who was volunteering for PAM and then were given the rest of the space on the page with the painting to write about their experiences, their thoughts, emotions or anything else they chose to write about. Some of the stories from the project describe the terror people felt when the storm hit and the loss they felt afterwards. One story describes a resident watching her neighbor's roof and porch blow away, family members come running through the storm to find safety because their windows were shattered, and then walking outside when the storm was over and feeling like she had stepped two centuries into the past (Lovascio & Participants, 2018). Another portrait story describes the painful experience of surveying the impact of the storm, seeing the "total destruction" that made the neighborhood "unrecognizable", and having it feel "like a bomb had dropped and swept away the beauty of … Puerto Rico" (Lovascio & Participants, 2018). Nieves similarly described the experience, comparing it movies that show scenarios of "Armageddon, of destruction, of the end of days" (Bascomb, 2018).

As Maria passed, it took a lot with it. People and families lost the trees and plants that had been a part of their gardens and homes for decades, they lost possessions, they lost their comforts and conveniences, some lost their cars, their houses, their ability to run their businesses, some lost their pets and animals, and some lost their loved ones. Many in Mariana, especially those living alone, felt a heightened sense of insecurity and vulnerability to theft and other violence, especially when in their homes at night without electricity. As many grappled with the despair, pain, and fear that the hurricane brought, there were also many who found in María an opportunity for reflection.

The force of Maria wiped out huge portions of the physical structures in Mariana, as well as other parts of Puerto Rico. Buildings were torn apart, cars thrown around, power line posts and street signs were knocked down, electrical towers and antennas were broken, roads were damaged, and a lot of other infrastructure became inoperable. It cut people off from access to basic necessities like water, food, energy, and communications systems and, with those things, it took away conveniences like indoor lights, washing machines, refrigerators and many other things often taken-for granted. It also cut people off from other things – such as internet, tv, and videogames - that had been integrated into peoples' daily lives and habits. Maria wiped away seemingly everything, which while incredibly painful and difficult, provided many people with the opportunity and clarity to reflect on what really mattered to them.

A Moment for Reflection

After the storm, many people found a moment of clarity and reflection. In one portrait story, a community member of Mariana describes how Maria put people in a situation in which they had the time and space to contemplate everything from a different perspective, one in

which people were more conscious and radical (Lovascio & Participants, 2018). In another story, the author reflects upon the effect of losing all of the conveniences and comforts that she had taken for granted and writes about her realization that those things were not necessary or important and that in their absence, she discovered what was really mattered to her, she found the strength she had to overcome adversity, be a better person, and find her calling in life (Lovascio & Participants, 2018). To some, this was a form of liberation from some of the crutches that modern life had built, the storm forced people back to their roots, and to reconnect as humans on a much deeper level than had existed pre-Maria (Lovascio & Participants, 2018). Survivors felt that they not only became better humans who were more conscious, more empathetic, and more collaborative but that they were also better Puerto Ricans – something that built a sense of solidarity and optimism for the future (Lovascio & Participants, 2018).

Along with strengthened senses of community connection, clarity, and solidarity came, for many, a feeling of empowerment. One survivor expressed in her portrait story that 'Maria taught us that we are strong, brave and fighters' and another describes the clarifying impact of Maria that exposed the realities of the inequalities that had existed in the community and in Puerto Rico at large for decades (Lovascio & Participants, 2018). The PSP demonstrated a common expression of self-discovery that allowed people to see what had been hidden under the surface for so long – the colonial narratives of Puerto Rican laziness, corruption, and lack of potential that had been robbing Puerto Ricans of their power, sovereignty, and possibility. In an interview with Campbell, Nieves expressed these ideas saying:

> "The story that we've been passed from generations to generation is 'America is going to protect us, it's going to provide, it's going to – when it matters, they can defend us'. And then when it mattered, they couldn't get people here. I think it was a great moment of a story collapsing. And that is very important and very powerful. Because that's a story that we've been holding onto for generations." (Campbell, 2018)

The implications of this story collapsing are huge. These kinds of transformations in narrative can lay the groundwork for the process of self-liberation that Rodriguez Sanchez, co-founder of PAM, referred to in his own Portrait Story.

This moment of reflection extended past the level of the individual, the nuclear family, or the neighborhood level to pertain to a much broader reflection on the reality of Puerto Rico and its future. Artist and journalist Molly Crabapple who had personal ties to Puerto Rico wrote in an article on Hurricane Maria that "Natural disasters have a way of clarifying things. They sweep away once sturdy delusions, to reveal old treasures and scares" (Crabapple, 2017). One of the portrait stories articulated a similar message, saying:

> "We have been born anew, I have been born anew, to the undeniable reality that used to be covered by trees, like curtains fallen, inequity revealed for everyone to see. This era is birthing a new heart for a nation that for decades has been asking for change… In a bitter plot twist this hurricane has utterly destroyed our infrastructure and left us with everything and nothing." (Lovascio & Participants, 2018)

Although this process of reflection provides an opportunity for a "reboot" that may lead to better futures in Puerto Rico, Rodriguez Sánchez, co-founder of PAM, makes it clear that in Mariana, and other parts of Puerto Rico, it isn't a *choice* (Graulau, 2018). This is an important reminder: this situation did not come about as 'lucky happenstance' but as a result of severe vulnerability that allowed for such intense destruction to occur.

The Proyecto de Apoyo Mutuo Takes Shape

The Proyecto de Apoyo Mutuo de Mariana (PAM – The Mutual Support Project of Mariana) started as an effort to address the immediate needs of residents in a way that empowered people to take action and help strengthen the community by building lasting solutions. PAM is one of 14 Mutual Aid Centers (CAMs) located throughout Puerto Rico, all of which emerged after Hurricane Maria. These CAMs emerged in response to ineffective disaster response on the part of the government (at all levels) and the severity and urgency of the needs that many were suffering post-Maria. All 14 CAMs started serving free food out of community kitchens, providing and distributing goods and aid received from local and overseas donors, and organizing volunteer brigades to help clean up and rebuild community spaces (Crabapple, 2017). On top of this, the centers often became focal points in the communities and offered spaces of community connection, solidarity, and healing.

In Mariana, PAM was created when its co-founders, Luís Rodriguez Sanchez and Christine Nieves, first approached the leaders of ARECMA with a proposal to establish a communal kitchen project at *la Loma* – a 16-acre hilltop space owned by ARECMA that has a commercial grade kitchen and is used to host their annual Pana (Breadfruit) Festival. The community kitchen they developed is directly modeled from the kitchen at the Centro de Apoyo Mutuo, Caguas (CAM Caguas- Mutual Support Center in Caguas) that Nieves and Rodriguez-Sanchez visited. Nieves recalled the inspiration she felt during her visit, recalling:

> "when we saw what they were doing there, the fact that there was, not only were people being fed, they were smiling, there was art, there was color, there was music in the center of a … very depressed part of Caguas…. I was like: we got to do this. I started taking photos, I started writing down what were the elements that were making it function, seeing that there were people that were

> responsible for serving, some people for cooking, some people for cleaning dishes, that they were re-using dishes to bring down waste. And how they were asking for donations. It was very clear. Bring these, these, these items. There was a section for accepting donations. We just replicated everything. (Nieves, August 16, 2018).

What Nieves describes seeing at CAM Caguas, and which a whole network of other Mutual Support Centers (CAMs) across Puerto Rico embodied, was a philosophy of mutual aid and self-efficacy that served to bring people together and to empower them to imagine and create alternatives to the broken systems that revealed themselves after Maria.

In Mariana, the development of PAM played out as a co-constructive process in which the community volunteers were the foundation on which the project was built, while the project served to build and strengthen the community and network of volunteers. In a few short weeks following Hurricane Maria, La Loma underwent a significant transformation. A space which before had been gated off for most of the year when ARECMA was not actively using it transformed into a community hub of people, information, and resources.

LEVERAGING EXISTING ASSETS TO BRING LIFE TO THE PROJECT

PAM was built on networks of people and allies - both local and global. In the direct aftermath of Maria, the local networks of people and contacts that ARECMA had built over the decades of its work were invaluable to the creation of PAM and more broadly to the ability of the community to start meeting its needs. In the midst of so many things going wrong and so many systems collapsing, this was one of the most valuable assets that ARECMA had and is a demonstration of one way the community counter-acted vulnerability. As Nieves describes it:

> “there is no denying that 30 years of mobilizing volunteers for either resistance, protest, and the festival has created a social fabric. That even though there has

> been a lot of conflict within it, it's there. And it's the fact that the longevity of it, the fact that it's been decades of consistency - consistently weaving this fabric- made it, or there was this infrastructure that was there, that no amount of rain, wind, landfall, fire could really destroy. And that's the relationships between people. Knowing where people live." (Nieves, August 16, 2018).

Post-Maria, ARECMA was able to mobilize its network of long-time volunteers to help build momentum for PAM. One of the clearest examples of this is the communal kitchen at *la Loma* whose success relied heavily on a the knowledge and skills of group of eleven volunteers, mostly grandmothers from the neighborhood who were long-time volunteers of ARECMA's Pana (Breadfruit) Festival, who had the know-how to organize and run a large-scale kitchen. Even in the absence of clean, running water from the city or electricity to power lights, refrigerators, blenders or other kitchen equipment, these volunteers took charge of cooking and serving meals for hundreds of people in the community. This effort was a remarkable demonstration of the assets that ARECMA had built and cultivated over the years of community organizing, without which, PAM may not have emerged or had as big of an impact in Mariana so soon after Hurricane María hit.

