Haiti earthquake
Author: Caitlyn Eberle
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1. Introduction

Haiti is a country in the Caribbean Sea, taking up the western third of the island of Hispaniola, which it shares with the Dominican Republic. Haiti is home to over 11 million people, making it the most populated country in the Caribbean. On 14 August 2021, Haiti was hit by a magnitude 7.2 earthquake with an epicentre in the Canal du Sud (120 km west of the capital, Port-au-Prince) at a depth of 10 km (Boiselet, 2021). Days later, on 16 August, Hurricane Grace hit the island, bringing heavy rains, floods and further landslides, complicating relief efforts (Birenbaum, 2021).

Haiti sits in a seismically active area along the Enriquillo-Plaintain Garden fault zone, which results from the contact between the North American and Caribbean plates (Boiselet, 2021). This earthquake was reminiscent of the magnitude 7.0 earthquake in 2010 that occurred on the fault segment closest to Port-au-Prince, killing more than 200,000 people (Stein and others, 2021).
2. Impacts

2.1 Loss of life, migration/displacement and health impacts

The earthquake killed over 2,200 people and injured almost 13,000. Injuries included wounds, skin and respiratory infections from sleeping outside destroyed homes, and psychological trauma (International Medical Corps (IMC), 2021b). The ongoing COVID-19 pandemic further exacerbated issues, making the staffing of clinics and response teams difficult. Additionally, the earthquake increased the risk of the COVID-19 pandemic by diverting medical supplies and staff to emergency response and putting a halt to vaccination campaigns. Additionally, destroyed homes forced people into temporary shelters with poor social distancing conditions and disrupted water infrastructure, making handwashing nearly impossible (Bagaipo and Janoch, 2021). According to the Internal Displacement Monitoring Centre (IDMC), roughly 220,000 people were internally displaced following the earthquake (IDMC, 2022).

2.2 Infrastructure damage

The earthquake caused widespread damage across the southern peninsula of Haiti, destroying over 60,000 homes and damaging 76,000 more. This worsened the crisis as homes and shelters were destroyed right before Tropical Storm Grace hit the island (IMC, 2021a). Other essential infrastructure was also significantly damaged, including schools and hospitals (UN News, 2022a). Around 70 per cent of schools were damaged or destroyed, suspending classes for over one month in some cases (DiPierro Obert, 2022). Underground waterlines ruptured, flooding the town of Les Cayes (Post, 2021). A United States Geological Survey report found that the 2021 quake caused 4,893 landslides, blocking roads and rivers across the southern peninsula (Martinez and others, 2021). Particularly damaging was the blockage of the road linking the towns of Jeremie and Les Cayes, making it completely impassible, thus disrupting transportation and commerce (FEWS NET, 2021; Post, 2021).
2.3 Livelihood loss and food insecurity

Livelihoods and food production systems were disrupted as earthquake-induced landslides destroyed whole crop yields, including banana, yam, manioc and potato. Extreme soil erosion and loss of seeds and agricultural tools made further sowing in the fall season impossible (FEWS NET, 2021). The earthquake also damaged roads and markets, crippling the transportation and tourism sectors, and further impacting livelihoods and incomes across the country. Haiti was already facing crisis levels of food insecurity from below-average rainfall throughout 2021, high food prices, inflation and currency depreciation (Integrated Food Security Phase Classification (IPC), 2021). However, the effects of the earthquake pushed the situation even further, almost doubling the number of people facing acute food insecurity\(^1\) since 2018 (IMC, 2021a; IPC, 2021). Through February 2022, over 4.5 million people, 45 per cent of Haiti’s population, experienced acute food insecurity, with 15 per cent of the population facing emergency levels (IPC level 4) and 30 per cent facing crisis levels (IPC level 3)\(^2\) (Schlein, 2021; IPC, 2021).

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\(^1\) Acute food insecurity refers to “food insecurity found in a specified area at a specific point in time and of a severity that threatens lives or livelihoods, or both, regardless of the causes, context or duration” – Food and Agriculture Organization of the United Nations (FAO).

