

## Deemed Ineligible: Reasons Homeowners in Puerto Rico Were Denied Aid After Hurricane María

Ivis García

To cite this article: Ivis García (2021): Deemed Ineligible: Reasons Homeowners in Puerto Rico Were Denied Aid After Hurricane María, *Housing Policy Debate*, DOI: [10.1080/10511482.2021.1890633](https://doi.org/10.1080/10511482.2021.1890633)

To link to this article: <https://doi.org/10.1080/10511482.2021.1890633>



Published online: 13 Apr 2021.



Submit your article to this journal [↗](#)



Article views: 66



View related articles [↗](#)



View Crossmark data [↗](#)



# Deemed Ineligible: Reasons Homeowners in Puerto Rico Were Denied Aid After Hurricane María

Ivis García 

Department of City & Metropolitan Planning, The University of Utah, Salt Lake City, UT, USA

## ABSTRACT

In Puerto Rico, after Hurricane María, about 60% of all applications received by the Federal Emergency Management Agency (FEMA)'s Individuals and Households Program (IHP) were declared ineligible. Why would such a large number of households in Puerto Rico have been unable to obtain assistance from FEMA? To answer this question, interviews with 10 disaster survivors and 15 stakeholders were conducted. The author found that individuals were denied based on their inability to prove homeownership, no contact for inspection, and duplicate application, among other reasons. The article offers recommendations for how nonprofit groups can participate in postdisaster recovery efforts as well as how to advocate at the local and federal level for disaster victims effectively.

## ARTICLE HISTORY

Received 30 August 2020  
Accepted 11 February 2021

## KEYWORDS

FEMA Individual Assistance; disaster recovery; disaster planning; informal housing; Puerto Rico

On September 20, 2017, María, a Category 4 hurricane with sustained winds of more than 140 miles per hour, devastated the island of Puerto Rico's housing, infrastructure, agriculture, transportation networks, and communication systems (Hinoso, Roman, & Meléndez, 2018; Puerto Rico Department of Housing, 2020). Hurricane María was one of the deadliest natural disasters in U.S. history, with an official death toll estimated at close to 3,000 individuals in Puerto Rico alone (Fink, 2018). It was the tenth-most intense Atlantic hurricane on record in the world (Willie, 2018). Hurricane María was also the third-costliest storm in U.S. history—\$90,000 billion, after Katrina (\$160 billion) and Harvey (\$125 billion) (Ramsey, 2012, RAND Corporation, 2018). This makes the case of Puerto Rico one of the most extensive federal efforts in U.S. history (FEMA, 2017). Yet federal funding has been slow to arrive (Center for Puerto Rican Studies, 2018).

In Puerto Rico, there are about 1,237,180 million homes; of these, 1,118,862 were damaged by Hurricane María and about 300,000 were declared a total loss (García, 2019; Hinojosa & Meléndez, 2018). After a disaster strikes, the Federal Emergency Management Agency (FEMA)'s Individuals and Households Program (IHP) provides financial and direct housing assistance to supplement the expenses of uninsured or underinsured qualified households (FEMA, 2019a). However, about 60% (more than 335,000) of those who applied for the IHP as of May 2018 were denied assistance (NLIHC, 2018). According to the National Low-Income Housing Coalition (NLIHC, 2018), although FEMA approved the new document to prove homeownership for disaster assistance in Puerto Rico for those without legal titles to their homes, they agreed to reassess denials of appeals from Hurricane María survivors and issue a press release about the alternative document.

About half of households have rebuilt on their own, informally, in the absence of assistance, whereas others still have blue tarps on their roofs (García, 2019; Talbot, Poleacovschi, Hamideh, & Santos-Rivera, 2020). The majority of those affected already had predisaster vulnerabilities—they were low-income households, women, or older adults—which raises equity questions (Talbot et al.,

2020). Furthermore, a quantitative study of 305 surveys collected between December 2018 and January 2019 in Loíza and Yabucoa found that the likelihood of reconstructing one's home increases by 5% with every \$10,000 increase in annual income (Santos-Rivera, 2020). Research in the United States has shown that about 95% of homeowners earning less than \$30,000 a year are denied by FEMA (Adams, 2018). Unfortunately, this leaves the most vulnerable exposed to housing insecurity and health and safety issues.

Advocates have argued that even now, more than 3 years after the disaster, many hurricane survivors still do not have a safe place to call home. The main question is: Why would such a large number of households in Puerto Rico have been unable to obtain assistance from FEMA? This article looks at the state of housing in Puerto Rico and how the inability to prove home ownership, among other issues, may be crippling the territory's recovery. The reasons people were deemed ineligible, identified in this article, include insufficient damages, no contact for inspection, and duplicate application, among others.

This article will try to aid in understanding the IHP and how its policy guidelines were manifested in the Commonwealth of Puerto Rico. I am interested in the aid available to homeowners under IHP's Home Repair Assistance, Home Replacement Assistance program. FEMA routinely asks homeowners to provide title documentation when they apply for IHP. In Puerto Rico, *ownership not verified* is the number one reason for disaster survivors who suffer damages to be disqualified from receiving FEMA assistance (García, 2019; García, Olshansky, & Carrasquillo, 2019). After Hurricane María, more than 77,000 households were denied assistance because they could not prove they own their home (Congressional Documents & Publications, 2020). However, FEMA rules recognize that title is not necessary to receive aid (FEMA, 2019a).

After hearing story after story of hurricane survivors denied assistance, the Disaster Housing Recovery Coalition (DHRC) of the NLIHC decided to act. The DHRC worked with FEMA's Office of Chief Counsel to prepare a sworn statement to provide an alternative way for homeowners in Puerto Rico to prove ownership (FEMA, 2018). The author is a member of the DHRC. The article was born from the need to assemble a narrative based on the Coalition's many conversations surrounding this issue. In the tradition of participatory action research (PAR), I took notes at meetings, requested direct quotations from other participants, conducted formal interviews, and read, watched, and analyzed reports, correspondence, news articles, webinars, and videos, among other documentation (Bergold & Thomas, 2012).

Using conversations with residents and stakeholders in various parts of the island of Puerto Rico, and continuous interaction with advocates and planners, this article seeks to provide a picture of the reasons that people were denied FEMA assistance in Puerto Rico. In the end, this article contributes to a conversation about how to facilitate disaster assistance for families affected by Hurricane María. This research study is also intended to contribute to the work that NLIHC is conducting in Puerto Rico through DHRC—a collaborative initiative of civic and community organizations, academics, and other organizations coordinating housing advocacy in the context of disaster planning and recovery. The ultimate goal is to provide recommendations for decision makers to continue the island's long road to recovery. Ultimately, along with discussing the plight of the DHRC of the NLIHC, the article argues that the federal government needs to reform the disaster housing recovery framework to be more equitable and culturally competent (Saadian, Patton, Gordon, & Rammler, 2020).

The article is organized as follows. First, I present a literature review to explore equity issues in a disaster-recovery scenario and why FEMA has traditionally denied applications. Second, in the Methods section, I discuss the procedures undertaken to collect empirical evidence and stories via PAR. Third, relevant themes based on conversations and interviews are presented. Finally, I discuss the impact that FEMA regulations have had on survivors who were denied assistance. In the conclusion, I provide recommendations to improve the current federal response to households and to inform equitable policy practices in communities affected by high hazard risk and climate change.

## Methods

I am a community-engaged scholar who uses an asset-based framework to guide my work on diversity, equity, and inclusion (Apaliyah, Martin, Gasteyer, Keating, & Pigg, 2012; García, 2020; Kretzmann & McKnight, 1993). As a qualitative researcher, I mostly employ community engagement methods, such as interviews and PAR (Barber, 2004; Bergold & Thomas, 2012; García, 2018). In 2017, right after Hurricane María, I wanted to connect with others working in Puerto Rico. Before pursuing a PhD, I was a research intern for the NLIHC. Through personal social networks, I heard of the DHRC, led by the NLIHC, a group of more than 850 local, state, and national organizations working on disaster planning in various states across the nation (NLIHC, 2018). The DHRC began meeting in response to the 2017 hurricanes Harvey, Irma, and María, which affected Texas, Florida, Puerto Rico, and the U.S. Virgin Islands. The DHRC is facilitated by staff of the NLIHC and local partners such as Ayuda Legal Huracán María, Fundación Fondo de Acceso a la Justicia, and Servicios Legales de Puerto Rico to advocate for policy changes by talking with the U.S. Department of Housing and Urban Development (HUD), FEMA, and members of the U.S. Congress. The DHRC is mostly interested in serving the housing needs of socioeconomically vulnerable groups.

Through this initiative, I became familiar with the main housing issues in Puerto Rico after Hurricane María. I also became acquainted with the key organizations doing this work. In July of 2018, I moved to Puerto Rico, where I spent the next year. During that year, I met many advocates—lawyers, planners, FEMA employees, and government staff working as emergency managers, engineers, etc.—at various community meetings, tours, events, and conferences. During these meetings, I took copious notes, and I also made audio recordings of formal public meetings. I had an approved Institutional Review Board (IRB) to study recovery in Puerto Rico as well as the work of grassroots, nonprofit, and advocacy organizations on the island and their interaction with the local and federal government.

The question that drove this article was: Why would such a large number of households in Puerto Rico have been unable to obtain FEMA assistance? To answer this question, I participated in many meetings and read articles and documents that addressed the topic. I also interviewed and requested quotations via email or audio recording from 25 individuals, including 10 hurricane survivors and 15 stakeholders (lawyers, advocates, planners, federal and local government staff). I connected with possible participants at conferences and other events related to reconstruction in Puerto Rico. I found most hurricane survivors through my contacts with government employees, local planners working for municipalities, and friends.

I conducted formal interviews of hurricane survivors in person and on the phone in San Juan, Comerío, San Germán, and Vieques. I collected quotations largely from planners, advocates, and others in my social network, extended by my PAR. Given that much of my work is with people I interacted with regularly, if (for example) I had a personal conversation with a planner while driving a car to a location and I found something that they said of interest for my research, I would ask them to repeat it. This time, while audio recording the conversation, I would ask for their permission to use it for research purposes (verbal assent).

