

# **Stormy Days Ahead: Climate Change and Migration in the Philippines and Thailand**

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## ***Abstract***

*This article examines climate change and its effects of extreme weather events, rising sea levels, losses in agricultural productivity, and forced migration on populations in the Philippines and Thailand. Climate change in these countries has ethical implications because their citizens' per capita emissions are relatively low on a global scale, but they face some of the world's most alarming consequences due to being coastal/archipelago nations in Southeast Asia. This ethical issue is also reflected on a subnational level. This article attempts to gain a deeper understanding of the more discreet inequities caused by the climate crisis and explains what causes their existence despite the implementation of climate legislation. The Philippines and Thailand have similar geography, histories, patterns of development, and institutions, so they may be able to work together in order to advance their national interests, promote equality, and ensure security for their respective populations moving forward.*

## **I. Introduction**

Climate change is one of the most pressing global issues in not only our lifetime, but almost certainly of several future generations' lifetimes as well. As greenhouse gases (GHGs) are emitted into the air mainly through deforestation, industrial production, and transportation, the earth's long-term average surface temperatures are increasing. People around the world are facing harsh consequences: sea levels are rising, droughts are threatening the food supply of most developing countries, extreme weather events are causing mass destruction, and people are being forced to migrate as their homelands become uninhabitable. Unfortunately, the industrialized countries have the highest per capita emissions while developing countries, many of whom have histories of colonialism and imperialism, must deal with the worst effects. In this way, climate change is a multilevel justice issue that both individual countries and the global community must face.

This article is a case study of the Philippines and Thailand. It explores the ways in which climate change has impacted the two countries through land loss, natural disasters, and migration. Despite relatively low per capita emissions, both countries hold a top-ten spot on the Global Climate Risk Index measured over the past two decades, meaning they each have high numbers of fatalities and billions of dollars in economic losses attributed to this issue (Eckstein et al., 2021). This article

analyzes climate change-related data for the two countries and discusses the ethical challenges surrounding them.

Following this introduction, the article begins with a literature review outlining prior research conducted regarding climate change in the Philippines and Thailand. It continues by offering insight into the socioeconomic evolution and human development of each country. Next, this article provides data and visuals quantifying the impacts of the climate crisis before applying various ethical lenses to institutions and policies implemented by different levels of government. Finally, the article offers recommendations for next steps to combat climate change and reduce the inequities associated with it.

## II. Literature Review

There are various publications that focus on the climate change effects of rising sea levels and extreme weather events, often leading to forced migration of Thai and Filipino citizens. Mosuela and Matias (2015) and Bohra-mishra et al. (2017) focus on these effects in the Philippines, while Marks (2011) and Curran and Meijer-Irons (2014) focus on these effects in Thailand. Beech (2020) attempts to provide a more personal, local perspective of how life is impacted by climate change in the Philippines. Hoffman and Muttarak (2017) describe education and disaster preparedness in both of these countries.

- Mosuela and Matias (2015) begin by providing background on the high vulnerability of the Philippines to extreme weather events and climate change due to relatively low economic development, geography, and unequal distribution of resources. On average, the Philippines comes into contact with twenty typhoons each year, many causing immense damage and deaths, like Typhoon Haiyan in 2013. Migration plays an important role in the Philippines, as citizens are being forced to leave the region, following instability, and in order to gain access to economic resources that will then be sent back home to family members. Members of the international community, including Canada and the United States have been able to assist this crisis by loosening immigration policies. Mosuela and Matias (2015) conclude that transnational networks and economic migration help to improve cooperation and alleviate the impacts of climate change.
- Curran and Meijer-Irons (2014) identify Thailand's rural communities as vulnerable to the effects of climate change, since climate patterns polarize to extensive periods of drought and excessive rainfall. These extreme conditions jeopardize the growth and harvest of key agricultural crops, including rice, which rural communities rely on to sell for income. Furthermore, much of the Thai economy relies on the manufacturing process from these key crops to final goods, so yield loss threatens economic stability for the country as a whole. The study found that long-term exposure to variable weather patterns correlates with migration in search of better economic opportunities. The authors also identify a gender dimension to this topic, in which men are more likely to migrate due to gender norms impacting household, labor, and land ownership roles.
- Marks (2011) delves deeper into the climate change impacts of drought, declines in agricultural productivity, and sea level rise in Thailand. For example, on page 250, he asserts: "The problems these impacts could create or exacerbate include water management challenges, heightening of class-related tensions, floods of new immigrants and refugees, damage to the tourism industry and conflict with neighbouring countries over dam-

building.” Therefore, climate change manifests itself in a wide range of development issues, causing instability and threatening widespread poverty. The author argues that climate change mitigation is obstructed by the current political institutions in place, such as relatively undemocratic structure and ruling interests of the elite class.

