

Chapter Title: Consequences of and Responses to Compounded Vulnerabilities Rooted in Colonialism The Case of Vieques, Puerto Rico

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Book Title: Climate Justice and Public Health

Book Subtitle: Realities, Responses, and Reimaginings for a Better Future

Book Editor(s): Rajini Srikanth, Linda Thompson

Published by: University of Massachusetts Press. (2024)

Stable URL: <https://www.jstor.org/stable/jj.16148239.17>

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Part 4

Acquiring Understanding: Two Case Studies of Long-Term Impacts

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Consequences of and Responses to Compounded Vulnerabilities Rooted in Colonialism

The Case of Vieques, Puerto Rico

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The archipelago of Puerto Rico in the Caribbean consists of the main island (La Isla Grande), Vieques (La Isla Nena), Culebra, and several minor uninhabited keys. The US government has used Puerto Rico, long coveted as a strategic commercial and military outpost, for numerous military training and testing activities (e.g., Agent Orange and napalm in the protected rainforest).¹ Vieques is an island-municipality located approximately six miles southeast of the main island (figure 13.1). From 1941 to 2003, the US Navy and NATO allies used Vieques for target practice with live and inert ammunition and ordnances, storage and processing of supplies, and waste disposal.² Vieques also has elevated risks of chronic disease compared to Puerto Rico's main island, including a higher frequency of cancer; cardiovascular, renal, and neurological diseases; and diabetes, as well as poor infant and maternal health outcomes. Environmental and epidemiological concerns in Vieques are part of a broader socioecological context. Residents continue to be concerned about contaminant exposure and related stress, distrust government assessments, and experience inadequate healthcare access.³ Climate change presents a significant risk to small island communities because of the intersection of climate hazards (e.g., coastal flooding and impacts on infrastructure and agriculture), exposure (e.g., temperature increases and droughts), and vulnerability (e.g., food and water insecurity and minority and low-income

populations).⁴ Among the consequences of climate change is its potential to alter the environmental distribution, cycling, and risks of chemical pollutants.⁵ The result is increased chronic diseases due to elevated temperatures and degraded air quality, high levels of PM_{2.5} particles, greater risk of outbreaks of existing and emerging infectious diseases,⁶ and, in the case of Vieques, enhanced contaminant toxicity stemming from US Navy military practices in addition to new exposure pathways.⁷

In January 2021, our team, which includes a transdisciplinary group of researchers, including Puerto Rican scientists based in Puerto Rico and Massachusetts, and a group of Vieques community leaders, partnered to establish a multiyear collaboration called Vieques, Ambiente, Salud y Acción Comunitaria (Vieques, Environment, Health, and Community Action). Through community meetings, interviews, focus groups, citizen science, and contaminant analysis, this community-based participatory research project aims to understand better the human health and environmental impacts of the US Navy's presence in Vieques.

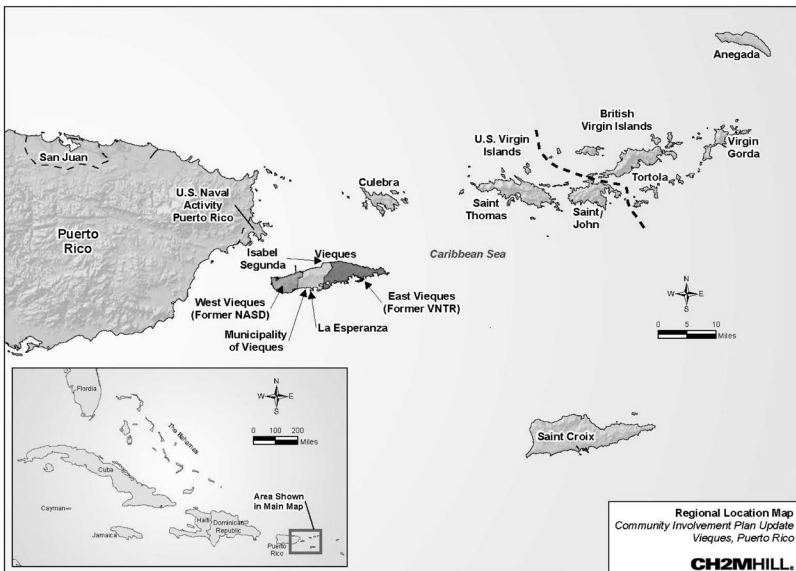


FIGURE 13.1. Regional location map. Source: US NAVFAC, 2015, Community Involvement Plan Update, Vieques, PR, CH2MHILL.