Similarly, if someone said something interesting at a meeting, I would later write them an email asking for a quotation that summarizes what they said at the meeting we had attended (written consent). This technique has been popularized by participatory journalism (Singer et al., 2011). PAR and action research often rely on this sort of ethnographic data—including field notes, formal and informal conversations, and long and short interviews (Bergold & Thomas, 2012).

The formal interviews, which took between 20 and 60 minutes, were automatically transcribed by an online software program called Sonix. These transcriptions were coded for main themes using Atlas.ti, a qualitative research software program. The themes themselves were identified through conversations with stakeholders. A narrative was crafted around the notes I had taken at different meetings, and I added to these the quotations from stakeholders and survivors. In the spirit of the DHRC's work and their hope that the stories and opinions presented here are "honored and valued as

a source of information for policymakers” (Saadian et al., 2020, p. 6), this article’s primary purpose is to tell the stories of hurricane survivors and advocates interacting with FEMA, to argue for change.

## Literature Review

In this literature review, five topics are investigated using mostly news articles, FEMA documents, reports to Congress, and advocacy papers to help understand the subsequent findings and storytelling section. The academic journal articles on the topic are minimal, showing a gap in the literature. The article first addresses prestorm housing physical and organizational challenges that affected the island’s capacity for recovery. Second, it reviews the socioeconomic vulnerability literature on low-income groups in the U.S. mainland and Puerto Rico setting. Third, it examines equity in the context of recovery, particularly among vulnerable communities. Equity is a topic that is gaining importance as a study subject among researchers and advocates investigating disaster response and recovery. The fourth subsection gives an overview of the IHP process. The fifth subsection provides an overview of FEMA’s predetermined reasons to deny or cut short assistance—including the inability to demonstrate homeownership. Finally, the sixth subsection discusses how FEMA allows for alternative forms of proving ownership.

## Prehurricane María Housing Context

The disaster event exacerbated preexisting housing conditions. First, since 2006 Puerto Rico has experienced bankruptcy, debt, and a housing crisis marked by 1 in every 5 homes being vacant because of foreclosure or voluntary abandonment propelled by the occupant or owner’s outmigration or death with unresolved inheritance (Florida, 2018; García, 2021; Hinojosa & Meléndez, 2018). Second, laws on property nuisance and vacancy are not enforced, which results in noncompliant structures, the inability to renovate an abandoned property, and the accumulation of unpaid taxes (Gallardo, 2018). Third, informality paired with tax delinquency also means less funding for services and fixing infrastructure (Clancy, Dixon, Elinoff, Kuznitsky, & McKenna, 2020). Fourth, there is a lack of reliable publicly available data on land use, permits, vacancy, addresses, titles, property taxes, sales, or rentals (e.g., there is no Multiple Listing Service and there are discrepancies in the address system), complicating decision-making for those involved in real estate, such as governmental entities, the consumer, and for-profit/not-for-profit developers (Clancy et al., 2020; Gallardo, 2018). Fifth, with only around a dozen affordable housing development organizations that provide subsidized rental housing that serves low-income individuals, the affordable housing sector has a low capacity compared with most U.S. states (García & Chandrasekhar, 2020). Sixth, the construction sector is small and weak; prestorm, the industry already dealt with high construction material costs related to tariffs and shipping costs, and a shortage of construction laborers and qualified contractors with licenses (Wernau & Julie, 2018). Seventh, in 2017, when Hurricane María hit, the building permitting process in Puerto Rico took on average 165 days, and it lacked available online centralized information related to the jurisdictions in question, zoning compliance, ordinances, etc.—resulting in 20 separate processes with different authorities (World Bank, 2017).

Because of all of these hurdles, paired with a poverty rate of 44%, a median household income of \$20,539, and a long history of *rescates* (land-taking practices) by self-help housing groups establishing squatter communities, it is no surprise that about 50% of housing construction in Puerto Rico is considered informal or not built to code, whereas about 20% does not have a property title (Algoed & Hernandez Torrales, 2019; Florida, 2018; García et al., 2019; Puerto Rico Builders Association, 2018; U.S. Census Bureau, 2019; Viglucchi, 2018). Housing built by untrained labor and without the assistance of architects, engineers, contractors, or inspectors tends to be substandard and likely to lose the roof or have walls collapse (Algoed & Hernandez Torrales, 2019; Talbot et al., 2020). Many of these non-code-compliant homes are also built in high-risk areas prone to river, flash, or coastal flooding or likely to experience erosion, mudslides, and/or landslides (Clancy et al., 2020).

Loan institutions require homeowners' insurance, but because of informality and the passing of homes from generation to generation, only 344,000 of about a million homes have mortgages (Brown, 2018; Goody, 1973; Scism & Friedman, 2017; U.S. Census Bureau, 2017). Although one could buy insurance without a mortgage, most homeowners cannot afford it and tend to opt out, resulting in home insurance rates lower than those typical across the United States—at about 50% for regular housing insurance, which would cover wind damages, and residential flood insurance at 4% (APCIA, 2019). About 11% of Puerto Ricans reside in high-risk flood zones, meaning that they do not qualify for flood insurance to begin with. The recent revision of the 100-year and 500-year flood zone maps by FEMA and the Puerto Rico Planning Board determined that 252,813 structures are at risk (Ayuda Legal Puerto Rico, 2019; Martínez, 2020). Furthermore, renters' insurance is not typical either (Clancy et al., 2020).

Given this context, most homeowners and renters who experience disaster damages rely on repairing their homes with their own savings and loans along with nonprofit, federal, and local government assistance (APCIA, 2019; Scism & Friedman, 2017; Talbot et al., 2020). Of the \$18.5 billion Community Development Block Grant Disaster Recovery Program (CDBG-DR) funds allocated after Hurricane María, \$1 billion will be used to repair damaged homes and build new housing for homeowners and renters (e.g., first-time homeowner programs, subsidized housing, etc.), especially older adults and other vulnerable households (U.S. Department of Housing and Urban Development, 2018).

### ***Socioeconomic Vulnerabilities and Housing Damage***

Those most affected by disasters tend to be low-income survivors who are single-headed households, older adults, individuals with disabilities, immigrants, people with limited English proficiency (LEP), and black and brown communities (Caruson & MacManus, 2008; Fothergill & Peek, 2004; Timmons, 2017). Low-income individuals often live in disinvested urban or rural areas without the necessary infrastructure to protect them against natural catastrophes (e.g., open or outdated drainage systems, lack of retention walls, etc.; Cooper & Masterson, 2017). Low-income households also tend to live in high-risk areas next to rivers, coastal zones, or areas prone to flooding and landslides (Caruson & MacManus, 2008; Jayajit, Tobin Graham, & Montz Burrell, 2005; Siagian, Purhadi, Suhartono, & Ritonga, 2014). Previous disaster research shows that low-income families are usually more affected than affluent individuals as they have fewer economic resources to recover quickly (Fothergill & Peek, 2004).

Several quantitative studies have shown a relationship between socioeconomically vulnerable households and hurricane damage. For example, research in New Orleans, Louisiana, shows that 46% of blacks, 46% of renters, and 21% of those below the poverty line were affected by Hurricane Katrina (Logan, 2006). Similarly, research using bivariate and multivariate analysis showed that neighborhoods in the Houston, Texas, metro area with a higher percentage of blacks, Hispanics, and low-income households were more affected after Hurricane Harvey's flooding than whiter, better-off communities (Chakraborty, Collins, & Grineski, 2019). Furthermore, a case study in the Caribbean found low-income households living in self-help homes suffered more wind damage than other groups because most home builders do not reinforce the connection between the roof and the mainframe, or build fragile wooden houses whose walls collapse under these circumstances (Eaton, 1980).

As of May 2018, FEMA had reported a total of 357,492 homes damaged by Hurricane María, of which 6% were occupied by renters (Hinojosa & Meléndez, 2018). A regression analysis of 306,126 of those who applied to FEMA's Individual Assistance Housing Program in Puerto Rico after Hurricane María found that low-income households and renters experience relatively greater flood and wind damage than moderate- to higher income households and homeowners (Ma & Smith, 2020). This study also showed that homes of low-income households and renters had greater damage severity adjusted by home values. Ma and Smith concluded that most of the homes that fell within FEMA's

*not economically feasible to repair* category belonged to low-income households, whether renters or homeowners, and were valued at about \$30,000.

### **Right to Equal Treatment**

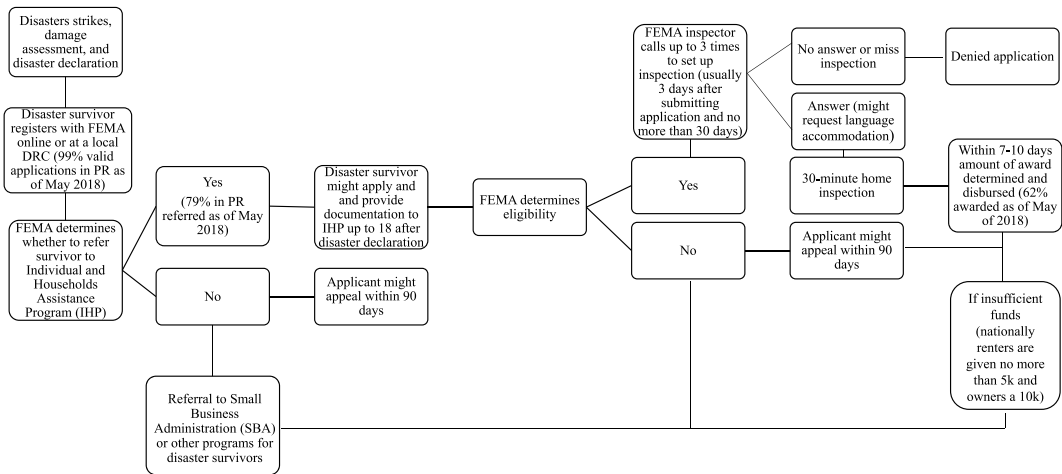
About 80% of FEMA IHP applicants in Puerto Rico were below the area median income, which is approximately \$20,000, and 13% were older adults (Puerto Rico Housing Authority, 2020). FEMA's Individuals & Households Program Unified Guidance (2019) stipulates that the agency must provide reasonable accommodations for vulnerable groups. FEMA may ensure effective communication with LEP applicants by providing survivors who speak Spanish with a translator, making Spanish materials available online, etc. Paper copies would be necessary for those who might not have access to a computer, smartphone, or the internet. Accommodations must be made for applicants with disabilities and others with access and functional needs. FEMA also prohibits discrimination based on race, color, religion, national origin, sex, age, disability, or economic status.

