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Kiribati, Climate Volatility

Kiribati: Climate volatility and its impact on Kiribati society.

The United States has seen considerable changes in climate due to rising temperatures and heightening sea levels; however, none are as threatening and devastating as those seen in Kiribati. This small island in the Pacific Ocean is occupied by 117,606 citizens and sits just above sea level. Every day, thousands of citizens face water shortages and have no access to the necessities of human life. These shortages can last for extended periods and wreak havoc on everyday life as well as agricultural development. When not facing extreme drought, I-Kiribati are challenged with significant flooding due to its low elevation. Flooding not only destroys physical assets but also contaminates the clean drinking water with saline. The salt from the seawater also destroys the island's food supply by increasing the salt concentration within the soil. This lack of freshwater threatens their health and their livelihoods. With an inability to support its citizens' most basic needs, they are far from addressing the human rights issues within their country. While changing the environment itself has proven to be a daunting task, many actions can be taken to lessen the effects of Kiribati's climate crisis. The primary water supply Kiribati citizens rely on is rainwater. This resource is highly lucrative as rain is challenging to collect. This is because the island is a coral atoll, meaning there is no runoff- the water simply runs through the ground. Similarly, the rainfall on the island is seasonal at best. By reallocating their resources from rain collection to desalinization, they would have an abundance of clean water for consumption, crops, and proper hygiene. Moreover, flooding would not pose as large of a threat towards contamination because the desalination facilities can repurify the water. In continuation, the expansion of their central government, with the support of the United Nations, is vital to meeting the basic needs of Kiribati citizens and improving human rights within its country.

One of the most significant threats facing Kiribati society is the unreliable water supply. This flawed system leaves the population searching for water on a seasonal basis and after tragic flooding. Every day, the average Australian consumes about 500 liters; they have less than 40 liters in Kiribati. That is to bathe, cook, and drink (Radio National 2001). Without an adequate water supply, many people are forced to sacrifice water used for hygiene and crops to have enough to drink. The quality of rainwater is excellent; however, there is not enough to support over 100,000 citizens consistently. Furthermore, the quality is acceptable only until it is exposed to a confounding variable in the environment (White). These variables come in the forms of flooding and unauthorized water tapping. The pipeline in place to transport water throughout the island is subject to severe leaks and continuous contamination. Many families in desperate need of water will tap a valve into the side of the pipeline and use it freely. Subsequently, these holes in the pipeline leak, and the freshwater is lost. The contamination of rainwater has caused significant health issues within Kiribati. Floods and droughts both affect access to safe drinking water. These can lead to increased illnesses and deaths from waterborne diseases like diarrheal disease (World Health Organization, 2017). With a reliable filtration and distillation facility, these diseases could be prevented and potentially save lives from waterborne illnesses.

Kiribati is subject to frequent flooding in which damages food crops, water supplies, and personal assets. This flooding is a result of their low sea level and overall climate. In the Kiribati culture, it is common for people to have livestock such as swine that live near their homes. With proximity to animal feces, the people of Kiribati have a higher risk of contracting leptospirosis. Leptospirosis is a severely neglected disease in the Oceania region. As many as 1.03 million cases appear each year; 58,900 of those cases end

in death (Guernier et al.). Leptospirosis, often referred to as Lepto, is usually contracted through the blood or urine of an infected animal. These elevated risks are due, in part, to the flood's ability to disperse feces from the pigsty to the nearby water sources (Beldi). On a broader note, the floods and their side effects manifest in the form of climate volatility. The root issues to these threats are their topography and vulnerability to sea-level rise. In 1989, the United Nations reported that the greenhouse effect would pose the most significant risk to Kiribati due to the subsequent increase in sea level. Two uninhabited islands, Abanuea and Tebua, are now fully submerged under the ocean almost ten years later. Within the next few decades, many of the main islands could be rendered uninhabitable (Nunn and Mimura). Kiribati's climate volatility is the major proponent of the issues I-Kiribati face every day. From disease to natural disasters, they are forced to sacrifice some of the most basic human needs.

While struggling to meet their most basic needs on the island of Kiribati, they are also facing a human rights crisis. Women and other minority groups have faced considerable discrimination and targeted violence within their culture. This behavior has become normalized within Kiribati, and the push for change has become stagnant. Sadly, 70 percent of women have reported experiencing domestic violence from their counterparts (Thelwell). The United States offers governmental protection and multiple economic outlets to escape that treatment. However, women in Kiribati do not have that luxury. Similar to their domestic affairs, their foreign relationships have proven to be concerning. In 2019, Kiribati President Maamau announced that they would no longer recognize Taiwan as a sovereign nation. This was supported by Chinese President Xi Jinping, who is an avid proponent of the One China Policy (Klajman). The Chinese government's One China Policy has been denounced by the Special Procedures of the UN Watch for its systematic repression. This reality, paired with their domestic turmoil, amounts to a volatile social culture. Aside from their primary issues of water scarcity and climate volatility, the people of Kiribati face substantial social threats such as human rights and repressive foreign influence.

