

**Mitigating the Impacts of a Natural Disaster**  
**Incorporating Vulnerable Populations in the Risk Communications Planning**  
**Process**  
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**Abstract**

The purpose of this research essay is to discuss the methods in which emergency management organizations can improve their understanding of vulnerable populations during a natural disaster. Hurricane Maria stood out as one of the most impactful case studies in regard to risk communication and risk management with vulnerable populations. For instance, local officials and governments found themselves unprepared for the natural disaster (Acevedo & Amiri, 2018, para. 4). In reviewing this case study, key recommendations were highlighted to support my argument that vulnerable populations require specialized care and communication throughout a natural disaster.

Natural disasters have become a prevalent issue affecting many countries and subsequently many at risk populations. As Farber (2018) has noted “both globally and within the United States, social vulnerability – including inequalities stemming from race, gender, class, age and disability – amplifies the impact of disasters and the difficulty of recovery” (p. 752). Therefore, risk communication planning needs to incorporate the unique needs of a vulnerable population.

### Research Question

How can emergency management organizations best prepare, plan and execute risk communications and risk management for vulnerable populations in the event of a natural disaster?

It has been well established that vulnerable or ‘at risk’ groups are likely to be less prepared for a natural disaster, more susceptible during it, have higher mortality rates, and poorer outcomes in the recovery period. Research consistently shows that factors such as income, ability, gender, cultural diversity and age are core components of significant disaster-related inequity. This complex phenomenon – where existing socio-political arrangements are recreated, exaggerated and actioned in the disaster context – is often masked by perceptions about the ‘naturalness’ of the disaster event. For example, traditional top down arrangements – imbued with assumptions about sharing information and lines of communication – may be difficult to shift in the public sector, causing conflicts between parties who are working in potentially different ways, and with different expectations of each other. Even communities with strong relationships and networks might have hierarchical lines of communication, or there may be pockets of strong networks and areas with fewer connections, so information is distributed inequitably. (Howard, Agllias, Bevis & Blakemore, 2017, p. 140)

The purpose of this research essay is to discuss how emergency management organizations can better plan and execute risk communications with vulnerable populations in a natural disaster. I argue that vulnerable populations, such as those affected by Hurricane Maria in 2017, require specialized engagement and support throughout the planning and response of a natural disaster. In supporting this argument, I critiqued the Federal Emergency Management Agency’s (FEMA) involvement during the 2017 Hurricane Maria natural disaster in Puerto Rico, as a case study example. Secondly, I provided a series of recommendations based on previous research that takes into account the specialized needs of vulnerable populations during a disaster.

Subsequently, vulnerable populations are those with limited English, children, seniors, the homeless, low-income populations, and individuals with physical or mental disabilities (Nsiah-Kumi, 2008, p. 68). Reaching vulnerable populations during an emergency is crucial as they are often overlooked. According to Nick et al. (2009), “Few have integrated the perspective

and experience of local service providers to investigate the needs of these populations and create a unified framework for addressing the challenges involved” (p. 338). Therefore, emergency management organizations need to consider vulnerable populations in the initial planning stages of any risk communication and risk management initiatives.

### **Literature Review**

For the purpose of this literature review, a chronological summary was conducted. In supporting my argument, current academic literature that discusses the effects of natural disasters on vulnerable populations was collected and analyzed. To begin, Eisenman, Cordasco, Asch, Golden, and Glik (2007) discuss the factors that slowed down evacuation efforts during Hurricane Katrina, providing both applicable data and insights into the challenges faced by vulnerable populations during a disaster (p. 109). Eisenman et al. (2007) found that “although almost 45% of the sample reported that they owned or had access to a car, many still did not have money for gas, hotels, or food, which, as estimated by 1 participant, could cost 2 weeks’ pay” (p. 113). Secondly, Nsiah-Kumi (2008) stressed the importance of seeking out and addressing vulnerable populations during a crisis (p. 71). Subsequently, in many disaster situations finding vulnerable populations is challenging, yet necessary.

Thirdly, Nick et al. (2009) discusses the common problems that emerge for vulnerable populations and found that “identified barriers for addressing these issues included difficulty in identifying vulnerable groups; lack of coordination among emergency medical services, public health, CBOs, and community leaders; and lack of emergency planning” (p. 339). Moreover, Howard et al. (2017) found that effective disaster communication is based on shared networks amongst emergency management organizations, the government and the public (p. 139). Lastly,

Farber (2018) articulates effective disaster response as “layered, mutually supporting capabilities of individuals, communities, the private sector, NGOs, and governments at all levels” (p. 749).

### **Critical Analysis of FEMA’s Response to Hurricane Maria**

For the purpose of this essay, I chose to analyze FEMA’s risk communications response during Hurricane Maria. Federal Emergency Management Agency is entrusted with handling disaster response on behalf of the United States. Its role is governed by the *Post-Katrina Emergency Management Reform Act of 2006* and it is responsible for directing the federal government’s agencies while supporting the emergency response efforts of local governments and states (Farber, 2018, p. 748). This case study was chosen as it exemplifies what happens when emergency management organizations fail to consider vulnerable populations during a disaster.