Nonetheless, the National Disaster Recovery Framework (NDRF) seems to have been created for the majority—white and middle class (Kapucu, 2014; Saadian et al., 2020). Increasing the cultural competency of planners and decision makers has been proposed as a way to serve “all survivors regardless of income, ability, language, or education levels; address communication gaps; and ensure that inadequate information or rumors do not exacerbate the situation” (Saadian et al., 2020, p. 16). Cultural competency in the planning profession can have an equalizing effect for communities that have historically been marginalized and prevented from accessing opportunities (Angotti, Pierre-Louis, Ramasubramanian, & Sigmund, 2011; García, Garfinkel-Castro, & Pfeiffer, 2019; García et al., 2020; Greenlee, Jackson, Garcia-Zambrana, Lee, & Chrisinger, 2018; Jackson, Garcia-Zambrana, Greenlee, Lee, & Chrisinger, 2018; Lee, Chrisinger, Greenlee, García, & Jackson, 2020).

Not being equitable in the recovery of a major disaster has generational consequences, especially for those most vulnerable (Xiao, Wu, Finn, & Chandrasekhar, 2018). Previous studies have shown that low-income individuals are more likely to be ineligible for FEMA assistance (Adams, 2018). Adams (2018) found that after Hurricane Harvey in Texas, although the denial rate for households that made \$70,000 was only 10%, those who made less than \$15,000 a year were denied at a rate of 46%. A national study of low-income survivors showed that they are also more likely to be displaced, which could be detrimental to their social relationships (Fung, 2019). Social capital is a crucial factor determining whether and how rapidly people, businesses, and organizations recover (Xiao et al., 2018).

Environmental justice and equity in disaster recovery planning are usually manifested in four rights: (a) the right to choose, (b) the right to stay, (c) the right to equal treatment, and (d) the right to have a say (Saadian et al., 2020). Advocates at the DRHC continually refer to these rights. From the perspective of the advocates themselves and their ability to change federal policies, the right to have a say matters significantly. Planning research has also made a case for why public participation, whether from residents or stakeholders working on the ground, really matters to recover effectively and to increase the resilience and community building of communities moving forward in high-risk areas (Alaniz, 2017; Chandrasekhar, 2012; Chandrasekhar, Zhang, & Xiao, 2014; Ganapati & Ganapati, 2008).

This article will also refer to the right of equal treatment that each FEMA applicant should have. Advocates and lawyers giving free legal services have insisted that there is a lack of transparency about applying FEMA codes for denial and reasoning for applying eligibility determinations (Adams, 2018; Williams, 2006). A survey of more than 300 residents in Loíza and Yabucoa, Puerto Rico, showed that in the absence of prompt assistance from FEMA, more than 50% of low-income households undertook reconstruction by themselves, informally, without FEMA assistance (Talbot et al., 2020). However, most continue to live in partially repaired homes that are not suitable for human habitation (Morris, 2018).



**Figure 1.** FEMA application process for the individuals and households assistance program.

FEMA=Federal Emergency Management Agency, DRC= Disaster Recovery Center, Individual and Households Assistance Program (IHP)

### The IHP Process

Before discussing some of FEMA's common issues, it is essential to understand the FEMA IHP process, as demonstrated by [Figure 1](#). First, a disaster strikes, the state assesses damages, and if the U.S. President makes a disaster declaration, then FEMA disaster assistance might be allocated. Disaster survivors fill out a FEMA form online or an in-person application in their preferred language at the local Disaster Recovery Center. Using this form, FEMA determines basic eligibility and might refer the applicant to the IHP. According to numbers provided by FEMA to congressional staff and the DHRC in May 2018, about 99% of registrations received in Puerto Rico were considered valid, and 79% of valid registrations were referred for IHP assistance (NLIHC, 2018).

The disaster survivor has until 18 months after the disaster declaration to apply to IHP and provide the necessary documentation (e.g., rental lease, property title, bills, etc.). Based on the documentation provided, FEMA determines whether the household is eligible for assistance. At this stage, 62% of the registrations in Puerto Rico referred for IHP assistance were determined to be eligible for housing assistance (NLIHC, 2018). A home inspection is scheduled and conducted within 3–30 days after the application is submitted (FEMA, 2020a). FEMA inspectors call up to three times, at different times of the day, to schedule an inspection. A non response or missed inspection might result in application denial. Once an applicant is reached, they might request language accommodations for the inspection. The amount of the award is determined within 7–10 days after the inspection. A direct deposit is made to a bank account, or a check is mailed with a letter detailing what the funds may be used for. All decisions can be appealed within 90 days. Because most awards nationally are limited to about \$5,000 for renters and \$10,000 for owners, most households are referred for supplemental assistance from the Small Business Administration (SBA) and other sources.

### Appeals

As [Figure 1](#) shows, applicants might apply at several points in the process. FEMA would respond to applicants who appeal within 90 days to (a) request more information, (b) contact a third party to verify the information, and (c) schedule an appeal inspection (FEMA, 2019a). A different inspector conducts appeal inspections, to avoid bias. FEMA acknowledges that inspectors make mistakes and therefore encourages people to appeal (FEMA, 2019a). Despite applicants' great need for disaster assistance, people tend to give up rather than appeal for aid, according to pro-bono lawyers, because the guidelines are often confusing and time-consuming, and have stringent arbitrary



requirements (Vinik, 2018). Advocacy groups have argued that FEMA is not transparent when it denies people using only a code (e.g., insufficient damage, duplicate application, no substantiation submitted, etc.) during the inspection and final determination (Adams, 2018).

FEMA guidelines established that additional documentation should be provided, such as a notice of condemnation, substantial damage, or demolition from the city government (FEMA, 2019a). To document losses, FEMA might request additional documentation, such as contractor quotes, receipts of repairs already made to the house or a vehicle, expenses related to displacement from their primary residence (e.g., temporary lodging expenses, storage or moving expenses), receipts for items that were lost (e.g., receipts for prescriptions, medical and other equipment, etc.; FEMA, 2019a). The next section seeks to understand why many of these families have been denied aid.

### ***Common Issues With FEMA***

There are many reasons why applicants could be deemed ineligible or receive less aid than they might have otherwise, including no contact for inspection, missed inspection, duplicate applications, inability to prove ownership, and insufficient damages, to mention a few. These are discussed below in more detail.

#### ***Unable to Schedule an Inspection***

Within 2 weeks of receiving an application, FEMA schedules an on-site inspection by a FEMA-contracted temporary inspector (Friedman & Nicole, 2017). Inspectors assess damages to the home and personal property (e.g., furniture, appliances, vehicles, etc.). The inspector also checks for documentation, such as the applicant's proof of ownership. In general, inspectors decide whether the applicant's residence is uninhabitable, unsafe, or inaccessible. A habitable home, according to FEMA, meets three criteria: (a) it is safe, or not a threat to the occupant; (b) it is sanitary, or free of health hazards; and (c) it is functional, or can be used as intended. Once the report is submitted, other personnel in FEMA make the determination regarding disbursement of funds.

An inspection is necessary before one can be approved for funds. After Hurricane Harvey, about 10% of the denials that occurred in Texas were because applicants could not be contacted to schedule an inspection (Adams, 2018). Because of the massive human displacement that follows a disaster, many applicants cannot be reached for an inspection with the information they provide—this being a telephone number, email, and/or postal address (Hooks & Miller, 2006). Since many people leave their homes, correspondence is often missed (Williams, 2006). This is complicated with informal housing, which usually does not have a postal address (Talbot et al., 2020). Previous research on FEMA inspections showed that they often could not find addresses, especially in rural areas, mobile parks, land grants, tribal lands, etc. (Hooks & Miller, 2006).

Furthermore, it is common for low-income households to not have a cell phone on which they can be reached (Baron et al., 2012; Williams, 2006).<sup>1</sup> Most low-income survivors do not own computers or smartphones, and they may not have email addresses or check their email promptly (Hooks & Miller, 2006). Households making less than \$45,000 a year were two thirds more likely to be denied because an inspection could not be scheduled (Adams, 2018). All this is to say that many applicants missed the first step to being able to receive assistance: scheduling an inspection.

#### ***Missing an Inspection Appointment***

Another common reason for denial is missing a scheduled onsite inspection. Because many survivors may not or cannot live in their damaged homes, it might be hard for them to make it to their scheduled home inspection (Williams, 2006). Older adults and low-income individuals experience transportation issues—they either did not have a car to begin with or lost it during the storm (Hooks & Miller, 2006; Ong, 2002). Previous research with low-income individuals also shows that it is hard for them to keep track of previously scheduled meetings with case managers for social service assistance (Baron et al., 2012; Desmond, 2016; García & Kim, 2020). There is evidence that many

survivors missed their visits in Puerto Rico, and inspectors did not return for a second appointment (Pares Arroyo, 2016). Because of COVID-19, FEMA has started to conduct virtual inspections, which might offer a solution to some of these problems in the future (FEMA, 2020b).

### *Issues During the Inspection Process*

There are several complaints related to the inspection process. For example, the inspectors dedicate little time for the inspection. Many inspectors speak only English, or were underqualified or inadequately trained—resulting in a negative outcome for survivors. Each category is described further in the subsequent paragraphs.

It is important to note that FEMA inspectors are contractors. On average, inspectors take 30 minutes to conduct an inspection, and they are paid a flat fee of \$50 per case, which disincentivizes them to spend much time on a single case (Snyder, 2009). Furthermore, because FEMA workers are contractors, some of them only speak English, which was seen as unfair to claimants, many of whom are of LEP (Pares Arroyo, 2016). According to FEMA regulations, if a person is deaf, blind, or LEP, they can request special accommodations (FEMA, 2019a). However, in Puerto Rico, it is clear that the Commonwealth's primary language is Spanish, and advocates assured people that they should not have to go through a formal process of asking for accommodations (Alston, 2018). It is not clear how prevalent is the practice of sending a FEMA inspector who speaks English only to an LEP household on the island.

