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# The Implications of Climate Change on Indigenous People

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## Abstract

The effects of climate change can prove to be catastrophic to the environment as a whole as well as the very people living on it. In fact, the two are closely related. As the environment suffers, so do the people. Melting ice caps and changes in global temperatures lead to the submergence of territories and destruction of sea life as well as heat waves/ice ages and arrival of invasive species, respectively. Though the effects of climate change extend to all, indigenous people are disproportionately affected. Climate change terrorizes their lands and living capabilities, as the relocation of indigenous people can prove to be detrimental; their lifestyles are heavily catered towards the geographical location they reside in. This paper examines the previous and current legislation put in place pertaining to climate justice for indigenous people and analyzed whether or not they have been effective thus far. We looked at the social, economic, and physical impacts that the legislations have had on the indigenous people and whether or not there was sufficient aid for the people, or if they would be better off with the rights to their own reservations. It was found that for all the Indigenous peoples analyzed, the current legislation was not sufficient enough and for the most part had negative impacts socially, economically, and physically. Given our findings, future research conducted can pertain to other groups of indigenous people or take a look into what legislation would actually be sufficient to aid the indigenous people with their fight against climate change.

Categories: Climate, Government, Justice
Key Words: Indigenous Peoples, Legislations, Rights

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**Literature Review**

  Climate change generally refers to changes in global temperature as a direct result of greenhouse gas emissions. In the modern day, the global temperature has drastically been increasing, causing the upstart of several soon-to-be irreversible effects. Most people can identify the issue of rising sea levels as it relates to the melting of ice caps in the arctic regions or the increase in drought/heat wave prominence due to increasingly warm temperatures. Of course, it is not just limited to ice caps, or solely about the effect, it has on the Arctic environment. The usage of non-renewable energy resources and fossil fuels is a major facilitator in the increase in $CO_2$ emissions into the atmosphere. Another major contributor is deforestation, which has occurred at an ever so increasing rate. The relationship between deforestation and greenhouse gas emissions is directly proportional. Trees are known to be able to store adequate amounts of $CO_2$, as it is required for photosynthesis and cellular respiration. When these trees are chopped down, all the $CO_2$ stored in the trees is released into the atmosphere. When there is a constant release of gases into the atmosphere and a lack of trees to be able to absorb the carbon dioxide, the net emission favors a substantial increase in global temperature. Climate change has become even more of an issue due to the lack of an appropriate response. The lack of initiative pertaining to climate change only exacerbates the problem, as it lets the issues become prolonged, so much so to the point where its implications will become permanent by no later than 2030.

  Although climate change negatively affects everyone, it disproportionately affects indigenous peoples. The United Nations defines indigenous people as those who have distinct social, economic, political, and cultural characteristics from dominant societies, in which those distinct traditions stem from the beginnings of ethnic origins. Indigenous peoples are significantly affected by climate change despite having the lowest rates of $CO_2$ emissions and participation in detrimental climate change- because their lifestyles are dependent on the use of natural resources and the environment. Additionally, climate change infringes on indigenous peoples' human rights and exacerbates the political and economic marginalization, discrimination, and general welfare risks (i.e. health issues, unemployment, and poverty) they experience. Indigenous peoples and leaders have been rightfully fighting for autonomy and regulation control of their reservation lands due to the growing risk associated with their lands in relation to climate change (Tsosie, 2007). To put the risk into perspective, consider two areas where indigenous peoples are most prominent; the pacific and the arctic. Both of these groups of indigenous peoples contribute little to no greenhouse gas emissions due to the lack of industrial capacity of their respective locations, yet they still suffer the most. Indigenous peoples who reside in

Pacific Islands are threatened by the rising sea levels and storms associated with climate change. If the perils associated with climate change continue it will be next to impossible for a group like the Pacific Islanders to survive without any international aid (Tsosie, 2007). Additionally, if these islands are to be drowned or eroded away before a sufficient amount of Pacific Islanders are able to relocate, it could translate to the death of a culture and tradition. The same detriment can be seen amongst indigenous peoples who reside in the Arctic. The Arctic indigenous people are just as heavily reliant on their environment for sustenance as the Pacific Islanders are. However, with the increase in global temperature, the ice caps within their area are beginning to melt; the implications of which include the loss of several animals including, but not limited to, walruses, polar bears, and caribou (Tsosie, 2007). Additionally, the environmental imbalance has given rise to invasive species within the tundras and forest, leading to a decline in vegetation and forestation.