- Beech (2020) provides an illustration of rising sea levels in Batasan, Philippines. She recounts the personal struggles these islanders face. The highest point on the island is just 6.5 feet above sea level, and when the tides rise, the island is swept with ocean water. There is little capacity for farming and no fresh water source, so inhabitants must fish or eat processed foods. They have to collect rainwater or import clean water for drinking. The Philippines government rolled out a program aimed at relocating the population to farmland, however, fishing is a major dietary and cultural staple for the island, so many refused to migrate. Beech argues that rather than encouraging mass migration, the community should invest in local adaptations to mitigate the effects of climate change.
- Bohra-mishra et al. (2017) focus their research on the causes of climate migration in the Philippines, as well as the demographics and gender dimensions attached to it. Temperature changes and more frequent typhoons were found to prompt migration. Migrants were most likely to be male, well-educated, and of the younger generation. Interestingly, females dominate emigration in general, which differs from specifically climate-related migration. The authors also found a relationship between low agricultural yields and emigration, and that rural people were more likely to migrate than urban dwellers.
- Hoffman and Muttarak (2017) have conducted a study on natural disaster education and preparedness in the Philippines and Thailand. They found that education plays a role in Filipino and Thai citizens’ ability to effectively respond to disaster. Without having had to experience a disaster, those who were educated were more equipped to deal with it. The authors also found that income does not play a significant role, but there are important disparities between the Philippines and Thailand based on the contexts of society and education. In other words, in Thailand, highly educated people and communities with more social capital were more prepared, whereas in the Philippines, preparedness was more evenly distributed among the population. This helps to understand what steps must be taken at the national and community levels in ensuring the safety of all groups, educated or not.

### **III. Socioeconomic Background**

The Philippines and Thailand are both Southeast Asian countries that have seen at least some economic growth in the past several decades, joining Asia’s newly industrialized economies. However, Thailand has seen faster, more steady growth than the Philippines in terms of per capita gross domestic product (GDP). The Philippines ranks 114<sup>th</sup> in per capita GDP (PPP-adjusted), while Thailand ranks 69<sup>th</sup> among all the countries with such data.<sup>1</sup>

The economic history of the Philippines is an interesting and complex one, being rooted in colonial rule and post-colonial reforms. The Philippines was a colony of the United States until 1946, and its development was stunted especially during Japanese occupation in the Second World War (WWII). Gerardo P. Sicat (2015) explains that in the decades following independence, the Philippine leaders implemented economic protectionist policies and discouraged economic

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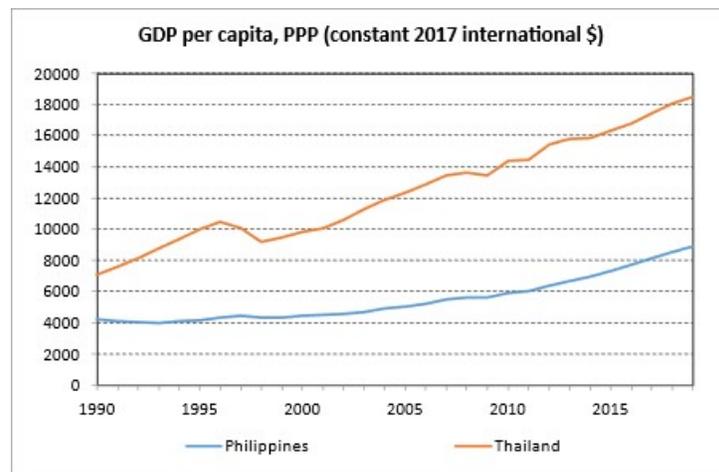
<sup>1</sup> This paragraph is based on World Bank (2020a and 2020b) and World Bank (2021).

interaction with foreign entities. In the 1970s and 1980s, authoritarian ruler Marcos instituted economic reforms, but political instability hindered economic progress. Later in the 1990s, the Philippines saw economic liberalization and opened up to the global economy, which resulted in economic growth. However, inadequate energy and infrastructure have been an obstacle (Sicat, 2015). Yet, the Philippines is increasingly urbanizing and expanding its industries. It relies heavily on outsourcing by multinational corporations and remittances from the diaspora (World Bank, 2020a).