Hurricane Maria hit Puerto Rico in September 2017 and was considered a Category Four storm (Willingham, 2017, Hurricane Maria, para. 1). When Hurricane Maria reached Puerto Rico a large portion of the population was left vulnerable and in need of immediate care. As Acevedo and Amiri (2018) have reported “more than 21 percent of the Puerto Rican population has a disability, a rate higher than any of the 50 states” (para. 7). In this case study, vulnerable populations were hit the hardest due to a slow risk response from FEMA. Specifically, FEMA’s initial plan ignored Puerto Rico’s socio-economic environment and the limitations of local responders (Farber, 2018, p. 766). Namely, the disaster response was hindered by a lack of networking and communication between FEMA and several nongovernmental organizations. For instance, Defensoria de las Personas con Inmedimentos (DPI) Executive Director Janet Collazo, explained that “DPI and other disability rights organizations in the island have lacked crucial information such as comprehensive lists on disabled individuals, information that is usually

available to federal agencies like FEMA through census information or through aid requests” (as cited in Acevedo & Amiri, 2018, para. 16). Ultimately, the devastation caused by the hurricane was intensified by a lack of information and planning in regards to an already vulnerable population.

Moreover, there was a disproportionate amount of media support and resources for Hurricane Maria in comparison to Hurricane Irma and Harvey. It should be noted that there was less media attention for Hurricane Maria. According to Farber (2018), “Hurricane Maria received only a third as many mentions in the media compared to Harvey and Irma – about 6,000 as opposed to over 17,000 and 19,000 respectively, in the two-week period straddling each storm” (p. 767). Similarly, President Donald Trump’s lack of support on social media reflected poorly on FEMA (Farber, 2018, p. 768). Pittman (2011) argues that the media play an important role in disseminating information during an emergency (“Increasing Preparedness,” para. 4). For this reason, FEMA didn’t utilize the media effectively in regards to risk communication. Lastly, there is a clear bias in FEMA’s risk response based on Farber’s (2018) comparison of the resources dispersed for Hurricane Maria and Hurricane Harvey (see Table 1 below).

**Table 1: Comparison of Texas and Puerto Rico Hurricane Responses (Farber, 2018, p. 760)**

<b>Government Action</b>	<b>Hurricane Harvey (Texas)</b>	<b>Hurricane Maria (Puerto Rico)</b>
Helicopter deployment	73 helicopters within a week.	70+ helicopters after 3 weeks.
Immediate FEMA funding (9 days post-storm)	\$141.8 million	\$6.2 million
Meals delivered in first 9 days	5.1 million	1.6 million
Personnel deployed after first 9 days	30,000	10,000
FEMA payments approved in first nine days <sup>107</sup>	\$142 million	\$6 million
Time after storm to approve permanent disaster work	10 days	43 days

Ultimately, FEMA’s risk communication and risk management failed due to a slow disaster response, a lack of empathy from the U.S. President during a time of crisis, and a deficiency in networking with Puerto Rico’s state government and local NGO’s.

**Key Recommendations**

In preparing for a natural disaster, emergency management organizations should be cognisant of vulnerable populations and how an emergency might affect their ability to evacuate and survive. As exemplified in the 2017 Hurricane Maria case study example, effective risk communication should take into account at risk populations when planning for a natural disaster.

As Eisenman et al. (2007) have noted “policies must additionally address the important influence of extended families and social networks through better community-based communication and preparation strategies” (p. 114). Secondly, engagement with vulnerable populations should begin early. For instance, Pittman (2011) recommends connecting and establishing relationships with organizations that are already in contact with vulnerable groups (para. 7). Thus, FEMA should have improved its initial correspondence and established necessary relationships with local responders and NGO’s in Puerto Rico ahead of Hurricane Maria.

Additionally, local NGO’s and those living in poverty need resources and realistic risk communications planning when faced with a natural disaster. Nsiah-Kumi (2008) has noted that “in order to provide information and care that is useful to the majority of the population, it is important to recommend low cost alternatives where they are available” (p. 69). In the same manner, FEMA experienced issues in evacuating vulnerable populations during Hurricane Katrina. Approximately 100,000 people did not have the resources needed to evacuate New Orleans before Hurricane Katrina hit (Eisenman et al., 2007, p. 109). Thus, many vulnerable populations need the proper resources in order to evacuate during a disaster. Eisenman et al. (2007) have pointed out that “emergency food and gas vouchers that are activated when an evacuation is announced could be provided to eligible families” (p. 114). Ultimately, at risk populations require the proper funding, resources and support in an emergency.

Moreover, emergency management organizations should take into account the media’s tone and influence in sharing information during a natural disaster. For example, after Hurricane Maria, President Donald Trump publically fought over the response efforts with the mayor of San Juan (Farber, 2018, p. 768). The President’s response and consequently, FEMA’s overall response lacked timeliness and sincerity. Eisenman et al. (2007) has noted that “effective crisis

messages are consistent, timely, actionable, and empathetic to the manifold and complex situations in which families may find themselves” (p. 114). Thus, the appropriate tone for a leader during a natural disaster, such as Hurricane Maria, should be responsive and compassionate.

### **Conclusion**

In planning for a natural disaster, emergency management organizations can use Hurricane Maria as a past case study of what can happen when risk communications and risk management fail. Based on the slow response by FEMA during Hurricane Maria, it can be said that vulnerable populations require specialized engagement early on and resources throughout the duration of an emergency. As Pittman (2011) has noted, “officials must think about the vulnerable populations – the disabled, very young, elderly, homeless and people who speak limited or no English” (para. 4). To conclude, preparing for a natural disaster includes preparing and communicating with vulnerable populations throughout the natural disaster. As demonstrated in the work of Pittman (2011) key considerations during a disaster should include connecting with local NGOs early on and keeping all contact information updated (para. 8). Lastly, Eisenman et al. (2007) notes the importance of providing clear updates on key information while staying empathetic to the weaknesses of a vulnerable population (p. 114).

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