Another common complaint is that inspectors are either underqualified or inadequately trained and, thus, that they tend to deny applications based on insufficient damage. According to Snyder (2009), in Houston after Hurricane Ike, an apartment building was declared a public nuisance, which makes it inhabitable. However, the inspector who examined the building concluded that the damages were insufficient. In another case, the Office of Child Welfare informed a mother in Texas that her home was inhabitable, and she was subject to losing her custody of her children. In both of these cases, FEMA inspectors thought the houses were livable and had suffered insufficient damage. This issue is described further below.

### *Insufficient Funds*

Many have reported that FEMA provided insufficient funds. After Hurricane Katrina in New Orleans, the average home received FEMA assistance for repairs of about \$5,000, or \$10,000 for replacing a home (Hooks & Miller, 2006). Meanwhile, the real value of repairing or replacing a home because of substantial damage was between \$100,000 and \$150,000 (Gregory, 2013). According to FEMA's Individuals & Households Program Unified Guidance (2019a), FEMA would pay to stop leakage in a roof (e.g., fix or patch a part of the roof), but would not replace the whole roof. The agency might fix only one of three bedrooms because a single individual lives in the home, making that room habitable. The IHP assumes that funds from other federal programs such as SBA or CBBG-DR and nonprofit organizations would provide additional financial assistance (FEMA, 2019a). In other words, the "Home Repair Assistance is intended to make the damaged home safe, sanitary, or functional. It is not intended to return the home to its pre-disaster condition" (FEMA, 2019a, p. 86). Furthermore, one of the preconditions for assistance is that the home was habitable to begin with. However, many informal dwellings in Puerto Rico were not built following construction codes and were of low quality, which could be qualified as a preexisting condition (García, 2019; Talbot et al., 2020).

It is important to note that FEMA funds fill the gap in what private insurance does not cover (Snyder, 2009). The IHP requires applicants to submit their insurance settlement information—including flood, homeowners, vehicle, mobile home, medical, burial, etc. (FEMA, 2019a). The FEMA housing assistance is meant for the uninsured or underinsured, but it cannot cover all expenses as regular private insurance might do (FEMA, 2019a). Only 28.6% (344,000 homes of 1.2 million) had mortgages in Puerto Rico and thus were required to have insurance (Brown, 2018). Because of this, the funds could be seen as insufficient to complete the home repairs that are needed.

### ***Duplicate Applications***

The IHP tries to prevent the duplication of benefits (FEMA, 2019a). Many homeowner applicants at a mobile home park in Texas were denied benefits because they share a lot address (Adams, 2018). In Houston, a low-income single mother with two children was denied because someone at her apartment building complex had applied using the same address (Adams, 2018). A recognizable address needs to be listed in all of the documentation provided (FEMA, 2019a). However, FEMA has exceptions for insular and remote areas, where global positioning system coordinates could be used instead of streets or numbering systems.

### ***Unable to Prove Ownership***

According to the federal government, an owner is defined as the person who lives in the house and is responsible for paying bills, taxes, repairs, and improvements (García, 2019; Saadian et al., 2020). The Robert T. Stafford Disaster Relief and Emergency Assistance Act recognizes that a property owner might not hold a formal title but is responsible for paying taxes and maintaining the residence (FEMA, 2019b). The owner could also be a person who has lifetime occupancy rights with formal title vested in another—in other words, an heir (Gobierno de Puerto Rico, 1930a). Puerto Rico's legal framework does not require a designation to register a property. If a person is responsible for the property, then they are the owner. In Puerto Rico, a person can also become an owner by the passing of time. This is called prescription, and it is applied as long as a household occupies the property publicly, peacefully, and continuously for 30 years or more (Gobierno de Puerto Rico, 1930b).

However, mobile homeowners in the United States are often unable to access titles for their homes because they were never provided one or were falsely told that park management maintained their title (Fedro, 2020). Similarly, in New Orleans, after Katrina, many people who inherited their home without will documentation were unable to obtain benefits (Hooks & Miller, 2006). In the Southern United States, informal ownership is common too; a woman in Texas who had a verbal rent-to-own agreement was unable to prove ownership of her home to FEMA—thus, she only qualified for renter assistance, covering belongings but not home damages (Adams, 2018).

A critical issue to note here is that FEMA benefits are different for property owners and renters (FEMA, 2019a). Whereas FEMA covers home repairs for homeowners, it only covers funds to replace renters' personal property (Hooks & Miller, 2006). In Puerto Rico, most homeowners living in informal housing with no titles were treated as renters and, therefore, received less aid than expected (Acevedo, 2018; Bergin, 2018). Vivienda, the housing department in Puerto Rico, estimates that 48,000 families do not have title to their property (García, 2019; Puerto Rico Department of Housing, 2020).

FEMA's Ownership Verification Guidelines indicate that they can accept alternative documentation as proof of ownership, for example merchant statements, employer's statements, public official statements, mortgage documentation, property insurance, property tax bills, a public records search, or a will naming someone as heir (FEMA, 2019a). Although the estate of a deceased applicant is not eligible for IHP assistance, a surviving predisaster resident of the household may receive benefits (FEMA, 2020a). FEMA accepts as a last resort a written self-declarative statement, which must include information about (a) how many years the applicant has lived in the home, (b) an explanation of why documentation could not be provided, and (c) the applicant's signature (FEMA, 2020a). The self-declarative statement is only available for applicants living in insular areas, islands, and tribal lands—including Puerto Rico.<sup>2</sup> FEMA guidelines also establish that they "will not accept a declarative statement of ownership for pre-disaster squatters" (FEMA, 2019a, p. 61). Instead of a self-declarative statement, people could use an affidavit to prove ownership, but they needed to pay a lawyer who would certify an affidavit. This could be costly for low-income people who might live in remote areas with no access to legal services.

As demonstrated above, FEMA guidelines recognize that there is a problem with determining eligibility in the automated process and that in special circumstances "A manual determination process can better accommodate unique situations falling outside of standard IHP guidelines (e.g.,

verifying property ownership based on local official statements in areas where properties are handed down to families and few written records exist” (FEMA, 2019a, p. 76). Many states have referred to these FEMA guidelines to accept alternative documentation, including Connecticut, West Virginia, North Carolina, Louisiana, and Texas (Saadian et al., 2020). For proof of ownership, FEMA has previously required a notarized statement (FEMA, 2019a, p. 201).

### **Declarative Statement**

According to Section 408 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 USC 5151 et seq.), 60 days after FEMA drafted the Puerto Rico FEMA Application Outreach Act of 2019, the agency notified by telephone or mail all households in Puerto Rico. They were affected by natural disasters in 2017 (Hurricanes Irma and María). The sworn statement asks for necessary demographic information and requests alternative documents such as utility bills, property taxes, receipts of maintenance, death certificates, or any other documentation acceptable to Vivienda (the local housing authority). The sworn statement requires the homeowner to declare whether anyone else in the family could claim a property right. If the heir has been living in the house for more than 10 years, they can claim ownership under Puerto Rico law (Ayuda Legal Puerto Rico, 2020). If a person occupies the property, be it land or a structure, then the time frame is 30 years.

The declarative statements were made available in Spanish and English at all active Disaster Recovery Centers and on FEMA’s website and social media. Within 30 days of the FEMA Application Outreach Act of 2019, FEMA adopted a declarative statement, which self-certifies an applicant’s owner occupancy. The agency began to provide a copy of the statement and instructions on how applicants can reopen or appeal FEMA’s determination of ownership not verified. FEMA gave such applicants a maximum of 180 days from enactment to submit the statement to reopen or appeal their cases after receiving notice of their right to do so. Under the Paperwork Reduction Act (44 USC 3501 et seq.), FEMA committed to developing a single, standardized, and permanent declarative statement, which self-certifies an applicant’s owner occupancy for future natural disasters.

Given that the properties in question are informal and that wills are not common among low-income survivors, they often do not have any of the documentation listed above (Talbot et al., 2020). Between 2001 and 2003, the Office of Especial Communities in Puerto Rico conducted a survey of about 67,000 households in 686 informal communities and found that 38% made less than \$700<sup>3</sup> per month and 28% made less than \$1,400 per month (Reyes, 2007). It is estimated that about 20% of homes in Puerto Rico (about 200,000 homes) do not have a property title (García, 2019; Puerto Rico Builders Association, 2018). FEMA’s 2019 guidelines also include stipulations for document exceptions. In this case, FEMA accepts a written statement from the applicant stating why they cannot verify ownership, including ownership in family compounds, hereditary family lands, and cultural traditions. However, making the sworn statement the exception after the fact makes it confusing for people, according to advocates (García, 2019). If a sworn statement were to be consistently applied across different states, this would make things more straightforward for everyone.

### **Findings**

The findings section documents the stories and narratives told by hurricane survivors that I interviewed and stakeholders or advocates from different positionalities that I interacted with via the DRHC of the NLIHC and other connections in Puerto Rico. The next section is divided into (a) common issues with FEMA, (b) the inability to prove home ownership, and (c) appealing and using the self-declarative statement.

## ***Common Issues With FEMA***

This subsection of the findings mirrors the subsection in the literature review that discussed the most common issues people had with FEMA, such as (a) missing an inspection or the inability to schedule one, (b) issues with the inspection process, (c) insufficient funds, and (d) duplicate applications.

### ***Missing an Inspection, or the Inability to Schedule One***

A staff member at the municipality of Comerío explained how the inability to schedule an inspection is an issue:

Many of the families here lost everything. Because of that, they had to leave, going to other towns and many to the United States. FEMA requires that a person who lives in the house has to be there for an inspection.

An advocate further explained,

FEMA evacuated many Puerto Ricans to the Mainland, many to Florida, New York, Massachusetts, or Chicago, to move to motels through the Temporary Assistance Program. People evacuated, and this made it harder for families to follow on the FEMA inspections. It seems counterintuitive!