Our purpose in this chapter is threefold. First, using the social determinants of health framework and the concept of cascading disasters, we analyze Vieques' political, military, and socioeconomic history.⁸ Specifically, we address the social and health implications of land expropriation and occupation and environmental exposure after military activities intensified in the 1970s. We emphasize grassroots movements' role and public health's integration into the protests and eventual removal of the US Navy in 2003. Next, we explain critical public health issues in the post-Navy era, including ongoing health concerns, new forms of land displacement, and recent exposure pathways considering extreme climate events. Finally, we describe health, environmental, and social community-based initiatives and provide policy and research recommendations.

Theoretical Frameworks: Social Determinants of Health and Cascading Disasters

The social determinants of health (SDoH) are the nonmedical conditions in which we are born, grow, live, work, play, and age.⁹ The SDoH framework highlights the importance of economic stability, access to quality healthcare systems, and social and community contexts. These broad domains are intertwined, mutually reinforcing, and incorporate historical contexts and long-term exposures. In Puerto Rico, colonialism, militarism, and unchecked capitalism have shaped all SDoH dimensions, magnifying their impacts in Vieques for the past eighty years.

Given the multiple, compounded, and continued threats to the health and well-being of Vieques, the concept of cascading disasters provides a valuable framework for understanding Vieques' past, present, and future. Disasters are major events that significantly overwhelm a community's coping capacity. As a result, they impair systemic functions and lead to human suffering, loss, and environmental damage.¹⁰ For Vieques, a historical chain of hazards has slowly but relentlessly unfolded since Puerto Rico's military invasion by the United States in 1898. Hazards alone do not create disasters. Instead, vulnerability is at the root of all disasters.¹¹

Cascading disasters result from a chain of causally related events. The impacts of each disaster compound, thus rendering communities vulnerable to future hazards, both human- and nature-caused.¹² Cascading disasters begin from a triggering disaster that leads to secondary and tertiary

effects and may follow nonlinear and unpredictable trajectories.¹³ Vieques' geographical location results in a marginalization from Puerto Rico and the US mainland, with clear consequences for accessibility to essential materials, services, and administrative support. Ultimately, this has rendered Vieques especially vulnerable to environmental contaminant-linked health disparities.

The nonlinearity of cascading disasters means that an initial hazard has branching effects in parts of the system not directly touched by the triggering event. In this case, the sustained presence of the US Navy in Vieques and its bombing exercises had severe direct effects, such as environmental contamination. The Navy's presence also had some indirect effects. For example, land expropriation and the subsequent contamination of land, air, and water affected human health in ways not yet thoroughly investigated. Moreover, land expropriation made areas in Vieques uninhabitable and unavailable to local economic development. This forced the island's economic activity to cater to the military personnel stationed there. These vulnerabilities have compounded and placed Vieques at an increased risk of climate change-linked extreme weather events in the Caribbean region.

Taking a holistic account of the case of Vieques, we can point to at least five disasters: colonialism (Disaster #1), land expropriation and occupation (Disaster #2), intensification of military activities (Disaster #3), socioeconomic obstruction (Disaster #4), and persistent exposure to environmental injustice (Disaster #5). Because Vieques has a limited health-care infrastructure, these disasters have unfolded in the context of a weak healthcare system. In addition, we can declare the responses from the state and federal governments as a disaster of institutional neglect.

While the five disasters are specific to Vieques, they play out against the backdrop of global climate change. For example, recent climate-related events, such as Hurricane Maria in 2017, destroyed critical infrastructure, including the only hospital; dredged up dormant contaminant and ordnance deposits; and heightened inconsistent accessibility to and from the main island. While Hurricane Maria was an exceptional storm, tropical cyclone activity is expected to increase in the Caribbean as climate change progresses.¹⁴ Vieques is vulnerable to other climate change effects, such as droughts, extreme heat events, and sea level rise, further stressing its health care system and social services.¹⁵ Therefore, as the five cascading disasters unfold in Vieques, it is in the context of a climate justice

community already vulnerable due to its Caribbean location and limited infrastructure to mitigate the effects of climate change.

