

Assessment of Haiti Earthquake in 2010

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Abstract

On January 12, 2010, a large earthquake hit Haiti leaving the country in a devastating state. This paper aims to provide an overview of the community, the disaster, and the impact the earthquake had on the country. The paper will also look at the country's disaster preparedness, response, recovery, and mitigation strategies. News articles and peer-reviewed articles will be used to critique the emergency responses, recovery, and mitigation strategies. After reviewing and analyzing the country's emergency management strategies, there will be recommendations for future policy, practice, education, and/or research to help Haiti better prepare for another major disaster.

Introduction

Haiti is a small country located in the Caribbean Sea. Geographically, Haiti is bordered to the east by the Dominican Republic, to the south and west by the Caribbean, and to the north by the Atlantic Ocean. Cuba is approximately 50 miles west of Haiti's northern peninsula, across the Windward Passage, a strait connecting the Atlantic to the Caribbean. Jamaica is approximately 120 miles west of the southern peninsula, across the Jamaica Channel. Lastly, Great Inagua Island, of The Bahamas is approximately 70 miles to the north (Pallardy, 2020).

Haiti's climate is a warm, humid tropical climate. The country's climate is characterized by diurnal temperature variations that are greater than the annual variations which means that temperatures are modified by elevation. The average temperature ranges from the high 70s °F, which is approximately 25 °C to the mid-80s °F which is approximately 30 °C. However, when comparing different elevation, the village of Kenscoff, which is at about 4,700 feet or 1,430 meters, has an average temperature of about 60 °F or 16 °C in comparison to Port-au-Prince, which is at sea level and has an average of 79 °F or 26 °C. During the winter, frost is prone to occur at high elevations (Pallardy, 2020).

Practically all of Haiti's population are of African origin. There is a small minority of people who are of mixed European and African descent, they are referred to as mulattoes. They constitute a wealthier elite and account for most of the remainder. There is also a small number of people of European descent. Haiti has separated itself ethnically, linguistically, and culturally from other Caribbean and Latin American countries, which are markedly the Spanish-speaking and the English-speaking countries of the region. Haiti's official languages are Creole and French. Creole is normally used in everyday interactions, and French, which is considered the second language, is used in a more formal context. It is important to note that written Creole is

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

not widely accepted, because the school system retains French as the main language of instruction. Majority of the Haitian Creole vocabulary is derived from French, but in its syntax, it is similar to the Creole languages of the Caribbean and the Indian Ocean (Pallardy, 2020).

Haiti is a very unique country. They share many similarities and differences with their surrounding neighbors. Haiti was not a place common to earthquakes. No one in Haiti expected a devastating disaster such as an earthquake to occur. No one thought this type of natural disaster would destroy the country. They were mostly prone to encounter typhoons and floods. However, in the beginning of 2010, an unexpected earthquake hit the country leaving it completely destroyed. Not only was the island affected, but the entire population (DesRoches, 2011).

According to the CNN article “7.0 quake hits Haiti; 'Serious loss of life' expected” (2010), the earthquake that happened in southern Haiti was known to be the catastrophe of the Western Hemisphere’s poorest nation. This was a 7.0 earthquake which caused an estimated 300,000 deaths, displaced more than a million people, and damaged nearly half of all structures in the area (DesRoches, 2011). This disaster was so devastating to the residents that their lives were never what they used to be, and it took years of recovery. Their economy, their lifestyle, and their livelihood were drastically affected by this earthquake, an earthquake they were not prepared for (CNN, 2010).

Disaster Overview

Before the earthquake, Haiti had a low level of socioeconomic development. In 2000, the Human Development Index value in Haiti ranked 134th out of 166 countries (UNDP, 2016). Life for Haitians was not easy. Political unrest, malnourishment, and violence dominated Haiti, especially in the capital of Port-au-Prince and many people lived in slums. According to the

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

article titled, “Even before the deadly quake, Haiti’s situation was dire,” Kyle James shared some shocking statistics to describe what Haiti was like before the deadly earthquake in 2010. He shared that “Only 30 percent of Haitians have access to sanitation; 54 percent can access clean water, the unemployment rate is around 70 percent, about half of the population is illiterate, and the average salary is 66 cents per day” (James, 2010). More than half of the country’s population was living in extreme poverty prior to the earthquake and about half of the population had inadequate access to healthcare (Échevin, 2011). Living in such conditions made life difficult for Haitians and made the impact of the earthquake much more disastrous.

