

Student name- Aditya Singh
High School Name- Escuela Campo Alegre
School City, State, Country- Caracas, Miranda, Venezuela
Selected country, Topic -Haiti, Climate Volatility

Essay Title- **Examining the impact of hazardous climate and other conditions in Haiti**

Haitians treasure the children in their society. The community comes together to raise a child and indulge in them. Sometimes, mothers go hungry to feed their children. But, if the problem is that of one of the highest levels of chronic food insecurity in the world (United Nations World Food Programme, 2022) that act of sacrifice takes a different dimension. Haiti, also known as the “mountainous country” in the language of the Taino Indians, also has had to face huge mountains of trouble in a literal sense. Haiti ranks 170 out of 189 countries on the 2020 Human Development Index (United Nations World Food Programme, 2022) with more than half its people living below the World Bank’s poverty line. 22% of its children are chronically malnourished (United Nations World Food Programme, 2022). How does one consider this a gift? Why should a child have to worry about things that shouldn’t cross their innocent minds, yet children in Haiti have to perpetually worry not just about the next meal but also about their security and survival against the unrest in the country? Children have to contribute a lot and work to support their families at the cost of their education, safety, and well-being. Sometimes they turn into scavengers to feed themselves.

To understand the situation in this beautiful Caribbean island, one must learn more about its past and present. Haiti, once a front-runner for racial equality and a force against foreign domination, is crumbling every day and there seems to be no hope at the end of the tunnel. Haiti has struggled with its development for a long time. The country suffers from political instability and climate volatility, which has changed the country's fortunes. Haiti occupies western one-third of the island of Hispaniola, between the Caribbean Sea and the North Atlantic Ocean, west of the Dominican Republic (CIA, 2022), and is one of the most densely populated countries in the world, with 1,000 people for every square mile (NatGeo Kids). Its capital Port-au-Prince is home to nearly three million residents and the rest of the population lives in rural areas. The climate is mostly tropical with variations based on altitude.

To understand how a typical Haitian leads a life amid so much uncertainty, it is important to get an insight into a typical Haitian family. A typical Haitian family has about four to five people per household in a two-room house. Haitian society is matriarchal. Haiti’s economy is informal (USAID, 2021). It is a nation of small farmers, commonly referred to as peasants, who work small private landholdings and depend primarily on their labor and that of family members. There are no new plantations or concentrations of land. The forest cover in Haiti, which covered the entire small island nation, has been dramatically reduced. While men in rural settings do engage in the hard jobs like tilling and harvesting, women also contribute to the work and as a part of Haiti’s culture, a women's economic contribution to the farm is that all income generated through agricultural production is appreciated by Haitians, and the earnings belong to both husband and wife. Women participate more in comparison to other Latin American countries. They sell the produce in the markets and also take care of traditional household duties. But due to extreme deforestation and flooding, farming on small landholdings is also difficult (USAID, 2021). Erosion is severe with not enough forest cover to hold on to the soil. Owing to the quality of the soil, it is not rich in nutrients due to insufficient supply. In most rural areas, the average family of six earns less than \$500 a year. As Haitian children, they are engaged in insignificant yet important jobs like filling water, washing dishes, and cleaning clothes to sell goods to get some money for the home. The majority of children lack quality education (USAID, 2022)

The diets of Haitian people are simple. Haitians have a sophisticated knowledge of the food groups