The transformation of La Loma into this space of healing, support, and action was made possible first by local networks of people that arrived to carry out the initial labor of cleaning and restoring it, and then by the support of broader networks of friends, family, allies, and other networks of people, organizations, and companies that the leaders of PAM were able to access. Social media became a key tool for unlocking access to networks of donors, volunteers, and allies and allowed PAM to access hard-to-get resources that residents were in need of. In one of the portrait stories on display in Mariana, one community leader describes how trucks

filled with food, water, seeds to plant, and constructions supplies started arriving at La Loma along with a whole host of volunteers including social workers, doctors, psychologists, musicians and other helping hands which he attributes to the local and international contacts the project had access to and could leverage.

For PAM, social media was an extremely valuable tool that allowed the project to expand its networks and leverage resources they didn't have access to in Mariana or in Puerto Rico. Facebook in particular allowed the leaders of PAM to tap into a broader community of friends, family, colleagues, diaspora Puerto Ricans, and other allies and humanitarian organizations, effectively tearing down some of the barriers to accessing resources they were faced with. These networks increased the permeability of the political, logistical, and economic boundaries that allowed resources, information, and support to flow into Mariana. Through this, we can identify how having, maintaining, and building local-scale and global-scale assets is essential to counteracting the impact of the vulnerabilities that a community faces.

As PAM's online presence grew, so too did its network and soon, the organization was able to extend their network beyond family, friends, colleagues, and diaspora Puerto Rican networks to access donations and resources from organizations like UNICEF, AvWatch, Save the Children, and others. (Refer to the PAM response timeline in the Appendix for a more detailed account of programs, resources and developments.) Re-establishing some levels of connectivity and communication were essential in PAM's coordinating efforts to get resources moving into the neighborhood. This also is a strong example of how social media savvy and access to broader, albeit looser networks of people were significant assets to the organization and made them more capable to respond to the urgent needs the residents were facing.

The development of PAM's projects and networks allowed for a transformation of place at *la Loma.* The hilltop community space which, before Maria, went unused by the community for most of the year, became a space for meeting, connection, and solidarity amongst residents of Mariana. Those who were able to make it to the hilltop gravitated to *la Loma* for hot meals, access to resources, information, or communications systems, as well as to contribute to the projects, volunteer with others and share a sense of comradery with their neighbors who were going though similar experiences. The movement and connections that were happening at *la Loma* allowed it to become a space for healing and hope, and a counter-vailing force against vulnerability.

Many of the women volunteering in the kitchen were able to create a space filled with community, solidarity, support and healing for themselves as well as other community members who visited the kitchen through their daily acts of volunteerism, caring, and generosity. In one interview, a volunteer of the kitchen described the emotional benefits she experienced from her time working in the kitchen saying "we come to help, but at the same time avoid sadness and depression" suggesting that the act of giving helps fight the sadness and allows for happiness and gratitude to replace it (Rivera, 2017). In other interviews, the same volunteer mentions the calming effect that working in the communal kitchen had on her, saying that she volunteered to "connect with the people more and help the people more" (Delgado, 2018) and that for her, the work served as therapy to her (Robles, 2018). These acts of connection and caring helped create a space of healing and of refuge from the despair of the catastrophe.

Similar to CAM Caguas, art was a big component in PAMs process of placemaking that PAM carried out at *la Loma*. Large Puerto Rican flags and murals celebrating the rich cultural history of Puerto Rico – including one of Julia de Borges – were painted on buildings. A huge mosaic mural was created along the entrance to La Loma in recognition and celebration of the neighborhood's roots. Photos A, B, and C are all of a large mosaic mural that can be seen when entering *la Loma*. It celebrates Mariana's sense of place through symbols of Mariana, its cultural identity, and some of the key values – including pride in workers, a connection to the land, and a celebration of local arts and cuisines. Photos D and E, which were also both taken at *la Loma*, show expressions of celebration of Puerto Rican identity, solidarity, and power. This art helped to brighten up La Loma, celebrated and continued to build a stronger sense of place within the community, and was one way that PAM embedded the values of the organization into their physical environment.

PAM's ability to respond to the most urgent needs of the Mariana community was grounded in the organization's ability to leverage the assets that already existed in their community – including local knowledges and skills, ARECMA-owned infrastructure, and networks family, friends and other allies – to initiate a flow of resources and information into Mariana and create a space for support and healing in the neighborhood. These assets have demonstrated their impact and value post-Maria as well as through other moments of the neighborhood's history when the community has had to advocate for basic services, and constitute a promising mechanism for addressing or reducing the vulnerabilities that impact Mariana.

Targeting the Roots of Disaster

Confronting Catastrophe in Mariana

Returning to the conceptual framework of catastrophes as processes that I laid out earlier, I argue that an effective response to catastrophe that enables a given community to break the cycle of disaster and move forward to a stronger, more livable future calls for a 'dismantling vulnerability'. The conceptual framework of 'dismantling vulnerability' involves understanding *what* vulnerabilities are impacting a given community, identifying *how* those vulnerabilities are being produced or exacerbated through social systems, and developing strategies that address those vulnerabilities and target their roots. Because catastrophes operate over multiple temporal and spatial scales, efforts to 'dismantle vulnerability' should also be structured to provide both short and long-term solutions, and engage with both local and regional/global contexts.

I propose that we can see evidence of PAM's work to dismantle vulnerability through two dimensions of their projects: their efforts to shift between temporal scales to address both urgent, short-term needs and longer term visions for their community, and an effort to shift spatial scales to articulate non-local drains on the political economy. The breadth of their projects and goals demonstrate a deep understanding of the multidimensionality of catastrophes, the complex ways that vulnerabilities are produced and reproduced in society, and a recognition that appropriate responses must be equally multi-scaler and multi-dimensional.

Shifting Scales to a Longer-Term Approach

During the first few months following Hurricane Maria, PAM used Facebook as its main mode of communication with its networks of support and through it, provided informal status reports on the project detailing what was going on in Mariana, what needs they had identified locally, what achievements and progress had been made, and what next steps they were working towards. These daily posts kept a record of the growth and evolution of the project and, over time, demonstrate an approach that considers a longer time-frame and marks a transition from an on-the-ground grassroots disaster-response project to an organization working to combat sources of vulnerability present in the Mariana neighborhood. In the process of understanding the needs of residents after the hurricane, the leaders of PAM gained a lot of insight into the kinds of vulnerabilities that existed in Mariana before Maria hit. The kinds of vulnerabilities that PAM leaders identified fell into two main categories: material and discursive or psycho-emotional vulnerabilities.

The tangible, material vulnerabilities – vulnerabilities that could be seen, felt, or otherwise were easily identified – were some of the easiest to identify and articulate. A lot of vulnerabilities were made apparent by the loss of access to clean running water, fresh, healthy food, and having communication and electrical infrastructure collapse demonstrated pronounced vulnerabilities – especially when electrical infrastructure for Mariana wasn't completely restored until nine months after the storm. These were vulnerabilities that came from a dependence on non-local or poorly-functioning systems that were being neglected on a national level. The mountainous terrain of the neighborhood also increased some vulnerabilities to the storm as it meant that people unable to walk up and down steep hills

were not able to seek out help – the loss of communications only made this more pronounced. Additionally, Nieves pointed to a lack of first aid knowledge and preparation, poorly maintained roads with steep curves and drops along the sides, and an abundance of homes constructed when building codes were less strict including some with a high risk of landslides wiping them out (Nieves, August 16, 2018).

The discursive and psycho-emotional vulnerabilities identified were fewer in number but certainly some of the most impactful and pervasive vulnerabilities. PAM leaders took note of how the deep legacy of colonialism in Puerto Rico had manifested into a widespread disempowerment of Puerto Ricans. Pervasive colonial narratives and attitudes propagated by the U.S. for over a century had taught Puerto Ricans to lose hope in themselves, in their communities, and in Puerto Rico. In his book *The War Against All Puerto Ricans*, Denis (2015b) references a series of American newspaper articles and even a Senator's testimony on the senate floor which collectively demonstrate that the national perception of Puerto Ricans throughout the first half of the twentieth century (at very least) was that they "were ignorant, uncivilized, morally bankrupt, and utterly incapable of self-rule" and that they were "simple-minded" and "savage". These kinds of attitudes, when communicated either directly or through indirect action, suppress and take power from Puerto Ricans and degrade hope at a massive scale.

Identifying Vulnerabilities Across Spatial Scales

As PAM leaders reflected on the vulnerabilities present in Mariana, they also started grappling with the question "How do we make and create reasons for the people of this community who have left to come back, and for the people who are here to be strengthened in

whatever it is that they love to make"? (Graulau, 2018). In their response to this question PAM leaders hope to address some of the underlying issues that have led families to move away or that have made families still living in Mariana more vulnerable. To do this, they have identified two key requirements: the first, to have access to the resources needed to live with dignity and safety, and the second, to have access to capacity-building resources and opportunities that create and expand educational and economic opportunities.