In 2008, storms and floods killed 500 people (EM-DAT, 2015). These storms also had detrimental impacts on crop production, with damages estimated at around 200 million US dollars (World Bank, 2013). The large earthquake that hit Haiti demolished it from an economic, political, and social standpoint. Haiti has been through many political setbacks and is still recovering from the damages. Haiti was born out of a colony premised on the theft of human lives. French slave masters kidnapped thousands of people from Africa, taking them to an island stolen from native people, where they worked to death in sugar and coffee fields. It took a 13-year war for the first Haitians to overthrow that system (Payton, 2019). Finally, Haiti won independence from France in the 1800s, making it the second country to free itself from colonial rule (Ferguson, 2020). Unfortunately, the country was still trying to recover from the 2008 floods and storms, and the earthquake hindered the repair of the country, preventing it from reaching its full potential.

While the earthquake hit Haiti and the Dominican Republic, it left Haiti more severely affected than its counterpart. The Haitian government counted more than 300,000 deaths, and more than a million people were left homeless. According to Encyclopedia Britannica, the

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

earthquake happened around 5:00 PM about 15 miles south of Haiti's capital, Port-au-Prince (Pallardy, 2010). The magnitude was 7.0 on the Richter scale followed by two aftershocks of 5.9 and 5.5. This resulted in extreme damage to the metropolitan area.

According to the New York Times, Haiti sits on a large fault that has caused quakes in the past (Romero, 2010). However, the earthquake that hit the country in 2010 was the most devastating. Many residents of the country were and continue to be of low income. They live in tin-roof shacks. Their homes were not designed to survive a disaster, especially a disaster of such magnitude. Furthermore, because Haiti was so stricken with poverty, their building codes were not up to date, homes were not stable enough to withstand an earthquake, people lived on the streets, and they lacked knowledge and preparation. "Prior to the earthquake, 70% of Haiti's government budget was provided by foreign aid; moreover, there was a lack of modern building codes and the codes that did exist were rarely enforced" (ICG, 2010). This combined with the earthquake made it difficult for the homes to survive the damage caused by the earthquake. The earthquake caused major damages to their buildings and homes. Many lives were lost as a result of the disaster. With the country in poverty and destroyed by an earthquake, recovery seemed to be impossible.

What made the earthquake so devastating in Haiti? According to CBC News, the earthquake happened 10-kilometers below ground ("Why Haiti's quake was devastating", 2010). They compared the earthquake to Seattle's 6.1 earthquake in 2001, stating that the earthquake was less damaging because the quake happened 60-kilometers below ground. Additionally, Seattle was more developed than Haiti, which meant their buildings were constructed to withstand the shaking and twisting of the earthquake, not like the tin-roof shacks Haitians were living in.

Looking further into social demographics, Haiti had a high level of corruption and inequality. Back in 2004, the United Nations Security Council established the United Nations Stabilization Mission in Haiti called MINUSTAH. “While Haitian National Police was progressively emerging as a law enforcement body, foreign military forces under MINUSTAH ensured basic security for both the population... and the developing community” (De Goyet, 2011). In addition to the poverty experienced by this country, adding political corruption and inequality made it that much more difficult for their quality of life and their resilience.

Not only did they face those challenges, but Haiti’s health system was and continues to be inadequate. Haiti does not have proper health services. 47% of Haitians lack access to basic healthcare (De Goyet, 2011). Due to the financial barriers, only a few of the whole Haitian population can access proper healthcare when it is needed. Yet, most of the population is in need of healthcare which provides a disproportionate ratio between the needs and the actual help being received. Overall, Haiti is known to be a third world country, lacking resources, healthcare, and high corruption. The main factors of Haiti’s vulnerability, according to the Pan American Health Organization, are the social and economic factors. Poverty, political instability, rapid urbanization, and the fragile nature of the country made the damages caused by the disaster a lot worse (2011).

