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Thailand, Climate Volatility

Climate Volatility in Thailand

If humanity continues on its current trajectory around 80 percent of all life on Earth will be extinct by the dawn of the next century. Within the period of only one hundred years, Earth would be facing the highest species extinction rate since the disappearance of the dinosaurs (Center for Biological Diversity). This is caused almost entirely by climate change, pollution, and non-environmentally conscious practices that lead to species extinction, poverty, water scarcity, world hunger, and more. Climate volatility is single handedly the most concerning issue at the moment, because it is the root cause of so many other issues that plague our world. Thailand is one of the countries that suffers the worst from climate volatility, as it hurts their resources, agriculture, wildlife, and population, to name a few, but there are many potential solutions to help put a stop to all of the damage.

The country of Thailand has many features and resources, all of which are greatly affected by climate change. The natural climate of Thailand is tropical with a mean temperature of 82 degrees Celsius, and three distinct seasons; hot, cool, and rainy. As the name suggests, climate volatility would severely alter and throw off the balance of these seasons, which can hurt agricultural practices, local wildlife, and more. The coastline of Thailand is 3,219 kilometers, bordering the Andaman Sea and the Gulf of Thailand, with a maritime claim of 12 nm of territorial sea, and 200 nm of exclusive economic zone. This could also be threatened by climate change, as the melting of polar ice caps leads to rising sea levels and could greatly damage the agricultural practices and population hubs which rest on the coastlines of Thailand (CIA World Factbook). In fact, one of Thailand's main industries is agriculture, as around 41.2 percent of the land use in Thailand is devoted to agriculture. It is often referred to as the "rice bowl of Asia," with its main export being rice (Climate Institute). Flowers, especially orchids, as well as rubber, sugarcane, and cassava are also major exports (International Trade Centre). All of these crops can easily be damaged by volatile weather conditions and rising sea levels caused by climate change.

The country of Thailand has a population of 68,414,135, and a death rate of eight deaths per 1,000 population, with an average life expectancy of 74.9 years for the general population. Around 2.2 percent of the total population still does not have a clean water source, and around 10 percent of the urban population does not have proper access to sanitation facilities. The country of Thailand also has a very high risk of major infectious diseases (CIA World Factbook). These issues are only going to get continually worse because of climate volatility, and it's an issue that affects everyone, in Thailand, and the world.

Climate change specifically affects the individual daily lives of the average families in Thailand as well. The average household size is 3.2 people (2010 Population Census). Many Thai families consist of parents, children, grandparents, aunts, uncles, and cousins, who all share the same house. It is common for both parents to work in a household. Thai families also tend to eat most, if not all meals together, and is considered an important part of the day for family bonding, having conversations, and sharing information (American Field Service Intercultural Program). A typical Thai meal consists of a curry dish, a salad, a fried dish, and desserts. Typical ingredients include rice, curry, lime, mango, lemongrass, and peanuts. The typical Thai diet is quite healthy, low on animal products especially dairy, and full of nutrient rich fruits and spices (*Typical Thai Meals and Eating Habits*). This is an example of how climate volatility could be damaging, because it could threaten all of these crops, throwing off the average diets of all Thai people.

An average Thai family home consists of a bamboo structure raised on stilts with a steep gabled roof. There are different styles for different regions, reflecting local religion, beliefs, customs, and culture (Asian Historical Architecture). In terms of religion, 94.6% of the population is Buddhist, and the entire cultural landscape of Thailand is strongly shaped by Buddhism, Animism, and folk religions (CIA World Factbook). These religious demographics also shapes the architecture of Thailand to a large degree, and many of the structures and temples in the country have a large Buddhist architectural influence. These cultural and traditional homes and structures are under severe threat of being submerged by the rising sea levels, scorched by rising temperatures, or dissolving from a lack of the materials needed to construct them, all due to the enormous threat that climate volatility poses. The influence of Buddhism and Animism also imbues the Thai people with a lot of respect for the environment and the natural world. This is a common theme in these belief systems, which means solving the issue of climate volatility in Thailand is very likely to be an important cause to the Thai People.

Climate volatility refers to unpredictable weather events, rising sea levels, desertification, and other issues attributed to rising global temperatures due to human activity (United States Environmental Protection Agency). Climate volatility is caused by carbon emissions, other forms of pollution and harmful human activity, and it currently threatens many of the countries in the world. In Thailand, it will severely harm the rice crop due to unpredictable droughts, storms, temperatures, and rising sea levels. This will lead to poverty and food scarcity in Thailand, making it more difficult to find nutritious food and make money. In fact, the rising sea levels in Thailand threaten to completely submerge the country's capital, Bangkok, in twenty years, displacing and damaging the lives of millions of people, as well as disrupting the natural ecosystems that exist around the country (Climate Institute). Climate volatility also greatly threatens the local wildlife and ecosystems of the country. It is evident for many reasons that climate change, or global warming, is one of the most concerning issues that faces Thailand and the world as a whole.