The most concerning issue facing Kiribati is water scarcity. This issue can be solved by following countries such as Saudi Arabia, Kuwait, and The United Arab Emirates. They face similar challenges to Kiribati with few and unreliable sources. By shifting their reliance on rainwater to desalinated water, they would provide clean fresh water to the entire island. In 2015, the Ras Al-Khair desalination plant began producing clean water, adding more than 1 million cubic meters per day (USSBC). That is enough water to supply the entire island of Kiribati. While Kiribati would not need such a large facility, it would still pose many issues due to the overall cost of desalination facilities. Building a facility large enough to feed the population of 117,606 people would cost roughly 15 million dollars. This price tag is far too hefty for a country with the resources of Kiribati. However, through the United Nations and organizations like Charity: Water, this price tag is achievable (Friedman). Charity: water is one of the most prominent organizations addressing water scarcity issues in Africa. While their sole mission is drilling water wells, I believe that their physical and financial resources could be directly applied to addressing the water scarcity issue in Kiribati. Desalination facilities raise major environmental concerns due to their byproducts of concentrated salt solution and energy usage. As with any solution to a problem of this magnitude, it comes at a price (Miller).

Current development is being put into solar-powered desalination. This process would not require an extensive electrical infrastructure to power the plants. Instead, they would run off solar panels. In continuation, desalination facilities take up a large amount of space. This proves to be problematic as the island has a total land area of 313 sq miles. Desalination facilities require a large amount of land to separate, purify, and distribute salt from the ocean water. One avenue that would remedy this issue is using an offshore desalination facility. Literature on this idea is scarce; however, this tactic is widely used in the oil industry. Offshore desalination facilities would eliminate the issue of land usage and prevent the disruption of the oceanic ecosystem. While this is not a perfect solution to water shortages, it is the best route to providing clean water to Kiribati.

Water is often referred to as the enemy and the friend. We need it to survive, yet it is responsible for the extensive destruction of people's land and assets. Flooding continuously challenges I-Kiribati and causes damage to agricultural development and clean water resources. However, the effects of flooding can be lessened using constructed dikes (Katz). These tools alleviate the impact of flooding and have been implemented in many countries around the world. A dike would be beneficial to Kiribati because they face flood waters coming in from the ocean. This manmade barrier is used to hold back water from the sea and subsequently reduces flooding. Unfortunately, dikes hurt those ecosystems that rely on the tides. While this is a solution to one problem, it could potentially create another, being that the people of Kiribati rely on the oceanic ecosystems for a large portion of their food. The Netherlands is the most prominent country to use these methods and has had considerable success. They lessen the blow of flooding and allow for a shorter recovery time after the flooding occurs.

Similarly, Vietnam has made use of dikes to protect its coastline. The area is strongly affected by storm surges and typhoons, and urban and rural areas are frequently flooded. In addition, the coastal zone is very vulnerable to the consequences of climate change, primarily due to sea-level rise and the expected increase of the frequency and intensity of extreme events (KHOI and Phan). Dikes are the best avenue to prevent flooding because they are most useful in ocean settings. Some flooding occurs from melting water from mountains and excess rainwater; however, Kiribati does not face these issues. In such cases, the use of a dike would be inappropriate. However, because this natural disaster comes from the ocean and its tides, dikes would prove helpful. These immense structures create financial barriers for a country that is not financially established. For example, the engine needed to build dikes cost approximately 67 million dollars (Katz).

Similarly, constructing a dike would cost tens if not hundreds of millions of dollars. While this solves the issue, it raises others in its place. First, a reallocation of funds into infrastructure must occur to achieve the required funds for these structures. This would account for the construction of the dikes and establish funding to maintain them.

By reallocating funds to meet the needs of I-Kiribati, there is more room to address human rights issues within the country. Women will not rely on their husbands for basic supplies and will have the materials necessary to escape their abusive relationships. This reliance is exemplified when considering the employment gap between women and men. The gap is widest in middle-income homes, with only 47 percent of women employed in the labor force despite 77 percent of men being employed (Thelwell). Furthermore, by providing more to its citizens, there will be an increase in reliance on the government. This will allow the Kiribati government to expand its social infrastructure to accommodate individuals who face discrimination and oppression. One major challenge in this push for change is the cultural differences that we view their society through. For example, it is of the highest disrespect to involve or intrude on a family matter or dispute in their culture. To compensate for this, it is crucial that aid is offered to I-Kiribati and not imposed or forced. If done incorrectly, the people of Kiribati could reject support altogether. In other words, the people of Kiribati must be part of the solution and not the problem. Sadly, this has happened before in the country of Eritrea. They have entirely rejected all offers of foreign aid, walking away from 200 million dollars in the past year alone (Sanders). Eritrea is one of the poorest countries in the world and struggles to feed its people, but due to the flawed implementation of aid in countries around them, they refuse to be another "Spoon-fed African country." Due to the unpredictable nature of cultural reactions, it is crucial to tread lightly in how these issues are approached and presented to I-Kiribati.

Kiribati has faced considerable water scarcity, climate volatility, and a lack of human rights. Sadly, these factors have forced citizens of Kiribati to make sacrifices no one should ever have to make. However, using desalination plants, manmade structures like dikes and dams, and expanding their social infrastructure, these issues can become less polarized and potentially solved. With cases of this

magnitude, there is no perfect fix with no drawbacks; however, when considering the current situation, it is clear that the ends justify the means. These solutions will take time to have a lasting impact on Kiribati. However, they will provide a level of stability and sustainability previously unseen by the island.

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