Emergency Management Cycle Assessment

Before the disaster, the World Bank was working alongside the Haitian government to develop a disaster risk management that can be incorporated with Haiti’s development strategy (Margesson & Taft-Morales, 2010). This project was actually geared towards hurricanes rather than earthquakes because hurricanes are more common on this island, considering their location

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

in the Caribbean. Therefore, there were not many preparations made for this particular disaster. The last earthquake in Haiti was in 1860, about 150 years ago which is why the country decided to focus their preparations on hurricanes. Because earthquakes did not happen for more than 100 years, it makes sense that the country was not prepared for this disaster.

Disasters can come unexpectedly and can have detrimental effects if one is not prepared. While Haiti was aiming to become prepared for a disaster, they were more prepared for hurricanes than earthquakes. Fortunately, other neighboring countries stepped up to help this country. The United Nations, or the U.N., played an enormous role for the response and recovery of Haiti. MINUSTAH provided search and rescue operations, security, and assistance after the earthquake. “Haitian President Rene Preval discussed the status of the rescue operations and to address issues of law and order with regard to looting and criminal activity” with Edmond Mulet, the head of MINUSTAH. The United Nations Headquarters in Haiti was destroyed in the earthquake. The total count of international employees of MINUSTAH who lost their lives in the disaster was 102. (De Goyet, 2011).

In a disaster response, there is a specific cycle that should be implemented. There is the preparedness stage, the response stage, the recovery stage, and the mitigation stage. Haiti was developing the preparedness stage but for a completely different type of disaster. Unfortunately, the relief efforts were not what Haiti expected. In the article titled “Haiti 10 Years After the Earthquake: Why So Little Recovery Progress in a Decade?”, the interviewee stated that “nothing [has] happened. No planning. No leadership. No project (Padgett, 2020). According to the author of the article, real debris removal took place one year after the earthquake. Haiti made minimal progress in this time period which hindered its recovery. (Padgett, 2020). The article titled, “A Comparison of a Formal Camp and an Informal Camp in Haiti” states that there have

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

been numerous controversies in regard to the delayed disaster recovery despite more than \$10 billion in donations from around the world. (Corbet, 2014)

During and after the disaster, health care services were very limited, thus leaving the population in complete suffrage. An article written by Pallardy states, “survivors were forced to wait days for treatment and, with morgues quickly reaching capacity, corpses were stacked in the streets.” (2020). The country’s major hospital opened after seven years (Padgett, 2020). That means there were seven years that services were limited for patients. These services were limited to all those who suffered injuries as a result of the disaster. Yet it is impactful to notice the statistics concerning children. According to Dube, there were 471 pediatric patients with traumatic injuries. These included: 42.0% with crush injuries to their extremities, 22.0% with axial injuries, 6.8% with other musculoskeletal injuries, 3.4% with open head injuries, and 2.7% with compartment syndrome and a non-musculoskeletal surgical injury. (2018) Those who treated patients saw a number of injuries and yet were limited because the major hospital was closed.

In addition to injuries, children also faced food insecurity and shortage which is carried on until this day. “17.2% of Port-au-Prince households reported that their child had gone hungry in the previous month, 22.5% stated that their child had skipped a meal in the past month, and 22.6% reported that they had reduced the size of their children’s meals in the previous month.” (Dube, 2018) Since then, children have been significantly impacted and lack access to clean water, proper sanitation, and appropriate health care. Many children suffer from malnutrition, stunted growth, and food insecurity, along with other health issues including mental health. Among 540 children aged 2-18, researchers found that there were higher rates of post-traumatic stress disorder among females and among those who lacked a support system, but post-traumatic

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

stress disorder was prominent in the overall children. They also found that children struggled with depression and homelessness. Researchers recommend that Haiti considers mental health as a priority (Dube, 2018).

In an article written by Daniel Abrahams, which examines environmental sustainability in post disaster settings, he states that recovery is the least studied stage of a disaster (2014). Many people question why Haiti has made so little recovery after all these years even though billions of dollars were spent towards recovery. It has been 10 years since the earthquake and yet Haiti remains as one of the poorest countries. Some say that people are suffering because of the country's unstable government system. According to a news article from *The Conversation*, several studies have shown that international interventions have failed to manage the disaster (Savard, 2020). It was so disorganized that it has done more damage than good. Although the United Nations have deployed MINUSTAH, it was ineffective in mitigating the damages and helping the country recover.