For PAM, just as important to having access to the resources needed to live with dignity and safety is to obtain access to those resources in a way that strengthens the community, increases self-sufficiency and decreases dependence on outside entities or imported materials – an approach that is reminiscent of the resiliency framework which seeks to address the redistribution of material resources and access to access to power simultaneously (MacKinnon & Derickson, 2013). For decades the needs and interests of the residents of Barrio Mariana have not been well served by the government – something Hurricane Maria made painfully clear by the heavy toll that was taken on the infrastructure of the neighborhood and the painfully slow and mostly absent aid response from local and federal governments. Maria demonstrated to community leaders that they needed to establish and maintain their own, stronger, and smarter infrastructure so that they could exercise local sovereignty over key resources like water, food, and power, and would not be left vulnerable and forgotten when another powerful storm comes.

The first project that demonstrates PAM's intentions to provide local access to resources and services while becoming increasingly self-sufficient is the communal kitchen that was opened post-Maria. Currently the kitchen completely runs on energy from the solar panels

that were installed on its roof, eliminating its dependence on the antiquated national power grid. Additionally, the community farm at La Loma, which consists of a vegetable garden, fruit orchard and herb garden, has as its main goal to provide the community kitchen with as much of the food needed to cook there as possible. Currently the farm, which is in its infancy stages, produces enough to supply the kitchen with ingredients to make fresh salads as well as produce *Sofrito,* a traditional Puerto Rican sauce that is used to season many traditional dishes. As the community farm is being further developed, the PAM volunteer who is taking charge of the effort is actively working to incorporate more Taíno[3] planting methods as a way to increase the farm's ability to weather storms.

Establishing access to solar energy was another priority for the organization as it became abundantly clear that Puerto Rico's electrical grid was unreliable and there was little-to-no hope that it would get better (especially with the Stafford Act which, as mentioned earlier, places legal limitations on what FEMA can 'fix'). Accordingly, the organization looked for long-term solar options that would not only supply ARECMA and PAM with their energy needs, but that could also offer residents a more sustainable and cost-effective source of power that could be designed to be less vulnerable to future storms. In May of 2018, PAM received and installed a BoxPower solar panel which is designed to withstand winds up to 120mph and can be quickly dis-assembled and packed up to be stored within a stormproof container in the event of a hurricane. The BoxPower solar panel now provides the Center of Imagination with a cost-effective, reliable, renewable, storm resistant, and localized source of energy that is able to serve all the needs of the community center including the laundromat, library, tool library,

[3] Taínos are the native peoples of Puerto Rico.

PAM offices, and eventual hostel, café, and business incubator (among any other initiatives that may arise).

The installation of BoxPower and the possibilities it could lead to symbolize a dismantling vulnerability approach in which new solutions that target existing vulnerabilities are imagined and created to replace broken systems rooted in non-local dependencies – in this case, an outdated energy grid, reliant on imported fossil fuels and built with poor infrastructure. These kinds of responses to vulnerability offer the possibility for communities to establish a greater level of sovereignty over essential resources and the offer the possibility of lasting change by creating local alternatives to broken systems. The BoxPower has the potential to help build local control over essential resources in Mariana, giving residents more power to manage resource distribution and create a model that supports the interests and wellbeing of the Mariana residents instead of American economic interests.

There are many other projects and resources that PAM has acquired, developed, or is working to create in Mariana that similarly work to create access to alternative systems and resources that help PAM work towards building a more livable future for Mariana. Some are focused more on establishing physical resources in the neighborhood like water filtration towers, free Wi-Fi, a tool library, and a kids' park among other things, while other projects are focused on offering services and community initiatives, like the development of a local business incubator, the hosting of a summer kids' camp, and the development of a community-designed emergency plan for Mariana. Appendix 3 provides a list of these and other projects that include a brief description and some of the desired impacts of each project or initiative.

Overall, most of the on-going or planned projects that PAM has developed are focused on addressing the material vulnerabilities present in Mariana, on both short and long-term scales. They also include efforts to build localized resources in the neighborhood and develop capacity-building opportunities which, together, lay the groundwork for a more livable future in Mariana. However, some of the listed initiatives including the kids summer camp hosted each summer by ARECMA and the Mariana Emergency Plan also work to confront some of the discursive, psycho-emotional vulnerabilities present in the community through community engagement opportunities; these are explored in detail below.

Dismantling Vulnerability

The most apparent objectives of PAM'sprojects are designed with the intention of helping residents gain and maintain access to the resources they need to stabilize their lives and live with dignity. However, another facet of PAM's goal is to engage with residents on a deeper level to address the discursive and psycho-emotional vulnerabilities that have been produced by decades of oppressive colonial rhetoric and the scars it has left on people's ability to hope and their sense of empowerment. In efforts to dismantle the most deeply rooted sources of vulnerability in Mariana (as well as in Puerto Rico more broadly), the Proyecto de Apoyo Mutuo focuses on three key strategies which are embedded into the framework of the organization and the projects it conducts. PAM leaders actively work to (I) re-write common narratives of Puerto Rico to celebrate the power of taking control of their own story, (II) actively increase participation and build a more 'leaderful' community, and (III) encourage a re-imagination of the future of Mariana and Puerto Rico.

To reiterate, the process of dismantling vulnerability starts with the identification of the root causes of catastrophe by uncovering systems that produce vulnerability and is then followed by efforts to directly prevent and counteract their production of vulnerability. As I demonstrated in my brief review of Puerto Rico's history as a territory of the U.S., there have been many processes that have created significant levels of vulnerability in the Puerto Rican population. These systems all connect, in one way or another, to the root-source of vulnerability in Puerto Rico – the lack of power, representation, and voice that Puerto Ricans experience as colonial subjects. Building on the understanding that this vulnerability perpetuates the production of even more vulnerabilities, PAM's efforts in Mariana are all designed to reclaim power that has been taken from Puerto Ricans and build and strengthen collective power to help liberate the community from some of the burden of oppressive colonial systems. In conjunction with the projects that address and dismantle material vulnerabilities in Mariana (as seen in Appendix 3), the leaders of PAM use empowering language to galvanize hope for the future, increase participation in projects, and actively work to cultivate leadership skills and future leaders in the Mariana community.

Language with the Power to Transform

Strategic use of language has been at the forefront of PAM's strategy to confront pervasive colonial structures and internalized oppressions present in Mariana. Language that pushes community members to challenge the oppressive narratives and stereotypes that have been built up of Puerto Ricans by their colonizers, engage in a critical reflection of *why* Mariana and Puerto Rico at large finds itself in the state of vulnerability that it has experienced for

decades, and empower them to confront those sources of oppression by making changes in their own community.

Nieves has reason to believe in this kind of transformative process because she too experienced what she refers to as a process of awakening. As she reflects on its, she describes:

> "I think something that I missed, that I think is very important, is that for me, as someone who left for 11 years, ARECMA and Mariana - both the work of the association but also the feel of the community, helped me create a very different narrative and see that a different Puerto Rico was existing. That I hadn't seen. And it's almost like you take the red pill or the blue pill, it was like all this time I had been on this automatic seeing the world and seeing Puerto Rico with a very singular focus - like the automatic *it sucks, people are lazy, there's corruption, roads aren't working, nothing works, nothing will ever work*, and then I took the blue pill (or whichever pill it is) and then I saw the power and the people that are creating a different reality for Puerto Rico, and so that was, that still is to this day one of the most important transformations for me, in relationship to Mariana." (Nieves, August 16, 2018)

What Nieves is talking about here is the same process of self-liberation that Rodriguez Sanchez writes about in his Portrait Story Project and has become one of the core considerations that the leaders of PAM have grappled with in their process of working with the community and building their projects for the future. That is, how can PAM build processes of engagement with community members in which community organizers could accompany residents through a process of empowerment and 'self-liberation' (or awakening) while engaging in projects with, and in service to, the community?

From the start of PAM, the leaders of the project recognized the significant impact that their words and messaging could have on the community and on the success of their project. Some of their earliest messaging that they used on Facebook focused on energizing, unifying, and empowering language. On October 11th, three weeks after María hit, PAM posted:

> "La comunidad se ha integrado a este esfuerzo que nos pertenece a todxs."
> *The community has integrated into this effort that belongs to all of us* (Proyecto de Apoyo Mutuo, 2017).