\(^2\) The Integrated Food Security Phase Classification (IPC) identifies five levels of severity of acute food insecurity, from least to most severe: (1) Minimal/None, (2) Stressed, (3) Crisis, (4) Emergency, (5) Catastrophe/Famine.
2.4 Emerging risks

2.4.1 Future earthquakes

The earthquake in 2021 occurred on another segment of the same fault as the 2010 earthquake, further west of the capital (Stein and others, 2021). As shown below, the 2010 earthquake increased stress significantly along the western portion of the fault, which resulted in the 2021 seismic event, which was twice as powerful as its predecessor (Boiselet, 2021; Stein and others, 2021). Additionally, the 2021 earthquake has restressed faults that ruptured as part of the 2010 earthquake, indicating that there could be high-magnitude quakes in that area in the future (Stein and others, 2021). In fact, on 24 January 2022, a series of 5.4 and 5.6 magnitude aftershocks from the August quake struck the same region, leaving two people dead, injuring over 50 and destroying additional homes, roads and bridges (Thomas and Ellsworth, 2022; United Nations Office for the Coordination of Humanitarian Affairs (OCHA), 2022b).

Figure 2: Progressive westward rupture of the 2010 and 2021 earthquakes. It appears that there is a 15-kilometer-long jump or gap between them, one candidate among several for a future large earthquake. (Stein and others, 2021)
2.4.2 Security crisis

Without a functioning government (see section 3.3), there is an increased risk of political and socioeconomic instability. Business disruptions resulting from the earthquake and increased gang activity are likely to continue, exacerbating economic losses (Melchiades, 2021). Currently, Haiti only has 10 elected officials, and the position of the president and several legislative seats remain empty. The country has failed to hold elections amid fear of kidnappings and violence by local gangs that have gained a lot of power in recent months (Al Jazeera, 2022).

Increased gang activity is likely to worsen in the coming months. The Office of the UN High Commissioner for Human Rights has documented 935 deaths, 684 injuries and 680 kidnappings from gang-related activity across Port-au-Prince from January to June 2022. Many gangs have controlled specific areas by denying access to food, water or fuel, trapping people. OCHA has stated that some people in the area of Cite Soleil have not had access to food or water for over one week at the time of writing, a situation likely to continue longer (UN News, 2022c). There are at least 17,000 internally displaced people as of April 2022, and both internal and external migration is likely to increase, especially as rural areas affected by the earthquake have been destroyed (OCHA, 2022a). Many people are likely to move abroad or to urban centres, such as Port-au-Prince, which are already facing socioeconomic challenges (UN News, 2022a). Protests have erupted against acting Prime Minister and President Ariel Henry, demanding more be done to combat the organized crime that has taken over much of the capital (UN News, 2022b).

3. Drivers

3.1 Land degradation

Deforestation in Haiti is a systemic issue that can be traced back to the French colonial occupation in the 1700s (see section 4.2). Forests are often cleared primarily to make new agricultural plots or for harvesting fuelwood. Over 80 per cent of energy in Haiti is generated from charcoal or firewood, representing an important source of rural energy production, contributing even more to the household economy (up to 25 per cent) than agriculture (around 4 per cent) (United Nations Environment Programme (UNEP), 2016; Maertens and Stork, 2017; Caplan, 2021). A commonly cited estimate puts Haiti’s forest cover at just 2 per cent (Cho, 2011; Bargout and Raizada, 2013), but satellite imagery suggests the figure is closer to 20-30 per cent, depending on the definition used (Churches and others, 2014; Pauleus and Aide, 2020). Still, widespread deforestation remains a problem and increases the landscape’s vulnerability to multiple hazards (ACAPS, 2020). A lack of forested areas means fewer tree roots can hold the soil in place, increasing the risk of heavy rain and earthquakes triggering landslides (Felima, 2009). Deforested slopes also accelerate the process of soil erosion, exacerbating an already precarious situation as more than 60 per cent of the land in Haiti exceeds a 20 per cent slope gradient. In fact, in 1999, soil erosion in Haiti was estimated at a rate of over 1,300 tonnes/km2/year (Bargout and Raizada, 2013). Around 85 per cent of the soil loss in Haiti comes from agricultural plots on slopes of over 50 per cent gradient (Alexis and others, 2004).
This exposure to wind and rain also decreases the capacity of the soil to absorb water, creating a pseudo-drought where rainfall is adequate but unavailable for crops (Bannister and Josiah, 1993). This creates heightened risk for farmers, particularly troublesome because agriculture is Haiti’s most significant economic sector, accounting for around 25 per cent of gross domestic product (GDP) and 50 per cent of employment, rising to 75 per cent in low-income households. Land degradation and erosion often push subsistence farmers onto increasingly steep terrain in hopes of more fertile soil, putting them at greater risk of landslides (Caplan, 2021).
3.2 Unsafe buildings