Despite the fact that international efforts were not as organized as they should have been, many countries continued to step in and help Haiti. For example, the United States provided supplies and search-and-rescue teams to carry out the operation (Labott, 2010). The “Aid begins flowing to Haiti” article adds that the United States sent aid by ship, although it took five days to get to Haiti. Rescue teams and relief aids from all over the world assisted Haiti in disaster operations in areas where they were lacking such help. However, the response effort had plenty of room for growth and change.

Haiti suffered an impactful economic downfall as a result of the earthquake. The damages cost about \$8 billion. 60% of the government buildings and 80% of the schools were destroyed and damaged (Amadeo, 2020). About ten months after the earthquake, there was an outbreak of

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

cholera in the country, leading to more deaths. “It has killed about nine thousand people and infected about seven hundred thousand” (Katz, 2015). It was similar to what the pandemic that is currently occurring in the world; the coronavirus. People were afraid to go near each other, they were cautious to go into other people’s homes, and they did not shake hands. Overall, it changed people’s relationships with one another, distancing the country. The epidemic continued for almost six years and also changed the country immensely.

Unfortunately, many articles and studies have stated that aid has failed for Haiti. Amongst the failures are a slow recovery, an epidemic occurrence, and not meeting people’s needs. According to an article from The Guardian, the author stated that “in the 11 months since the quake, little has been done to improve sanitation across the country, allowing cholera to spread at a dizzying pace” (Karunakara, 2010). After reading many news articles, one can only conclude that what Haiti went through in 2010 was more than the country could handle. Although relief aids were provided by people who were able to help, there is still a lot of work to be done for Haiti. As of now, in 2020, Haiti is still considered one of the poorest countries in the world. Why is it that nobody is doing anything for the country in need? Why is it that their government is not doing anything for their people?

In the past, the government was just as corrupt as it is now. In 1950, Haiti instituted universal suffrage, but most of its elections have been flawed because of ballot tampering. The country’s constitution was approved by ballot in 1987 but not actually put into effect until 1995, during Jean-Bertrand Aristide’s presidency. Additional amendments were approved in 2011 and took effect the following year. The constitution, which incorporates aspects of the United States and French constitutions, provides for a president who is both head of state and the country’s

main power holder (Pallardy, 2020). The country continues to suffer from government tampering and corruption.

Protesters are demanding that President Jovenel Moise be ousted because he was accused of involvement in a \$2 billion corruption scandal of the project funds (Padgett, 2020). The corruption within the Haitian government could be one of the reasons why the country has made so little progress until this day. According to “Building Corruption in Haiti” by Claire Antone Payton, Haiti is still struggling through a financial recession that has exacerbated the nationwide poverty. The value of Haitian currency has declined even further, and Haiti will have to pay back the borrowed money at some point, which will inevitably require squeezing even more out of a long-suffering population (2019). Yet, the government corruption fails to cease.

The first step of mitigation for this country is for the people, organizations, and government to understand the geography of their country. Haiti is located in the Caribbean Sea on the Hispaniola Islands next to the Dominican Republic. On the island, there are spectacular mountains and beautiful coastlines which attracts tourists from all over the world. According to a case study of Haiti for risk management and disaster mitigation, Granvorka stated that the “country is located in the middle of a hurricane belt and the nation often experiences severe storms” (Granvorka, 2010). With the mountainous terrains and very little fertile farmland, the country is vulnerable to floods, earthquakes, coastal erosion, and the rising of the sea level.

Unfortunately, the country has not implemented policies or institutions to address environmental concerns. According to the same case study, the authors suggest that government subsidies be used as incentives to address environmental policies. The authors also suggest that taxing tourism can fundraise for implementation of environmental policies that are ready. Tourism is a huge source of income for Haiti because the beaches and other attractions that spark

interests in tourists from all over the world. Although, it may not be the best solution for the island to mitigate future disasters. (Granvorka, 2010).

The Caribbean Disaster Emergency Management Agency (CDEMA) have established a Regional Roadmap that “will assist stakeholders from local, national and regional levels as well as public, private and civil society sectors to identify, implement and report on actions taken in their various spheres of work related to risk governance, understanding urban seismic risk, mitigation and preparedness, response, recovery and reconstruction, public awareness and education, risk finance and transfer, and business continuity planning” (CDEMA, 2017). The purpose of the Regional Roadmap is to identify which urban area of the country is in most need for interventions after a disaster and implement an urban seismic risk management in the Caribbean (“Regional Road Map for Urban Seismic Risk Management in the Caribbean”, 2016).