Climate volatility in this day and age is mostly caused by greenhouse gas emissions, pollution, nitrate runoff, deforestation and destruction of natural habitat, and other non-environmentally conscious practices of humanity (Center for Biological Diversity). Thailand contributes only about 0.8 percent of the world's carbon dioxide emissions, but that doesn't mean they are completely free of blame (Climate Institute). A large number of greenhouse gas emissions are caused by large irresponsible countries using unclean forms of energy and industry. However, the greenhouse gas emissions of Thailand, in terms of carbon dioxide equivalent, was 229 million tons in 2000. Seventy percent of the greenhouse gas emissions came from the energy sector, followed by crops and livestock which account for 23 percent of Thailand's total emissions (*United Nations Framework Convention on Climate Change*). In fact, crops and livestock are some of the worst contributors to climate change in the world, even though the agricultural industry will also suffer the most from the effects of climate change. In many cases, the agricultural industry is the cause of the environmental issues they are plagued by, via unsustainable forms of agriculture, excessive water use, and pollution. Farm machinery and other agricultural practices account for 17 percent of all greenhouse gas emissions globally, and things like pollution from unsafe fertilizers and water use from unnecessary animal agriculture greatly exacerbated the problem (Environmental Protection Agency). However, there are many solutions such as more sustainable forms of agriculture and energy which will help put a stop to these issues.

One possible solution is switching to more sustainable forms of agriculture in Thailand as well as the rest of the world. Using methods of more sustainable agriculture would not only help account for the changing climate and damage being done to the agricultural sector, but also help to prevent further climate volatility in the future. For example, a sustainable solution in the agricultural industry is cutting back on animal agriculture and encouraging a more vegan diet. This would greatly cut back on carbon emissions, as well as help to account for water and resource scarcity caused by climate volatility. For example, producing a pound of beef uses almost 53 times the amount of water needed to grow a pound of potatoes. It takes 1,800 gallons of water to produce a single pound of beef, but it takes only 34 gallons of water to produce

a pound of potatoes. Even a pound of a protein rich vegan food such as tofu, only requires 300 gallons of water (*The Water Footprint of Food*). Switching to a more vegan diet on a national level would help account for the food and water scarcity that climate change threatens to impose, as it would generate much more food to feed more people, and it uses up significantly less water and resources which are already scarce. Animal agriculture is one of the top contributors to greenhouse gas emissions, and the livestock in Thailand contributes 1,977 tons of methane pollution to the atmosphere (*United Nations Framework Convention on Climate Change*). Therefore, veganism, which decreases the demand and production of meat and other animal products would greatly help to reduce the amount of greenhouse gas that stems from animal agriculture.

This possible solution could be implemented via educational media campaigns sponsored by the government in favor of veganism, investing governmental funds and resources into sustainable agriculture and vegan food production, supporting and stimulating vegan-friendly businesses as well as small, local vegan restaurants, or even banning cattle slaughter, similar to what has been done in India. Many of these solutions may be met with resistance from some of the general public, but if there is enough focus simply on education and information, and the government brings as much urgency to this issue as it deserves, then they should succeed. Although the government can have a big impact on incentivising and encouraging sustainable and environmentally conscious diets and agricultural practices, the most crucial and effective part of this plan is for individual Thai people to choose to adopt these practices. An individual can play just as an important of a role as the government when it comes to education and advocacy for sustainability. One person can make an immense difference, and individual Thai citizens can make an impact equal to that of the government by simply choosing to live a life of advocacy, activism, veganism, and environmentalism. This solution is not flawless, as veganism would certainly hurt the animal agriculture industry, in many ways. This would decrease the amount of careers in the animal agricultural industry, and decrease the profit generated from it, and is therefore sure to meet opposition from those involved in animal agriculture. However, in its absence, it would create many more jobs in the sustainable, vegan agriculture industry. The boost it would give to the sustainable agriculture and produce industry should balance out the damage done to the animal agriculture industry, leaving no lasting negative effects on the global economy. Going vegan would also be very cost effective for the families of Thailand. Despite what some critics may say, several studies have found that a vegan diet costs 750 dollars less than a traditional omnivorous one, and consuming meat costs the global economy billions of dollars each year (*Journal of Hunger & Environmental Nutrition*). This means a vegan diet would save an average Thai family around 2,400 dollars each year. Straying from unsustainable animal agriculture on a national scale could help accommodate for the effects of climate volatility, prevent further damage from climate volatility, and save the country, money, and resources.