Disaster #1: Colonialism

The triggering disaster in our analysis is the annexation of Puerto Rico, Vieques, and Culebra in 1898 as a colony of the United States to serve its economic and military interests. In the 1940s, the United States established itself as a world superpower. The military and economic role of Puerto Rico shifted to provide American investors with a captive market, showcase military might, and provide sites for different types of biomedical, chemical, and weapons testing. The US government installed twenty-five military bases in Puerto Rico in the twentieth century, including Roosevelt Roads, which became the most extensive US naval base globally.¹⁶ The base included Vieques as its firing practice and amphibious landing site. The US Navy effectively controlled Vieques' land, water, and air by managing all nautical routes, flight paths, aquifers, and zoning laws in the civilian territory as well as ownership of much of the "resettlement tracts" where most residents lived.¹⁷

One resident described the uniquely marginalizing power dynamics that have troubled Vieques for decades: "Vieques es una colonia de una colonia" (Vieques is a colony of a colony). On the one hand, the island municipality is subject to the US government's colonial prerogatives. On the other hand, it cannot rely on protection and prioritization by Puerto Rico's state government. Puerto Rico's financial woes are magnified in Vieques, where the Navy's presence irrevocably altered the course of its development as an agricultural and fishing economy.

Colonialism is the triggering disaster we can trace to Vieques' present vulnerabilities. In its most basic sense, resource extraction leaves occupied communities with few resources to build capacity absent colonial power. For example, land extraction, and the attendant uprooting from land, create deep psychological wounds. Such traumas interact with the stressors of economic insecurity that come with the loss of financial resources. Scarce access to land may also set up resource competition, such as land disputes, that can fracture familial and community bonds.

Moreover, Puerto Rico's colonial status meant that Viequesenses had little say in whether their land could be appropriated and used as a training and

testing ground for military operations, manifesting as Disasters #2 and #4. Disaster #3 clarifies that aggressive land appropriations devastated Vieques' demography, natural resources, and economy. Ultimately, this cascade of disasters has culminated in Disaster #5, or the contamination of Vieques' land with consequences for human health yet to be fully understood.

Disaster #2: Land Expropriation and Occupation

The broad context of colonialism set the stage for US Public Law 247 in 1941, which allowed the US Navy to expropriate 78 percent of the total land in Vieques to build a military base (figure 13.2). As a result, most Viequenses were forcibly removed and relocated to the middle of the island with little notice and no compensation.¹⁸ They received no help to relocate and had to leave valuable livestock and crops behind.¹⁹ The US

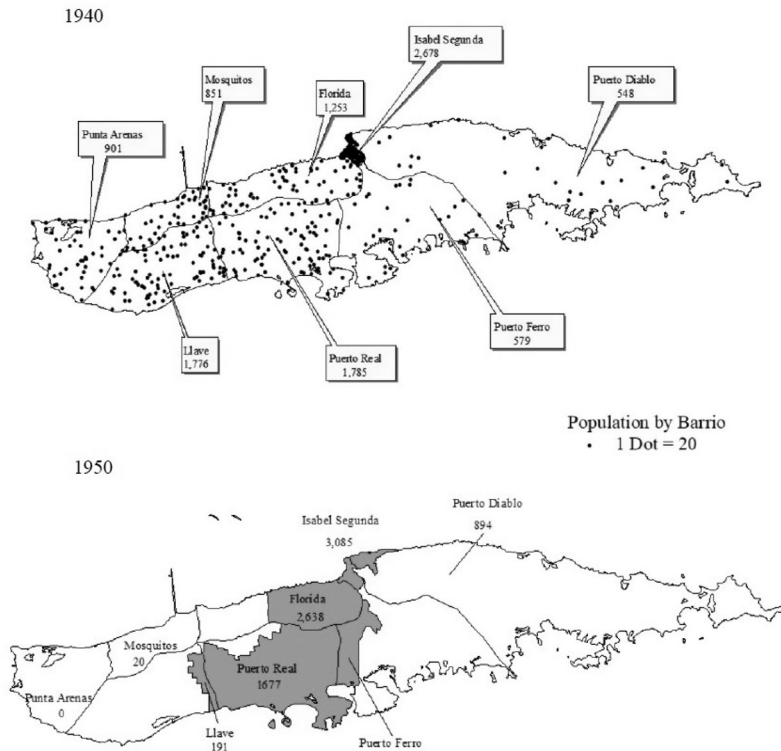


FIGURE 13.2. Population distribution by barrio in 1940 (pre-Navy) and 1950 (post-Navy). Source: Ayala and Bolívar, *Battleship Vieques*, 63–64.