Recommendations

As pointed out throughout this paper, though Haiti was aiming to prepare for a disaster, they prepared for the wrong one. While it is true that one may be surprised by certain disasters, this is definitely a learning experience for the country. According to Best and Burke, “The earthquake in Haiti is a case of massive economic damage that can result from unexpected natural disasters, especially in countries with relatively low disaster risk preparedness. Risk escalation from potential climate change and population growth is likely to increase the importance of investment for risk reduction in coming years” (2019). Therefore, they should highly consider making changes to future policy development. New policies should include training and educating the community on emergency preparedness in order to be better equipped when facing another disaster. If emergency intervention can be implemented by community

members to help mitigate the results of the disaster, the community will be better off when recovering and will become more resilient together.

According to Ramya Chari et al., “the use of scientific principles and methods by non-professional scientists or volunteers may be a promising way to enhance public health emergency preparedness and build community resilience.” (Chari, 2019). Researchers found that the use of scientific principles by volunteers are widely recognized and represent many areas of opportunity for public health emergency preparedness. These projects have the potential to expand public health emergency preparedness capabilities such as facilitating greater data collection opportunities to support situational awareness, community risk and vulnerability assessments, and identification of recovery needs. Nonetheless, guidance on engaging with this approach should be made available to public health professionals (Chari, 2019).

Researchers concluded that disasters significantly affect the population by causing death, disease, injury, damage to homes and communities, and adverse mental and physical consequences. This leaves the community, region, or country, weak and vulnerable. However, disasters are inevitable, so one can only prepare for these. Therefore, public health agencies are in need of tools to support public health emergency preparedness efforts and they believe that engaging non-professional scientists and volunteers will be an asset in preparing for future disasters. By providing these tools to public health agencies, they will be better equipped to prepare and educate members of the community (Chari, 2019). An article that looks at planning for post disaster recovery agrees by stating that a rational planning approach in which excessive weight is placed on scientific information and expert knowledge has been highly effective. Resilience is perceived more as a measurable quality of communities that can be increased through technical toolkits (Smith, 2011).

When creating an emergency preparedness plan it is also important to consider which members of the community are at a higher risk. A study was conducted to determine the risk factors related to injury and death in earthquakes. According to this study, age was the strongest factor. Age increased the risk of death during an earthquake. Another factor was the socioeconomic status of the individual, followed by physical disabilities and gender. Those who are older than 65 years of age have the highest risk of dying in an earthquake compared to younger individuals. The study recommends the use of an innovative approach that takes into account the built environment and population characteristics to predict earthquake casualties and have it under consideration when creating an emergency preparedness plan. (Shapira et al., 2016)

Social workers play an important role in preparing for and mitigating such disasters. Human behavior is contributing and highly increasing disaster risk. Therefore, social workers are called to work in disaster settings all over the globe and to collaborate with disaster relief. Pyles suggests that social workers learn about the area they will be serving before arriving at the scene. This will help with understanding the community dynamic and structure. Pyles states, "It is critical for social workers to understand the social, political, economic and environmental structures and arrangements that undergird the disaster context." Furthermore, she emphasizes that while social workers are an asset, community participation is of uttermost importance for sustainable disaster recovery (2017).

There needs to be more volunteers willing to help in any crisis situation. It is certainly not easy to volunteer for such a crisis because it takes sacrifice of time and resources. International aid is effective because they probably have training that can be more effective. Unfortunately, in this case, the United Nations was not able to respond because they too were affected by the disaster. The US Agency for International Development (USAID) uses a response management

team in Washington that deployed to Haiti to help out. According to the research article done to analyze the international and U.S. response to the earthquake, “the US government had the largest number of personnel and contributed the largest amount of all countries, totaling \$1.1 billion in six months” (Krisch, 2011). If the United States can contribute that much in a short amount of time, how much more can other countries contribute to aid a poor country?