and try to always dish out a well-balanced meal. They also have a good knowledge of how to deal with different diseases by combining different types of food. Their problem magnifies not due to a lack of understanding but by lack of access to all these food products. Farmers focus mainly on subsistence crops like plantain, corn, or cassava. Peasant women sell much of the family harvest in marketplaces and use the money to buy household foods. Haitians love to eat rice and beans. In addition to these staples, one can find sweet potatoes, pigeon peas, cowpeas, manioc flour (Cassava), bread, and coffee being eaten by them. Locals enjoy eating cassava flour candies, sugarcane, sweet mangoes, and a sesame seed cluster candy. Common Haitians can eat two meals a day. A small breakfast of coffee and bread with some fruits followed by a big lunch of a serving of carbohydrates like rice and proteins like beans accompanied by a small portion of poultry or fish or beef if one can afford it. Fruit is a snack between meals. Common people do not necessarily have community or family meals, and people eat wherever they are comfortable. Haitians eat a snack before going to bed. The concept of a meal is non-existent in Haitian culture. Their language repertoire also lacks a similar word in creole. They refer to it as manje (food). But due to increasing prices of food items, the common man is finding it challenging to obtain normal food items. The crisis in Ukraine has also affected the demand and supply chains of this pressurized economy. The price of wheat and other goods is very high and has almost become unaffordable for the common man. The plight of children and families in this region is heart-wrenching. They are forced to eat mud cookies to keep hunger at bay. Pregnant women and children have to eat yellow clay, shortening, and salt cookies in the absence of any food. One can only feel their pain and hopefully try to not waste even a morsel of food after reading this. I feel overwhelmed.

If this was not enough to unsettle the reader, I'd like you to briefly look at some challenges in figures in this country. We all know that Haiti has a high poverty rate. 24.7 percent of Haitians live in extreme poverty (UNDP, 2013), which is less than \$1.25 per day. 59% of the population lives on less than US\$2 per day (World Bank, 2012). According to recent data more than 1.3 million are estimated to be in the emergency phase of the Integrated Food Security Phase (UN, 2022). The currency has weakened against the dollar, inflation has soared, and the prices of all kinds of goods have risen, leaving most households with greatly reduced purchasing power, making most items unaffordable.

Haiti is a vulnerable situation engulfed by different problems like hunger, Covid, and natural disasters. The WFP Country Director Pierre Honnorat in his address compared it to being in a 'ring of fire' (UN, 2022). Widespread deforestation has resulted in flooding, landslides, and natural disasters that have left the country in shambles (Council on Foreign Relations, 2021). The earthquake of 2010 was the worst in the history of this nation. It led to 220,000 nationals killed and 1.5 million displaced (UN News, 2022). The country was slowly moving to rebuild itself and was blown away by another natural disaster in 2016, Hurricane Matthew ravaged the entire nation targeting livestock and infrastructure. And if Covid 19 were not enough, this island nation was struck by an earthquake of 7.2 magnitudes, and a tropical storm that exacerbated the situation and caused flooding in the area resulting in epidemics like Malaria and Cholera. There are so many NGOs working in Haiti but the effectiveness of their work can't be seen. Although they have good intentions, there is extreme mismanagement in the way funds are used. Even with the presence of large NGOs like Oxfam, USAID, and Care. They face difficulties with allocating funds and also addressing the needs of the local community in a culturally sensitive way. Haiti faces a heavy reliance on external revenue as there exists a trade deficit of 190 million due to the loans taken to rebuild Haiti (Council on Foreign Relations, 2021) and corrupt leadership sweeping the funds. Tourism has experienced a steep decline in Haiti from 1.3 million tourists in 2018 to 938,000 in 2019 (Worlddata.info). International debt was suspended after a disaster in July 2021. Political turmoil also contributed to the ever-worsening situation in Haiti. The lack of sound administrators has led to this nation's decline in a huge way. Haiti doesn't have sound city planning. Houses are made with substandard materials like cement and the coastal population is still living in piles of garbage and debris not yet cleaned from previous disasters paints a grim picture of an inhospitable place to live in. Haiti practically has no sewer system. Reconstruction will cost the state more than it can afford or borrow.

Since Haiti has the largest number of NGOs working for relief efforts, some groundwork is being laid to promote sustainable agricultural practices and educate farmers collectively on the importance of conserving soil. USAID has supported the planting of five million seedlings to help increase the tree cover and stabilize watersheds throughout the country(USAID,2018). These efforts will promote more tree cover and separate programs are also in place to encourage the citizens to use cookstoves and not charcoal for cooking to help lower CO2 emissions.

Climate volatility is seen in droughts, extreme weather, floods, or earthquakes. The main thing Haiti needs to focus on right now is replenishing its soil as it has been depleted, and the quality of soil adversely affects crop production and many other things. Climate volatility affects agricultural productivity by raising the price of crops or increasing dependence on foreign aid.