Navy also expropriated four large sugar mills, significant employers on the island. Finally, after one year of economic boom due to the construction of the base, unemployment forced many to leave.²⁰

With thousands of soldiers participating in military maneuvers in Vieques, prostitution and riots flourished. Several people died in fights between Viequenses and Navy troops.²¹ Military personnel frequently got drunk at local bars, sexually assaulted women, and urinated in front of people's houses. As a result, Viequenses learned to remain locked up in their houses when the Navy troops were allowed to leave the base.

In 1961, the Department of Defense made multiple attempts to abolish the Vieques municipality and use the entire island for military training. However, after pressure from the Puerto Rican government, the Vieques mayor and population, and the Catholic Church, they ceased their repeated attempts.²²

Disaster #3: Socioeconomic Obstruction

The expropriation of land had cascading disaster effects on economic development in Vieques. First, hundreds of acres of land were made unusable for agricultural activity. This was particularly detrimental given that Vieques's economy was primarily agriculture-based before the Navy's presence on the island. Consequently, 40 percent of the population lost their income, and the island underwent an unemployment and hunger crisis.²³ Second, the expropriation of land led to the displacement of farmers, who could not use the restricted lands for grazing their animals.²⁴ Moreover, the Navy actively discouraged economic development because more civil travel to Vieques would negatively affect their military exercises. As a result, thousands left Vieques in search of work, reducing the number of working-age Viequenses.²⁵

Third, the US government expropriated the most fertile land in Vieques.²⁶ Today, approximately 20 percent of its land is available for development. However, the open land is suboptimal for agriculture or tourism, given its aridity and barrenness. These economically unjust conditions are exacerbated by a lack of investment in sustainable economic development and a disinvestment in essential social services (transportation, education, food, water, and electricity access).²⁷ The expropriation of land was a triggering event that obstructed opportunities to create an economy and community

that was self-sufficient and self-sustaining. However, grassroots community groups (including churches) have tried to fill this gap without institutional investment.

Disaster #4: Intensification of Military Activities

The context of colonialism and the expropriation of lands meant that the US military had a location to conduct ongoing military training that would otherwise have been illegal. The first large-scale military practice in Vieques occurred on January 16, 1948. It included sixty ships, 350 airplanes, and fifty thousand troops from all branches of the US Armed Forces. In 1949, military practices involved over thirty-five thousand troops, several hundred planes and ships, and napalm-incendiary bombs.²⁸ Then, in the mid-1970s, after thirty-five years of military exercises on the nearby island of Culebra ceased, those exercises were added to the existing military practices on the island of Vieques, intensifying adverse environmental and health effects.²⁹

By the early 1980s, Viequenses were exposed to two hundred days of air-to-ground combat exercises, 158 days of naval bombardment, twenty-one days of amphibious landings, and 3,400 bombs annually. During the most intense training periods, 7,600 bombs were dropped each month (around 253 daily). Meanwhile, the ten thousand Viequenses inhabitants resided only eight miles away, downwind from the military ranges. In addition, the Navy rented the Vieques facility for eighty million dollars a year for training military maneuvering and weapons testing among NATO allies.

According to Navy records and local testimonies, the bombs and other military munitions used in Vieques contained toxic substances such as TNT, RDX, HMX, Tetryl, HBX, PETN, heavy metals (e.g., lead, cadmium, arsenic, mercury), perchlorate, phosphorus and other pyrophoric materials, napalm, Agent Orange, chaff, and residues of organic and inorganic chemical components, among other unknown contaminants.³⁰ In recent years, the US Navy and Department of Defense have also admitted to using illegal depleted uranium munitions and biological and chemical warfare agents, including trioctyl phosphate (a simulant of the nerve agent VX), during exercises in Vieques.³¹