Conclusion

It is unfortunate for Haiti to experience such loss. Many people lost their lives and loved ones in the earthquake. Survivors struggled to make ends meet post-disaster. Government did not know what to do to help their people and international aid was lacking in many ways. There is a lot of room for growth in Haiti. This island can be a learning example of how to better prepare for any disaster and to learn from their mistakes.

Haiti did not make a lot of progress after the earthquake, but it made some improvements, such as the Regional Roadmap mentioned. Some people still suffer from the trauma caused by the earthquake. Some still live in slums with no running water, concrete homes, and wooden shacks. The country is still lacking many resources such as access to appropriate health care. Haiti is still having a difficult time recovering from this intense disaster.

Countries all around the world donated a total of \$10 billion to Haiti for recovery (Kahn & Pierre, 2020). With the embezzlement scandal of former president Moise, there was no hope for recovery. Haitians became inpatient and decided to pick themselves up and “no longer wait for the government or aid groups to build them more permanent homes” (Kahn & Pierre, 2020). Haitians continued to provide for themselves as they recovered from the disaster.

In the future, it is hoped that more third-world countries can better prepare themselves for any unexpected disasters. More research needs to be done, more preparedness strategies need to be implemented, and more warnings for potential disasters need to be provided for the people. It is recommended that countries take the advice given by Ramya Chari et al., “the use of scientific principles and methods by non-professional scientists or volunteers may be a promising way to enhance public health emergency preparedness and build community resilience.” (Chari, 2019). This way, the community can be equipped with tools to help mitigate and alleviate post disaster effects and damages.

It is also recommended that social workers become involved in the entire process. Social workers are an asset in preparing for and mitigating such disasters. Consequently, they are called to work in disaster settings all over the globe and to collaborate with disaster relief. It is as equally important that social workers learn about the area they will be serving before arriving at the scene in order to better understand the community dynamic and structure. As emphasized by Pyles, while social workers are an asset, community participation is of extreme importance for sustainable disaster recovery (2017).

Overall, there are many strategies to revisit and implement when formulating disaster management strategies. However, though many mistakes were made in the recovery stages when dealing with the aftereffects of the disastrous earthquake that hit Haiti, there is still hope for the country to recover. It might be a slightly longer and more difficult journey than expected because of the unpreparedness of the country as a whole, but it is feasible. Haiti will never be the same, there are long lasting effects that have changed the country and the population, but this can be a learning experience that points out opportunities for growth and improvement. Haiti must be

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

intentional in preparing for future earthquakes and they must be intentional in helping the country through the recovery process, but there is still hope for Haiti.

References

Abrahams, D. (2014). The barriers to environmental sustainability in post-disaster settings: a case study of transitional shelter implementation in Haiti. *Disasters*, 38, S25–S49.

<https://doi-org.ezproxy.southern.edu/10.1111/dis.12054>

Amadeo, K. (2010, January 18). *Haiti's 2010 earthquake caused lasting damage*. The balance. <https://www.thebalance.com/haiti-earthquake-facts-damage-effects-on-economy-3305660>

Best, R., & Burke, P. J. (2019). Macroeconomic impacts of the 2010 earthquake in Haiti. *Empirical Economics*, 56(5), 1647–1681. <https://doi-org.ezproxy.southern.edu/10.1007/s00181-017-1405-4>

CBC. *Why haiti's quake was so devastating*. (2010, January 13).

<https://www.cbc.ca/news/world/why-haiti-s-quake-was-so-devastating-1.907001#:~:text=Why%20Haiti's%20quake%20was%20so%20devastating,seismologist%20familiar%20with%20the%20area.>

Chari, R., Petrun Sayers, E. L., Amiri, S., Leinhos, M., Kotzias, V., Madrigano, J., Thomas, E. V., Carbone, E. G., & Uscher-Pines, L. (2019). Enhancing community preparedness: an inventory and analysis of disaster citizen science activities. *BMC Public Health*, 19(1), N.PAG. <https://doi-org.ezproxy.southern.edu/10.1186/s12889-019-7689-x>

Clormeus, J. J. (2020, January 9). *A decade after the earthquake, Haiti still struggles to recover*. The conversation. <https://theconversation.com/a-decade-after-the-earthquake-haiti-still-struggles-to-recover-129670>

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

Corbet, A. (2014). Dynamiques d'encampement: Comparaison entre un camp formel et un camp

informel en Haïti [Dynamics of Encampment: A Comparison of a Formal Camp and an

Informal Camp in Haiti]. *Cultures & Conflits*, 93 (printemps 2014). (In French).