An individual who applied for FEMA assistance said,

I registered for the assistance, and they came within three days for the inspection. And I am homeless, living with my brother towns away. I cannot go into a lot of detail about what happened, but I did not show up on time. I was about 30 minutes late, and I guess the inspector was busy or could not wait for me more time, so they left. I then try to reschedule, making numerous calls to FEMA. But the service there is terrible, they never answered their phone, it's always busy.

An advocate noted that

People are in stress and shock. Not everyone can get to an appointment. Some people have functional needs. Some people are older adults with many medical issues. Geographically [it] is hard to get to places on the island because of the lack of transportation.

As one planner asked:

Socioeconomic issues are the source of inequality in the island. A lot of people do not have addresses because they build a house in a land that has been in the family for generations. Many people do not have a cell phone, so how are you going to contact them?

A FEMA employee added,

At FEMA, we had issues with communication. Many times, we could not message people. It's very challenging because they did not answer the phone or email messages. Inspectors also went door by door, home to home, assessing damages and asking people to apply. We went to places twice. But FEMA had to close the cases of unresponsive people, or [those] we could not merely reach. We are committed to doing our job and our mission because we want to get assistance to disaster survivors, but if people do not answer the phone or get back to us, we cannot help them.

### ***Issues During the Inspection Process***

There were reports of FEMA inspectors conducting inspections only in English. A woman told her story as follows:

I received a knock on the door, and an American said he was with FEMA doing his evaluation. He had my name on some papers. He asked me if I applied for FEMA, and I said, "Yes." But I was not expecting someone who only spoke English. I tried my best to answer the questions he had because I can defend myself a little in English. He asked for my ID and other documentation. He took pictures and then left quickly. There was not much to see. I showed him the living room, the kitchen, the bathroom, and the two bedrooms.

A gentleman talked about his interaction with FEMA:

I applied fast but waited a long time for the inspection, more than a month. It seems like an eternity because I was very depressed, looking at all the damages day in and day out. When they got here, they barely spend any time on it. And, then, the news was no good. I got a check, but it was very little, so I had to rebuild myself.

FEMA staff talked about why they dedicate little time for the inspection, and why some inspectors spoke only English:

María was a catastrophic disaster. We could not keep up with all the applications. It seems we worked 24 hours a day. Our response was massive. Our personnel of hundreds of inspectors moved as fast as possible [. . .]. FEMA works with contractors. Some of the contractors are companies from the U.S. with experience in disasters. They hire their people. They tend to work from the assumption that most people in Puerto Rico speak English because English is also our official language. People could ask for accommodations if they wanted to.

Other survivors argued that FEMA said that the damages to their homes were insufficient. “We were told the home is in livable conditions. But how could it be in livable conditions? There was no electricity on the home for more than six months, the roof was leaking, and water was coming in.” An advocate argued that “many of the determinations of insufficient damages were because inspectors were not well trained.”

### ***Insufficient Funds***

Another common issue is that people did not receive sufficient funds to cover the repairs or replace the home. A homeowner said, “I only got \$5,000 even though the damages were extensive because the house flooded. The contractor gave me a quote that doubled what FEMA had offered me.” She appealed but had no luck. Other people found the amount of funding they received from FEMA acceptable because they could fix their own homes. A gentleman said, “FEMA gave me about \$4,000, but with that, I bought materials, and I rebuild myself. I build this house with my very own hands before, so I did it again.” A FEMA contractor clarified,

FEMA assistance is for emergencies and purposes, so temporary fixes. People think that it is for entirely fixing the home, but it is not. Individual assistance is to make the house habitable again, [it] is not to bring the house to the predisaster conditions. It’s a widespread misunderstanding. People do not understand that this is what flood insurance is for. Unfortunately, only one percent of people on the island have home insurance. People do not understand their risks or how insurance works. It’s not worth it for them because of the probability.

FEMA funds are only meant to supplement disaster loans such as those from the SBA. A planner added that there is a breakdown when FEMA provides insufficient funds:

Most people do not have money on the bank to make repairs. Sure, there are disaster loans, the SBA. But people in Puerto Rico do not build their credit, or they do not want debt. The majority historically build their homes to do it again, but only if FEMA gives them some funds; people are counting on FEMA assistance.

### ***Duplicate Applications***

FEMA flags duplicate registrations per household as possible fraudulent claims. A planner explained why this might be common in Puerto Rico: “There are hundreds of thousands of homes in the island built informally, with no permits and [that] are not up to code. Some of that informality is of people that do not have a title.” He added, “It could be because they subdivided land between different family members, and then they did not subdivide the plat through the formal planning process.” A lawyer explains that, “if many families live in a plot of land, this shows as one address, even if many families live there and all need FEMA assistance.” Another planner describes a common situation experienced in the island: “There is land owned by the government. The government just allowed people to build in a single parcel, but they did not give people individual property titles.” Many FEMA applications were denied because they show up in their system as duplicate applications.

Although there are no statistics available on this, it is a common practice in Puerto Rico for two or more separate households to live on different floors of the same house. For example, a parent might build a basement or a second floor for their married children. A hurricane survivor told his story:

My parents live on the bottom floor. I build a house on top of their house for my family. I applied for FEMA assistance first. Then, I showed them how to apply after I figure it out. They got a letter saying that there was a duplicate application. I said, wait a minute. We are different families. But in the eyes of FEMA, we were one family because we had one address. In the end, I got more damages than them, so we used the same funds to fix both homes.

FEMA has a strict rule about duplicate addresses, and the application system immediately flags the second application as a fraudulent one. FEMA is aware of this issue, and they recommend that the household appeal the case. Although this is a problem, the number one issue for denials is not proving home ownership, which is discussed in the next section.

### ***Inability to Prove Homeownership***

This section outlines some of the reasons that households were unable to show that they own their homes: (a) a nonstandardized address system, (b) unresolved inheritance, and (c) a lack of formal title and documentation.

### ***Nonstandardized Address System***

As Clancy et al. (2020) described, physical addresses in Puerto Rico were not standardized even in the prestorm housing conditions. An advocate stated that,

Some people supposedly did not have titles, but the problem was more with how the traditional property titles in Puerto Rico described the property. Many of the descriptions are old, like, "This house is next to this family." Many property titles do not have your traditional address, so they were not recognized.

Another common issue with addresses is that they do not match between an electric bill, a water bill, and a property title, etc. A government employee said,

The electric bill might say 801 Calle Cerra, but the electric bill might read 1000 Calle Lealtad, which is the original way that the plots of land were subdivided during the Spanish colonial times. A single house could sometimes have three or four addresses, and they appeared in different ways even inside the governed system, but without matching. That is because the electric company and the property registry do not share data.

FEMA would flag such applications because the address does not match. An advocate said, "we dedicated a lot of time [to] educating FEMA that our system in Puerto Rico is full of such inconsistencies and peculiarities and that it simply worked differently."

### ***Unresolved Inheritance***

The lack of formal documentation also leads to unresolved inheritance issues. As a lawyer explained, "there are heirs that never did the formal will or division of real estate among the siblings." A survivor explained,

Our family did not do the proper procedure to show that I was the heir. We did not have a will, and because I was the younger and the woman, I got the house among my siblings. I took care of my dad, and then my mom before they died. They pass away, and they did not leave a will. I had siblings, but they already had their own homes. So, I submitted an affidavit swearing I was the owner of the house.

A planner added to the conversation:

Families have inherited the land or the house from generation to generation. Many even initially bought the home from someone who initially had a title. However, after you change owners because you sold the house or you're an heir, in most cases, you should go to the Registry of Property to take care of this. But a lot of people don't. If [you have a] mortgage, you have to do it, but if you bought the home [with] cash like people did back in the day or are an heir, even with a will, you do not have to do it.

### ***Lack of Formal Title and Documentation***

Many property owners lack formal title or the ability to provide documentation. A planner said, “There are about 48,000 households in Puerto Rico with no titles, and they are among the most vulnerable.” A hurricane survivor expressed, “I got a letter saying that I was ineligible because I did not have a title, and then I did not have the alternative documents. They needed a lot, this and this and that.” An ex-FEMA staff member said,

most times, people get denied because of paperwork. They did not fill out the application right. They missed some documentation. They could not prove they are homeowners. FEMA offers assistance at the Disaster Recovery Center, or applicants can call the FEMA’s Helpline.

An advocate said: “FEMA acknowledged that 76,000 cases were denied because they did not have ownership documents or because they could not prove it with other documentation either.”

### ***Appealing and Using the Self-Declarative Statement***

Many lawyers were “working in appeals to give these families a second chance,” a lawyer said. More often than not, households that were denied “did not understand their rights and that they could appeal,” according to an advocate. A government engineer said that “Knowledge is power. Our communities need to learn more about how they can exercise their agency and get the help they need.” As previously described, the DHRC of the NLIHC, along with key advocates such as Ayuda Legal Huracan María, Acceso de Fondo a la Justicia, and Servicios Legales de Puerto Rico, drafted sworn statements in which people could describe how long they have been living at the disaster-damaged home and explaining why the formal documents are unavailable, along with providing other types of evidence. The document, different from the affidavit that FEMA requests for these cases, does not require notarization. A lawyer explained, “With this document, people do not need a lawyer, which is expensive for most, plus not available in many rural areas.” However, one of the issues with the Declarative Statement is that FEMA would not notify (by sending a letter) the families that were previously denied that they could use it to appeal. An advocate said, “Many individuals [who] later learned from us or others that they could use the Declarative Statement were very confused because FEMA already had told them they were ineligible.”

To solve these title issues moving forward, the Disaster Recovery Action Plan (DRAP), which determines the programs that will be funded with the Community Development Block Grant Disaster Recovery Program (CDBG-DR), allocated \$40 million for a Title Clearance Program. However, planners and lawyers seem skeptical about being able to give everyone a title. A lawyer said, “It would be impossible to have everyone doing the paperwork to get a title.” Another lawyer expressed, “We offer free services to help people get titles already, and when I talk to them, they think it’s a lie or a scam. They think I am trying to steal their home because, unfortunately, it already has happened with some bad actors.” An executive director of a nonprofit organization said,

Many families do not want a title because they feel they do not need it, they do not see the value to it because in their mind they already own their homes, and they do! Many people also think that if they are given a title, it opens up the door for developers to buy their community, gentrification, and displacement. Especially if they live in urban areas. If they live in rural areas, they think that the government will start charging them taxes, keeping records of where they live, etc. Some people want to be invisible to the government because they do not trust the government.

