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Hurricane Maria Exposes Puerto Rico's Stark Environmental and Health Inequalities

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As Puerto Rico faces hurricane-induced devastation, the “Just Environments” series publishes an essay by Alexa Dietrich, Adriana María Garriga-López, and Claudia Sofía Garriga-López situating the current catastrophe within a broader historical context. Viewing it as an unnatural disaster, the authors point to a confluence of postcolonial industrialization, lax environmental regulation, and the privatization of utilities, which have all contributed to the island’s deteriorating infrastructure. Moving forward, they advocate for sustainable economic development and reliable public services as means of strengthening already-existing resilient and adaptive capacities.

Prior to the devastation of Hurricanes Irma and Maria, when U.S. news outlets reported on Puerto Rico it was usually through decontextualized snapshots about the dangers posed to the U.S. mainland by potential public health threats, an ongoing economic crisis, and massive migration. While the situation for residents of Puerto Rico is surely dire for many reasons, the state of affairs that emerged after the hurricanes cannot be seen as an isolated event. The effects of cycles of crisis brought on by colonial domination is well documented in historical and ethnographic texts, as well as the resilience of diverse groups of Puerto Ricans in terms of their ability to manage what often seems to be an ever-shifting kaleidoscope of indignities. Understanding the cumulative impact of Hurricanes Irma and Maria requires that we view these catastrophic weather events within the broader context of Puerto Rico’s political status and economy.

A deteriorating infrastructure and damaged environment

Puerto Rico has withstood drastic pressure on its natural environment over more than 500 years of colonialism. The extractivism, monoculture, and poor waste management characteristic of both Spanish and North American colonial economies has destabilized the ecosystem, and the annexation of the island by the United States in 1898 has only accelerated the degradation. Exacerbating these inequalities, the Merchant Marine Act of 1920 (commonly referred to as the Jones Act) places restrictions on shipping to and from the island, hindering its economic growth and leading to higher food and fuel prices. Industrialization brought polluting and resource-hungry industries, such as pharmaceutical and agricultural chemical producers, that have seriously compromised air and water quality. There is a long history of uneven environmental regulation enforcement, and the local Environmental Quality Board (EQB) has repeatedly sought waivers of enforcement protocols.

The excuses given for these waivers argue that Puerto Rico is a unique natural environment that doesn't fit existing protocols; that government agencies must always harmonize environmental protection with economic need; and that it can't afford to alienate industry. Regardless of the justifications offered, regulations meant to protect people's health and well-being are all too often overlooked in favor of corporate interests. The result has been extensive and ongoing pollution of air, land, and water. Likewise, aggressive construction along the coast threatens or eliminates coastal ecosystems that could protect the island from tropical storms and hurricanes. Like many delicate ecosystems historically inhabited by socially vulnerable communities, Puerto Rico is increasingly threatened by what can only be called very unnatural disasters.

The "unnatural" aspect of these climate disasters is reflected in Puerto Rican journalist Carla Minet's lament, in advance of Hurricane Irma's arrival, that although Puerto Rico was preparing for the storm, in reality the roughly 3.5 million residents of the island "couldn't possibly be" ready. Both electrical and water infrastructure have been in serious decline in recent years due to a lack of funding to cover the cost of maintenance. This has led to increasingly regular power failures, significant increases in water pollution, and a long-term lack of adequate safety monitoring. The U.S. Geological Survey (USGS) abandoned 177 hydrologic stations in July in a bid to force the local government to pay the 2 million dollars it is owed. Since then, water testing has not been conducted at these stations and the flood warning system is seriously compromised. Speaking with Fox News, Rafael Rodriguez, director of the USGS Caribbean-Florida Water Science Center, described how the pressure tactics used by the USGS to collect on this debt have led to the water quality network being "eliminated in its entirety," resulting in a lack of systematic regulation. Hurricane Irma and Hurricane Maria made these infrastructural vulnerabilities tangible and immediate for those on the island and in the diaspora.

Floods and other disasters produce a weakening of the overall infrastructure, including roadways and the electrical grid, which was already under both extreme duress and the impending threat of privatization. Water pumping stations in Puerto Rico depend on electricity, so if the power goes out, so does the water. An estimated 44 percent of Puerto Ricans currently have little access to clean water. Some rural communities are more resilient, as they are accustomed to living without running water or have direct access to springs and rivers, though these sources may be significantly compromised. Given the voluminous flooding in Puerto Rico, the water table is at risk of being overtaken with bacterial or other pollution, as it was in Houston following

Hurricane Harvey. Puerto Rico is also home to several dozen toxic sites at risk of catastrophic flooding. Wastewater and water treatment plants are overburdened and ill-maintained, and have largely been rendered inoperative in the aftermath of Hurricane María. The potential breach of the Guajataca Dam would displace up to 70,000 people, and there are unstable bridges, extreme flooding, and increasing contamination of waterways all over the island. These conditions have led many to conclude that Puerto Ricans escaping the current chaos in Puerto Rico should be considered climate refugees.

Compounding the destructive effects of flooding on water systems is the potential for recurring drought and the reality that Puerto Rico imports more than 80 percent of its food supply. In the event of another massive hurricane, it is foreseeable that the food supply could run out. Reports of severe food and water shortages on St. Martin and Barbuda following Hurricane Irma support the conclusion that the chain of supply for Puerto Rico and other islands is highly vulnerable. Widespread scarcity of food and water in Puerto Rico became evident only days after Hurricane Maria, as nursing homes and shelters started getting the word out that they were dangerously low on supplies. While ample food supplies arrived in local ports only days after Hurricane Maria, people who lost their homes are suffering from hunger and dehydration, hospitals are turning people away, and the weakest among the sick and elderly are dying as distribution falters.