DesRoches, R. (2011, October 1). *Overview of the 2010 Haiti earthquake - Reginald DesRoches, Mary Comerio, Marc Eberhard, Walter Mooney, Glenn J. Rix, 2011*. SAGE Journals.

<https://journals.sagepub.com/doi/10.1193/1.3630129>

Dube, A., Moffatt, M., Davison, C., & Bartels, S. (2018). Health Outcomes for Children in Haiti

Since the 2010 Earthquake: A Systematic Review. *California English*, 23(3), 77–88.

<https://doi-org.ezproxy.southern.edu/10.1017/S1049023X17007105>

Échevin D (2011) Vulnerability and livelihoods before and after the Haiti earthquake. World

Bank Policy Research Working Paper 5850. Latin America and the Caribbean Region,

Social Protection Sector, Oct 2011

EM-DAT (2015) D. Guha-Sapir, R. Below, Ph. Hoyois—EM-DAT: International Disaster

Database, Université Catholique de Louvain, Brussels, Belgium. www.emdat.be

Ferguson, J. A., Girault, C. A., MacLeod, M. J., Lawless, R. (2020, March 17). *Haiti*.

Encyclopedia britannica. <https://www.britannica.com/place/Haiti>

Health response to the earthquake in Haiti [PDF File]. (2010). *Pan American Health*

Organization. Retrieved from

<https://www.paho.org/disasters/dmdocuments/HealthResponseHaitiEarthq.pdf>

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

ICG (International Crisis Group) (2010) 'Haiti: Stabilisation and Reconstruction after the Quake'. Latin America/Caribbean Report No. 32.

http://www.crisisgroup.org/~/media/Files/latin-america/haiti/32_haiti__stabilisation_and_reconstruction_after_the_quake.ashx.

James, K. (2010, January 14). *Even before deadly quake, Haiti's situation was dire*. Made for minds. <https://www.dw.com/en/even-before-deadly-quake-haitis-situation-was-dire/a-5127224#:~:text=Even%20before%20deadly%20quake%2C%20Haiti's%20situation%20was%20dire&text=At%20its%20founding%20Haiti%20was,political%20instability%20and%20environmental%20degradation>.

Kahn, C., & Pierre, J. (2020, January 12). A 'Lost Decade': Haiti Still Struggles To Recover 10 Years After Massive Earthquake. Retrieved June 25, 2020, from <https://www.npr.org/2020/01/12/794298546/a-lost-decade-haiti-still-struggles-to-recover-10-years-after-massive-earthquake>

Kirsch, T., et al. (2012). Analysis of the international and US response to the Haiti earthquake: recommendations for change. *Disaster medicine and public health preparedness*, 6(3).

Retrieved from

https://www.researchgate.net/publication/232281517_Analysis_of_the_International_and_US_Response_to_the_Haiti_Earthquake_Recommendations_for_Change

Labott, E., Levine, A. S., Darlington, S., Watkins, T., Tkachenko, M., Nyberg, P., Jean-Francois, E., Feyerick, D., Smith, M., Mount, M., Shaughnessy, L., Rentas, K., and

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

Meilhan, P. (2010, January 14). *Aid begins flowing to Haiti*. CNN - Breaking news, latest news and videos.

<https://www.cnn.com/2010/WORLD/americas/01/13/haiti.aid.response/index.html>

Llorente-Marron, M. (2019, December 22). *Socioeconomic consequences of natural disasters on gender relations: The case of Haiti*. ScienceDirect.com | Science, health and medical journals, full text articles and books.

<https://www.sciencedirect.com/science/article/pii/S2212420919318035?via%3Dihub>

Margesson, R. & Taft-Morales, M., *Haiti Earthquake: Crisis and Response* [PDF File].