This kind of language has a unifying message as it bestows ownership of the project and its success onto all of the members of the community, and in doing so gives the agency to enact change to those who involve themselves. The post also expresses inclusivity by using the word 'community' in a broad, undefined way that allows anyone who feels connected to the project or to Mariana to consider themselves a part of the community, as well as through the use of the word 'todxs' (a new spelling of the traditional words 'todos' and 'todas' which mean 'all') in an effort to recognize and accept all gender identities and make everyone feel included and invited to participate

Giving recognition to those who contributed to the project in one way or another and expressing gratitude was something else that PAM made a point of including in their posts. On November 3rd, 2017, PAM posted:

> "This week we accomplished a lot. We had The Live Story workshop for our children followed by Zumba classes with views of the sea. Today we also started the base for one of the towers that will filter water so that people can have access to clean water in several places in the neighborhood. We were able to share the internet with the people of Parroquía in the beach community through an antenna. Chefs for Puerto Rico gave us an abundance of food and we were able to bring 300 pounds of chicken and rice among other food. Our project grows, evolves and gives us life every day. We end the week with much thanks for everyone that makes it possible with their solidarity." (Proyecto de Apoyo Mutuo, 2017)

While seemingly mundane in the sense that this post gives a weekly summary of what has been going on at La Loma (PAMs headquarters at the time), there is a lot of power in these words for a few key reasons: they celebrate accomplishments, small and large, of the project; seek to

uplift residents with messages of solidarity, accounts of volunteerism, and collaboration; and by showing that actions are being taken to improve the dire situation being faced in Mariana. It also recognizes the collective efforts of the community and shows appreciation for the solidarity and collaboration of those involved. Even the simple act of kids playing with a dog at *La Loma* serves as a symbol of optimism and hope for the future. The post ends with a rallying call: "Pa'lante!" (Proyecto de Apoyo Mutuo, 2017). *Pa'lante*, literally translates to 'to move forward' but has a much deeper significance. As Nieves puts it, "'Pa'lante' means we're going to keep moving forward, we're going to keep rising, and we're going to keep fighting" (Bascomb, 2018). She also elaborates on the emotional significance that Pa'lante carries post-María:

> "The conclusion at the end of this disaster that we're still living in is that it's us, we were the ones that could respond. We were the ones that were capable of saving lives, and it was community members that were capable of doing it. So, pa'lante." (Bascomb, 2018).

PAM's use of empowering, unifying and energizing rhetoric was not only directed at galvanizing participation in PAM's projects, but also actively worked to dismantle colonial narratives that are pervasive in Puerto Rico. In my interviews with her, Nieves described PAM and other CAMs (Centers of Mutual Aid by its acronym in Spanish) in Puerto Rico as "becoming engines of shifting narratives", a step she sees as a vital pre-requisite "before you can shift the reality of everyday life" (Nieves, August 16, 2018). Nieves elaborates saying:

> "…what the CAMs can do is, they are building trust, because in a time when no one trusts the government, they are the people, because they are designed to be 'leaderful' - I read that last night and I loved it. It's not one leader, it's many, many leaders so if one person makes a mistake, the whole movement doesn't

> collapse. Which is, we're so eager to follow that one person. ... And so, when the message is, instead of leaving it to one person, actually, it's going to take all of us, and we've got to create systems to allow you to be able to also contribute to the solution, but that's a very different narrative. Especially in a colony, when power has been taken by force, and therefor we've had to leave it to other people, for so many generations." (Nieves, August 16, 2018).

Nieves makes it very clear that much of the work of 'dismantling vulnerability' in Puerto Rico requires a reclamation of power, collectively, by the people. PAM's efforts to control the writing of their own recovery story through their diary-like posts on Facebook is an essential part of this process and provides both inspiration and a sense of community. With this, Nieves connects how consistent messaging focused on showcasing community actions that produce and build tangible solutions to the problems that the same community is experiencing becomes a powerful tool to break down the psychological barriers to action that centuries of colonial oppression has imposed on Puerto Ricans.

Building a Leaderful Community

A fundamental belief in the power of self-confidence and community building is at the core of all PAM projects and comes back to the concept of 'leaderful organizations' mentioned above by Nieves. It is grounded in the belief and understanding that any action is stronger when there are networks of people involved, when power isn't concentrated into any one decision-maker's hands, and all hands are 'on deck'. Building leaderful organizations is a hard thing to do. Nieves illustrates this with an example from local politics:

> "there's this woman, Alexandra Lugaro … and her whole campaign was: *déjalo a mi*, leave it me. And, that actually showcases the complete opposite of what we are building. And so, when the message is, instead of leaving it to one person, actually, it's going to take all of us, and we've got to create systems to allow you to be able to also contribute to the solution" (Nieves, August 16, 2018).

Getting stuck in this kind of rut in which people make a habit of waiting for someone else to fix things is exactly what PAM is trying to counter and is exactly why self-efficacy and mutual support were placed at the core of their initiatives post-Maria. It is also why communicating what is happening, who is doing work, why that matters, and overall gratitude for the support of those involved is so important to continuing to break down the barriers that feelings of helplessness and disenfranchisement have placed in the way of people feeling empowered to enact change within their own community. For these reasons, it became essential for PAM to not only tell their story but also control the narrative about the work they were doing, how it was being carried out, and with end goals they had developed.

Nieves believes that "in order to be leaderful, we have to be very intentional about everything we do, nurturing different leaders at different stages" (Nieves, August 16, 2018) The development of a community-designed emergency plan is an example of a project that provides opportunities to identify and create leaders throughout the process.

For the participatory emergency plan that ARECMA/PAM is carrying out, the organization started by identifying smaller areas of the neighborhood of about 40-50 houses that were geographically close to one another, which they called 'sub-sectors' and then started to organize and facilitate community gatherings to hear from residents about what are important safety concerns in the case of an emergency. This process is designed to engage people in identifying the difficulties they had post-Maria, the strengths, skills and resources that exist in their area of Mariana, and brainstorm possible plans of action that would help increase the safety of the resident in the area in future emergencies. The development process of this emergency plan for Mariana is long and offers many opportunities for community members to

take on leadership in the context of the streets they live in or in the larger context of the neighborhood – either from personal interest and motivation to participate, or from the encouragement of community leaders involved in the process. Simply the act of attending meetings and contributing to the participatory planning process is an act of participation that serves to strengthen the local networks of people and increase dialogue, collaboration, and cooperation. This is just one of the ways that PAM seeks to develop a stronger culture of leadership.

Leaders of PAM also recognize the great potential that investing time, energy, and resources into the younger generation of *Marianeces*[4] could have for creating a leaderful future in Mariana. As Nieves expresses, the leaders of PAM see a lot of promise in building on and expanding one of ARECMA's key projects, the Mariana summer camp, which has already helped produce a community leader in Mariana, the co-founder of ARECMA, Rodriguez-Sánchez. In my interview with her, Nieves pointed this out to me saying:

> "Now, it's an opportunity for us to look at everything we do at the camp and understand how that actually generates leaders and what do we need to have in place. Do we need to have a fellowship in place? Or a scholarship in place? Or someway of channeling, or taking the young people and actually, yes, it's summer and everyone wants to have fun, we'll have fun solving some of the problems in Mariana and being able to build prototypes around that. That is how you turn 30 years of programming into a pipeline of leaders." (Nieves, August 16, 2018)

This kind of opportunity and program would help foster leadership skills in the youth who participate, but also underline and emphasize the importance of community involvement and service from a young age. Designing ways for kids to identify a problem in their community and

[4] *Marianeces* is a local term for people from Mariana (comparable to 'Vermonters').

work to develop possible solutions is also a very empowering process that teaches kids not only that they matter but that they can make a difference and solve the problems around them.

CHALLENGES TO INCREASING PARTICIPATION

Directly following the hurricane, many sensed the effects of having such a monumental shared experience and the sense of solidarity and unity it created as families, neighbors, Marianeces and Puerto Ricans came together to find the strength to get through the hardest of times (as expressed in the Portrait Stories of many residents). As Álvaro described in my interview with him:

> *"El huracán saca de la gente cosas buenas. El huracán se une familias - familias que no se hablan. Rompen esas barreras y comenzar a hablar. Porque hay comunicación, porque estamos todo el mundo en la misma. Queremos superarnos, queremos hacer pa'lante. Y ayudamos a otros…. el barrio se une. Créeme que el barrio se une. Porque, somos como hormigas cuando trabajan. Todos nos unimos a un mismo fin."*
>
> 'The hurricane brings out the good in people. The hurricane unites families – families that don't talk. They break down those barriers and being to talk. Because there is communication, because everyone is in the same situation. We want to overcome; we want to move forward. And we help others… the neighborhood unites. Believe me, the neighborhood unites. Because we are like ants when the work. We all unite for the same end goal.' (Alvaro, August 11, 2018)

Although there was a very strong sense of unity in Mariana after the hurricane, as time passed and it became easier for people to access food, water, gas, and communicate with others, and later on when some of the basic services and utilities like water and electricity were returned to residents, fewer people continued to volunteer and participate in the projects and activities that ARECMA/PAM initiated.

Maintaining high levels of participation as a community organization is hard to do. Throughout ARECMA's long history of work in Mariana, there have been very long participation

'droughts' which, every now and then, would be interrupted by some kind of unifying pressure that brought the otherwise fragmented community together to work together. Understanding this makes it un-surprising that involvement in PAMs efforts had waned. However, this was not the case across the board, there were a few members of the community who found themselves maintaining high levels of involvement.

One of these people, Sara, had become very involved with ARECMA's projects following Maria and had continued to volunteer every day since the start of the PAM and expressed feeling some discontent and disappointment with the lack of sustained contribution by residents of Mariana to support PAM. From what she shared with me, she had seen some participation and involvement by Mariana residents following the hurricane but evaluated this volunteerism as a 'reaction to the moment' and was highest when residents could directly and *immediately* benefit from contributing to the work. Once residents had access to more traditional and conventional ways of accessing resources and fulfilling their needs, contributions and involvement dropped.