If the farmers can work on improving the soil by adopting new and better techniques, they might be able to salvage the crops and save the soil for a more productive yield as nutrient-rich soil can give rise to better crops. Haiti's coastline and marine resources are not in the best possible shape because of sediment deposits and overfishing (Deutsche Welle). Some efforts are being taken locally by different organizations, one such organization is called SOIL (Sustainable Organic Integrated Livelihoods), which has built a system that converts human waste into valuable fertilizers (oursoil.org 2021).

Since Haiti struggles with basic sanitation and garbage disposal, this organization works by converting the excreta and waste matter at high heat for a long time to change it into a nutrient-rich fertilizer that the nation's barren land needs(oursoil.org). This idea is a good sustainable measure and has also attracted some foreign investors, similar to this situation is a place called Uttarakhand in India, where landslides, floods, and earthquakes are a common phenomenon and this state has also lost a lot of soil cover and suffers due to the lack of crop production and droughts. What can be learned from the handling of their situation is to have small, yet effective steps to solve the problem. Uttarakhand has a soil loss map, which gives a more accurate picture of the target areas and steps can be taken more efficiently.

The main cause of soil erosion is the geological formation, seismic activity, and deforestation. Scientists have found the importance of incorporating different agricultural practices like farm-forestry, agro-horticulture, and/or agroforestry to stop soil loss in cultivated areas(Current Science,2018). Since Haiti farmers don't use many new agricultural practices, learning from this solution could be helpful. Uttarakhand is using a geographic information system (GIS) and universal soil loss equation (USLE) (Current Science, 2018) to plan for their situation. GIS is something that displays and reads geographical information. According to the CDC, "CDC Haiti hosted a Quantum GIS training course in 2017 for all CDC implementing partners as well as Haitian Ministry of Health colleagues working in HIV care, treatment and surveillance".

This idea seems to be good preparation. Haiti can also try to have more models like this to be better prepared. Soil erodes when there is no tree cover, and Haiti is trying to increase its tree cover with the help of USAID seedlings. This state in India is planting on slopes to maximize rainwater protection and reduce runoff and soil nutrient loss. They are doing contour farming, that is, planting on slopes along their elevation contours to slow runoff water. Intercropping is heavily promoted here, as is the practice on farms in Haiti, but I suggest that new and different varieties are planted on the farms in Haiti. There, the crop will yield better products and the situation might improve. It would be simple to incorporate contour farming in Haiti because the terrain consists of mostly rugged mountains. Furthermore, there are many benefits of contour farming. According to the USDA, contour farming can reduce soil erosion by up to 50 percent. It also provides better water quality. Although, we'd still have to teach the farmers how to do so. To teach the farmers how to do so, we can organize a Farmer Field school where 30 or more people can meet and share ideas and solutions. Just meeting wouldn't provide the Haitian people with the knowledge needed to progress at an exponential rate. I propose a modified farmer field school where there will be a member of the Indian ministry of agriculture there to enrich the local farmers of Haiti with the knowledge of different farming methods. I will personally

help the WFP organization to get in contact with an expert from the Indian ministry of agriculture . In addition to that we will gather volunteers to embark on an exchange program to Haiti to exchange agricultural knowledge.

Haiti has a huge demand for rice, and from being self-sufficient, they started importing it from the USA. Farmers in Haiti can grow soybeans, which have several health benefits and if taken with mushrooms, it can provide more nutrition and help improve the malnutrition noticed in 53% of the population of children and women (National Library of Medicine, 2015). These kinds of biscuits have been used to improve the Protein-energy malnutrition(PEM) of the people of Bangladesh. Since food insecurity impacts one's physical health, leading to further physical toll. The human body is recommended to have about 2,200-2,800 calories a day (Web MD,2019), and an average Haitian doesn't get those. Growing Soybeans can be a good solution. Soybeans have been proven to be an excellent source of plant-based protein which provides good gut health and also lowers cholesterol. Also, Soybeans are more resistant to flooding compared to growing corn crops. They are great to cover crops. Mulching will be very helpful if Haitian farmers practice it to save soil and improve its quality. I've personally made rock dams at my aunt's house in Uttarakhand and that can greatly help the soil from flowing easily. They are low on investment and high on benefits.