Thailand has seen much more stable growth due to a sound political and economic strategy. It is the only country in Southeast Asia that has never been under colonial rule. Robinson, Teja, Byeon, and Tseng (1991) explain that the government invested in infrastructure to support agriculture in the Post-WWII period. Thailand attracted foreign investment and pursued growth based upon private enterprise, conservative fiscal policies, and openness to the global market. The country saw a decline in economic growth rates in the 1970s and 1980s but has since recovered by focusing on strengthening industry and increasing manufacturing exports. Additionally, private investment has stimulated the economy.<sup>2</sup> The World Bank (2020b) notes that COVID-19 has been particularly harmful to the Thai economy because it relies heavily in part on tourism. Thailand is on track to continue rapid development, but climate change may pose a threat to its success.

Figure 1 shows purchasing power parity (PPP)-adjusted GDP per capita (in constant 2017 international \$) in the Philippines and Thailand. It shows that the gap between the two countries in terms of GDP per capita has risen over time. In the Philippines, GDP per capita rose slowly from \$4,232 in 1990 to \$4,454 in 2000. The rate has increased a bit since then, reaching \$5,918 in 2010 and \$8,908 in 2019. On the other hand, Thailand had a GDP per capita of \$7,109 in 1990, which grew to \$9,819 in 2000, after a slight downturn. Its per capita GDP reached an impressive \$18,460 in 2019.

**Figure 1: GDP per capita, PPP (constant 2017 international \$), 1990-2019**

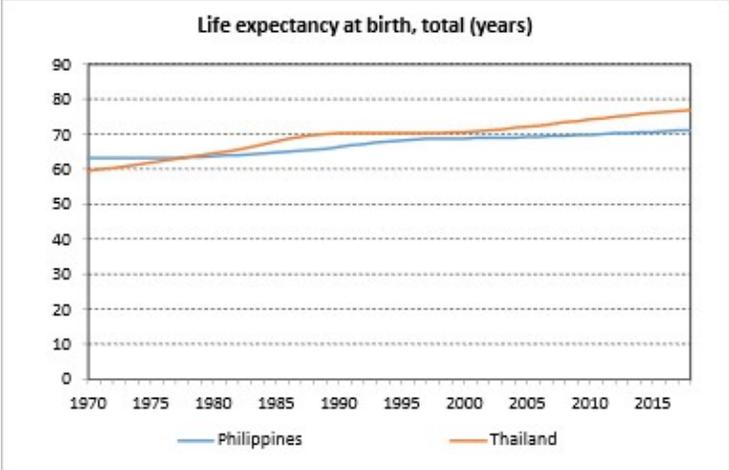


Source: Created by author based on World Bank (2021).

<sup>2</sup> Robinson et al. (1991).

As shown in Figure 2, the Philippines and Thailand have had relatively comparable life expectancy rates throughout the last fifty years. Thailand overtook the Philippines in 1978, and Thai life expectancy continued to be above that of the Philippines, but only by a few years. The Philippines' life expectancy was 63.2 years in 1970, only marginally higher in 1980 (with 63.7 years), then increased more steadily to 66.4 years in 1990, 68.8 years in 2000, 69.8 years in 2010, and most recently reached 71.1 years in 2018. Thailand's life expectancy was 59.4 years in 1970, 65.0 years in 1980, and 70.2 years in 1990. It then increased only marginally during the next ten years, reaching 70.6 years in 2000, and then grew again more rapidly, reaching 74.2 years in 2010, and 76.9 years in 2018. Figure 2 shows a couple of plateaus, which are from about 1995 to 2005 for the Philippines and from about 1990 to 2000 for Thailand. However, both have overall seen steady, albeit slow, increases in life expectancy over time. For the most recent year with such data (2018), Thailand has a life expectancy almost 5 years greater than the Philippines. As shown in Figure 2, Thailand experienced a steeper incline than the Philippines, thus resulting in an increasing gap between the two countries. This trend coincides broadly with differences in GDP per capita discussed earlier in this section.