Two United Nations conventions, the International Labour Organization Convention (ILO) and United Nations Framework Convention on Climate Change (UNFCCC), have attempted to address climate change as it relates to indigienous people. The ILO Convention #169 issued that indigenous peoples cannot be forcibly displaced from their occupied lands for any reason that is not deemed "necessary"(Tsosie, 2007). The UNFCCC has issued the Paris Agreement, in which one of the major clauses pertains to the idea that the nations must achieve global temperature levels above 1.5 degrees Celsius in relation to the Industrial Revolution. However, the UNFCCC resolutions are on a much broader scope of time and heavily dependent on the willingness of the people regarding decreasing carbon emissions into the atmosphere. However, many either fail to perceive the effects of climate change or acknowledge it but choose not to take any action. As such, we hope to draw attention to just how severe the effects of climate change, through the lens of the indigeneous peoples, can be and why change has to start immediately.

Currently, there does exist efforts and legislation intended to help populations who suffer from the effects of climate change on behalf of a developing nation. Some of these initiatives include relocation policies, where people who are considered "global citizens' ' in under-developing nations are to receive compensation for any harm done to their environment from the developed nations that most directly caused the damage (Tsosie, 2007). Some of these compensations can include the granting of citizenship within the developed nation responsible for the harm and they would ultimately be allowed to redistribute the benefits however they choose to. However, indigenous people are exempt from this for the most part. Indigenous identity and culture is heavily dependent on geographical location, and so there is no other place where they will be able

to continue their practices and traditions (Tsosie, 2007)Climate change has proven to be rather unfavorable for indigenous peoples in particular. Within the United States specifically, there are federally recognized tribal governments that are given sovereignty over their own lands; however, this sovereignty has ended up being largely unsuccessful because of the restraints imposed on the governments by their nations classification of being "domestic dependent." What this means is that a tribal government is subject to the jurisdiction that is linked to another tribal government. For example, the rights of Alaskan Natives were limited as a result of restrictive reading of the "Indian Country" by the Supreme Court As such, there has been the imminent need for these federally recognized tribal governments to pass legislation and policy that aligns with federal law, tribal law, and international human rights laws (Tsosie, 2013). We hypothesized that a) indigenous people are in need of proper legislation and regulation that actively combats the harm being done to them due to climate change and b) the legislation and policies currently in place are proving to be ineffective given the current circumstances of their situation.

**Materials & Methods**

In order to test our hypotheses, we made use of archival data and case studies to analyze the need for climate justice and reservation rights for indigenous peoples as a result of the ongoing issue of climate change. We looked into the history and modern day issue regarding climate change for several groups of indigenous people, including the following:

- Inuit in Canada and United States
- Indigenous people in the South Dakota Indian Reservation
- Indigenous people in the Amazon Countries
- Indigenous people in East Asia
- Indigenous people in Australia/New Zealand
  - Maori
  - Aborigines
  - Torres Strait Islanders
- Lakota
- Indigenous people in West/North Africa

We looked at legislations and initiatives that have already been implemented and determined whether or not they have proven to be effective. The effectiveness of the legislation was determined on the basis of the prosperity of the indigenous people and their lands and the progression of their prosperity (from previous times to modern day).

After the analysis of the legislation, we made a deeper inspection of the social, economic, and physical implications of climate change and the climate justice currently in place on the indigenous peoples. Once our research on the several indigenous groups was completed, we discussed the right of reservation land and how they should be managed and what the future for indigenous peoples looks like even if they are provided with ample rights to their land.