Congressional Research Service. Retrieved from

<https://apps.dtic.mil/dtic/tr/fulltext/u2/a516429.pdf>

Padgett, T. (2020, January 6). *Haiti 10 years after the earthquake: Why so little recovery progress in a decade?* WLRN | Miami, Ft Lauderdale, South FL: WLRN Miami herald news, events, radio. <https://www.wlrn.org/post/haiti-10-years-after-earthquake-why-so-little-recovery-progress-decade>

Pallardy, R. (2020, January 5). *2010 Haiti earthquake*. Encyclopedia britannica.

<https://www.britannica.com/event/2010-Haiti-earthquake>

Payton, C. A. (2019). Building Corruption in Haiti: In Haiti, illicit income extraction is a constantly constructed mode of governance, helping to explain popular outrage surrounding the recent PetroCaribe scandal. In *NACLA Report on the Americas* (Vol. 51,

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

Issue 2, pp. 182–187). [https://doi-](https://doi-org.ezproxy.southern.edu/10.1080/10714839.2019.1617488)

[org.ezproxy.southern.edu/10.1080/10714839.2019.1617488](https://doi-org.ezproxy.southern.edu/10.1080/10714839.2019.1617488)

Pyles, L. (2017). Decolonising Disaster Social Work: Environmental Justice and Community Participation. *British Journal of Social Work*, 47(3), 630–647. [https://doi-](https://doi-org.ezproxy.southern.edu/10.1093/bjsw/bcw028)
[org.ezproxy.southern.edu/10.1093/bjsw/bcw028](https://doi-org.ezproxy.southern.edu/10.1093/bjsw/bcw028)

Regional roadmap for urban seismic risk management in the Caribbean [PDF File]. (2016).

Government of Haiti. Retrieved from: <http://dipecholac.net/docs/regional-road-map-for-urban-seismic-risk-management-in-the-caribbean.pdf>

Remembering 2010 earthquake in Haiti - Regional roadmap for urban seismic risk management in the Caribbean - CDEMA. (n.d.). Caribbean Disaster Emergency Management Agency - CDEMA. <https://www.cdema.org/news-centre/news/44-barbados/1647-remembering-2010-earthquake-in-haiti-regional-roadmap-for-urban-seismic-risk-management-in-the-caribbean>

Renwick, D. (2015, January 12). *Haiti's reconstruction struggles*. Council on foreign relations.

<https://www.cfr.org/interview/haitis-reconstruction-struggles>

Romero S. and Lacey, M. (2010, January 13). *Fierce quake devastates haitian capital*. The new york times - Breaking news, world news & multimedia.

<https://www.nytimes.com/2010/01/13/world/americas/13haiti.html>

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

Saffache, P. (2010, April 1). *Risk management and disaster mitigation: A case study applied to Haiti*. OpenEdition Journals.

<https://journals.openedition.org/etudescaribeennes/4559?lang=en>

Shapira, S., Novack, L., Bar-Dayan, Y., & Aharonson-Daniel, L. (2016). An Integrated and Interdisciplinary Model for Predicting the Risk of Injury and Death in Future

Earthquakes. *PLoS ONE*, 11(3), 1–11. <https://doi.org.ezproxy.southern.edu/10.1371/journal.pone.0151111>

Simon, M., Jean-Francois, E., Darlington, S., Feyerick, D., Smith, M., Meilhan, P., Mount, M., and Griggs, B. (2010, January 13). *7.0 quake hits Haiti; 'Serious loss of life' expected*.

CNN - Breaking news, latest news and videos.

<https://www.cnn.com/2010/WORLD/americas/01/12/haiti.earthquake/index.html>

Smith, G. (2011). *Planning for post-disaster recovery: A review of the United States disaster assistance framework*. Washington, DC: Island Press.

The Guardian. *Haiti: Where aid failed*. (2017, May 31). the guardian.

<https://www.theguardian.com/commentisfree/2010/dec/28/haiti-cholera-earthquake-aid-agencies-failure>

UNDP (2016) United Nations Development Programme: Human Development Reports. Table 2:

Trends in the Human Development Index, 1990–2014.

<http://hdr.undp.org/en/composite/trends>.

Running head: ASSESSMENT OF HAITI EARTHQUAKE IN 2010

World Bank (2013) Agriculture in Haiti: highly vulnerable, mostly uninsured, April 3. <http://www.worldbank.org/en/news/feature/2013/04/03/agriculture-in-haiti-highly-vulnerable-mostly-uninsured>.