

Austerity and Water Quality in Puerto Rico

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Although the CDC determined that the United States has one of the best and safest supplies of drinking water, this is not the case for the country's colonies. The maintenance of the United States' imperialist agenda has left its colonies struggling to access quality water. My STS research will focus on how the United States and its austerity measures taken in Puerto Rico have led to inadequate water supply in the archipelago, and how Puerto Ricans have been opposing this austerity. The hydropolitics and social movements and mobilized publics frameworks will be employed throughout this research. Hydropolitics is the politics of water and allocating water resources within a society. Hydropolitics employed as a framework will not only help navigate water conflicts and understand the interactions of actors in water conflicts, but also examine the power relations and complexities involved in water issues (Bréthaut et al., 2021) Social movements and mobilized publics as a framework examines social movements, why they occur, how they develop, and the political, social, and cultural implications of such movements (Sen & Avci, 2016). This framework would allow for the exploration of how social movements in Puerto Rico developed to counteract the austerity measures that are discussed through hydropolitics.

Operation Bootstrap, U.S. Military, and the Environment

The United States has historically seen Puerto Rico as economically valuable. The U.S. viewed the archipelago as an outlet for excess manufactured goods and as a naval station in the Caribbean (Brás, 2011). This interest led to the U.S. invasion and subsequent colonization of Puerto Rico in 1898 during the Spanish-American War.

During the early years of the U.S. occupation of Puerto Rico, the archipelago's economy was mainly focused in agriculture. However, in the mid-1940s under Governor Luis Muñoz Marín, through what is known as "Operation Bootstrap," Puerto Rico's economy shifted to favor industrialization and manufacturing (Ayala, 1996). This industrialization of the Puerto Rican economy favored U.S. interests and its imperialist agenda as it allowed for federal tax exemptions in Puerto Rico for outside investors and the creation of an exclusively U.S. market (Morales, 2019). The U.S. began to develop infrastructure such as roads and ports that inevitably led to increased profits for the U.S. based corporations while diminishing the living conditions in Puerto Rico (Epting, 2015). As U.S. based corporations took over both Puerto Rican land and the economy while raking in profits, Puerto Ricans were left landless and unemployed. Modernization coupled with the U.S. demanding resource colonization brought about environmental problems, such as air and water pollution, and the commodification of the archipelago's water and waterscapes (Anazagasty-Rodríguez, 2021).

Along with modernization came U.S. military occupation of Puerto Rican land. Not long after their invasion, the U.S. took control over the archipelago's resources and the military took control over the local police force. By 1941, the US Navy initiated its operations in the Puerto Rican island of Vieques (Epting, 2015). The Navy first started taking over land in Vieques by purchasing sugar plantations, and eventually converted two-thirds of Vieques into an extension of the Roosevelt Roads Naval Station, and accordingly forcefully evicted civilians who resided in the area to expand military training space (Partida, n.d.). As Baruffi (2002) notes, the private properties of locals in Vieques were "seized on the grounds of eminent domain and they were compensated minimally for their losses. In all, the Navy confiscated 21,100 acres at a price of \$1,041,500 – an average of about \$50 per acre". During its occupation of Vieques, the Navy

conducted live training exercises, air-to-ground bomb testing, among other military exercises. Puerto Ricans opposed the Navy's involvement in the island and often protested its operations on the east side of Vieques until it left the island in 2003. Protests emerged in Vieques in the 1970s led mainly by fishermen. The Vieques Fishermen's Association (VFA) led the opposition to the Navy's occupation in Vieques. VFA organizers were threatened by the Navy's occupation as they relied on fishing as their livelihood and the military occupation threatened marine life in the waters surrounding the island (Schils, 2011b). The VFA struggle against the Navy focused mainly on economic concerns rather than connecting to broader anticolonial concerns and support for independence (McCaffrey, 2006). Larger protests against the Navy later emerged again in the 1990s. Residents during this time were more concerned about chemical waste, environmental damage from bombings, polluted water, and rates of cancer. Organizations like the Alianza de Mujeres Viequenses (Vieques Women's Alliance, AMV) and Comité pro Rescate y Desarrollo de Vieques (Committee for the Rescue and Development of Vieques, CPRDV) resisted the military involvement on the island (Schils, 2011a). This period of civil unrest also exhibited a connection to anticolonial struggles and support for independence as organizations created alliances with international communities fighting against imperialism. Organizers also spoke in front of the United Nations Special Committee on Decolonization (Schils, 2011a). The resurgence of protests led to the eventual halt of military exercises in 2003 under President Bush.