**Results**

*Indigenous people in North/South America*

The Inuit are indigenous peoples who are native to Northern Canada and Alaska. There is currently one Indian reservation called the Metlakatla Indian Community of the Annette Island Reserve in southeastern Alaska. Beginning 1960-1970, Inuits organized an organization called Inuit Tapiriit Kanatami to advocate for land claims and self government individuals of colonization efforts. The Nunavut Act of 1993 allowed for Inuit people to gain self governance over their native lands, as they have been independently governed since December 1st, 2005 (Freeman, 2010). However environmental issues have led to a decrease in quality of life for Inuit people, as overcrowding, In 2016, 51.7% of Inuit Nunangat reported living in overcrowded conditions, compared to the 8.5% of non Inuits living in Canada. Indigenous populations in reserves have been found to have a lower quality of life. "Infant mortality rates (IMR) vary from three to seven times the national average. Off reserves, Indigenous populations tend to have an IMR two to four times higher than the non-Indigenous population" (Burnett, 2006). In addition, studies have shown that type-2 diabetes is two to five more common in indigenous people related to historical trauma. Land reserves have also impacted indigenous peoples economically, as in comparison to non-Indigenous peoples, Indigenous peoples' income tends to be below the Canadian average. In 2016, the median after-tax income for non-Indigenous people was $31,144. For those who identified as First Nations, it was $21,253, for Métis, $29,068, and Inuit, $23,635" (Burnett, 2006).

Native tribes in South America are found in various areas including Peru and Brazil. The Amazon rainforest in particular is home to the world's most biodiverse environment. Indigenous land in South America has long been sought after for its potential source of materials and wealth, especially in the Amazon Rainforest. Generally, there is little information about Colombian Amazon people and their response to climate change likely due to a lack of response. The Columbian Amazon people consists of 52 ethnic groups and 10 isolated languages. Climate change has caused dry summer seasons

where summer did not arrive at all in 2007 and rainy seasons were in disarray, and river floods deprived the indigenous people of food sources since young fish not yet developed were killed in flood in 2005. All these have served to fail crops from fruit trees in tubes like Nonuya, Witoto, Muinane and more who depend on them. In addition, there is a potential diminution of food supplies. Fish is the main source of protein and is one of the resources more directly hit by altered seasonality. Though manioc, the main source of carbohydrates, is a very resistant and adaptable crop, other crops that enrich and complement the diet are affected by the changing climate" (Kronik and Verner, 2010). This has been coupled by the lack of climate protection policy, which seems to affect indignous people who rely on natural land to survive. Recently, the government's policies seem to disregard indigenous peoples in the Amazon, viewing them as a block to economic gain. In 2019, the President of Brazil questioned the need to protect indigenous lands in favor of economic opportunity. During the rule of Brazil's authoritarian regime, generals wanted to turn "underdeveloped, sparsely-populated region into a modern commercial powerhouse stitched together with highways, factories, and homes'' and had no problem cutting directly through the Waimiri-Atroari people (Pagliarini, 2019). Controversy has not ended there, with the construction of the Belo Monte Dam serving as an example of an attempt to divide the Wamiri-Atroari people. The construction of the Belo Monte Dam has shown governmental struggle over protection for indigenous people and economic opportunity. The decades long battle has ended in the Belo Monte Dam being built however has been fraught with a large amount of legal battles (Perez, 2015).

The Sioux tribe reside in a designated 2.8 million acre land in South Dakota in a reservation called Pine Ridge. In 1874, the Homestake Mine was located, where 3,636,340 troy ounces of gold were produced. However, the Lakota Sioux tribe was only sent to South Dakota after gold was extracted, leaving them with one less source of income (Dockery, n.d). Today, the Pine Ridge Indian Reservation is so severely underfunded and cared for by the government that there is an "80 to 90 percent unemployment rate with a median individual income of $4,000 a year" (Strickland, 2016). Life inside the reservation has been disconnected from the government and support from the outside world as entrance into the community depicts images of trailers, half decaying cars, and garbage piled on lawns (Riley, 2016). The crippling economic crisis that indeginous people are facing is in part due to the government's policies that control much of the reservation land. This land is held "in trust" by the federal government, meaning the land cannot be sold or owned by Indians, denying them property rights. Their property is micromanaged by Washington through the BIA (Bureau of Indian Affairs), or BIE. Although money has been constantly supplied and increased

over the years, the economic problem in the reservation seems to be getting worse. The Crow tribe living in this reservation is broke and in debt. The land contains coal and valuable natural resources that cannot be developed by the tribes due to the face they don't own the land. While there are fears within the tribes about development of land, the fact is that they are spiraling into economic ruin as each year passes and government inaction is not delivering the help that the tribes need.