Ultimately, Haiti must take a considered view with the help of its citizens and local operating bodies to address the issues that they face due to climate volatility. By focusing on quick rebuilding measures, educating farmers and citizens, and working in collaboration with all stakeholders on set targets, they can think of moving ahead in baby steps. Hopefully, they can restore their once lost glory and can use the rich biodiversity they are blessed with to improve their situation.. Overall, if Haiti implements solutions provided by the WFP organization, I can see a bright future for Haiti.

Work cited

“Haiti Remains in 'Acute Political and Institutional Crisis', Security Council Hears || UN News.” *United Nations*, United Nations, <https://news.un.org/en/story/2022/02/1112262>.

Central Intelligence Agency, Central Intelligence Agency, <https://www.cia.gov/the-world-factbook/countries/haiti/>.

“Haiti: World Food Programme.” *UN World Food Programme*, <https://www.wfp.org/countries/haiti>.

“Haiti: Un Agencies Warn of 'Unabated' Rise in Hunger - Haiti.” *ReliefWeb*, <https://reliefweb.int/report/haiti/haiti-un-agencies-warn-unabated-rise-hunger>.

Boatner, Kay. “Haiti Facts and Photos.” *Geography*, National Geographic Kids, 3 Sept. 2021, <https://kids.nationalgeographic.com/geography/countries/article/haiti>.

“Environment.” *U.S. Agency for International Development*, 10 Jan. 2020, <https://www.usaid.gov/haiti/environment>.

“Haiti – GENDER ROLES AND FAMILY LIFE.” Haiti – GENDER ROLES AND FAMILY LIFE. N.p., n.d. Web. 25 Nov. 2015. Retrieved from <http://countrystudies.us/haiti/29.htm>

Katz, Jonathan M. “Haitians Trick Empty Bellies with Dirt Cookies.” *Boston.com*, The Boston Globe, 31 Jan. 2008, http://archive.boston.com/news/world/articles/2008/01/31/haitians_trick_empty_bellies_with_dirt_cookies/.

“Haiti: Un Agencies Warn of 'Unabated' Rise in Hunger || UN News.” *United Nations*, United Nations, <https://news.un.org/en/story/2022/03/1114422>.

“Haiti's Troubled Path to Development.” *Council on Foreign Relations*, Council on Foreign Relations, 17 Sept. 2021, <https://www.cfr.org/backgrounder/haitis-troubled-path-development>.

“Un Marks Anniversary of Devastating 2010 Haiti Earthquake || UN News.” *United Nations*, United Nations, <https://news.un.org/en/story/2022/01/1109632>.

“Development and Importance of Tourism for Haiti.” *Worlddata.info*, <https://www.worlddata.info/america/haiti/tourism.php>.

(www.dw.com), Deutsche Welle. “How Poverty Exacerbates Haiti's Environmental Problems: DW: 09.06.2015.” *DW.COM*, <https://www.dw.com/en/global-ideas-haiti-marine-conservation-overfishing-deforestation/a-18504429>.

Mahapatra, S. K., et al. “Assessment of Soil Erosion in the Fragile Himalayan Ecosystem of Uttarakhand, India Using USLE and GIS for Sustainable Productivity.” *Https://Www.currentscience.ac.in/Volumes/115/01/0108.Pdf*, 2018, <https://www.currentscience.ac.in/Volumes/115/01/0108.pdf>.

Farzana, Tasnim, and Suman Mohajan. “Effect of Incorporation of Soy Flour to Wheat Flour on Nutritional and Sensory Quality of Biscuits Fortified with Mushroom.” *Food Science & Nutrition*, John Wiley & Sons, Ltd, Sept. 2015, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4576960/>.

“Soil Haiti .” *SOIL Haiti* , 19 Aug. 2021, <https://www.oursoil.org/>.

“Natural Resources Conservation Service.” *Conservation Choices: Contour Farming*, <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcseprd414214>.