During the Navy's occupation, O'Rourke (2003) documented some of the issues Puerto Ricans had concerning the military in Vieques:

Puerto Rican dissatisfaction regarding military training activities on Vieques is driven by several issues: (1) lost economic development potential due to lack of access to most of the island's land, interruptions to local fishing operations, and the effect of

DoN's [Department of the Navy] activities on reducing the potential for developing the island as a tourist destination; (2) the inadequacy of past DoN economic development efforts intended to compensate the Vieques community for this economic loss; (3) damage to the island's environment, ecology, natural resources, historic resources, and archaeological sites caused by DoN training activities; (4) concern that the incidence of cancer or other diseases might be increased by pollutants released into the local environment by DoN training operations; (5) noise, especially from nearby shipto-shore gunfire; (6) safety (the risk of an off-range accident), and (7) perceived DoN insensitivity in conducting its relations with the Vieques community.

O'Rourke's report highlights the environmental concerns that developed from the U.S. Navy's occupation of Vieques, specifically regarding damages to the island's natural resources and health issues resulting from said damages. This comes with no surprise given the Department of Defense (DOD) has been known to be the "largest polluter in the United States... [and] many current and former DOD ranges sit atop or near sources of drinking water, residential neighborhoods, and hunting and fishing grounds" (Baver, 2006). While the DOD is known to be a major polluter in the U.S., it is important to highlight the unique conditions of the Navy's involvement in Vieques. Although the Navy claimed that military facilities in the United States were similar to the Vieques range, Vieques faced more intense military action in terms of the intensity of shelling, population density, narrow buffer zones between civilian and military areas, and lack of economic ties between the military base and local population (Baver, 2006). Furthermore, the Navy not only dropped bombs and missiles in Vieques, they also dropped depleted uranium bullets, napalm and Agent Orange. The remnants of these weapons remain a threat for further contamination and specifically jeopardize the health of anyone fishing or diving

in waters around the former military sites (Baver, 2006). This heightened military activity in Vieques led to high concentrations of explosives contaminating local drinking water in the island (Cruz Pérez, 1988). The EPA (n.d.) even noted contaminants from military involvement in Puerto Rico may include mercury, lead, copper, magnesium, lithium, perchlorate, TNT, napalm, depleted uranium, PCBs, solvents, and pesticides when proposing the military training site become a Superfund site. Along with this, between 1988 and 1993, concerns grew about the frequency of certain types of cancer in Vieques (Baver, 2006). Cancer is only one of the plethora of health issues that resulted from the Navy's involvement in Vieques. Health issues include increased mortality rates, underweight infants, and respiratory issues (Epting, 2015). Because of contamination created by the military, Vieques relies on groundwater from El Yunque, a rainforest located on the mainland in Puerto Rico; however, as the population increases in Vieques, piping this groundwater will prove to be an inadequate solution to providing potable water to Puerto Ricans in Vieques (Baver, 2006). The case of Vieques demonstrates how U.S. imperialism impacts water quality. In using Vieques as a military base to test weapons, the Navy left the island of Vieques and its people in environmental devastation and lacking clean water.

Pharmaceutical Industries, and the Environment

The U.S. Navy's involvement in Vieques is a model of conventional imperial tactics of military occupation that resulted in environmental devastation and poor water quality. Operation Bootstrap exemplified how imperialism can also come through the free market as tax incentives attracted pharmaceutical companies to Puerto Rico. These tax incentives allowed for pharmaceutical companies to harness the necessary political protections to commodify and

exploit Puerto Rico's natural resources. Furthermore, as Dietrich explains, tax incentives weren't the only thing bringing these companies to the archipelago. Puerto Rico was shown to be rich in untouched aquifers of high-quality water that is necessary for pharmaceutical chemical processing (Dietrich, 2013). By 2000, pharmaceutical and other related chemical manufacturing processes accounted for 7.38 million gallons per day of self-supplied groundwater withdrawals (Dietrich, 2013). While industries exploited Puerto Rico's groundwater, water for human consumption was not prioritized. The town of Barceloneta exemplifies how water was prioritized for these pharmaceutical factories as drug companies accounted for the largest percentage of the withdrawal at 37 percent, and companies were permitted to drill their own wells and extract millions of gallons, daily, cost-free (Galarza, 2015). It is clear that pharmaceutical companies' involvement in the archipelago results in the depletion of water that could be used by locals.