*Indigenous people in South Africa/ Southern Africa*

As with many issues in social justice, the history of environmental racism in South Africa and southern Africa can be traced back to the era of colonialism by western European powers. The British showed interest in acquiring African colonies, because of the booming spice trade and increased knowledge in sea routes; these desires eventually came to fruition in 1795. However, the colony in the south was returned to the Dutch government eight years later. The British re-seized the colony again in 1806 as a means to protect their access to sea routes in light of the Napoleonic Wars (Darmofal, 2012). From then on, Cape Town was transformed into a hub for traders and served as a layover for voyagers. It was from this surge in population that the environmental riches of southern Africa were noticed, including the proximity to the ocean providing seafood, the temperate climate, fertile land, and abundance of natural resources (Van Sittert, 2011). Slavery was the norm until 1828, however, even after its abolition, mistreatment of idigenous people continued. The influx of European settlers created land shortages and increased tension between them and native people (Darmofal, 2012). Walker (1929) explains that these settlers asserted that Europeans were predestined to possess the most fertile and temperate regions in Africa due to them being the superior race. Furthermore, it was argued that Europeans needed these lands over indigenous people because they were not accustomed to the climate or terrain. According to the theories of scientific racism, Africans were better suited to the desert conditions because of their 'darker skin, lean bodies, and adapted sweat glands, along with more experience with the terrain and weather'. Thus, prejudices were created by these links made between race and environment. This mindset created a sharp divide in southern African society between the indigenous people and the white settlers (Walker 1929). Racial tensions culminated and became institutionalized into the apartheid regime; and despite its fall in 1994, the consequences of stereotypes and discrimination continue to inform environmental policy today.

According to Van Sittert (2011), environmental determinism and the desires of colonialists and the apartheid government has influenced the way conservation has

developed in Southern Africa. It has disadvantaged indigenous people in almost all policy and decision making processes, too. A prominent example would be The Prevention of Illegal Squatting Act of 1951 which made it legal to remove native people from their homelands allowing white settlers to exorcise the natural landscapes by creating reserves and parks. Native San and Khoi people were perceived to be uncivilized, unintelligent, and as a consequence, undeserving of their land, so European settlers forcibly removed them and allowed them to either settle in other smaller plots or be provided nothing at all. 'The San (hunter-gatherers) and Khoikhoi (pastoralists), who had inhabited the land for thousands of years hunting and gathering in a peaceable and sustainable manner, were cast away for the profit of the white man' (Van Sittert, 2011 quoted in Darmofal, 2012). Darmofal (2012) argues that conservation became a 'white objective' to elevate their status: the wealthy white colonialists used the land as game farms and personal hunting grounds while enjoying the beautiful views. Apartheid government compounded colonial law to exclude black people from these privileges. The socio-political climate during the apartheid regime lowered the status of black people 'below faunal species' (McDonald 2002). The displaced populations were forced to live on the food sources they could produce in the confined and arid land - particularly Namaqualand, a place considered less worthy of conservation; while the government seized the profitable lands for themselves. Such segregation left the indigenous in a remote location with an overly dense population. This led to overuse and exhaustion of the land that already had limited options for sustenance (Benjaminsen et al. 2008).

As South Africa developed, the white population began to seek ways to improve the standard of living through power and electricity. Darmofal (2012) points out how dams like Mohale dam, Cahora Bassa Dam, and the Lesotho Highlands Water Project - that were thought to be an inexpensive and respectful way of obtaining energy - resulted in catastrophic results for the environment and indigenous people. The redirection of water flow created by the dams was not beneficial to any of the rural or indigenous communities in South Africa, Lesotho, or Mozambique. Worster argues that people who have control over water and water systems have control over the masses. In smaller and rural communities, everyone has knowledge of the irrigation systems as they were local, easy to maintain, and in accordance with nature. However, complex systems designed to supply power and water to urban centers become knowledge that is only accessible to the elite. These people become the 'managerial elite' and possess power through their knowledge and ability to distribute or withhold valuable resources. According to Worster, these water systems almost always benefit wealthy urban dwellers and rural communities are disadvantaged (Worster 1985).