On April 19, 1999, a F/A-18C Hornet fighter jet negligently dropped two MK-82 five-hundred-pound bombs near a marked observation post in the

live impact area of the bombing range in east Vieques, killing the civilian security guard David Sanes Rodríguez. This tragedy sparked a new phase of the protracted struggle to end the bombing in Vieques, including massive protest and civil disobedience. The international community became aware of the risks to the Viequenses of continued bombing exercises. Supported by mainland Puerto Ricans, the Puerto Rican diaspora, and others worldwide, local Viequenses engaged in massive civil disobedience, forcing the Navy to end the bombing on May 1, 2003.³²

Disaster #5: Environmental Injustice

Even though the US Congress in 1980 had concluded that the Navy's activities were detrimental to Viequenses, it was not until 2003 that the Navy stopped military practices. On February 11, 2005, the Environmental Protection Agency (EPA) placed the Vieques bombing range and surrounding waters on its Superfund National Priorities List under the designation Atlantic Fleet Weapons Training Area–Vieques.³³ The National Priorities List is the EPA's list of sites throughout the United States and its territories with known or potential releases of hazardous substances, pollutants, or contaminants. Nevertheless, Viequenses continue to be exposed to toxic contaminants that infiltrated and tainted the water and soil during the occupation and that are also produced by the open detonation of unexploded ordnances as part of the cleanup efforts of the current Superfund site. Viequenses have objected to these alleged cleanup efforts, since they mainly involved removing bombs and exploding many of them in the open air.

In 1996, responding to a request from the Committee for the Rescue and Development of Vieques, researchers from the Graduate School of Public Health at the University of Puerto Rico analyzed cancer data from the Puerto Rico Department of Health.³⁴ They confirmed that (1) the incidence rate of cancer in Vieques increased from the early 1970s until 1989; (2) the rate followed the pattern of increasing days and intensity of US Navy use of the Vieques Bombing Range after the Navy closed the Culebra Bombing Range in 1970s and transferred its maneuvers to Vieques, with a lag time of twenty years; (3) by the early 1980s the cancer incidence rate in Vieques had surpassed the one in Puerto Rico; and (4) the cancer risk for 1985–89 was 27 percent higher for the population of Vieques compared to that of Puerto Rico. Moreover, the risk was exceptionally high among

young Viequenses. For example, children ages zero to nine years and ten- to nineteen-year-olds were at 117 percent and 257 percent higher risk of cancer than children of the same ages in Puerto Rico.³⁵

High levels of arsenic, aluminum, copper, iron, HMX and RDX explosive compounds, and cadmium have been detected in foods, including fish, biota, and produce (e.g., pigeon peas).³⁶ Researchers have found heavy metals (i.e., mercury) in hair samples,³⁷ urinary samples (i.e., nickel, lead, arsenic, uranium, and cadmium), and blood samples (i.e., mercury, uranium, and lead).³⁸ High levels of lead and arsenic have been found in residential soil samples, and traces of TNT, HMX, RDX, and metabolites in live impact area samples.³⁹ In December 2020, the US Navy indicated that drinking water on the island was contaminated with six different per- and polyfluoroalkyl (PFAS) compounds,⁴⁰ and fourteen sites within the restricted areas were identified with potential PFAS contamination.⁴¹ Previous studies in Vieques evaluated the association between seafood consumption and inorganic arsenic in adults' nail, hair, and urine samples. Results indicated a positive association with fish consumption, particularly for men, increasing with years of residency in Vieques.⁴²

The population in Vieques is aware of the health impacts of multiple environmental contaminants from military exercises in the air, water, and soil. However, Viequenses refused to actively participate in the Restoration Advisory Board meetings that are part of the Comprehensive Environmental Response, Compensation, and Liability Act cleanup process. The meetings are conducted in English (with interpreters that use technical vocabulary), and are simply informative, rather than consultative, and therefore do not consider questions and suggestions from the community, thereby limiting valuable community engagement.

CURRENT CONCERNS

Viequenses continue to grapple with the legacies of colonialism, contamination, and economic stagnation due to the US Navy's presence. The following section provides an overview of Vieques' current health and healthcare concerns and the complex and synergistic relationships between climate change and environmental exposure to contaminants used by the US Navy.

Socioeconomic

According to the American Community Survey, in 2019 there were 8,300 residents and 2,260 households in Vieques.⁴³ The median age of Viequesenses was 44.5 years. Children made up 20 percent of the population. The 2019 American Community Survey indicators show a challenging economic context.