An executive director of a legal aid organization in Puerto Rico questioned why there is a discrepancy between residence and ownership and why FEMA did not accept proof of ownership the way Puerto Rico has historically proven it, stating,

There is a lack of knowledge from communities and individuals as to whom the land belongs [to] in the case of possession. As we have sustained several times, people cannot affirm or deny that they live on public domains since many of these terrains either lack demarcation, have not been used as such by decades or, in some cases, communities have been authorized to live there. FEMA cannot make legal determinations as to how the person



possesses the property or came to acquire the property. FEMA is not a housing or title-clearing court. Its mission is to provide relief to those affected by disasters. Who in FEMA is capacitated (trained, knowledgeable) to decide which structures are located in lands where no declarative statement can be used as proof of ownership? Who are they relying on?

From the above analysis, we can conclude that FEMA denied these applications because it struggles with incorporating nontraditional housing forms such as mobile homes, land trusts, land grants, etc. Puerto Rico's Civil Code is unrecognizable to the standard U.S. property rights framework. Nontraditional frameworks, including those that derive from Spanish law or indigenous communities, are not understood.

## Discussion and Conclusions

More than 3 years have passed since the devastating Hurricane María that left millions without electric power and hundreds of thousands without safe homes, and at the time of writing of this article (2020), thousands of households in the U.S. territory are still living in damaged homes. Academic and journalist research has shown that vulnerabilities multiply for low-income survivors, those without housing insurance, and people of color after a disaster strikes (Kapucu, 2014; Morris, 2018; Snyder, 2009; Talbot et al., 2020). Studies have shown how FEMA inadvertently creates barriers, especially for low-income households, to obtain assistance (Hooks & Miller, 2006; Saadian et al., 2020; Williams, 2006).

This article has built on previous research studies in equity and federal response to understand the Puerto Rican context. The article sought to answer why such a large number of households in Puerto Rico have been unable to obtain FEMA assistance. We discussed several reasons, such as missing an inspection, duplicate addressees, and other issues. The PAR study has contributed to less extensive and popular media studies and storytelling that have demonstrated that many households in Puerto Rico were denied FEMA's IHP because of ownership not verified—that is, their inability to verify property ownership (Acevedo, 2018; Bergin, 2018; García, 2019; García et al., 2019; Saadian et al., 2020). As described, about 60% of FEMA applications have been rejected as ineligible for individual and household grants because of the lack of evidence of ownership. In the legal framework of Puerto Rico's Civil Code, households are recognized as having certain property rights over their residences even if they do not have formal title to the property. This is very similar to federal policy.

Like the conclusions presented by Saadian et al. (2020) of the DHRC, this study concludes that FEMA officials need to have more cultural competence and understand that the lack of titles in Puerto Rico is a systemic issue on the island tied to historical, political, and economic factors. After being denied assistance, many households either withdrew their application or were administratively withdrawn. Some families appealed their denial using the Declarative Statements assembled by the DHRC of the NLIHC, instead of the FEMA Affidavit, which required a lawyer's signature. One of FEMA's main limitations in this collaboration with the NLIHC is that they did not reach out to households that were denied to follow up with them for appeals using the new Declarative Statement.

As more people seek assistance in the future, FEMA needs to pay attention to how their policies impact the most vulnerable—low-income individuals, women, older adults, and others with reduced functional capacities. The federal government needs to reform the disaster housing recovery framework to be more equitable. Often, emergency managers and planners tend to implement a one-size-fits-all model throughout the federal and state disaster recovery process. This model tends to favor white and middle-class communities. Advocates have argued that in Puerto Rico, there is a unique opportunity to address equity. Right now, federal funding is not reaching the people who need it the most. This occurs in part because potential beneficiaries are often unaware of what they can do to receive aid effectively.

Although well intentioned, local and federal governments often fail to provide materials and information in formats that are accessible to the most vulnerable. State and local governments must be educated in cultural competency that addresses issues such as racism and classism. The needs to

be a change of thinking toward unbureaucratic ways of aiding, where the survivor is put at the center of how assistance is given. In addition, the federal government needs to be transparent with its decision-making. Another common complaint is that there is no transparency in the denial codes (e.g., duplicate application, ownership not verified, missed inspection, etc.) and the decisions being made by FEMA (Adams, 2018). Accountability and due process should be at the center of decision-making. This cultural competency education must be integrated into the FEMA application process and in Disaster Recovery Centers.

Furthermore, the federal government should provide funding for organizations like Ayuda Legal Huracán María, Acceso de Fondo a la Justicia, and Servicios Legales de Puerto Rico to improve access to critical information. These legal aid organizations are very well connected to grassroots groups, allowing them to communicate with the most vulnerable residents in ways that FEMA cannot reach. These entities are already trusted in the community to offer legal services and mediate between them and FEMA. FEMA staff and others involved in emergency management should seek ways to decentralize communications and build formal relationships with networks of community-based organizations to increase their reach and credibility. By implementing these changes, the number of survivors who do not receive FEMA assistance can be reduced. With climate change, we expect to see more wildfires in California and hurricanes in Texas. As more people seek assistance in the future, FEMA needs to pay attention to its policies and ensure an equitable disaster housing response.

## Notes

1. Through interviews with older adults, I learned that many older adults and low-income individuals who own cell phones do not use them as a home phone. For example, they might turn them off to save energy, or not charge them at all.
2. Insular areas are defined as Puerto Rico, Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, and the U.S. Virgin Islands, or otherwise remote areas such as Alaska's interior (FEMA, 2019a).
3. These amounts were adjusted for inflation from 2003 to 2020.

## Disclosure Statement

No potential conflict of interest was reported by the author.

## Notes on Contributor

*Ivis García*, originally from Puerto Rico, is an assistant professor in City and Metropolitan Planning at the University of Utah in Salt Lake City. Ivis facilitates Planners for Puerto Rico and it is a member of the Disaster Housing Recovery Coalition of the National Low Income Housing Coalition—both advocate for the recovery of Puerto Rico at the local and federal levels. Using a Participatory Research Approach and an asset-based lens, Dr. García is interested in housing issues as they pertain to underserved communities, from Latino/a homeowners to families experiencing homelessness.

## ORCID

Ivis García  <http://orcid.org/0000-0003-4184-2514>

## References

- Acevedo, N. (2018). FEMA has either denied or not approved most appeals for housing aid in Puerto Rico. *NBC News*. Retrieved from <https://www.nbcnews.com/storyline/puerto-rico-crisis/fema-has-either-denied-or-not-approved-most-appeals-housing-n891716>
- Adams, A. (2018, November 30). *Low-income households disproportionately denied by FEMA is a sign of a system that is failing the most vulnerable*. Texas Housers. Retrieved from <https://texashousers.net/2018/11/30/low-income-households-disproportionately-denied-by-fema-is-a-sign-of-a-system-that-is-failing-the-most-vulnerable/>
- Alaniz, R. (2017). *From strangers to neighbors: Post-disaster resettlement and community building in Honduras*. Austin, TX: University of Texas Press.