In focusing on Nacorá, Dietrich explains how the area closest to pharmaceutical factories has faced severe water, ground, and air contamination. More specifically, water contamination has been significant however it is harder to quantify, but these pharmaceutical companies have sent their liquid wastes including hazardous chemicals to be processed at the local treatment plant that was not equipped with the technology to handle such waste (Dietrich, 2013). It is also important to note that many of Puerto Rico's Superfund sites are former pharmaceutical facilities, one notable site being the Upjohn Company pharmaceutical facility. In 1982, this facility leaked "approximately 15,300 gallons of waste material, including carbon tetrachloride and acetonitrile, leaked from an underground tank, directly above the North Coast aquifer, which supplied drinking water to 12,000 people at the time" (Galarza, 2015). Galarza notes that it wasn't until 1995 that new infrastructure providing clean water to the region was constructed. These examples regarding pharmaceutical facilities in Puerto Rico show how these companies

have exploited Puerto Rico's water supply and left many islanders with contaminated water supplies for long periods of time. It is important to recall that this environmental destruction was facilitated through U.S. involvement in Puerto Rico. The U.S. meddled with Puerto Rico's economy and created the conditions that allowed for outside pharmaceutical companies to create such environmental contamination that left Puerto Ricans without clean water. Therefore, the history of pharmaceutical companies is important in demonstrating how U.S. imperialism and colonization in Puerto Rico has devastated the archipelago's water supply.

Debt, Hurricane Maria, and Water

As mentioned in the previous section, in the 1940s, Operation Bootstrap industrialized Puerto Rico's economy. Under Governor Luis Muñoz Marín, the shift of the economy created a "bonanza for U.S. corporations, but little was reinvested locally to ensure the island's stability and growth"(Morales, 2019). Furthermore, as Morales explains, Operation Bootstrap effectively eliminated jobs and land for rural residents, who were tied to it through wage labor and subsistence farming. This led to increased unemployment and a wave of migration to the U.S. Along with this, the shift of the economy created an overdependence on external investment, but rising wages for workers caused U.S. companies to abandon Puerto Rico, contributing to the high unemployment rates (Morales, 2019). The IRS tax code that provided tax breaks to the U.S.-based corporations operating in Puerto Rico was removed gradually between 1996 to 2006. During this period, more outside companies left the island and the Puerto Rican government had borrowed increasingly more money from questionable Wall Street municipal bond market spectators to cover essential services and eventually accumulated a debt of \$72 billion. The

accumulation of this debt is important in understanding how the U.S. furthers austerity in Puerto Rico.

In 2015, Governor Alejandro García Padilla declared Puerto Rico's debts unpayable and urged the U.S. Congress to pass the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA). PROMESA was passed under President Barack Obama in 2016 and is arguably one of the most notable austerity measures imposed upon Puerto Rico. PROMESA allowed for Puerto Rico to enter into a bankruptcy process and, in turn, established the Fiscal Oversight Management Board (FOMB), colloquially known as La Junta. La Junta is an unelected board that controls Puerto Rico's budgetary proposals and expenditure allocations. It was intended to "cut back on expenses and impose on [Puerto Rico] a sense of shared sacrifice" (Morales, 2019). However, La Junta is one of the most evident forms of austerity in Puerto Rico. This unelected board has only brought more struggle to the people of Puerto Rico in the form of cuts to education and pensions. This is exemplified by La Junta's most recent Plan of Adjustment for the debt that will focus on paying off shareholders while worsening living conditions on the island – especially the conditions for the Puerto Rican working class (Paseo Podcast, 2021). The control board's focus on paying off the debt has led to less money and resources being used for ensuring clean water is being dispersed adequately throughout the archipelago (Lloréns & Stanchich, 2019). Furthermore, the board pushes for privatization of Puerto Rico's Aqueduct and Sewer Authority (PRASA), a currently public corporation, due to the fiscal crisis devastating the archipelago (Anazagasty-Rodríguez, 2021). As Anazagasty-Rodríguez (2021) explains, this push for privatization represents a form of dispossession of natural resources from the Puerto Rican people and the only way to protect the people's right to clean and safe water is to "keeping

the flows of water from quenching the all-consuming and monopolizing corporate thirst through privatization”.