For Sara, watching this play out sparked a lot of feelings of disappointment and distrust with the community on her part and, while she expressed that she felt very involved with the organization of ARECMA and PAM, she indicated that she didn't feel involved or connected with the broader community of Mariana. One complaint she shared of her fellow neighbors was that very little had truly changed after the hurricane in terms of the community, which she described as very individualistic, self-interested, with little enduring solidarity, and very few people who were actually willing to step up and be leaders. Although this perspective paints a rather bleak picture of the social landscape of Mariana, some of these comments may be

rooted in a feeling of being taken-for-granted as she has been diligently showing up, putting in the effort and taking care of dirty jobs in effort to contribute to shaping a better future for the neighborhood.

Some of her dissatisfaction with what had been happening – or not happening – may be explainable by an unevenness of 'dismantling vulnerability'. As I discussed earlier, the leaders of PAM put a lot of emphasis on liberation from colonial narratives that have had a paralyzing effect on Puerto Ricans, and thus some of their primary goals when working to 'dismantle vulnerability' are to break away from those mindsets. Sara is someone who, after her experience of surviving Maria, becoming highly involved with PAM and connecting with the leaders, started challenging a lot of what she had believed about Puerto Rico and the US. She is an example of someone who, with increased involvement in PAM, started the process of breaking the narratives that she had been taught over decades. While Sara went through this transformation, many in the neighborhood did not – which may be the cause of her disappointment.

Even still, it was very apparent that she still held optimism for the future, as she saw members of the younger generations taking a part in the projects and expressing desire to involve themselves. This hope seemed to be what helped her carry on and continue to volunteer and strive for more unity and solidarity within the community so that "*no se quedan en las palabras*" - so that things don't just stay as 'talk' (Sara, August 9, 2018).

Although others in the community may be similarly anxious to see changes being made as Sara is, some residents are at peace with the slow process. In my interview with Álvaro, I asked how he felt about the projects PAM has proposed and is working to. He responded:

> *"¡Excelente! Y se esta trabajando para eso, lento, pero se logra. Hay cosas en la vida que no se van a dar rápido, pero la que se da lente y crecen son sólida porque en lo lento, tu ves los detalles que tienes que trabajar para que no se caiga."*
>
> Excellent! And it (PAM) is already working towards that, slowly, but they will accomplish it. There are things in life that won't be fast, but that which is done slowly, and they grow is more solid because when done slowly, you see the details that you have to work on to make sure that it doesn't fall apart. (Alvaro, August 11, 2018)

Recognizing these differences in perspectives as well as the unevenness of PAMs efforts to expand participation and deconstruct colonial narratives are helpful reminders for understanding the difficulties that arise in organizing community projects at such a large scale as those that PAM is putting forth. Further, these speak to the significant amount of labor that goes in to simply maintaining enthusiasm, optimism, and commitment to large, long-term projects and processes.

Many Mariana residents not involved with or supportive of ARECMA have expressed to Nieves a certain hope they have for the future that arose from seeing what PAM did post-Maria. As mentioned before, Nieves sees this as a projection of hopes and aspirations onto herself and Rodriguez Sánchez as the new, emerging leaders in the neighborhood. This indicates that while there is desire for a different reality in Mariana, many may not yet know how to travel the path towards achieving those objectives, which again underlines the importance of PAM's efforts to reach out and engage with as many residents as possible and work to foster a more 'leaderful community'.

Re-Imagining the Future of Mariana

Essential to the success of these projects that PAM has set out is the belief that a different future is possible. For a long time, Mariana has existed as a 'forgotten community' and

residents have witnessed the exodus of families moving away for lack of economic opportunities. They have seen a school shut down and be abandoned, and houses emptied as it becomes harder for families to stay. So, for some, imagining a more vibrant future may come as a challenge, but that doesn't discourage the leaders of PAM. In one interview, Rodriguez-Sanchez says *"Creemos que para construir un nuevo país tenemos que imaginarlo en los lugares donde se nos acaba la esperanza"* (We believe that to construct a new country we have to imagine it in the places where we have lost hope) (Centro de Imaginación Mariana, 2018). Re-instilling hope can be a difficult but empowering thing, and in recognition of that, PAM has actively worked to celebrate achievements as they are made.

One of the ways PAM is inspiring hope in the community is through the materialization of their short and long-term projects (See Appendix 3 for Long-Term PAM/ARECMA Resources and Projects table). Things like a community garden, a BoxPower solar panel, or a new park for kids all serve as symbols of what *could* happen and give credibility to the leaders of PAM who were able to mobilize such resources.

Alongside all of the work being done to increase access to essential physical resources for better living in Mariana, a large part of the effort PAM makes is to create and provide opportunities for the residents of Mariana to build their capacities whether through technical training, educational programming and opportunities, or job creation and local business development. The Center of Imagination features heavily in PAM's efforts to provide capacity-building support for Mariana community members. As Nieves describes it in an interview, the goal for the Center of Imagination is for it to become:

> "a space where volunteers that come from outside and the people who are here in Mariana can unite – to generate sustainable solutions or to support spaces for local artisans, spaces for people who want to design and produce here…A space that generates, that employs people from here so that the next generation of Mariana can grow and see that there is an alternative option to live with everything that a person would need and that you can live well. Not just that, but also to open the doors of Mariana to the world." (Delgado, 2018)

Nieves outlines big, long-term hopes for the re-purposed school building but even as the project is taking shape, PAM actively works to partner with local schools to create partnerships and provide opportunities for students to learn. For example, while I was in Mariana, two students from a local technical college working with their mentor were working on the wiring for the building to fill their practicum hours. While this benefits PAM by reducing costs, it also fits with their mission of creating opportunities for and engaging with students to help them build up their capacities.

Another project, the development of an outdoor amphitheater at La Loma, is being developed in a way that simultaneously considers how it can be leveraged to provide employment to the residents of the neighborhood, support people's ability to make a living, welcome in new opportunities for Mariana by creating exciting projects and attractions, and support the education and training of younger generations. The hope is that this project, when finished, will produce a venue at which cultural events such as music concerts can be held. This would create an attraction for visitors to visit Mariana and could help stimulate the local economy by giving artisans and food vendors an opportunity to sell goods during events. The leaders of PAM see the possibility for the venue to create training and job opportunities in event management and stage production. The development of the amphitheater is an example

of the ways PAM is approaching opportunities and developing multifaceted projects that are aimed at supporting the community in many ways.

Another approach Nieves sees potential in is through fostering intergenerational partnerships in the community as ways to work past some of the existing barriers to participating and change in the community as well as an opportunity to encourage residents to re-imagine the future of their neighborhood. Nieves describes a project in which "young people …(partner) with people from the community that have become jaded and cynical about the possibility for change, and then the young people (are able) to understand what are the problems and why people are cynical, and propose new ideas that can actually turn into things that are executable in Mariana" (Nieves, August 16, 2018). She envisions the Center of Imagination community center as a hub for these kinds of projects and is looking at taking advantage of students' required service hours to start building project-based curriculum that takes place in Mariana.

By adopting a multi-scalar perspective to the ways in which they develop and implement their projects, the leaders of PAM are able to respond to immediate needs of their neighbors and community members in a way that builds sovereignty, strength, and power in the neighborhood. Their multi-scalar approach also facilitates a connection between the 'symptom' problems experienced in Mariana to the greater root problem of colonialism that has played out on a much larger spatial scale. This response framework recognizes and responds to the complexities of catastrophes that acknowledges that instead of quick fixes, there will have to be long, consistent efforts to shift the balance of power in the other direction.

Conclusion

The dismantling vulnerability framework is built on the recognition that catastrophes are complex spatial and temporal processes rooted in the production and manifestation of vulnerability to impact events. A response to catastrophe that works to dismantle vulnerability goes beyond traditional recovery efforts that focus on addressing the most urgent needs and 'symptomatic' vulnerabilities of a community, to engage in a reflective process designed to identify the underlying, deeply-rooted sources of vulnerability and the development of a set of actions that work to target them at their source. In doing so, approaches to dismantling vulnerability are designed to strengthen a community or place in the short and long term.

The catastrophe that was unveiled by Hurricane Maria demonstrates the need for this kind of a two-tiered response. Maria's impact on Puerto Rico demonstrated a whole host of vulnerabilities to impact events that were present long before the hurricane hit – the reliance on food imports, decrepit public infrastructure, an antiquated power grid and a whole host of other vulnerabilities. Most of these kinds of vulnerabilities, however, are symptoms of broader issues of colonial oppression impacting Puerto Rico. This is not to say that the collapse of the Puerto Rican power grid (and the host of problems and vulnerabilities that were produced by a loss of power) is not an important vulnerability to address, but that it is connected to and made possible by even deeper issues of marginalization, powerlessness, and disenfranchisement that created have worked to take power from the voices and lives of Puerto Ricans for the benefit of the U.S.