- Algoed, L., & Hernandez Torrales, M. (2019). The land is ours. Vulnerabilization and resistance in informal settlements in Puerto Rico: Lessons from the Cano Martin Pena Community Land Trust. *Radical Housing*, 1(1), 29–47.
- Alston, P. (2018). *Puerto Rico a year after Hurricane Maria*. Retrieved from <https://www.amnesty.org/en/latest/research/2018/09/puerto-rico-a-year-after-hurricane-maria/>
- Angotti, T., Pierre-Louis, M., Ramasubramanian, L., & Sigmund, S. (2011). Cultural competence in urban affairs and planning: Engaging New York City's Puerto Rican and Latino Communities. New York, NY: Hunter's College at the Center University of New York. Retrieved from <http://www.hunter.cuny.edu/ccpd/repository/files/Cultural%20Competence%20in%20Urban%20Planning%2010.07.11.pdf>
- Apaliyah, G. T., Martin, K. E., Gasteyer, S. P., Keating, K., & Pigg, K. (2012). Community leadership development education: Promoting civic engagement through human and social capital. *Community Development*, 43(1), 31–48.
- APCIA. (2019). *Puerto Rico without insurance: An Island in turmoil*. American Property Casualty Insurance Association. Retrieved from [http://www.pciaa.net/docs/default-source/industry-issues/7\\_puertorico.pdf](http://www.pciaa.net/docs/default-source/industry-issues/7_puertorico.pdf)
- Ayuda Legal Puerto Rico. (2019). *Towards just recovery: CDBG-DR funds and forced displacements*. Retrieved from <https://ayudalegalpr.org/ayudaparadesastres>
- Ayuda Legal Puerto Rico. (2020). *Declaracion Bajo Juramento*. Retrieved from <https://ayudalegalpr.org/resource/entre-vista-sobre-declaracin-bajo-juramento>
- Barber, B. (2004). *Strong democracy: Participatory politics for a new age* (20 Anv ed.). Berkeley: University of California Press.
- Baron, E., Beck, S., García, I., Geer, M., Hoch, C., Lopez, M., . . . Zelalem, Y. (2012). Final report on the evaluation of the Chicago low income housing trust fund. Prepared for the *Chicago Low-Income Housing Coalition*. Chicago, IL: Nathalie P. Voorhees Center for Neighborhood and Community Improvement at the College of Urban Planning and Policy (CUPPPA) and University of Illinois at Chicago (UIC). doi:10.13140/RG.2.2.29532.13443
- Bergin, K. (2018). Thousands in Puerto Rico wrongly denied FEMA aid: We're working to fix that. *The Disaster Law Project*. Retrieved from <https://dlp-global.org/2018/12/19/thousands-in-puerto-rico-still-waiting-on-fema-aid-were-working-to-fix-that/>
- Bergold, J., & Thomas, S. (2012). Participatory research methods: A methodological approach in motion. *Historical Social Research/Historische Sozialforschung*, 37(4 (142)), 191–222.
- Brown, N. (2018). Special report: In Puerto Rico, a housing crisis U.S. storm aid won't solve. *Reuters*, February 6. Retrieved from <https://www.reuters.com/article/us-usa-puertorico-housing-specialreport-idUSKBN1FQ211>
- Caruson, K., & MacManus, S. A. (2008). Disaster vulnerabilities: How strong a push toward regionalism and intergovernmental cooperation? *The American Review of Public Administration*, 38(3), 286–306.
- Center for Puerto Rican Studies. (2018). *Rebuild Puerto Rico: A guide to fderal policy and advocacy*. Retrieved from [https://centropr.hunter.cuny.edu/sites/default/files/data\\_briefs/CENTRO\\_POLICYGUIDE\\_PB2018-02.pdf](https://centropr.hunter.cuny.edu/sites/default/files/data_briefs/CENTRO_POLICYGUIDE_PB2018-02.pdf)
- Chakraborty, J., Collins, T. W., & Grineski, S. E. (2019). Exploring the environmental justice implications of Hurricane Harvey flooding in Greater Houston, Texas. *American Journal of Public Health*, 109(2), 244–250.
- Chandrasekhar, D. (2012). Digging deeper: Participation and non-participation in post-disaster community recovery. *Community Development*, 43(5), 614–629.
- Chandrasekhar, D., Zhang, Y., & Xiao, Y. (2014). Nontraditional participation in disaster recovery planning: Cases from China, India, and the United States. *Journal of the American Planning Association*, 80(4), 373–384.
- Clancy, N., Dixon, L., Elinoff, D., Kuznitsky, K., & McKenna, S. (2020, September). Modernizing Puerto Rico's housing sector following Hurricanes Irma and Maria: Post-storm challenges and potential courses of action. Retrieved from [https://www.rand.org/pubs/research\\_reports/RR2602.html](https://www.rand.org/pubs/research_reports/RR2602.html)
- Congressional Documents & Publications. (2020, July 28). *Experiences of vulnerable populations during disaster*. InsuranceNewsNet. Retrieved from <https://insurancenewsnet.com/oarticle/experiences-of-vulnerable-populations-during-disaster>
- Cooper, J., & Masterson, J. (2017). *How Black History has influenced disaster planning*. Center for Disaster Philanthropy. Retrieved from <https://disasterphilanthropy.org/blog/floods/black-history-influenced-disaster-planning/>
- Desmond, M. (2016). *Evicted: Poverty and profit in the American City* (1 ed.). New York: Crown.
- Eaton, K. J. (1980). Low-income housing and Hurricanes. In J. E. Cermak (Ed.), *Wind engineering* (pp. 7–21). Oxford Pergamon Press. doi:10.1016/B978-1-4832-8367-8.50008-5
- Fedro, J. (2020, March). 4 common mobile home title issues. *Bigger Pockets* (blog). Retrieved from <https://www.biggerpockets.com/blog/mobile-home-title-issues>
- FEMA. (2017). 2017 Hurricane season FEMA after-action report. Retrieved from <https://www.fema.gov/media-library-data/1531743865541-d16794d43d3082544435e1471da07880/2017FEMAHurricaneAAR.pdf>
- FEMA. (2018). *Additional options available for applicants to verify home ownership*. Retrieved from <https://www.fema.gov/news-release/2018/08/17/additional-options-available-applicants-verify-home-ownership>
- FEMA. (2019a). Individual assistance program and policy guide. 2019. Retrieved from [https://www.fema.gov/sites/default/files/2020-08/fema\\_individual-assistance-program-policy-guide\\_1-1-draft-comment.pdf](https://www.fema.gov/sites/default/files/2020-08/fema_individual-assistance-program-policy-guide_1-1-draft-comment.pdf)
- FEMA. (2019b). *Stafford act, as amended, and related authorities*. Retrieved from [https://www.fema.gov/media-library-data/1582133514823-be4368438bd042e3b60f5cecc6b377d17/Stafford\\_June\\_2019\\_508.pdf](https://www.fema.gov/media-library-data/1582133514823-be4368438bd042e3b60f5cecc6b377d17/Stafford_June_2019_508.pdf)

- FEMA. (2020a). *Fact sheet: What you need to know: Housing inspections*. 2020. Retrieved from <https://www.fema.gov/press-release/20201016/fact-sheet-what-you-need-know-housing-inspections>
- FEMA. (2020b). *Individual and households program: Remote inspections*. 2020. Retrieved from <https://www.fema.gov/fact-sheet/individual-and-households-program-remote-inspections>
- Fink, S. (2018). Puerto Rico: How do we know 3,000 people died as a result of Hurricane Maria?. *The New York Times*, September 13, sec. U.S. Retrieved from <https://www.nytimes.com/2018/06/02/us/puerto-rico-death-tolls.html>
- Florida, A. (2018). *Unable to prove they own their homes, Puerto Ricans denied FEMA help*. Retrieved from <https://www.npr.org/2018/03/20/595240841/unable-to-prove-they-own-their-homes-puerto-ricans-denied-fema-help>
- Fothergill, A., & Peek, L. A. (2004). Poverty and disasters in the United States: A review of recent sociological findings. *Natural Hazards*, 32(1), 89–110.
- Friedman, L. S., & Nicole. (2017). Hurricane Maria exposes a common problem for Puerto Rico homeowners: No insurance. *Wall Street Journal*, September 20, sec. Markets. Retrieved from <https://www.wsj.com/articles/hurricane-maria-exposes-a-common-problem-for-puerto-rico-homeowners-no-insurance-1505940660>
- Fung, V. (2019). *Displacement and housing affordability in the United States*. IDMC. Retrieved from <https://www.internal-displacement.org/expert-opinion/displacement-and-housing-affordability-in-the-united-states>
- Gallardo, L. (2018). Los Estorbos Públicos En Puerto Rico. *Revista Jurídica*, 87, 116–159.
- Ganapati, N. E., & Ganapati, S. (2008). Enabling participatory planning after disasters: A case study of the World Bank's housing reconstruction in Turkey. *Journal of the American Planning Association*, 75(1), 41–59.
- García, I. (2018). Community participation as a tool for conservation planning and historic preservation: The case of 'Community As A Campus' (CAAC). *Journal of Housing and the Built Environment*, 33(1), 519–537.
- García, I. (2019). The lack of proof of ownership in Puerto Rico is crippling repairs in the aftermath of Hurricane Maria. *American Bar Association (ABA) Human Rights Magazine*, October. Retrieved from [https://www.americanbar.org/groups/crsj/publications/human\\_rights\\_magazine\\_home/vol-44-no-2-housing/the-lack-of-proof-of-ownership-in-puerto-rico-is-crippling-repai/](https://www.americanbar.org/groups/crsj/publications/human_rights_magazine_home/vol-44-no-2-housing/the-lack-of-proof-of-ownership-in-puerto-rico-is-crippling-repai/)
- García, I. (2020). Asset Based Community Development (ABCD): Core principles. In R. Phillips & E. Trevan (Eds.), *Research handbook on community development* (pp. 67–75). Cheltenham, UK: Edward Elgar Publishing Company.
- García, I. (2021). Puerto Rico's outmigration and the deterioration of economic conditions as identified with national debt. *CENTRO Journal*, 33, 28–44.
- García, I., & Chandrasekhar, D. (2020). Impact of Hurricane Maria to the civic sector: A profile of non-profits in Puerto Rico (Accepted for Publication). *CENTRO Journal*, 32(3), 67–88.
- García, I., Garfinkel-Castro, A., & Pfeiffer, D. (2019). *Planning with diverse communities*. Planning Advisory Service (PAS). Report 593. Chicago, IL: American Planning Association. Retrieved from <https://www.planning.org/publications/report/9165143/>
- García, I., Jackson, A., Harwood, S., Greenlee, A., Lee, A., & Chrisinger, B. (2020). "Like a fish out of water": The experience of African Americans and Latinx in U.S. planning programs. *Journal of the American Planning Association*, 1–15. <https://doi.org/10.1080/01944363.2020.1777184>
- García, I., & Kim, K. (2020). "'I felt safe': The role of the rapid rehousing program in supporting the security of families experiencing homelessness in Salt Lake County, Utah. *International Journal of Environmental Research and Public Health*, 17(13), 4840.
- García, I., Olshansky, R., & Carrasquillo, D. (2019). Puerto Rico lurches toward recovery. *Planning Magazine*. Retrieved from <https://www.planning.org/planning/2019/aug/>
- Gobierno de Puerto Rico. (1930a). *Código Civil de Puerto Rico, 1930, Según Enmendado- Capítulo 219 Herencia- 31 L.P.R.A. Sec. 2251-2530*. 1930. Retrieved from <http://www.lexjuris.com/LEXLEX/lexcodigoc/lexherencia.htm>
- Gobierno de Puerto Rico. (1930b). *Código Civil de Puerto Rico, 1930, Según Enmendado -Parte IX. Registro de La Propiedad –31 L. P.R.A. Sec. 1871-2053*. 1930. Retrieved from <http://www.lexjuris.com/LEXLEX/lexcodigoc/lexregistroydonacion.htm#Ocupacion>
- Goody, J. (1973). Strategies of heirship. *Comparative Studies in Society and History*, 15(1), 3–20.
- Greenlee, A. J., Jackson, A., Garcia-Zambrana, I., Lee, C. A., & Chrisinger, B. (2018, December). Where are we going? Where have we been?: The climate for diversity within urban planning educational programs. *Journal of Planning Education and Research*. doi:10.1177/0739456X18815740
- Gregory, J. (2013). *The impact of post-Katrina rebuilding grants on the resettlement choices of New Orleans homeowners*. Retrieved from [/paper/The-Impact-of-Post-Katrina-Rebuilding-Grants-on-the-Gregory/1e3d66a17655dac74915e0a1698eb7a37baeb34a](http://paper/The-Impact-of-Post-Katrina-Rebuilding-Grants-on-the-Gregory/1e3d66a17655dac74915e0a1698eb7a37baeb34a)
- Hinojosa, J., & Meléndez, E. (2018). *The housing crisis in Puerto Rico and the impact of Hurricane Maria*. Retrieved from [https://centopr.hunter.cuny.edu/sites/default/files/data\\_briefs/HousingPuertoRico.pdf](https://centopr.hunter.cuny.edu/sites/default/files/data_briefs/HousingPuertoRico.pdf)
- Hinosa, J., Roman, N., & Meléndez, E. (2018, March). Puerto Rican Post-Maria relocation by states. *Center for Puerto Rican Studies*. Retrieved from <https://centopr.hunter.cuny.edu/sites/default/files/PDF/Schoolenroll-v2-3-3-2018.pdf>
- Hooks, J. P., & Miller, T. B. (2006). The continuing storm: How disaster Reco Orm: How disaster recovery excludes those cludes those most in need. *California Western Law Review*, 43(1). Retrieved from <https://scholarlycommons.law.cwsl.edu/cgi/viewcontent.cgi?article=1098&context=cwlr>