Although La Junta’s formation has exacerbated the environmental issues in Puerto Rico, the archipelago has faced issues regarding the water quality due to a lack of action on the part of the local and federal governments prior to the board’s formation. Lloréns and Stanchich provide a list of some of the water issues Puerto Rico faces:

1. water treatment problems that have polluted beaches and led to ocean contamination;
2. neighborhoods plagued by flooding and sewage overflow, such as the communities of the Caño Martín Peña, whose land trust has been recognized internationally;
3. mismanaged construction in watersheds and too close to the coast, causing erosion and silt build-ups in reservoirs;
4. struggles over plans to lift protections and construction limits of the karst region on the north coast, with large water reserves that have been tapped to supply the San Juan metro area;
5. local initiatives aimed to conserve water and watersheds, for example, a community movement in Caimito to prevent landfills in watersheds; and
6. a solar powered pump station in Cayey.

Although these points are important, Puerto Rico’s biggest problem is water quality. The shift in economy and industrialization previously mentioned in this paper led to high levels of water contamination, leading to human health issues. Because of this, Puerto Rico has been reported to have the worst rate of drinking water violations of any state or territory in the United States (Natural Resources Defense Council, Inc., 2017). According to the Natural Resources Defense Council (2017), “in 2015, 99.5 percent of Puerto Rico’s population was served by community water systems in violation of the Safe Drinking Water Act, and 69.4 percent of people on the

island were served by water sources that violated SDWA's health standards." Hurricane Maria best reflected and amplified the archipelago's water quality issues and demonstrated class inequalities in the archipelago. One month after the hurricane, roughly one million people that were connected to PRASA were still without access to water. Along with this, 80% of people living in the island's metropolitan area had access to water, whereas only 45% of people living in western rural areas had access to water and 32% of those in northern rural areas had access, illustrating the class inequalities throughout the island (García-López, 2018). Reports also surfaced revealing that 70 days after the hurricane, rural communities had intermittent water service at best (García-López, 2018). Not only were communities lacking access to water, those that could access water faced potential contamination. Due to a lack of operational water treatment plants, about a month after Hurricane Maria, roughly 40% of sewage treatment plants were not functioning, causing an increase in rainwater and sewage discharges that then contaminated the already limited water supply (Leonhardt, 2017). On top of this, a federal monitoring program found that high enterococci levels were detected in the San Juan Bay Estuary. Additionally, beaches and water bodies of the estuary were found to be in noncompliance with water quality standards (García-López, 2018). This led to potential health concerns since in rural areas, where residents were left without access to the PRASA water system, people were bathing, washing clothes, and drinking from these water sources contaminated by sewage (Univision Y Agencias, 2017). People in Dorado were so desperate for water they even drew water from the most dangerous and polluted wells according to the EPA (Univision Y Agencias, 2017). The use of these contaminated water sources eventually led to an outbreak of leptospirosis.

The government's response to Hurricane Maria demonstrates how austerity affected people's access to water in the aftermath. Shortly after Hurricane Maria hit Puerto Rico, it was reported that the government had not taken many of the actions that were outlined in Puerto Rico's Hurricane Disaster Plan (*El gobierno no usó su plan catastrófico*, 2017). On top of that, one month after the disaster, "FEMA had distributed 6.2 million gallons of bottled and bulk water, which equaled only 9% of the island's drinking water requirement per the WHO guidelines" (García-López, 2018). Not only was the amount of water distributed insufficient, months and even years after Hurricane Maria cases of undistributed emergency supplies were found in warehouses in Puerto Rico. Most recently in January of 2020, a warehouse of unused emergency supplies including water and food from Hurricane Maria was found in Ponce, Puerto Rico (Perrett, 2020). Some of these goods, including the bottled water, were expired and therefore could not be distributed to the people when this warehouse was discovered. Had government response been more adequate in the direct aftermath of Hurricane Maria, the people of Ponce would have had access to clean water without the threat of using a contaminated water supply. As García-López (2018) explains, Hurricane Maria had "aggravated the island's existing dire poverty and human rights situation caused by debt and neoliberal austerity measures...there was an obvious unequal treatment in comparison with U.S. states, related to the condition of Puerto Rico as 'second-class' colonial citizens".