A common phrase heard in the aftermath of a seismic event is that “earthquakes don’t kill people; buildings do.” All buildings are designed to withstand vertical forces, those from gravity or their own weight. However, earthquakes create shock waves that ripple through the ground, creating horizontal pressure that puts extreme stress on a building’s frame, weakening or collapsing the entire structure (Harris, 2011). In Haiti, buildings are often constructed out of brittle, poor-quality concrete with thin steel reinforcement bars that are often missing between columns and floors where earthquake stress is highest, compromising structures’ integrity (Fierro and Perry, 2010; Bilham, 2010). After the devastating earthquake in 2010, the Haitian government formed the Housing and Public Buildings Construction Unit (UCLBP) to establish construction codes and train masons to build back better and reduce risks of subsequent disasters. However, both the UCLBP and masons themselves struggle with financing as quality construction materials are unaffordable and enforcement of building codes is often not a government priority (Maçon and Alexander, 2022).

3.3 Economic and political instability

The government of Haiti was ill-equipped to deal with the earthquake and its aftermath. The historical ineffectiveness of the government can also be traced back through centuries of colonialism and foreign occupation and interference (see section 4), but the most recent tipping point was when President Jovenel Moïse took office in 2017 after a protracted, contested election first held in 2015 (Wamsley, 2021). Moïse's presidency was also marred in controversy, governing by decree since 2020 after a postponement of legislative elections (Fauriol, 2021). In February 2021, widespread protests broke out as Moïse's opposition claimed his term had expired and demanded his resignation, whereas he and his supporters claimed his mandate lasted until 2022 (Wamsley, 2021). Moïse was assassinated on 7 July 2021, leaving behind a power vacuum and a dysfunctional government. This also correlated with an increase in gang violence that has displaced at least 17,000 people in Port-au-Prince since the assassination (Center for Disaster Philanthropy, 2021; OCHA, 2022a). Gangs have largely taken over the country without effective leadership, as kidnappings spiked and roads closed, causing fuel, food and water shortages and making large parts of the country inaccessible for aid to reach (Post, 2021; Maçon and Alexander, 2022).
4. Root causes

4.1 Legacy of colonialism

The people of Haiti have been oppressed through centuries of colonialism, racism and neoliberal policy agendas that increased vulnerability in the country. The island was originally home to the Taino people, an indigenous group that spanned most of the Caribbean, and the island was called Ayiti, or “the land of high mountains.” The Spanish first colonized the island in the late 1400s in their search for gold, killing the majority of the Taino before moving on to Central and South America. The French West India Company formally claimed the western part of the island for France in 1655; they used it for sugar and coffee plantations, producing about 60 per cent of the world’s coffee and about 40 per cent of the sugar imported by France and Britain (Vree and Satake, 2011). Since much of the Taino population had been killed, the French imported up to 40,000 enslaved West Africans a year, accounting for more than one third of the Atlantic slave trade (Henley, 2010; Porter and others, 2022). At its peak, the enslaved population was around 500,000, compared with a free population of about 60,000 (Vree and Satake, 2011).

Following the French Revolution in 1791, a slave rebellion turned into a civil war lasting 12 years before the French were finally defeated in November 1803. Haiti declared independence on 1 January 1804, becoming the second country to free itself from colonial rule and the first successful slave rebellion (Henley, 2010; Caplan, 2021).