- Jackson, A., García-Zambrana, I., Greenlee, A. J., Lee, C. A., & Chrisinger, B. (2018). All talk no walk: Student perceptions on integration of diversity and practice in planning programs. *Planning Practice & Research*, 33(5), 574–595.
- Jayajit, C., Tobin Graham, A., & Montz Burrell, E. (2005). Population evacuation: Assessing spatial variability in geophysical risk and social vulnerability to natural hazards. *Natural Hazards Review*, 6(1), 23–33.
- Kapucu, N. (2014). Collaborative governance and disaster recovery: The National Disaster Recovery Framework (NDRF) in the U.S. In R. Shaw (Ed.), *Disaster recovery: Used or misused development opportunity* (pp. 41–59). Disaster Risk Reduction. Tokyo: Springer Japan. doi:10.1007/978-4-431-54255-1\_3
- Kretzmann, J. P., & McKnight, J. (1993). *Building communities from the inside out: A path toward finding and mobilizing a community's assets*. Evanston, IL: The Asset-Based Community Development Institute, Institute for Policy Research, Northwestern University.
- Lee, A., Chrisinger, B., Greenlee, A., García, I., & Jackson, A. (2020). Beyond recruitment: Experiences and recommendations of international students in U.S. urban planning programs. *Journal of Planning Education and Research*. doi:10.1177/0739456X20902241
- Logan, J. R. (2006). *The impact of Katrina: Race and class in storm-damaged neighborhoods*. Providence, RI: Brown University. Retrieved from [https://wps.ablongman.com/wps/media/objects/12936/13246811/pdf/Report\\_2.pdf](https://wps.ablongman.com/wps/media/objects/12936/13246811/pdf/Report_2.pdf)
- Ma, C., & Smith, T. (2020). Vulnerability of renters and low-income households to storm damage: Evidence from Hurricane Maria in Puerto Rico. *American Journal of Public Health*, 110(2), 196–202.
- Martínez, C. (2020, March 9). *The program to deal with housing needs in Puerto Rico after Hurricane María Lingers in a limbo*. Centro de Periodismo Investigativo. Retrieved from <https://periodismoinvestigativo.com/2020/03/the-program-to-deal-with-housing-needs-in-puerto-rico-after-hurricane-maria-lingers-in-a-limbo/>
- Morris, M. (2018). *More than a year later, FEMA's Harvey home repair programs made few fixes*. HoustonChronicle.Com. Retrieved from <https://www.houstonchronicle.com/news/houston-texas/houston/article/More-than-a-year-later-FEMA-s-Harvey-home-13496458.php>
- National Low Income Housing Coalition (NLIHC). (2018, June 4). *Senators introduce bill to activate disaster housing assistance program*. Washington, DC: Author. Retrieved from <https://nlihc.org/article/senators-introduce-bill-activate-disaster-housing-assistance-program>
- Ong, P. M. (2002). Car ownership and welfare-to-work. *Journal of Policy Analysis and Management*, 21(2), 239–252.
- Pares Arroyo, M. (2016). *Propuestas Del Campamento En Contra de La Junta*. El Nuevo Dia, August 24. Retrieved from <http://www.elnuevodia.com/noticias/locales/nota/propuestasdelcampamentoencontradelajunta-2234060/>
- Puerto Rico Builders Association. (2018). *Ponencia—Plan Fondo CDBG-DR*.
- Puerto Rico Department of Housing. (2020). *Action plan Amendment 4 (Substantial Amendment)*. Retrieved from <https://www.cdbg-dr.pr.gov/en/action-plan/>
- Puerto Rico Housing Authority. (2020). *Puerto Rico disaster recovery action plan (Amedment 5)*. San Juan, PR: Author. Retrieved from [https://www.cdbg-dr.pr.gov/en/download/action-plan-amendment-5-substantial-amendment/?ind=1599767012369&filename=Action%20Plan%20Amendment%205\\_Substantial\\_EN%20\(DRAFT%20FOR%20PUBLIC%20COMMENT\)\\_pdf&wpdmdl=13941&refresh=5f70fd493012e1601240393](https://www.cdbg-dr.pr.gov/en/download/action-plan-amendment-5-substantial-amendment/?ind=1599767012369&filename=Action%20Plan%20Amendment%205_Substantial_EN%20(DRAFT%20FOR%20PUBLIC%20COMMENT)_pdf&wpdmdl=13941&refresh=5f70fd493012e1601240393)
- Ramsey, K. (2012). *Residential construction trends in America's metropolitan regions*. Washington, DC: Office of Sustainable Communities, U.S. Environmental Protection Agency.
- RAND Corporation. (2018). *Transformation and innovation in the wake of devastation*. Retrieved from <http://www.p3.pr.gov/assets/pr-draft-recovery-plan-for-comment-july-9-2018.pdf>
- Reyes, L. C. (2007). La tarea inconclusa: Pobreza y desigualdad social en el siglo XXI. *Revista de Ciencias Sociales*, 17 (January), 78–117.
- Saadian, S., Patton, N., Gordon, A., & Rammler, D. (2020). *Fixing America's broken disaster housing recovery system, part two: Policy framework reform recommendations*. Washington, DC: Disaster Housing Recovery Coalition of the National Low Income Housing Coalition. Retrieved from [https://nlihc.org/sites/default/files/Fixing-Americas-Broken-Disaster-Housing-Recovery-System\\_P2.pdf](https://nlihc.org/sites/default/files/Fixing-Americas-Broken-Disaster-Housing-Recovery-System_P2.pdf)
- Santos-Rivera, C. (2020). *Role of linking capital towards housing recovery outcomes in Puerto Rico: Hurricanes aftermath 2017* [Unpublished school report for class]. Iowa State University.
- Scism, L., & Friedman, N. (2017). Hurricane Maria exposes a common problem for Puerto Rico homeowners: No insurance. *Wall Street Journal*, September 20, sec. Markets. Retrieved from <https://www.wsj.com/articles/hurricane-maria-exposes-a-common-problem-for-puerto-rico-homeowners-no-insurance-1505940660>
- Siagian, T. H., Purhadi, P., Suhartono, S., & Ritonga, H. (2014). Social vulnerability to natural hazards in Indonesia: Driving factors and policy implications. *Natural Hazards*, 70(2), 1603–1617.
- Singer, J. B., Domingo, D., Heinonen, A., Hermida, A., Paulussen, S., Quandt, T., ... Vujnovic, M. (2011). *Participatory journalism: Guarding open gates at online newspapers*. Hoboken, NJ: John Wiley & Sons.
- Snyder, M. (2009, February 7). *Critics target FEMA's post-ike contract inspectors*. *Houston Chronicle*. Retrieved from <https://www.chron.com/news/houston-texas/article/Critics-target-FEMA-s-post-ike-contract-1749133.php>
- Talbot, J., Poleacovschi, C., Hamideh, S., & Santos-Rivera, C. (2020). Informality in postdisaster reconstruction: The role of social capital in reconstruction management in Post-Hurricane Maria Puerto Rico. *Journal of Management in Engineering*, 36(6), 04020074.

- Timmons, P. (2017). *Disaster preparedness and response: The special needs of older Americans*. Washington, DC: Portlight Inclusive Disaster Strategies, Inc. Retrieved from [https://www.aging.senate.gov/imo/media/doc/SCA\\_Timmons\\_09\\_20\\_17.pdf](https://www.aging.senate.gov/imo/media/doc/SCA_Timmons_09_20_17.pdf)
- U.S. Census Bureau. (2017). *ACS demographic and housing estimates, 2013-2017 American Community Survey 5-year estimates, Table DP05*. Retrieved from <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml#none>
- U.S. Census Bureau. (2019). *U.S. Census Bureau quickfacts: Puerto Rico*. Retrieved from <https://www.census.gov/quickfacts/PR>
- U.S. Department of Housing and Urban Development. (2018). *HUD archives: HUD and Puerto Rico Ink \$1.5 billion disaster recovery grant agreement H*. Retrieved from <https://archives.hud.gov/news/2018/pr18-104.cfm>
- Viglucci, A. (2018). Half of Puerto Rico's housing was built illegally: Then came Hurricane Maria. *Miami Herald*, February 14. Retrieved from <https://www.miamiherald.com/news/nation-world/world/americas/article199948699.html>
- Vinik, D. (2018). 'People just give up': Low-income hurricane victims slam federal relief programs. *Politico*. Retrieved from <https://www.politico.com/story/2018/05/29/houston-hurricane-harvey-fema-597912>
- Wernau, A. S., & Julie. (2018). Rising costs feared to crimp Puerto Rico's building boom. *Wall Street Journal*, November 6, sec. U.S. Retrieved from <https://www.wsj.com/articles/rising-costs-feared-to-crimp-puerto-ricos-building-boom-1541500202>
- Williams, D. (2006). Sheltering deprivations: FEMA, Section 408 housing, and procedural redesign comment. *Yale Law Journal*, 116(8), 1883–1894.
- Willie, D. (2018). *Worst hurricanes on record in order of wind strength*. Retrieved from <https://www.nationalgeographic.com/environment/2018/10/strongest-hurricanes-in-history/>
- World Bank. (2017). *Doing business*. Text/HTML. Author. Retrieved from <https://www.doingbusiness.org/en/reports/global-reports/doing-business-2017>
- Xiao, Y., Wu, K., Finn, D., & Chandrasekhar, D. (2018, October). Community businesses as social units in post-disaster recovery. *Journal of Planning Education and Research*, 0739456X18804328. doi:10.1177/0739456X18804328