After the Navy expropriated land, including acres usable for agriculture, the Vieques economy became dependent on their presence. Since the Navy's exit in 2003, Vieques economic development has been hampered by the limited use of former military land for agricultural and housing, even in noncontaminated areas. Having agricultural lands available for local food is especially important in Vieques because of its distance from the main island. Currently, 46 percent of the population lives in poverty, including 81 percent of children and 77 percent of seniors.

Health and Health Care

Vieques has many critical health and healthcare concerns, including limited access to healthcare services, medications, and air transport for medical emergencies; lack of reliable transportation to and from the main island; and inaccurate morbidity and mortality data. The fact that Hurricane Maria destroyed the only hospital in Vieques highlights how the island is uniquely vulnerable to extreme weather events spurred by climate change. The hospital has yet to be reconstructed. The current urgent care facility consists of a few trailers. It offers essential prenatal services, has an X-ray machine, and houses a dialysis unit that often does not work. In addition, several general practitioners and a pediatrician provide services several days a week but no other specialist care. There is one private pharmacy on the island.

Patients needing additional care must obtain a referral for a provider in La Isla Grande. To get there, some Viequesenses arrive at dawn at the ferry dock and try to come back on the last trip of the day. Others leave the day before the appointment, secure housing nearby, and return by ferry after receiving services from their healthcare provider. For many, this means taking days off work, arranging childcare, and paying for additional housing and transportation. For those who become severely ill, it often means finding long-term housing near their healthcare providers.

New Forms of Land Displacement

Gentrification unfolds at the intersection of multiple SDoH contexts: economic, neighborhood, built environment, and social and community. American investors and expatriates—many former US Navy personnel—have moved to the island in the last two decades. They now own most restaurants and bars and cater primarily to tourists and the upper class.⁴⁴

In recent years, real estate developers have purchased many land parcels and houses from Viequenses, transforming them into hotels or high-end properties that cater to foreigners.⁴⁵ Vieques is a beautiful island with clear blue-water beaches, unique natural resources (e.g., the bioluminescent bay), and precious scenery. Notably, the out-migration of Viequenses has consequences for social support networks and community cohesion in the neighborhoods they leave behind.

The Synergistic Risks with Climate

The Intergovernmental Panel on Climate Change has stated that the archipelago of Puerto Rico may be especially vulnerable to global warming. Impacts include increases in air and ocean temperatures, ocean acidification, precipitation, sea level rise, and erratic weather events (severe storms and droughts). One of the most significant impacts of climate change is the shift in precipitation patterns.⁴⁶ The US Fifth National Climate Assessment concluded that global carbon emissions would likely reduce average rainfall in this region, constraining freshwater availability.⁴⁷ Higher temperatures will also increase evaporation rates, further intensifying droughts. The climate forces responsible for reducing average rainfall will also create conditions for intensified storm events.⁴⁸ For example, tropical cyclone activity is also expected to increase in frequency and intensity, such that when it does rain, it occurs as an extreme storm event that causes widespread flooding.⁴⁹ As a result, extreme events pose significant risks to life, property, and the economy in the Caribbean.

The most concerning impacts of climate change on Vieques include storm surges and extreme hurricanes. The frequency and extent of storm surges have increased with the rise in sea level. Hurricanes' wind and rain forces can cause substantial damage to biological resources, including wetlands and coastal environments. In addition, climate change can alter the distribution and biological effects of chemical contaminants, potentially

exacerbating the effects of pollution on Vieques.⁵⁰ The fate and exposure of contaminants in soil and water depend on the chemical properties and the environment in which they are found. Both may be altered by global climate change impacts such as heating, increased rainfall rates, extended dry periods, erosion, and increased water level.⁵¹ Even temperature changes can modify, alter, and increase the toxicity of some contaminants.⁵² Significant exposure risk to humans arises when contaminants are mobilized from the soil into groundwater and are spread downstream, potentially contaminating drinking water.⁵³ Increased contaminant mobility may cause higher bioaccumulation within food webs or decrease the quality of crops through plant uptake.⁵⁴ For example, cadmium, observed in local vegetation,⁵⁵ is more rapidly accumulated in vegetation when temperatures increase, facilitating its entry into the food chain and risk to human health.⁵⁶ Finally, massive water movements during extreme weather raise the potential to redistribute contaminants throughout the affected areas (soil, groundwater, etc.). Following a storm event, resuspended contaminants settle into topsoil and sediments, potentially exposing the local community and coastal ecosystems for years. Given the contamination challenges in Vieques, it is critical to understand how climate change may influence the mobilization and bioavailability of heavy metal and military-related contaminants. This emphasizes the need to identify and create solutions to mitigate its effect on the community and the ecosystems that are most vulnerable.