PAM's response to disaster following the impact of Hurricane Maria on Puerto Rico in 2017 demonstrates how a dismantling vulnerability approach takes shape. PAM's projects work to meet the most immediate, life-preserving needs of the residents of Mariana, while also working to dismantle the deep psycho-emotional and discursive vulnerabilities that colonial control over Puerto Rico has produced. Recognizing the disempowering and paralyzing impacts colonial oppression has had on residents of Mariana (as well as Puerto Ricans more broadly**),** PAM has developed three key actions to be used to counter its effects and help strengthen their community. The first is a process of liberation from oppressive colonial narratives that have degraded Puerto Ricans for decades, and the reclamation of the power to tell their own story. This action recognizes the power of words and the power of voice, working to empower people to reclaim that power in their lives. Second is the creation of local systems and structures that encourage community members to participate in PAM's projects and take on leadership roles in recognition that change will depend on the collective efforts of the community. This action is aimed at empowering people to see their own power and potential and to use it in a way that strengthens themselves and their surrounding community. The last action recognizes the transformative power hope can have on a community and is focused on encouraging people to re-imagine the future of Mariana. These three actions are designed to address the deeply rooted discursive and psycho-emotional vulnerabilities present in Mariana and, over time, design structures of collective power.

By using the shorter-term, more immediate projects that PAM carries out as a point of engagement, the leaders of PAM are able to employ these three power and hope-building actions to move towards a stronger future and a more just recovery. The project's multi-

temporal approach to responding to vulnerability demonstrates efforts to target the roots of disasters and lay the groundwork that allows the community to truly move forward in a just process of recovery.

Dismantling vulnerability is not a process that comes with a pre-established set of actions that, when completed, eliminate all vulnerability to impact events. Instead it is a framework for a critical and reflective approach to responding to catastrophes that encourages people/organizations/institutions to develop and apply an understanding of catastrophes that recognizes their complexity, and use that knowledge to develop a comprehensive response that addresses the apparent and underlying vulnerabilities in a given community. The set of actions that are used to dismantle vulnerability in any given place are unique to the context in which they are created – which also means that over time, they may shift or completely change, something the framework allows for and accommodates. What this shows is that the true strength of the dismantling vulnerability approach comes from its design to be as dynamic and multi-layered as the catastrophes it responds to – whatever they may be.

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APPENDIX 1

PAM Facebook Post Narrative Timeline

2017

- **Sep. 28th**

Hurricane Maria hits Puerto Rico.

- **October 9th**

PAM shares Christine End Nieves' Post

"Hoy hemos servimos 144 comidas... Significa mucho hacer un proyecto como este posible. Particularmente poder abrazar a una mujer cansada cuyos brazos están doloridos y quemados por estar lavando en la quebrada y recoger agua. Estaba tan cansada. Ella lloró. Lloré. Juntas estamos dando a luz un nuevo corazón en Puerto Rico."

Today we served 144 meals. It means so much to make a project like this possible. Particularly being able to hug a tired woman whose arms are hurt and burned from washing in the creak and carrying water. She was so tired. She cried. I cried. Together we are shedding light on the new heart of Puerto Rico.

- **October 10th**

Hoy en el proyecto de apoyo mutuo pasaron cosas hermosas. 200 personas comieron un almuerzo súper rico de pollo al ajillo con vegetales, arroz blanco, arroz con salchichas, garbanzos guisados, amarillos, pedacitos de manzanas y pan y agua. Se le llevó comida a sus hogares a personas mayores y con poca movilidad. Tuvimos una clínica con varios medicos que atendieron a gente de la comunidad, y visitaron pacientes en sus hogares. Hubo donaciones de comida, dinero, y muchas ofrecieron sus manos para trabajar. Hubo muchos niños y niñas jugando y entretenimiento provisto por Alhena, la perra de Luis. Estaremos compartiendo fotos pronto! la conexión está complicada! gracias a toda la gente linda que nos sigue apoyando!! Pa'Lante!

Today beautiful things happened at the Mutual Support Project. 200 people ate a delicious lunch of garlic chicken with vegies, rice, rice and hotdogs, garbanzos, sweet plantains, apples, bread and water. Food was delivered to homes of elder people and people with limited mobility. We had a clinic with multiple doctors which attended the people of the community and visited patients in their houses. There were donations of food, money, and many offered their labor. There were many boys and girls playing and entertainment provided by Alhena, Luís' dog. We will be sharing photos son! The connection is a bit complicated! Thanks to all the lovely people that follow and support us.

- **October 11th**

La comunidad se ha integrado a este esfuerzo que nos pertenece a todxs. Es importante decir que nuestro barrio tiene una tradición organizativa de mas de tres décadas. La Organización Recreativa Educativa y Cultural de Mariana (ARECMA) ha creado la infraestructura a través de muchos años de trabajo y esfuerzo, que le permite a este proyecto poder florecer. La organización de Los Taladores de Mariana también ha sido un gran ejemplo de trabajo comunitario enfocado en cuidar a nuestra gente y nuestro entorno como colectivo. Seguiremos trabajando mano a mano, continuando esta tradición de solidaridad tan importante que nos permite sobrevivir juntxs en esta adversidad.

The community has integrated into this effort that belongs to all of us. It's important to say that our neighborhood has a three-decade long organizing tradition. The Recreational, Educational and Communal Association of Mariana (ARECMA) has through many years of work and effort, created the infrastructure that allows for this project to flourish. The organization of the Loggers of Mariana also have been a great example of community work focused on taking care of our people and our surrounding collectively. We will continue working hand by hand, continuing this so important tradition of solidarity that allows us to survive together through this adversity.

- **October 13th**

These are the most pressing needs right now! If you have access to any of them or discounts on them, please message us!

Shared post from Christine Nieves: Need tents w/ frame (heavy to withstand wind), water to fill up the cistern, in our community center (5k gallons). A generator.

October 15th

Este fin de semana tuvimos labores de limpieza y cortamos mas árboles caídos. También recogimos un cargamento de UNICEF con los kits de higiene y dignidad familiar para la gente de nuestra comunidad que tanto necesitábamos.

This weekend we cleaned and cut more fallen trees. We also picked up a shipment from UNICEF with hygiene and family dignity kits for the people in our community that we needed so much.

October 17th

Entregamos los kits de higiene y dignidad familiar de Unicef en dos sectores del barrio, luego de haber hecho un estudio de necesidades para saber que le hacía falta a cada familia. Así nos aseguramos de poder utilizar los limitados recursos al máximo. Hoy también montamos una carpa con 6 mesas y la niñez del barrio ayudó a preparar las mesas para comer en comunidad.

We delivered UNICEF hygiene and family dignity kits in two sectors of the neighborhood, after having done a needs study to know what each family needed. This way we make sure we can use the limited resources to the maximum. Today we also set up a tent with 6 tables and the children of the neighborhood helped prepare the tables for community meals.

October 21st

¡El PAM terminó la semana con muchos logros! Durante el jueves y el viernes logramos comenzar a establecer filtros en los distintos manantiales que le proveen agua a la comunidad gracias a Planet Water y la solidaridad de nuestra gente de PECES en Punta Santiago. Logramos traer Wi-Fi a la loma mediante un sistema que funciona con energía solar (mas sobre esto pronto). Servimos aproximadamente 600 almuerzos entre ambos días. La cantidad de entregas de platos para personas encamadas, enfermas y envejecientes casi se duplicó así que ahora tenemos dos rutas.

PAM finished the week with many achievements! During Thursday and Friday, we established filters in different springs that provide water to the community thanks to Planet Water and the solidarity of our people of PECES in Punta Santiago. We managed to bring Wi-Fi to the hill using a system that works with solar energy (more on this soon). We served about 600 lunches between the two days. The number of plates delivered to bedridden, sick and elderly people has almost doubled so now we have two routes.

October 25th

Hoy servimos 313 almuerzos. Tuvimos una clínica de deportes para niños y recibimos agua para llenar nuestra cisterna de 1,000 galones de agua. El viernes contaremos con una clínica de salud mental desde las 10am y clase de salsa a las 5pm. También continuaremos nuestras dinámicas de deportes para la niñez. Toda persona que quiera ser parte es bienvenida. AvWatch nos entrenó en sus equipos de radios militares que nos permiten tener wifi y puede ofrecer conectividad a pueblos donde familias no pueden contar con comida por falta de comunicación. Nuestra artista-residente comenzó un mural que pronto mostraremos por aquí y los niños se incorporaron a estas actividades. Seguimos trabajando y le damos la bienvenida a todas las comunidades aledañas.

Today we served 313 lunches. We had a sports clinic for kids and we received 1,000 gallons of water to fill our cistern. On Friday we will have a mental health clinic starting at 10AM and a salsa class at 5PM. We will also continue our sports activities for kids. Everyone who wants to join is welcome. AvWatch trained us in their military radio equipment that allow us to have WiFi and can offer connectivity to towns where families cannot count of food due to lack of communication. Our artist-resident started a mural that we will soon show here, and the children joined these activities. We continue working and we welcome all the surrounding communities.

October 31st

Ayer servimos 365 almuerzos! Se nos acabaron las chuletas y la gente linda y poderosa de nuestra cocina frieron jamonilla, aquí nadie se queda sin comer. Tuvimos clínicas de ajedrez y Power for Puerto Rico nos trajo un generador! Hoy seguimos cocinando solidaridad.