After Haiti declared independence, they were not immediately recognized by other global powers. The U.S. and other European powers helped France create a diplomatic quarantine to isolate Haiti politically and economically, putting an embargo on trade and refusing to recognize the independent status of the newly-formed country (Farmer, 1994; Oliver-Smith, 2010). Since Haiti’s independence stemmed from a slave rebellion and they were the first nation to ban slavery permanently, the U.S. and European countries and their colonies feared that Haiti’s success would inspire slave revolts back home (Rosalsky, 2021). In 1825, the French king sent a blockade of warships to Haiti, declaring that the new nation owed France 150 million francs (between $20 and $30 billion today) in reparations for lost property and damage during the rebellion and, in exchange, would provide international recognition (Rosalsky, 2021; Labrador and Roy, 2021). Since the amount was too much for Haiti to pay off immediately (around six times the annual government income at that time), the country had to take out high-interest loans from French banks (Rosalsky, 2021; Porter and others, 2022). Even the National Bank of Haiti was established in France, controlled by French bankers and aristocrats. They charged Haiti a commission any time they deposited money or paid a bill, where profits went to French shareholders (Porter and others, 2022). The debt took 122 years to pay off, even after the sum was reduced to 90 million francs, and at times it accounted for 80 per cent of Haiti’s GDP (Oliver-Smith, 2010; ACAPS, 2020). On many accounts, this debt was the most significant impediment to the nation’s development (Forsdick, 2015). By 1911, out of every $3 Haiti took in coffee taxes, $2.53 went to paying off debts to French investors (Porter and others, 2022). Researchers found that if they hadn’t been saddled with the independence debt to France, Haiti would have added around $21 billion to their economy and the per capita income in 2018 could have been six times as large, putting it at about the same level as neighbouring Dominican Republic (Porter and others, 2022).
4.2 Undervaluing environmental costs

Ultimately, this is a case of short-term human resource needs outpacing their availability, combined with centuries of management for economic productivity. The land in Haiti was treated as an extractive source with little regard for the health and longevity of the environment as a whole, leading to its detriment and increased disaster risk. The Haitian Ministry of the Environment receives only around 2 per cent of the total government budget, meaning they are unable to significantly invest in assessments and interventions to address the country’s environmental degradation (see section 4.4) (Felima, 2009).

A prime example of this degradation lies in the systematic deforestation carried out in Haiti for centuries (see section 3.1). Logging began in force in the late 1600s, as the French cleared thousands of hectares of forest for monoculture plantations of sugar cane, cotton, indigo and coffee, as well as for fuelwood to operate industrial processes (Roc, 2008; Oliver-Smith, 2010). Deforestation continued through the years as Haiti attempted to repay their debt by exporting mahogany to France, sending up to 4 million cubic feet per year (O’Connor, 2016; Maçon and Alexander, 2022). Deforestation accelerated significantly in the 1940s as population and resource demand increased. Additionally, more than 50,000 acres were cleared on the southern peninsula to plant rubber trees to contribute to the American war effort (Maertens and Stork, 2017). During the Duvalier regime in the 1960s, François Duvalier ordered the clear-cutting of forest sections near the border with the Dominican Republic to make it easier to police (Dubois, 2016; Maertens and Stork, 2017).
Deforestation also creates a positive feedback loop with unsustainable agricultural practices. From 1997 to 2003, the average size of farms grew from 1.8 to 2.7 ha, primarily driven by farmers increasing cultivation areas to compensate for low crop yields on already depleted soils. Over 50 per cent of Haiti’s land area is used for agriculture, pasture or plantations, but it is estimated that only one sixth is suitable for agriculture (Bargout and Raizada, 2013; Pauleus and Aide, 2020). As more and more land is deforested in attempts to grow food on marginal soils, it becomes increasingly susceptible to erosion and nutrient loss, which furthers the need to deforest more land in search of more fertile soils.

4.3 Inequality of development and livelihood opportunities

As French colonizers brought people from Africa to work as enslaved peoples on plantations, this created a structural division between the slave population and the governing or mercantile French population, eventually splitting into rural peasantry and urban elite. Though the peasantry represented the majority of the Haitian population, they were known as “moun anvedyo” or “people outside.” The peasants were mostly illiterate and Creole-speaking; thus, the French-speaking elite could culturally and politically isolate them further (Charles, 2021). Even after Haitian independence, there was unequal land distribution, where higher altitude farms were used for coffee plantations and valleys were reserved for sugar cane, leaving peasant subsistence agriculture solely reliant on marginal hillsides (Caplan, 2021). This split worsened during the U.S. occupation of 1915-1934 as land ownership was concentrated, disregarding original landowners, who were evicted or became hired farm hands (Felima, 2009). The U.S. also introduced many infrastructural improvements concentrated in Port-au-Prince, such as government offices, schools and hospitals. Meanwhile, the rural peasantry gained nearly nothing, exacerbating poverty and income inequality (Charles, 2021). Furthermore, in the 1980s, the U.S. killed all of Haiti’s pig population in response to a swine flu outbreak. Pigs represented a source of emergency capital, loan collateral and sustenance for rural people, and their slaughter represented half a billion dollars in losses to the peasant economy (Cody, 1985; Oliver-Smith, 2010).