This theory can be readily applied to explain the negative effects of the Cahora Bassa Dam built on the Zambezi River in 1974 in Portuguese Mozambique. The project was seen to be a 'civilizing mission' that would draw indigenous people away from their farming lives and introduce them to modernity (Isaacman 2005). However, this created adverse effects. In Mozambique, a number of indigenous people were required to relocate for the construction of the dam itself and never had the opportunity to reap any of the benefits. According to Isaacman (2005), the construction of the dam was simply an exercise of soft power to let the world know of the economic advancements taking place in southern Africa. Indigenous people were seen as less valuable and so they were cleared of highland areas and hired as laborers. The company towns for the white population were built by the indigenous laborers who themselves were housed in shacks with no amenities (Isaacman, 2005). Darmofal (2012) highlights how the Zambezi River provided to the numerous farming communities in the area including its fertile land and the natural fertilizer in its sediments. The dam disrupted the natural flood cycles meaning that there is now constant tension for unexpected flooding. Moreover, fish populations have decreased and irregular flood cycles are prevalent which means that animals typically found at watering holes have disappeared. Many were forced to relocate as a result of their ruined farmlands in a desperate attempt to revive their livelihoods. They had no choice but to move to hamlets set up and strictly regulated by the Portuguese colonialists (Isaacman, 2005). The consequences of Cahora Bassa Dam are not isolated incidents. Similarly, the Mohale Dam left indigenous people dependent on their colonial masters. Thabane argues that the indigenous people of Lesotho felt as if they were being 'butchered and killed' when they were displaced (Thabane 2000).

Mapfumo et al (2015) conducted a study in the rural areas of Zimbabwe to find how farming communities deal with climate change with indigenous knowledge. Indeed, they found that climate has become increasingly variable and unpredictable over the past 20 to 30 years which has made farming communities vulnerable and has made scarcity prevalent across a number of resource categories. Farmers have noticed the 'shortening of growing season length, diminishing water resources, loss of agrobiodiversity and ecosystem services.' Communities have depended on indigenous knowledge and local biological and geographical indicators in making strategic and operational decisions, however, this information is being undermined as climate change worsens. Unfortunately, such rural communities are receiving inadequate attention from development institutions and meteorological services. They also found no evidence to suggest that farmers have the access to opportunities that would allow them to diversify their livelihoods. Mapfumo et al find that current indigenous knowledge should be an

entry point for efforts being made to build the adaptive capacity of such communities. Researchers and policymakers should take into consideration the decision-making framework of such communities to implement an effective strategy.

Scott, Oelofse, and Guy (2002) analyze environmental justice in Durban, South Africa through the prism of feminist frameworks to reveal how the negative effects are primarily borne by women. The study finds that generally, in the post-apartheid period, the issues surrounding the environment are being democratized and de-racialized, however, the legacy of apartheid persists in how different groups of women are exposed and react to pollution. White women who are located at a distance from pollution sources also viewed the problem as something distant. The concerns that they had were individualistic with their frustrations being limited to the private and domestic sphere. In contrast, black women use the community as a medium to voice their concerns and frame the issue of the environment as a dire health concern. Scott et al argue that because the reproductive work of white women is limited to the structures of the nuclear family, their activism is also perceived as localised. On the other hand, due to the history of apartheid, black women have had 'more access and participation to broader political structures which are relatively more empowering.' The study reveals that women are more likely to take on a communal role than men; they are 'more proactive and vociferous in something that affects them and their family.' However, environmental policy and legislation is dominated by male politicians and women are largely excluded from anything above local community activism. Fick (2000) finds that women in South Africa face the dual burden of being the primary caregivers within the domestic sphere and doing income-earning work and participating in the community in the public sphere. Community activities are an extension of women's reproductive work while community politics is a separate and independent structure which excludes women from having any decision making power in order to confine them in the roles of housewife and mother (Fick, 2000). Van Donk (2000) emphasises the importance of women's participation in environmental matters; because of the gender roles and dual burden, they are the primary consumers of services and facilities which make up residential environments.