**Figure 2: Life expectancy at birth, total (years), 1990-2018**

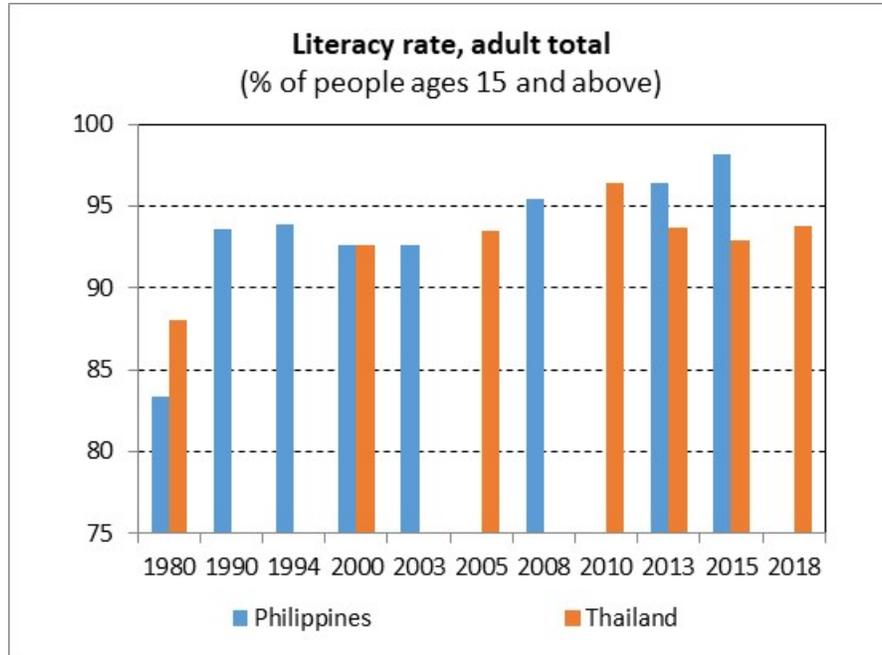


Source: Created by author based on World Bank (2021).

The evolution of literacy rates shown in Figure 3 is mostly inconsistent with the evolution of GDP per capita and life expectancy. The Philippines had a literacy rate of 83.3 percent, which jumped to 93.6 percent in 1990. Thailand's literacy rate was higher than the Philippines' literacy rate in 1980. They were then almost the same at the turn of the century, with the Philippines having a literacy rate of 92.60 percent and Thailand of 92.65 percent. While we cannot compare these two countries' literacy rates between 2000 and 2013 as the years with data availability do not match, it is clear that by 2013, the Philippines' literacy rate was with 96.4 percent nearly 3 percentage points higher than that of Thailand (93.7 percent). Two years later (in 2015), the Philippines' literacy rate had increased further to 98.2 percent, while Thailand's literacy rate decreased further to 92.9 percent, leaving a 5.3 percentage points difference between the two countries. These different trends are puzzling considering Thailand's impressive GDP per capita growth over the

past decade, relative to the Philippines' more stagnant GDP per capita growth as shown in Figure 1.

**Figure 3: Adult literacy rate (percent of people ages 15 and above), all available years**



Source: Created by author based on World Bank (2021).

## IV. Analysis of Facts

### IV.1. Indicators of Climate Change

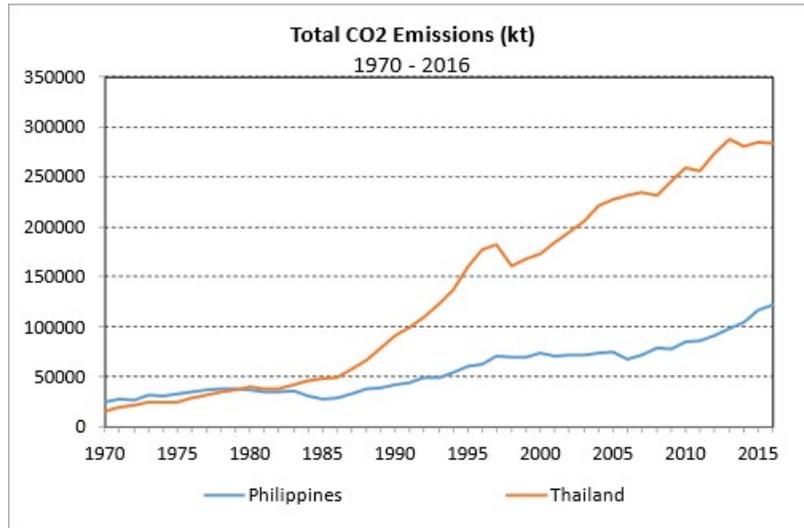
#### IV.1.a. Greenhouse Gas (GHG) Emissions