As agricultural lands became increasingly marginalized and subsistence farming became more difficult (see section 4.2), rural peasants migrated to urban centres in search of employment. These urban centres were unable to cope with the influx of people as rapid urbanization resulted in informal settlements of slums and shanty towns that were highly exposed to hazards (Caplan, 2021). Demand for employment quickly outpaced supply, furthering the impoverishment of an ever-increasing urban population pushed into increasingly vulnerable areas (Oliver-Smith, 2010). As such, as of 2021, more than 52 per cent of people in Haiti are below the poverty line, making less than $3.20 per day. Additionally, the wealthiest 20 per cent of the population holds more than 64 per cent of the wealth while the poorest 20 per cent holds less than 1 per cent (World Bank, 2022). As the rural south-east peninsula of Haiti was the worst hit in this 2021 earthquake, its inhabitants’ relatively lower incomes and access to infrastructure made them more susceptible to the impacts of the quake and likely deepened these existing inequalities even further.
4.4 Insufficient risk governance

The Haitian population has long suffered from political instability. From 1845 to 1915, Haiti had 22 governments, 17 of which were dismantled in revolutions or coups (Porter and others, 2022). Soon after the American occupation (1915-1934) and a series of coups and revolts, François “Papa Doc” Duvalier became president. This prominent doctor ended up becoming a violent dictator and declaring himself “president for life,” installing a personal militia known as the tontons macoutes that terrorized the country. He also stole hundreds of millions of dollars from the Haitian government, at times embezzling up to 80 per cent of Haiti’s international aid (Porter and others, 2022; Henley, 2010). This was a particularly brutal but not unfamiliar trend in the Haitian government, as politics had become a type of business whereby the country’s ruling class made deals with powerful external partners that ended up siphoning resources and wealth from the majority of the country (Fatton, 2021; Henley, 2010). Additionally, this instability eventually decreased international trust in funding government programs. Since the 1980s, international financial institutions such as the World Bank and the International Monetary Fund (IMF) have promoted open markets, corporate privatization and development led by non-governmental organizations (NGOs) (Fatton, 2021). For example, in the aftermath of the 2010 earthquake, humanitarian agencies, NGOs and private contractors received 99 per cent of the humanitarian aid sent to Haiti, while less than 1 per cent went to the government of Haiti (Ramachandran and Walz, 2012).
As the Haitian government is increasingly undermined from within and without, it is perhaps not surprising that the state lacks the institutional capacity to enforce building codes, urban planning measures or environmental and disaster management policies (Felima, 2009; Caplan, 2021). Port-au-Prince, for example, was initially designed to hold 3,000 people yet was home to almost a million people by 2015. The state is largely incapable of decentralizing power and developing rural areas, a situation thereby driving increasing disaster risk and impoverishment. In 1995, under the presidency of Jean-Bertrand Aristide, the national army was dismantled with no allowance for transferring disaster management skills to another civil protection institution (Savard and others, 2020). Disaster management strategies often lack investment because development and economic growth are more immediate governmental priorities (Felima, 2009). Without proper investment in risk management, a future earthquake in Haiti will be just as devastating.

5. Big picture

The earthquake in Haiti and its aftermath illustrate how disasters are historically and socially constructed phenomena. The stark contrast in how different societies can be affected by a similar disaster can be seen in the difference in mortality between the 2010 earthquakes in Haiti and New Zealand: The 7.0 magnitude earthquake in Port-au-Prince, Haiti, killed more than 200,000 people, whereas no one died during a 7.1 magnitude quake near Christchurch, New Zealand (NicolBhlocaidh and others, 2021). Historical and social processes of colonialism, political instability and neoliberal interventions have degraded Haiti’s landscape and siphoned off or mismanaged its resources, creating an extreme vulnerability that influenced how disproportionately they were affected by an earthquake hazard.