Hurricane Maria is not the only example of how austerity has affected water access in Puerto Rico. As climate change progresses, it will only exacerbate the existing water crisis. One of the major crises that was predicted to develop in the archipelago due to climate change is drought. In the summer of 2015, Puerto Ricans faced one of the worst droughts in the island's history. As exemplified during a federal debt crisis hearing that happened during this period,

neoliberal austerity politics limited Puerto Ricans' access to water during this drought as the local government was unable to ship water from the west to customers and small businesses in the northeast due to financial constraints (Lloréns & Stanchich, 2019). Moreover, in 2016, the debt crisis has led the U.S. Geological Survey to stop operating up to 177 hydrologic stations that are responsible for monitoring the island's water quality, aquifer levels, and drinking water supplies (Coto, 2016). This further demonstrates how austerity influences Puerto Rico's water supply.

The debt crisis rooted in the economic change caused by U.S. influence in Puerto Rico has inhibited Puerto Ricans from accessing water even during one of their worst droughts. Being tied to this debt has hindered Puerto Rico from being able to address its water quality issues. This hindrance is only intensified given that La Junta controls Puerto Rico's budget and expenditure allocations thereby restricting financial action that could be taken to address the island's environmental issues. During their public meetings, the fiscal control board has outlined their priorities to maximize impact of federal recovery funding: human capital and welfare reform, K-12 education reform, ease of doing business, power sector reform, infrastructure reform (*Public Meetings*, n.d.). These reforms focus on workforce development, education to prepare the future workforce, and creating methods to attract and improve business on the island. Their priorities show that there is no focus on allocating resources for addressing Puerto Rico's water issues.

The compounded effects of the ongoing debt crisis, colonialism, and austerity has left Puerto Ricans with poor water quality and a lack of access to clean water sources. Forced industrialization from Operation Bootstrap brought about environmental destruction and laid the groundwork for the current debt crisis. Hurricane Maria best exemplified the effects of U.S.

imperialism and austerity on Puerto Rico's water supply as thousands of Puerto Ricans were left with little access to clean water. Austerity brought about from the U.S. imposed fiscal control board only furthers Puerto Rico's water issues by controlling how funding is allocated, not prioritizing environmental issues, and concentrating on paying off bondholders than the living conditions of the Puerto Rican people. These conditions have led Puerto Ricans to mobilize against austerity measures and to protect their environment and their country from the perils of U.S. imperialism.

Resistance and Mobilization

Puerto Ricans have a strong history of mobilizing for environmental justice. Because of the history of intense industrialization, Puerto Ricans were no strangers to pollution and toxic waste. Consequently, Puerto Rico's environmental justice movement has not only focused on conservation, but also heavily focused on contamination of air, water, and soils along with the health effects of pollution (Baver, 2006). During the Navy's operation in Vieques, groups like the Vieques Women's Alliance were formed "to demand an end to the bombing, better health care, epidemiological studies, and environmental studies of water, air, and soil" (Baver, 2006). According to Iberia Pérez González and Natalia Viera Salgado (2021), since the 1990s, "there has been an increase in community-based environmental mobilization rooted in a deep democratic consciousness and a discourse based on socio-environmental justice and sustainability."

Puerto Rico has seen an increase in tourism on the island and foreigners moving there due to Act 60 which enables both Acts 20 and 22. These laws were passed to attract outside

investors to move to Puerto Rico and Puerto Ricans who live in the archipelago cannot benefit from these laws. As Carlos Edill Berríos Polanco (2022) explains,

Act 20 stipulates that any export services campaign that establishes an office on the island can get a four percent corporate tax rate and full tax exemption on dividends...meanwhile [Act 22] offers individuals a full exemption on all local taxes for passive income if they buy residential property, donate at least \$10,000 to a local nonprofit, and live in Puerto Rico for at least 183 days per year to establish residence.