GHG emissions, most notably carbon dioxide (CO<sub>2</sub>) emissions, are the main driver of human-caused climate change (Intergovernmental Panel on Climate Change (IPCC) (2015)). As shown in Figures 4 and 5, CO<sub>2</sub> emissions in total kilotons and metric tons per capita have followed similar patterns in each respective country. As shown in Figure 4, total CO<sub>2</sub> emissions in the Philippines has remained fairly steady relative to Thailand. In 1970, the Philippines' emissions were 24,782 kilotons, which increased slowly but steadily to 37,000 kilotons in 1980, 41,763 kilotons in 1990, 73,305 kilotons in 2000, 84,887 kilotons in 2010, and 122,287 kilotons in 2016. On the other hand, total CO<sub>2</sub> emissions in Thailand started out lower than the Philippines at 15,376 kilotons in 1970, increased to 40,135 kilotons in 1980 and then began to increase steeply to 90,722 kilotons in 1990, 172,697 kilotons in 2000, and 258,901 kilotons in 2010. It has leveled off since 2013 to 283,763 kilotons in 2016. Thailand surpassed the Philippines in total CO<sub>2</sub> emissions in 1980 and has since more than twice that of the Philippines' emissions.

Furthermore, as shown in Figure 5, the Philippines's per capita emissions have increased slowly, with some ups and downs, while Thailand's have skyrocketed in the past four and a half decades. The Philippines's per capita emissions started at 0.69 metric tons in 1970, while Thailand's per

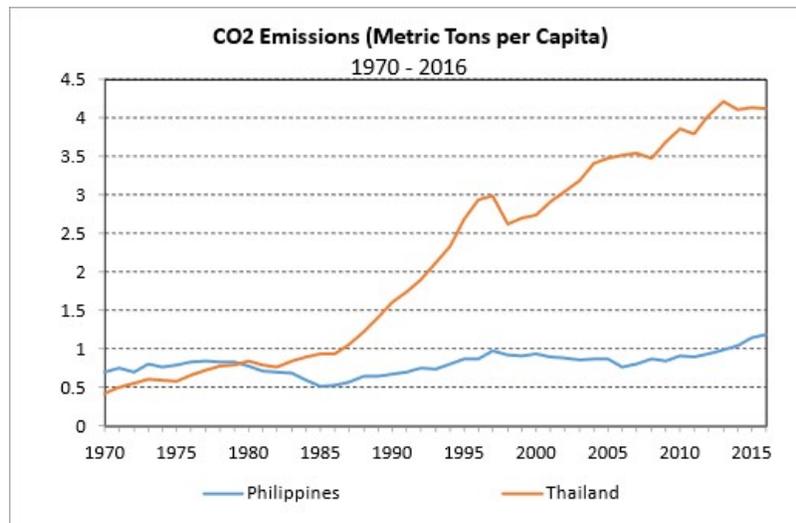
capita emissions were, with 0.42 metric tons in 1970, slightly lower. However, Thailand’s per capita emissions surpassed the Philippines in 1980, and continued to steeply increase, despite some short-term volatility.

**Figure 4: Total CO<sub>2</sub> Emissions (kt), 1970-2016**



Source: Created by author based on World Bank (2021).

**Figure 5: CO<sub>2</sub> Emissions (metric tons per capita), 1970-2016**



Source: Created by author based on World Bank (2021).