This can also be seen in the difference between Haiti and the Dominican Republic, which shares the other two thirds of the same island. The French used Haiti as an extractive colony, importing hundreds of thousands of enslaved people annually, deforesting and degrading the land with monoculture plantations and creating a resentful and oppressed population (Vox Borders, 2017). In contrast, the Spanish colonized the Dominican Republic and were more interested in using the island as a trading hub; therefore, the environment and the population were not exploited to nearly the same degree (Caplan, 2021). Despite also violently colonizing the island, the Spanish settlers better integrated into the indigenous society, recognizing local leaders’ authority and marrying into the population, leading to a relatively more equal, racially-mixed society (Vox Borders, 2017). Racism and colonialism put Haiti in a position where it lacked the resources or political position to thrive.

This case illustrates how disasters are not isolated in time but rather connected to preceding disasters, decisions and environments. The opportunities and risks of a given person, community or nation are influenced heavily by unequal access and exposure created by our socioeconomic system (Cannon, 1994). For example, low-income countries account for around 9 per cent of the world’s population but over 46 per cent of disaster deaths (Center for Research on the Epidemiology of Disasters (CRED) and United Nations Office for Disaster Risk Reduction (UNISDR), 2016). A hazard, such as this earthquake, is often only the trigger of a disaster waiting to happen due to the pre-existing vulnerabilities in the area, shaped by cultural, social, environmental, political and economic contexts (Cannon, 1994).
6. Solutions

6.1 Let nature work

Since one of Haiti’s main drivers of vulnerability is deforestation and soil loss, reforestation and ecosystem restoration seem like a natural solution. Planting trees on hillsides can help stabilize soil, promote overall ecosystem health and reduce the severity of flood events (Felima, 2009). However, reforestation and soil conservation projects have often failed because they were not aligned with the needs of local communities (Bannister and Josiah, 1993). A frequent scapegoat of the deforestation issue is charcoal producers, with this practice dismissed as unsustainable and destructive (Maertens and Stork, 2017). Many approaches to combat it have focused on banning charcoal production and trade while attempting to reforest areas with fast-growing, exotic species, such as neem and eucalyptus, or promoting the use of more efficient (but expensive) cookstoves (UNEP, 2016; Moore, 2021). These solutions ignore that charcoal production is a significant source of income and energy for people across the country and that attempting to change such a culturally-ingrained livelihood strategy without a sustainable, affordable alternative is doomed to fail (Maertens and Stork, 2017).
Instead, solutions should focus on working with charcoal producers and farmers to meet their needs. Creating living erosion barriers, such as hedgerows of trees or shrubs, can provide erosion control by capturing soil and water run-off while also allowing farmers to prune the leaves for animal fodder and woody stems for cooking fuel (Bannister and Josiah, 1993; Bargout and Raizada, 2013). Agroforestry systems (cultivating food crops between trees) can similarly provide soil stabilization while providing livelihood and food security benefits from agriculture and forest products. The indigenous Taino people, who inhabited much of the Caribbean before European colonization, implemented agroforestry systems using conuco mounds. These were small plots of land with rows of soil mounds filled with root crops, such as cassava or yam, interspersed with orchard gardens to create a biodiverse area promoting soil aeration, erosion control, food crops and timber products (Bargout and Raizada, 2013; Griffon and others, 2021). Implementing these or similar agroforestry solutions to address deforestation should consider the income and food security of the Haitian people as well as the health and stability of the ecosystem with both short- and long-term benefits (Cho, 2011).

6.2 Plan for risks

To prevent the collapse of buildings and resulting injuries, structures should be designed with hazard risks in mind. Many earthquake-safe construction techniques exist and are implemented with success, such as creating a flexible foundation, using shock absorbers and building shear walls (Harris, 2011). However, many of these options are unavailable to the average builder in Haiti, and though building codes exist, they lack effective enforcement. Changing building materials away from heavy, unreinforced concrete is one potential method that may be cheaper and more accessible than other techniques. Using wood as a primary building material has several advantages over concrete: it can be strong enough to withstand hurricane forces while being lightweight, making it less dangerous in the event of collapse (Audefroy, 2011). Traditional wattle and daub buildings, called clissage, consist of wooden frames filled with stone and bound with an earthen mixture. These structures are earthquake resistant and were found standing in Haiti after the 2010 quake (Aedo and Olmos, 2003; Dutu and others, 2012; Audefroy, 2011). However, given the deforestation levels on the island, wood can also be rather expensive, representing a significant barrier (Audefroy, 2011). An additional obstacle is that concrete is seen as more modern, safer and drier than traditional wooden structures, which can be true if the materials are of good quality and a system's design is risk-informed (Hausler, 2010).