Yesterday we served 365 lunches! We finished the chops and the lovely and powerful people of our kitchen fried ham, here nobody goes without eating. We had a chess clinic and Power for Puerto Rico brought us a generator! Today we keep cooking solidarity.

November 2nd

Ayer nos visitó personal médico de GUMMET y tuvimos una clínica de salud para la gente linda de nuestro barrio. También hicieron visitas a domicilio. Recibimos varias cajas de comida que nos enviaron desde la amada diáspora de Texas. Hoy la Universidad Carlos Albizu nos trajo Profesionales de la salud mental para seguir promoviendo la buena salud de nuestra gente de forma integral. Ahora estamos sirviendo y entregando los alimentos de hoy. Seguimos Pa'lante.

Yesterday GUMMET medical personnel visited us and we had a health clinic for the lovely people of our neighborhood. They also did house calls. We received a number of boxes of food that the beloved diaspora of Texas sent us. Today, the University Carlos Albizu brought us mental health professionals to continue promoting the good, well-rounded health of our people. Now we are serving and delivering todays food. We continue on!

November 3rd

Esta semana la terminamos con muchos logros. Tuvimos El taller de El cuento vivo para nuestra niñez, seguido de clases de zumba con vistas al mar. Hoy también comenzamos la zapata para una de las torres que va a filtrar el agua para que le gente pueda tener acceso a agua limpia en varios lugares del barrio. Logramos compartir el internet con la gente de la Parroquia en la comunidad de la playa mediante una antena. Chefs por Puerto Rico nos regaló el excedente de comida y pudimos traer a la comunidad 300 libras de arroz y pollo entre otros alimentos. Nuestro proyecto crece, evoluciona y nos da vida todos los días. Cerramos la semana con mucho agradecimiento a toda le gente que lo hace posible con su solidaridad.

This week we accomplished a lot. We had The Live Story workshop for our children followed by Zumba classes with views of the sea. Today we also started the base for one of the towers that will filter water so that people can have access to clean water in several places in the neighborhood. We were able to share the internet with the people of Parroquía in the beach community through an antenna. Chefs for Puerto Rico gave us an abundance of food and we were able to bring 300 pounds of chicken and rice among other food. Our project grows, evolved and gives us life every day. We end the week with much thanks for everyone that makes it possible with their solidarity.

November 8th

Seguimos trabajando para levantar nuestra comunidad y nuestro país de manera sustentable.

We continue working to lift up our community and our country in a sustainable way.

November 10th

PAM shared a post from Luis Rodríguez:

"ayer alimentamos a casi 500 personas y le dimos wifi a FEMA pa que pudiera llenar las formas en la loma. Si, le dimos wifi a FEMA"#proyectodeapoyomutuo

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"yesterday we fed almost 500 people and we gave WiFi to FEMA so that they could fill our their forms at la Loma. Yes, we gave WiFi to FEMA"

2018

March 25th

En Mariana estamos haciendo todo lo posible para movernos a desarrollar un sistema de energía renovable para la comunidad. No obstante a seis meses del huracán entendemos que muchos adultos mayores requieren electricidad para manejar condiciones de salud y la falta de energía pone en riesgo su vida. Es por esto que queremos saber de adultos mayores en Mariana cuya salud depende de tener acceso a un generador

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In Mariana we are doing everything possible to move ourselves towards developing a renewable energy system for the community. Still, six months after the hurricane we understand that many older adults require electricity to manage their health conditions and that the lack of energy put their lives at risk. For this reason, we want to hear from the older adults in Mariana whose health depend on having access to a generator.

- **March 26th**

Los estudiantes de trabajo social de la Universidad de Puerto Rico Humacao preparan su espacio para apoyar a residentes de Mariana. Mientras tanto Delia y Aida de nuestro equipo limpian lo que llamaremos la "Incubadora de Sueños". Manon, una voluntaria de Francia, nos ayuda desyerbando el jardín. Parecería que solo somos mujeres poderosas las que estamos haciendo pero no se crean, siempre hay hombres solidarios ayudando. Se les agradece a todas! 🤝💪 🙌

The social work students from the University of Puerto Rico, Humacao prepare their space for assisting residents of Mariana. Meanwhile, Delia and Aida from our team clean what we are calling the "Dream Incubator"/ Manon, a volunteer from France, is helping us weed the garden. It would seem like only our powerful women are those doing this, but don't believe that, there are always solidary men helping. Thank you to everyone!

- **August 16th**

Así luce un Plan de Emergencia Comunitario participativo. Hoy identificamos nuestras fortalezas y necesidades por ramales. Y nos alegró ver a gente representando ramales que se dieron a la tarea de ir casa por casa y hacer un censo. Se siente la fuerza que tiene Mariana y el comienzo de un proceso importante para nosotros y para todas las comunidades del país - saber con qué contamos, cuáles son nuestros conocimientos y que debemos tener como comunidad en caso de huracán, terremoto, fuego o cualquier otro desastre. Gracias a todos los que vinieron.

This is what a participatory Community Emergency Plan looks like. Today we identified our strengths and needs by road. And we were so happy to see people representing have taken on the work of going house by house to do a census. You can feel the strength that Mariana has and the beginning of a very important process for us and for all the communities of the country – know what we have, what our knowledges are and what we should have as a community in case of a hurricane, earthquake, fire or whatever other disaster. Thanks to everyone that came.

Description: Timeline of Facebook posts from the Proyecto de Apoyo Mutuo, Mariana Facebook page. Some entries do not include the entire post. Original language included with translations below.

APPENDIX 2

Responses to Hurricane Maria
Timeline comparison of "official" disaster response process v. community-initiated responses in Mariana

Gov. Policies	Fed./State Aid	Infrastructure & Services	Death Toll	PAM/ARECMA

9/20	**Hurricane Maria makes landfall entering Puerto Rico through Yabucoa.**
9/21	95% of the cellphone system stops working
9/21	Trump Issues a State of Emergency
9/25	Trump Tweets: "Food, water, and medical are top priorities…and doing well. #FEMA"
9/28	Official death toll certifies only 16 deaths as hurricane related
9/28	Trump lifts Jones Act temporarily (10 days) to facilitate the shipment of aid
9/29	US Navy Hospital Ship, USNS Comfort, sets sail for Puerto Rico
10/2	Truck drops off "meals" in Mariana consisting of a small packet of NutriGrain bars, Vienna Sausages, Skittles and four 16oz bottles of water per family
10/3	Trump visits Puerto Rico
10/8	Lift on Jones Act expires, not to be extended or lifted again
10/9	**PAM serves 144 meals at *La Loma*** – a nutritious lunch of garlic chicken with vegies, rice or rice with hotdogs, garbanzos, sweet plantains, apple, bread, water
10/10	PAM serves 200 meals at *La Loma* & starts delivering meals to those not physically able to make it there
10/11	PAM serves 270 meals at *La Loma*
10/12	PAM serves 274 meals at *La Loma* and Volunteers from Diaspora Boricua NY arrive
10/13	PAM leverages Facebook to leverage support and donations
10/15	PAM receives UNICEF Shipment with hygiene and family dignity kits
10/17	PAM serves 235 meals at *La Loma*, delivers another 30, and sets up a communal eating space.
10/17	PAM conducts a survey to understand the needs of the residents of Mariana and distribute the UNICEF kits
10/20	PAM serves 300 meals at *La Loma,* delivers 52 meals and hosts a Bomba dance class
10/20	Official death toll is at 49, with 76 people missing.
10/20	83% of residents and businesses are without electricity. 1-in-3 residents lack running water. 50% of cellular towers work.
10/23	The $36.5 billion disaster relief supplemental package is passed by the US Senate and signed by the President
10/25	PAM serves 313 meals at *La Loma* and delivers 60 more. Kids attend a sports clinic held at *La Loma.* PAM receives Military Grade Radios from AvWatch. 1,000 gallons of water are delivered.
10/26	PAM serves 266 meals at *La Loma* and delivers 60 more. A new cell phone charging station is available to residents.
10/28	Power restored to 25% of customers in Puerto Rico.

10/28	PAM serves 270 meals at *La Loma* and hosts a Chess class. PAM receives a shipment of EcoKits.
10/29	Governor Rosselló orders the cancellation of a $300 million contract awarded to Whitefish Energy Holdings.
10/31	PAM serves 365 meals and Power for Puerto Rico brings a generator for PAM.
11/1	GUMMET Medical Personnel hold a clinic at *La Loma* and make house calls.
11/2	PAM serves 300 meals at *La Loma*, delivers 60 more. Mental health professionals from the University of Carlos Albizu Campos visit Mariana to support the good mental health of the residents.
11/3	PAM serves 278 meals at *La Loma,* delivers 60 more. The process to install water filtering towers in Mariana begins. PAM hosts a Zumba class. Chefs for Puerto Rico bring lots of food donations.
11/10	PAM serves 500 meals at *La Loma.* FEMA arrives at *La Loma* and borrows the WiFi that PAM had set up.
12/7	The Center for Investigative Journalism tallies the death toll related to hurricane Maria close to 1,000.
12/9	Official death toll raises to 64.