Switching to include more clean forms of energy and cutting back on pollution would also help account for the lack of resources that climate change threatens to create. The energy sector in Thailand is the country's largest contributor to global carbon emissions, and most of this is due to their use of unsustainable and unclean forms of energy such as coal, crude oil, and natural gasses. Using solar energy and wind power is utilizing an unlimited resource that even severe climate change will not take away. However, continuing to use limited resources like coal and oil will contribute even more to the problem of climate change, and deepen the already existent issues of resource scarcity (*United Nations Framework Convention on Climate Change*). This would be easily implemented by changing governmental policies, withdrawing support from the coal and fossil fuel industries or even banning oil drilling and the use and collection of unsustainable forms of energy, in favor of methods like wind and solar. Many studies have also found that sustainable forms of energy such as solar power are more effective than coal or oil. It provides more energy and uses less resources and time. The sustainable energy industry has also been found to provide even more jobs than the traditional energy industry offers (*Environmental Protection Agency*). Switching to more environmentally sustainable forms of energy to power farm machinery, and the country as a whole, would be a cost effective solution to curb climate change and make a vast

difference for the better.

One more important aspect of sustainable agriculture is to protect natural habitats, ecosystems, and even farms themselves from dangers such as deforestation, plastic pollution, nitrate runoff, and soil degradation. Although focusing on the global impact of carbon emissions from the agricultural industry is important, perhaps the most crucial aspect of sustainable agriculture, is making sure to be respectful and conscientious of the nearby ecosystems that are involved in or impacted by agriculture. Things like intensive and excessive farming and uninhibited use of harmful inorganic fertilizers and pesticides can be one of the largest problems in the agricultural industry, and can severely damage both the soil and arable land being used for agriculture and the nearby forests and oceans. Nitrate runoff from farms as well as excessive plastic use from the general public can create polluted dead zones in the nearby ocean, intensive farming can ruin farms for future use, and deforestation in the name of agriculture or industry can destroy the crucial ecosystems and biodiversity of Thailand, contributing even more to the global issue of climate volatility (International Society for Photogrammetry and Remote Sensing). If local farmers in Thailand focused on preventing harmful nitrate runoff, and respecting the natural ecosystems affected by the agricultural industry, it would greatly help to limit the damage of climate volatility. Change can also be achieved via a nationwide ban on or fee for all forms of single use plastic, as well as nationwide bans on certain harmful pesticides/insecticides, which many areas of the world are already beginning to implement or strongly consider. All of these changes would both help to ensure the long term success of the agricultural industry, and help to protect the country's climate from even more disastrous environmental changes.

Another major aspect of implementing these solutions is encouraging them globally. Climate volatility is not Thailand's issue to single-handedly fix, as 15% of the world's carbon emissions are from the United States alone (Environmental Protection Agency). Although there are many solutions that Thailand can achieve to account for the effects of climate volatility, and these solutions will help to reduce global carbon emissions and climate volatility as a whole, the country cannot solve the issue alone. Treating only the symptoms will not cure the disease. One of the biggest parts of ending the climate change crisis is for Thailand and all other countries to communicate and work on global and intergovernmental solutions such as treaties and other partnerships. If Thailand could encourage its much larger neighbor China, which accounts for 30% of the world's greenhouse gas emissions, to adopt practices such as veganism and sustainable agriculture and energy, then Thailand could not only adapt to the issue of climate volatility, but also put its reign of terror to an end. Thailand can also encourage neighbouring countries who use unsustainable forms of agriculture and contribute to nitrate runoff, soil degradation, and deforestation to end the harmful practices, and put an end to climate change for good (Natural Resources Defense Council).

If Thailand abandoned all forms of animal agriculture in favor of a more vegan diet, switched to sustainable, safe, and environmentally conscious agricultural practices, and switched to using clean energy to power their agricultural machinery and nation as a whole, it would help them not only to adapt to the changing climate, but to stop the climate from changing any more than it already has. It is important for both the government and for individual Thai citizens to step up and push for all forms of sustainable agriculture, and for reducing harmful fossil fuels, nitrate runoff, soil degradation, deforestation, and more. One of the most important aspects of this being communicating, working, and participating in a global society to achieve these goals, and encouraging other countries to follow their lead in the push for veganism and sustainability. There are many forms of more sustainable agricultural practices and lifestyles that would help put an end to all of the damage done to the resources, agriculture, wildlife, and population of not only Thailand but the whole world. Even though pollution and deforestation plague our world, placing countries like Thailand in a dire situation, solutions like sustainable agriculture, clean energy, and veganism are affordable, effective, and easily implementable. These methods just might be the key to ending severe, human-caused climate volatility, and preventing

the next mass extinction event on Earth.

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