Institutions and the economic crisis

Management of public utilities and infrastructure in Puerto Rico has been fraught with operational and financial problems. In recent decades, the local government has looked to privatization schemes to stabilize public utilities, particularly water and electricity. Two separate attempts to manage the water system through private companies failed outright to correct systemic problems in wastewater management. Drinking water is also polluted, water-intensive industrialization has contaminated aquifers with solvents such as tetrachloroethylene and trichloroethylene. Of the 18 National Priorities List (Superfund) sites in Puerto Rico, half are groundwater or well contamination sites.

Even before Hurricane Irma hit, the union representing electrical workers (UTIER) raised strong concerns that the power company was “purposely not performing proper maintenance of electrical lines” in an attempt to increase the appearance of system weakness and build public support for privatization. UTIER also decried the overstated estimates provided by the government for repair of the electrical system immediately after Irma, which ranged from four to six months. Due to previous privatization calamities, the proposed policy is unpopular, but there is a high probability that the crises created by Irma and Maria will be used to put pressure on public opinion to accept privatization. If that policy is enacted it would likely make access to basic utilities worse, not better, as privatization schemes in these sectors tend to fail consumers due to the conflict between making profits and reliable delivery of affordable service.

No less urgent is the dumping of toxic coal ash in the town of Peñuelas by AES, a subcontractor for the island’s electric company, Puerto Rico Electric Power Authority (PREPA). Before the hurricane season, columns of trucks laden with ash waste from its energy plant in the town of Guayama barreled through roads lined with police escorts every few days. Peñuelas residents say that wind disperses ashes from the dump site, which are blown into people’s homes, causing skin, eyes, nose, throat, and lung irritations, as well as cancer and other diseases, prompting

tenacious protests and claims of poisoning. As further evidence to support their claims, activists point to the results of the company's previous dumping in the Dominican Republic, where residents won a lawsuit that led to the company's expulsion from the site. During Hurricanes Irma and Maria, AES refused to cover approximately 120,000 tons of material at its plant in Guayama, which was thrashed by Hurricane Maria. For this, AES was fined and declared noncompliant with the Puerto Rican EQB. A recent protest at the Capitol building in San Juan featured activists from the group Promises Are Over (Se Acabaron Las Promesas) clad in protective suits, gloves, and face masks depositing Agremax on the steps of the Capitol building and carrying a banner that read, "The only ashes we want are those of the fiscal control board" in reference to the financial oversight committee established by the 2016 PROMESA legislation, which was promulgated to ensure that Puerto Rico repays its debts.

Additionally, the disconnection of the island municipalities of Vieques and Culebra from supplies following the hurricanes is a serious concern. The departure in 2003 of the U.S. Navy was supposed to create opportunities for environmental redress, economic development, and further integration into the broader Puerto Rican economy. Yet, in reality, the structural vulnerability of residents on those small islands has increased, given the lack of adequate remediation and investment in public infrastructure. Cutbacks in transportation and reductions in public services had already exacerbated these problems before the hurricanes. Unable to communicate with the main island of Puerto Rico, with collapsed docks, battered airports, and very little fresh water, the full scope of the disaster on Culebra and Vieques remains unclear.

What's next?

In spite of the island-wide loss of electricity, many observers noted that Hurricane Irma caused only moderate damage to Puerto Rico. However, Hurricane Maria proved these effects could easily be compounded. Some of the most vulnerable people remained without electricity and water at the time of Maria's landfall, and the entire island continues in a state of extreme precarity. The just and sustainable recovery of Puerto Rico must be an extremely high priority, not only for Puerto Ricans, but for the region as a whole.

Soon after Hurricane Irma devastated the Virgin Islands and Barbuda, reports emerged of Puerto Ricans with access to sea worthy vessels sailing to the Virgin Islands and Barbuda to deliver water and food and to transport hurricane victims to Puerto Rico. It is highly probable that in the future Puerto Rico could find itself in a similar situation to the island of Lesbos, Greece — simultaneously in the middle of a deep socioeconomic crisis, as well as the port of arrival for (climate) refugees. Puerto Rico will probably continue to be a critical staging ground for disaster relief efforts in the eastern Caribbean in the coming years.

A more realistic and humane policy approach to the circum-Caribbean region is needed; one that accounts for the unique challenges posed by the region's history of political, economic, social, and environmental exploitation. Researchers must help craft solutions that build on community strengths and experiences of survival in the face of crisis. Recent news interviews that feature disaster-response professionals demonstrate just how out of touch many such experts are with vulnerable communities, referring to "neighbors helping neighbors" as a "cutting-edge idea" that relief agencies should do more to harness. Their surprised discovery of this concept is condescending, and facilitates an attention shift away from the larger scale issues. In reality,

neighbors do not need help knowing how to help their neighbors, nor do they ever simply cross their arms and wait for assistance — ethnographic research on Katrina, Sandy, and many other disasters has shown local help is often the most effective and the most readily available. What vulnerable communities need is an infrastructure of sustainable economic development and reliable everyday public services so their existing adaptive capacities can be strengthened and supported.

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