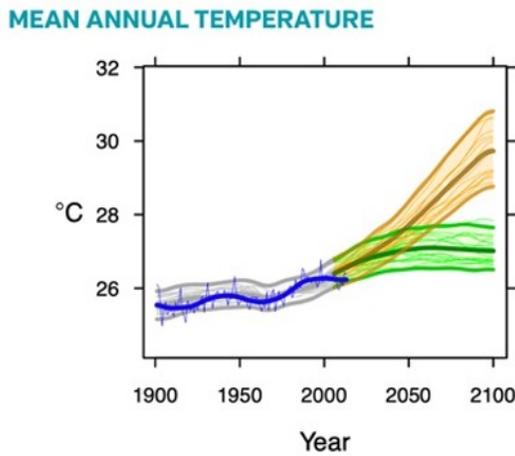
***IV.1.b. Mean Annual Temperature***

As detailed in IPCC (2015), changes in long-term average temperature are an important indicator of climate change. The earth’s surface temperature increases due to trapped heat from the accumulation of GHGs in the atmosphere. In addition to increased temperatures, we have also seen

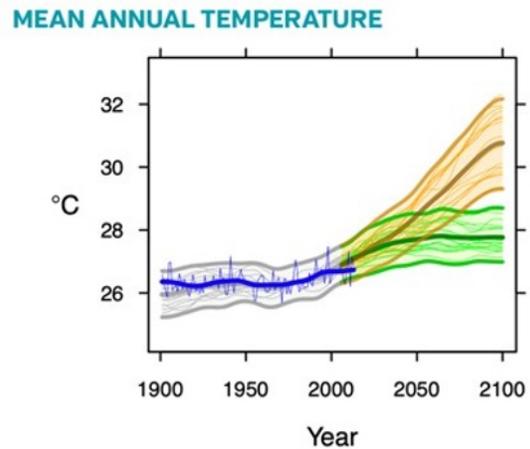
an increased frequency of extreme weather events and struggles with agricultural productivity due to excessive floods and prolonged droughts (IPCC, 2015). This may ultimately force populations to migrate due to disaster hazards, food production instability, and a loss of livelihood/economic assets.

Figures 6 and 7 show the actual mean annual temperatures (°C) in the Philippines and Thailand from 1990 to 2015 and the predicted mean annual temperatures from 2015 to 2100. The blue line indicates both precise and smooth recorded data, while the orange region indicates a high emissions prediction. The green region indicates a low global emissions prediction of the future. As shown in Figure 6, the Philippines’s annual temperature has risen from just below 26°C in 1990 to just above 26°C in 2015. According to the World Health Organization and United Nations Framework Convention on Climate Change (2015a), under low emissions, the Philippines’ mean annual temperature will increase about 1°C between 1990 and 2100, but under high global emissions, it will increase about 3.7°C. Figure 7 shows that Thailand’s annual temperature has stayed relatively similar from 1990 to 2015, around 26.5°C. However, it is expected to see a starker change in annual temperature in the future. The World Health Organization and United Nations Framework Convention on Climate Change (2015b) asserts that under low global emissions, Thailand’s temperature will increase 1.3°C, and under high global emissions, about 4.3°C between 1990 and 2100. For reference, the Intergovernmental Panel on Climate Change (IPCC) (2018) warns that global climate change must not exceed 1.5°C above pre-industrial levels, as 1.5-2°C is the threshold of irreversible damage.

**Figure 6: Mean Annual Temperature, Philippines (1900-2015)**



**Figure 7: Mean Annual Temperature, Thailand (1900-2015)**



Source: World Health Organization and United Nations Framework Convention on Climate Change (2015a and 2015b), Figure 1.

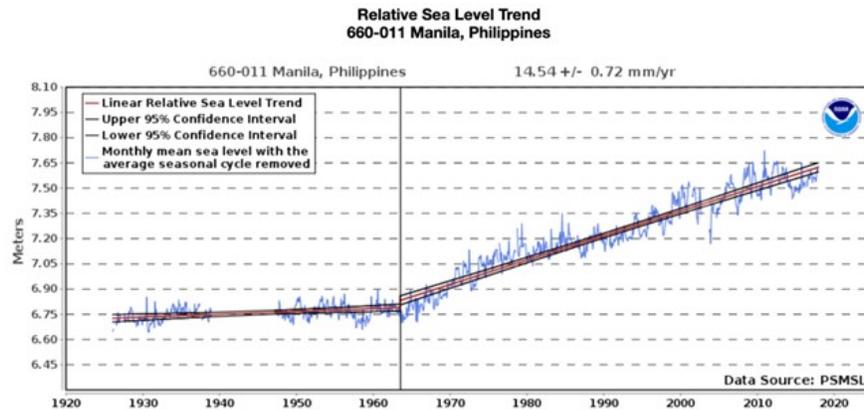
***IV.1.c. Rising Sea Levels***

Sea level rise is another important indicator of climate change, since warmer water expands. It is also a significant challenge for countries in Southeast Asia, whose populations are located mainly