2018

2/20	14.36% of Puerto Ricans without power, still.
4/19	Puerto Rico's education officials announce the closure of 283 public schools for the next school year.
8/14	Power is restored to 99.99% of Puerto Rico.
8/28	Puerto Rico's governor updates the official death toll to 2,975 deaths in the six months following the storm after independent researchers from George Washington University released their findings.

Timeline compiled with information from PAM Facebbok, (Centro Center for Puerto Rican Studies, 2017; Martin, 2018; Proyecto de Apoyo Mutuo, 2017)

APPENDIX 3

LONG-TERM PAM/ARECMA PROJECTS AND RESOURCES

Projects based at La Loma

Project	Description	Desired Impacts
Community Kitchen	Operates out of the commercial-grade kitchen at La Loma (built for the Pana Festival). Serves lunches to the community in exchange for money (about $5 for a large plate of food), volunteer work (an hour of volunteer work for a plate of food), or – as the case was post-Maria – for a donation of ingredients.	**Increased access to food:** more affordable, accessible food that can be 'purchased' in a number of ways. **Incentivizing Participation** **Community building:** communal eating spaces create a place where people can gather, connect, and learn from each other.
Agriculture	**Vegetable/herb garden:** intended to directly serve the needs of the community kitchen at *La Loma.* Peppers, oregano and *culantro* are the main priority for the kitchen to make *sofrito,* but other vegetables and fruit are also cultivated according to their success. Traditional Taino methods of planting are employed to promote crop health and success as well as provide maximum resistance and durability to strong storms. **Fruit Orchard:** Planted with citrus, mango, and *pana* (breadfruit) trees. Pana is especially important because of the *Pana* Festival that ARECMA hosts every August and is regarded as a symbol of the neighborhood's identity.	**Sovereignty building:** Reduce food dependence, more self-sufficient project **Health/Wellbeing:** Provide easier access to fruits and vegetables and educate the community on healthy, sustainable, culturally appropriate food habits. **Empowerment**: Drawing from and valuing local cultural & agricultural knowledge.
Art	**Mariana History Mural:** celebrates the history of Mariana and the contributions to the community that individuals meet; depicts some of the transformation of the landscape from more agricultural production, to more residential and industrial. **Murals celebrating Puerto Rican identity and icons:** Large Puerto Rican flag painted on the face of one building; mural of iconic Puerto Rican poet Julia de Burgos **Kids painted rocks:** Rocks painted by the kids who attended ARECMA's summer camps and are used to help decorate the kids park at La Loma	**Sense of Place:** celebrating cultural roots, history of the neighborhood, and promoting pride in Mariana; incorporating kids' art into the process of making a place for the kids of Mariana at La Loma.
Kids Park w/ library	Developed with La Maraña, a San Juan based organization developing 3 participatory reconstruction	**Involvement:** Engaging with kids and parents in a process of building a safe and fun space for kids.

	projects in communities in Puerto Rico. Kids are involved in the design process of the park which is actively being constructed. The park will include a gazebo, a (small) basketball court; big-kids and little-kid's trampolines (2); play structures; kids' library that is part book/reading space and part play kitchen	**Sense of Place:** creating a space that the kids can feel a part of and responsible for, creating a nurturing, safe space in the context of a larger community project.
Kids' Summer Camp	**Rigorously Organized:** by ARECMA and hosted for 4 consecutive weeks. Really strong staffing – some retired teachers, social work students, and long-term community leaders involved in running the camp. Focused on fun, education, and wellbeing – campers are given evaluations during the camp process to track growth and improvement (for the purpose of seeing what to continue including in the program, what to expand on or modify). **Empowering:** Students are in groups that have mixed ages, older kids take on leadership roles within the groups. During the final day of camp when students did performances and presented the projects they had worked on, I watched on performance called 'Soy Negra' by a camp staff member. The skit was about embracing and loving her black identity and rejecting the negative stereotypes and stigmas of blackness. **Affordable:** Families pay a $50 tuition for four weeks of camp. This includes at least two meals a day, materials, and excursions like going to a local pool, movie theater, national park etc. At the end of the camp, gift boxes of school supplies and little trinket toys were given to the kids, and $100 gift cards were given to the parents (one per kid) to use to buy school uniforms, supplies, or other things needed for the start of the school year.	**Leadership Development**: Students working together in groups, solving problems, partaking in the park design project etc. **Empowerment**: having students take on leadership roles in groups; language of self-love etc. **Educational Opportunities:** Student's education is strengthened by having some structure over the summer and activities that continue to challenge them.
Farmers & Artisans Markets	**Local food:** Promoting more food independence by buying locally. Access to foods that may not be sold at Walmart like root vegetables traditional in Criolla (Puerto Rican) Cuisine. **Local Economy:** Supports the local opportunity by creating an opportunity for local producers – of food, art, and other artisanal goods – to sell their goods	**Economic Opportunities** **Building Local Networks:** Markets give residents the opportunity to connect with other community members **Promoting Food Sovereignty**

Pana Festival	**Local Tradition:** Festival hosted for decades in celebration of breadfruit. Has become an event to celebrate Mariana more broadly with traditional music and dancing performed by residents, breadfruit dishes (and recipe book) made by Mariana residents and volunteers. Reclaiming a once undervalued food that was looked down upon as the poor person's food and making it a symbol for the community to celebrate and rally around. **Self Sufficiency:** Revenue from the festival is used to support other ARECMA programming – most notably the kids summer camp.	**Sense of Place**: Celebrating Mariana, its culture and local traditions **Building Networks:** creating networks of volunteer; making a knowledge base of what skills exist within the community; knowing where people live **Participation:** Energizes people to get involved with ARECMA; people learn how to work with others and collaborate.
Amphitheater	Outdoor amphitheater to be built at La Loma which will become a concert and event space. The hope is to bring economic and cultural opportunities to Mariana in a way that welcomes visitors while strengthening the local economy. The project would also create opportunities for people to be trained in lighting, stage production and other skills related to event management.	**Economic Opportunities:** potential opportunities for vendors **Skills Development:** potential to develop mentorship programs in event management and event production
Solar Panels	Provide reliable, low-cost energy to the communal kitchen and ARECMA offices at La Loma.	**Energy Independence**
Wi-Fi & Charging Stations	WIfi and power stations are available for community members to use. The energy is provided by the same solar panels that provide the kitchen with energy. This helps make communication and information more accessible to community members. Providing access to members of the community without power.	**Self-Sufficiency** & Increased access to resources locally, in Mariana

Projects at the Center of Imagination

Project	Description	Desired Impact
Library	A small community library with reading spaces for visitors.	Increased access to education and recreation materials
Tool Library	A tool library that ARECMA & PAM used to carry out their projects but also intended to offer people access to the tools they need to carry out projects or repairs on their own account. People are expected to be accountable and check materials in/out	**Safety:** Increased access to material resources that breaks down financial barriers to accessing tools and materials to promote a safer home
Hostel	Currently comprised of a dormitory and restrooms, the goal is for the hostel to be a place for the project to receive visitors and volunteers and may eventually create a few jobs for community members.	Support the development of projects at the Center of Imagination. Job Creation

Dream Incubator Dream Incubator	The Dream Incubator is envisioned as a local business incubator. Drawing from PAM's leaders expertise in entrepreneurial development. This project would serve to advise and support community members in their process of developing their own local businesses. Along with the advising support, local businesses would be able to use like the former classrooms of the Center of Imagination for their businesses.	**Capacity building**: Support skills development **Economic Opportunity** **Empowering** people to follow their ambitions
Laundromat	Room with 8 washing machines (and eventually 8 driers as well). Eventually PAM leaders see this as another potential employment opportunity for a resident of Mariana and are considering how to extend the laundry service to residents in a way that makes it accessible but not an entirely free service.	**Economic Opportunity:** Employment **Dignity**: Creating easier access to material resources that make it easier to live with dignity
Solar Panel	BoxPower Solar panel is able to power the entire Center of Imagination and all the projects within it such as the laundromat and hostel. This solar panel is designed to withstand winds up to 120mph and can also be taken down in as little as one hour and stored inside the stormproof container that houses its batteries.	**Energy Sovereignty**: Sustainable and local energy source that comes at a low cost.

Mariana-Wide Projects

Project	Description	Desired Impact
Water Filtration Towers	Three water filter towers located around the neighborhood in areas where there is a concentration of houses and/or businesses. These towers relay on water being pumped manually using a step-pump, which then feed water through a filter and then stores it in a tank.	**Sovereignty**: Consistent and reliable access to safe, clean water that isn't reliant on municipal services; more dependable
Emergency Plan	The creation of the community Emergency Plan for Mariana is an ongoing process that ARECMA/PAM is leading. It aims its efforts at identifying the existing needs and vulnerabilities throughout the neighborhood as well as the strengths, skills, and resources that are already there. The plan is being developed through a participatory process in which ARECMA hosts meetings in each sub-sector as a way to hear from residents about concerns and hopes for future emergency responses but also as a way to identify possible leaders throughout the neighborhood that would take active roles in the emergency plan design process and help facilitate emergency response coordination in the case of a future emergency event.	**Safety:** Better able to coordinate response efforts during a future emergency. **Leadership:** Identifying and fostering leaders throughout the neighborhood to take on active roles an emergency situation.