A White Paper on Environmental Management Policy for South Africa (1997) addressed the issues of 'fragmented policy and ineffective legislation', 'ineffective enforcement and regulations' and the persisting problem of racism. The goal for this policy was to 'unite the people of South Africa in working towards a society where all people have sufficient food, clean air and water, decent homes and green spaces in their neighbourhoods that will enable them to live in spiritual, cultural and physical harmony with their natural surroundings.' However, townships and bantustans - areas dominated by indigenous or people of colour - have gone through minimal improvements. There are

also many informal settlements that have been disregarded by the government because they are not registered as legal residential areas. These areas are also the ones that suffer greatest from lack of electricity and amenities (Napeir, 2002). Darmofal (2012) finds that the White Paper and many other post-apartheid legislation 'has not yet been able to implement much progress in the most necessary places.' McDonald finds that the environmental justice movement has a dual nature for being both a success and a failure. South Africa has been successful in sparking progressive post-apartheid discourse on climate justice; which is especially significant for a former apartheid government that cared more for wildlife than it did for black people. Simultaneously, these attempts to create broad-based environmental movements have led to its partial demise. The Environmental Justice Networking Forum (EJNF) was the primary organization that included a mix of environmentalist groups, labor unions, church associations, wilderness groups, Help End Marijuana Prohibition in South Africa society, and some corporate organizations. There was an excitement for a new political culture of inclusivity and reconciliation, however, tensions began to culminate and ideological fissures became apparent. McDonald also highlights the inequalities of resource distribution between environmental groups. Suburban-based environmental groups - that are largely white - receive large amounts of financial support and human resources to manage their projects, which mainly consist of conserving flora and fauna. Meanwhile, Township-based environmental groups - that are largely blackwork on minimum budgets without the abundance of resources like office space or equipment. They also face neighborhood crime, lack of transportation, and managerial problems which leads to ineffective implementation of action (McDonald, 2003).

However, McDonald (2003) adopts an optimistic view despite the failures of the EJNF because it has allowed for transparency and openness in political orientation. This creates a clearer direction for NGOs, governmental institutions, and activists in the future to pave the way for effective change in southern Africa.

*Indigenous people in Australia/New Zealand*

The Aborigines, Maori, and Torres Strait Island peoples are indigenous peoples native to Australia. They have observed many concerning and abnormal ecological changes in their environment, due to climate change, including natural disasters, rising sea levels, and warming, and are at risk of coastal erosion, flooding, and prolonged drought. As the Yuglu, a subgroup of the Aborigines, have expressed, they are worried about the amount of animal and plant resources being affected by the ecological changes (Petheram

et. al, 2010). However, climate changes are not the only causes of concerns of Australian indigenous peoples; (Abate and Kronk, 2013) states, indigenous people universally share these traits: 1) they have endured abused and subjugation by more dominant societies, thus lacking political and economic authority and being susceptible to political and economic marginalization, and 2) a unique, legal, cultural, and spiritual connection with the land. Additionally, the Yuglus have expressed frustration about the uncertainty of their land rights, as well as their diminishing traditional knowledge to teach the younger generation, due to the lacking knowledge about how important the land is and how to take care of it. (Petheram et. al, 2010) It is evident that the preservation of Australian indigenous peoples' land is very special to them, and that the effects of climate change are detrimental to their land, and consequently the indigenous peoples' health and general welfare.

In 1974, the National Parks and Wildlife Act was passed, which prohibited the destruction of an Aboriginal artifact or land. In 1990, the Native Title Acts were passed, which recognized the Aborigines and Torres Strait Islanders' "native title" (rights to land and customs they have a traditional connection with). These two acts overall protected the political and economic subjugation of the Aboriginals and Torres Strait Islanders from the more dominant societies around them. Those who violated these acts, as Craig Williams did so and appeared in court for the 2007 Garrett v. Williams case faced punishments, such as jail time. (White, 2014; Beltran and Philips, 2000). In 2005, the Wild Rivers Act of 2005 was passed, which aimed to preserve the natural values of rivers. However, it was eventually repealed at the request of local Australian indigenous leaders, who argued that the conservation would deprive the indigenous peoples of economic opportunities (they should autonomously decide whether they want conservation or rather a mixture of both) and that the river 'should be given a voice.' (White, 2014) More recently, REDD+ projects, created by the United Nations, have reached the Pacific. REDD+'s aim is to reduce greenhouse emissions from deforestation and environmental degradation. However, Australian Aboriginal people find it to be a way to promote political and economic marginalization, and violate their human rights: (Doolittle, 2010)

> "REDD will not benefit Indigenous Peoples, but in fact will result in more violations of our Human Rights, our Rights to our lands, territories, and resources, steal our land, cause forced evictions…. Under REDD, States and Carbon Traders will take more control over our forests." -*Statement made by the International Indigenous Peoples Forum on Climate Change (IIPFC)*