Companies such as InvestPR and Discover Puerto Rico also contribute to the uptick in tourism and outside investments by strategically marketing Puerto Rico as a product for foreign investment, as expressed by InvestPR Chief Executive Officer Rodrick Miller and DiscoverPR Chief Executive Officer Brad Dean during the fiscal control board's 31st public meeting. These outside investments and tourism in Puerto Rico brings concern for environmental activists. In her video regarding Puerto Rico's protected land, journalist Bianca Graulau explains that a portion of karst land in Camuy, PR was for sale and attracted the interest of a luxury development company. According to Gaulau (2021), this karst land is important for Puerto Rico's ecosystem as it allows for water from plants to filter through the soil into the aquifers. If this land were covered with concrete by developers, less water would filter through to the aquifer and the water that does filter through would potentially be contaminated by human activity like pollutants from cars. Graulau interviewed Abel Vale Nieves, the president of Ciudadanos del Karso, an organization that works towards protecting Puerto Rico's karst. Vale Nieves explained that Puerto Rico must prioritize protecting this land to secure water for future generations rather than focusing on developing the land (Bianca Graulau, 2021). Graulau also investigated land being sold in El Yunque. She explained that this land had been bought by someone who moved to Puerto Rico to

benefit from Acts 20/22. Graulau (2021) stated that wealthy people are moving to Puerto Rico to benefit from this tax break and buy land, and that “the people selling the land know that since this land was advertised to people who benefit from the tax breaks”. The land that was sold in El Yunque is important because about 20% of Puerto Ricans depend on and use the water coming from the rainforest. Therefore, there is concern that any development on this land will lead to potential water contamination.

Graulau’s work is reflective of the greater struggle Puerto Ricans are waging to protect their land. Los Almendros Beach in Rincón is one example of Puerto Ricans resisting austerity to protect their environment. Given the construction of a swimming pool for the Playa y Sol condominium, activists in Rincón protested to preserve the area on the beach where hawksbill turtles nest. Activists demanded the construction be stopped and even went as far as destroying the construction fence, but instead of support from government officials, activists faced excessive police force and violence (Ramos Ardila, 2021). The activists in Rincón show Puerto Ricans’ outrage for the ongoing development on the island and their determination for protecting their land. Following in the footsteps of the activists in Rincón, in early 2022, hundreds of Puerto Ricans protested against the privatization of beaches. As Act 20/22 beneficiaries bought up property in Puerto Rico, some have taken over public beaches and designated them as their own private property. After a couple scolded beachgoers in Ocean Park, Puerto Ricans organized a “beach Olympics” to “show that the beaches belong to the people” and to send a message about coastal conservation (Berríos Polanco, 2022b). Although the couple has not been identified, one of the individuals told the beachgoers “buy a million-dollar house, then you can give your opinion here,” so it can be assumed that this person is part of the wealthy class in Puerto Rico or is one of the Acts 20/22 beneficiaries (Berríos Polanco, 2022b). This altercation in Ocean Park

illustrates the ongoing struggle against Acts 20/22 and the fight for protecting public waterscapes in Puerto Rico. Through the mobilizations in both Rincón and Ocean Park, Puerto Ricans have shown that they will not stand for the austerity imposed by the United States. These activists show that they will not stand for environmental destruction and privatization brought about from austerity measures like the Acts 20/22.

Conclusion

The issue of water quality and access in Puerto Rico is a difficult and complex issue. Many of the ongoing struggles regarding water and the environment are rooted in U.S. imperialism and austerity measures. U.S. military activity in Vieques and the development of pharmaceutical companies in Puerto Rico demonstrated different forms of imperialism through military conquest and the free market. These sectors' involvement in the archipelago brought about water contamination that left the people of Puerto Rico suffering. During Hurricane Maria, debt issues and government incompetency led to thousands of Puerto Ricans using contaminated water supplies. Now, austerity measures stemming from the debt crisis and the U.S. imposed fiscal control board have limited the amount of fiscal action being taken to address Puerto Rico's water and environmental crisis. The colonial relation between the U.S. and Puerto Rico has proven to leave Puerto Ricans in a state of turmoil and lacking basic necessities like clean water. Nevertheless, the Puerto Rican people have demonstrated their resilience and continue to fight against austerity for their land.

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