CURRENT COMMUNITY INITIATIVES

Social activists have become a critical component of local health, environmental, and social service networks responding to the adverse health, ecological and social impacts of the US Navy's presence in Vieques. Direct actions by civic groups and organizing networks, such as the Comité Pro Rescate y Desarrollo de Vieques (Committee for the Rescue and Development of Vieques), continued to serve Viequeses after the Navy left. Today, Vieques has grassroots organizations building capacity and serving needs across multiple domains of life, including agriculture, health, youth development, environmental justice, and small-business development.

Many community groups have focused on providing direct services to residents (e.g., Vieques en Rescate, Vieques Love, Iglesia Fé que Transforma, COREFI), environmental cleanup, and decontamination (e.g.,

Vidas Viequenses Valen). Specifically, Vidas Viequenses Valen has created awareness among domestic and international audiences. It works through educational forums, peaceful protests, media publications, meetings with public officials, and public appearances. Vidas Viequenses Valen insists on the demilitarization, decontamination, and devolution of the lands still controlled by the US federal government.⁵⁷ In addition, it works on issues related to deficient transportation and the lack of adequate health facilities on the island.⁵⁸ For example, several children have died because they could not be transported by ferry or airplane from Vieques to a hospital facility in Puerto Rico, about forty miles away.⁵⁹

POLICY RECOMMENDATIONS

Vieques continues to suffer from policies of neglect by federal and state governments. We outline a few recommendations that address immediate needs and concerns for Viequenses' health.

Undoubtedly, building a quality hospital in Vieques needs urgent attention. The Federal Emergency Management Administration approved \$43.5 million to rebuild the hospital in Vieques.⁶⁰ However, hospital rebuilding efforts have not begun in earnest as of the writing of this chapter, more than three years after the funds were obligated. Even when the hospital rebuilding is complete, Vieques will still need a more robust preventive care system. To address the shortage of healthcare professionals in rural areas, a program to recruit and retain physicians and other healthcare professionals is necessary for Vieques, similar to other initiatives on the US mainland.⁶¹ Vieques currently has one federally qualified health center but it is insufficient and would benefit from other programs.

Policy recommendations that address SDoH include economic, transportation, and land management domains. Puerto Rico's and Vieques' economic development policies should consist of strategies that encourage employment for residents of Vieques and compensate them adequately to promote retention. Similarly, recruitment initiatives to encourage highly qualified personnel to live and work in Vieques should offer proper compensation. Ferry service between Vieques and Puerto Rico's main island should ensure access and on-time departures and arrivals, prioritizing transportation for Vieques residents.

More significant investment is needed to diversify the Vieques economy, building on local knowledge and experience. For example, Vieques once had a productive agricultural economy, based mainly on pineapple and sugarcane. Several local farms, such as La Semillera, Isla Nena Composta, and Finca Conciencia, contribute to Vieques' efforts at ecologically sustainable farming. Additional financial, knowledge-sharing, and technology transfer support from local and federal agencies such as Puerto Rico and the US Departments of Agriculture or the EPA would further their efforts. Local farms can provide sustainable food sources for Viequenses. Suitable lands should be available for ecologically sustainable agriculture, especially after decontamination.

That said, making more land available for civilian use raises concerns about real estate investors outside of Vieques acquiring land for redevelopment or resale. Such activities would mean profits are going primarily to non-Viequenses while displacing residents. Existing antigentrification policy models from rapidly gentrifying cities could offer pathways for the municipality to follow.⁶² These include establishing a community land or investment trust to purchase and conserve properties for local use, including affordable housing, and establishing a locally controlled and transparent oversight committee to review and approve land and property purchase and development proposals. Furthermore, community benefits agreements could also be implemented. These contracts between the community and developers detail the benefits to community members of the proposed development. Such benefits could include guaranteed employment for residents, local health infrastructure investments, and incentive programs to draw and retain new potential residents who can contribute to Vieques' growth, community cohesion, and long-term vitality. This would be the road to their empowerment.

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