The health of indigenous peoples has also been profoundly impacted by climate change. The Maori people of New Zealand associate a healthy environment with good health (Davis, 2020). Because of the environmental harm of climate change, one key objective to improving Maori health would be to lower $CO_2$ emissions. The Emission Trading Scheme (ETC) has been the main implementation New Zealand is using to address climate change. The point of the New Zealand ETS is that $CO_2$ emitters (such as large industries) have to compensate for their contribution to greenhouse gases in money, while those who reduce their $CO_2$ emissions are rewarded. However, the New Zealand ETS policy has been weak as greenhouse gas emissions continue to rise in New Zealand, which means that the Maori's beloved environment remains unprotected from climate change. In addition, the New Zealand ETS policy is subsidized by taxpayers, which conveys that public funds are going to support the ETS (which has been failing to aid the Maori) instead of investing in social and health services for the Maori. (Davis, 2020) New Zealand needs to find more effective ways to help the Maori and improve their health, especially after passing the Health and Disability Act of 2000- which allows Maori participation in the decision making of their health services- and Article 12 of the ICESCR- which states the right for everyone to enjoy the highest standard of mental and physical health, including, as UNDRIP mentions, indigenous peoples. (Davis, 2020) New Zealand is implementing other policies that have positive potential in improving the Maori's health while doing that in an environmentally sustainable way. One prime example is the Warm Up New Zealand: Healthy Homes Programme, which targets households with members with high health risks (i.e. children and elders), improving the energy efficiency in their homes, as well as insulation to protect against the risks of heatwaves and cold, damp housing (Davis, 2020).

*Indigenous people in East Asia*

The Ainu are an indigenous group that is native to Hokkaido, an island in Japan. Although there are no official census records of the Ainu people, it is estimated that there are around 24,000 of them left, spread around their native land and Honshu (Cobb, 2020). As an indigenous group, their culture is slowly dying out, with only 2 living native speakers left, it has been recognized by UNESCO as a critically endangered language (Teryngel, 2018). While their origins are constantly up for debate, their culture goes back centuries. In the 15tn Century, Japan moved into Ainu territories in order to spark their economy and trade. Eventually, this encounter led to conflicts which ended in a series of

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battles between 1457 and 1789. After the 1789 Battle of Kunasiri-Menasi, the Ainu fell completely under Japanese control and were forced to assimilate (Jozuka, 2019). Their unique culture was torn under Japan's government policies. The Ainu people placed heavy emphasis on nature, and the local ecosystems surrounding their land (Makino et al., 2012).

The history of the Ainu's environmental issues can be traced back to Japan's colonization of their land. The Japanese government heavily controls fishing rights, and local authorities try to prevent the Ainu people from exercising their culture (Teryngel, 2018). They have seen plenty of discrimination in Japan, as the government also implements dam projects that intrude onto their given land. In 2008, the Japanese government finally recognized the Ainu indigenous people as a distinct ethnic group (Maruyama, 2012). This arose when Japan sought consent to construct a sizable industrial dam in the Nibutani village, extremely close to many of the Ainus' homes in 1997 (Levin, 1999). This Nibutani Dam Decision ultimately stated that the Ainu were entitled to enjoy all aspects of their culture as indigenous people, as they have been in Hokkaido and its neighboring islands since time immemorial. However, by the time the court ruled this decision, the dam's construction had already finished through illegal seizure of the land. The illegal seizure not only took destroyed sacred sites and ritual grounds, but also impacted their everyday life. To them, salmon is the "fish of the god" and is ultimately vital for their traditional ceremonies, arts, and food but salmon populations are declining (Makino et al., 2012). In addition, the Hokkaido Island salmon industry is among one of the largest chum salmon fisheries in the entire world. They produce up to 100,000 tons of salmon per year, making this business a large portion of the island's economy. In general, dams heavily affect fish populations surrounding it, sometimes driving the populations to extinction. Japan's lack of protection for the environment by constructing dams affected the Ainu's overall quality of life. They have developed their culture around local ecosystems, the lack of climate justice policies and altercations of their ecosystems have resulted in destruction of their culture (Makino et al., 2012).