6.3 Secure livelihoods

In addition to high-level economic and political interventions to address the issues of unemployment and market instability, one of the leading solutions to securing livelihoods is to ensure land rights (Chagutah, 2011). Insecurity over landownership can influence decision-making on management and investments in a property's future, particularly in terms of long-term pay-offs such as tree planting or soil fertility projects (Levy and Fischer, 2012). The current land tenure system functions primarily on undocumented customs and informal arrangements, with large numbers of farmers maintaining multiple small, disconnected plots, making it difficult to manage or invest in productivity and maintenance (Levy and Fischer, 2012). Formalizing landownership would give people greater agency and determination over their livelihoods and would pave the way to more significant investments in long-term benefits, such as agroforestry and soil conservation. Similarly, homeownership is essential to assure restoration or reconstruction of shelters, as well as increasing feelings of safety and self-determination for affected people (Hausler, 2010; Sarmiento and others, 2020).
6.4 Strengthen governance

Political instability is a major issue that has plagued Haiti for decades, highlighting the need to strengthen governance in the country. This is somewhat of a wicked problem, especially given that the history of colonialism and foreign occupations and interventions aimed at strengthening governance have been unsuccessful and have met increased resistance. Therefore, strengthening governance in Haiti should support and grow existing grass-roots movements (International Crisis Group, 2021) and work on localization and devolution of government structures to give more power and agency to local communities. Local professionals are better equipped with pre-existing knowledge of linguistic, cultural and social contexts and can better define the needs of impacted communities (Hsu and Schuller, 2021). Progress in this respect has gained some traction. For example, before 2021, there had never been a Haitian NGO represented in the Humanitarian Country Team, the most senior decision-making body in humanitarian response. This has changed now as five national organizations have been added, focusing on youth, women and people living with disabilities (Maçon and Alexander, 2022). International aid organizations and governments can make a big difference in this area to enhance local capacity. In the aftermath of disasters, funding should go towards building local solutions and capacities with long-term support rather than short-term project funding. Despite repeated commitments to the premise, many have fallen depressingly short. After the 2021 earthquake, in comparison to the $50 million awarded to U.S. contractors, not a single Haitian organization won a contract. Only 5.3 per cent of United States Agency for International Development (USAID) funding went to local groups despite promising at least 25 per cent.
Furthermore, when possible, more emphasis should be put on the “accompaniment” of Haitian institutions, whereby aid should not circumvent but instead support existing institutions (Nagpal, 2022). Localization and devolution of governance structures towards regional authorities can give power and agency to local people, potentially limiting the influence of corruption and neocolonialism. For example, a coalition of over 180 Haitian organizations consisting of unions, farmers’ cooperatives, human rights organizations, Voodoo groups and churches formed the Commission to Search for a Haitian Solution to the Crisis, dedicated to “work towards a peaceful resolution of the current political and institutional crisis” (Forum Société Civile Haïtienne, 2021; Clesca, 2021). Haitian problems require Haitian solutions, and the Haitian people should lead the way.

6.5 Conclusion

These solutions are only a selection of possible solutions that could help the situation in Haiti. Many other possible solutions may be necessary for different contexts, such as supporting education or increased seismic activity research. More than anything, solutions for Haiti should represent a shift in the collective mindset and narrative surrounding Haiti, which has often been called “the poorest country in the Western Hemisphere,” usually indicating a defeatist position that Haiti is a lost cause. However, Haiti is not a poor country – it is rich in resources and culture but has been exploited and degraded for centuries. Recognizing Haiti’s value on an international scale puts all of us in a space to grow the value that is there rather than simply fix what is broken. Importantly, no solution is sufficient if implemented in isolation; only through an integrated, multifaceted approach can any of these problems truly be addressed.

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