Much like other indigenous groups inhabiting North and South America, most of the Ainu's land, both sacred and ritual, have already been seized by Japan's government. Since the implementation of the 1889 Hokkaido Former Aborigines Protection Act, the Ainu have been liable to policies that force them to integrate into Japan (Michaud, 2015). Environmental change has affected people around the globe, however it has hit the Ainu people deeply. Their spiritual connection with the land around them has since been lost to climate change or industrial construction. In 2018, Japan stood at the 5th largest producer of carbon dioxide emissions in the world, with 1.16 billion metric tons (Blokhin, 2020). Due to these statistics, Japan has recently introduced their national climate plan,

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intending to further review their policies to reduce $CO_2$ emissions (Leprince-Ringuet, 2020). Other than their carbon dioxide emissions, Japan has been encouraged to carry out stronger climate action plans in order to counteract the extreme climates in Japan. Specifically, these issues have a large impact on Hokkaido and neighboring islands. As an industrialized area, Hokkaido is home to fertile lowlands that contain various bodies of water. Industries such as construction and mining are also becoming more apparent in the island, these developments have ruined the environment's air and water quality. Acidification of surrounding waters and air pollution has reduced the water and air quality of rural areas in Hokkaido. Eventually impacting valuable resources that contribute to the island's overall economy and ecosystem (Case & Tidwell, 2019).

**Discussion**

The purpose of the study was to examine the impacts government implementation of climate justice have had on indigenous people socially, economically, and physically. As hypothesized, current government legislation and action is overall insufficient or exacerbates indigenous peoples' conditions; thus better legislation is needed. For instance, despite advocating for land claims and winning self-governance, the Inuits continued to suffer a lower quality of life, worse health (including higher rates of type-2 diabetes), low income, and little compensation from dominant societies for ecological damage from industrialization. Southern American, South African, and East Asian governments have all acted in ways that do not help the indigenous peoples, but instead hurt them: most notably, these governments have prioritized industrialization and advancement- for example, the construction of dams/ water systems in East Asia and South Africa, which has inevitably resulted in extermination of the Ainus' and Southern Africa's indigenous peoples' animal/plant food sources, caused indigenous land damage (i.e. overuse of fertile land, flooding, pollution, and abnormal climate warming due excessive CO2 emissions from industrialization). However, there are exceptions: as demonstrated by Australian government implementations, the National Parks and Wildlife Act and Native Title Act gave the Aborigines indigenonus peoples and Torres Strait Islanders rights to their land, spiritual beliefs, artifacts, and customs. Regulation of these acts are demonstrated by the penalties non-indigenous infringers face for interfering with the Aborigines and Torres Islanders' land and bodies of water.

This study demonstrated that existing policies to bring climate justice to indigenous peoples are not working, which is a cause of deep concern. This is because although indigenous peoples are one of the first to feel the effect of climate change, they contribute the least to CO2 emissions and the other negative facilitators of climate change. In fact,

80% of our world's biodiversity comes from the land of our indignous peoples. (Amnesty International, n.d). Biodiversity- the diversity of organisms of all different species, all different habitats, and all different ecosystems- is important to our planet because simply, it helps sustain human life (Biller, 2018). However, when it is a target of abuse and subjugation, indigenous people- who also hold cultural and spiritual values in the land, are not the only demographic that is harmed.

The limitations of our studies are that the policies and legislation in our case studies were from decades prior, rendering them out-of-date. This is important because in current times, our society places a higher emphasis on climate justice and recognition of minority groups. Our examples of legislation date as far back as the mid 20th century, a period when industrialization was emphasized and climate change was not a big or heavily detected concern. Another limitation is that still, there is minimal representation of indigenous voices, so indigenous peoples' responses to implemented legislation may have not been recorded.

Applying the research that we gathered, future models of governmental policies to inspire a more positive reaction from indigenous peoples could be the representation of indigenous people while making climate justice decisions that will impact them. It is also very important for governments to implement Traditional Ecological Knowledge (TEK)- a body of knowledge, beliefs, and practices based on observations of environments and living beings' interactions with the environment, passed down over generations (Morris, 2010) - in their pursuit of alleviating climate change; as the Intergovernmental Panel on Climate Change (IPCC) said:

> "[Traditional Ecological Knowledge is] an invaluable basis for developing adaptation and natural resource management strategies in response to environmental and other forms of change...indigenous or traditional knowledge may prove useful for understanding the potential of certain adaptation strategies that are cost-effective, participatory and sustainable."

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