in coastal cities, hence, can be wiped out by rising sea levels. This can also result in population displacement and vast economic losses.

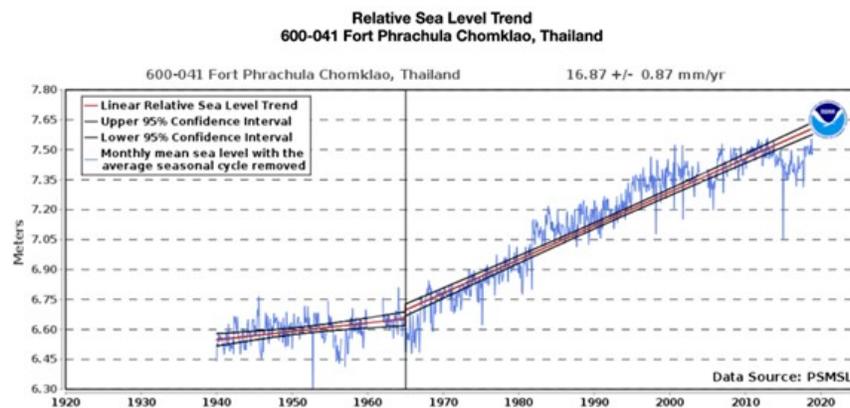
Figures 8 and 9 display sea level rises relative to local land. Figure 8 shows data for Manila, the capital of the Philippines, while Figure 9 shows data for Phrachula Chomklao, the Permanent Service for Mean Sea Level (PSMSL) station closest to Thailand’s capital, Bangkok. The two countries show similar trends in sea level rise. Figure 8 displays an increase from about 6.90 meters in 1970 to about 7.65 meters in 2017 in Manila, and Figure 9 displays an increase from about 6.75 meters in 1970 also to about 7.65 meters in 2017 in Bangkok. According to the National Oceanic and Atmospheric Administration (2017), Manila will see a rise of about 14.54 millimeters per year, while Bangkok will see a rise of 16.87 millimeters per year. Furthermore, the National Oceanic and Atmospheric Administration (2017) predicts that in 100 years, Manila’s sea level is projected to increase by 4.77 feet, while Bangkok’s sea level is projected to rise by 5.53 feet.

**Figure 8: Relative Sea Level Rise in Manila, Philippines (1925-2017)**



Source: National Oceanic and Atmospheric Administration (2017).

**Figure 9: Relative Sea Level Rise in Bangkok, Thailand (1940-2017)**



Source: National Oceanic and Atmospheric Administration (2017).

## IV.2. Climate Change Consequences

Climate change consequences include extreme weather events, changes in rainfall, and population displacement. This can be measured in many ways, including by fatalities, losses in GDP, and the number of displaced persons.

### IV.2.a. Extreme Weather Events

Table 1 shows the rankings of the top ten countries affected by extreme weather events according to long-term Climate Risk Index (CRI) scores from 2000-2019. The Philippines is ranked number 4, while Thailand is ranked number 9. The Philippines experiences a much higher fatality rate of natural disasters at 0.93 per 100,000 inhabitants, almost four and a half times Thailand's fatality rate of 0.21 per 100,000 inhabitants. However, Thailand experiences a higher economic loss in terms of GDP, with a loss of 0.82 percent. The Philippines' loss was 0.54 percent of its GDP. The Philippines has had the far greatest number of extreme weather events of all the countries in the chart since 2000, at 318. Thailand has had less than half: 146 extreme weather events.

**Table 1: Climate Risk Index (CRI), 2000-2019**

**Table 2: The Long-Term Climate Risk Index (CRI): The 10 countries most affected from 2000 to 2019 (annual averages)**

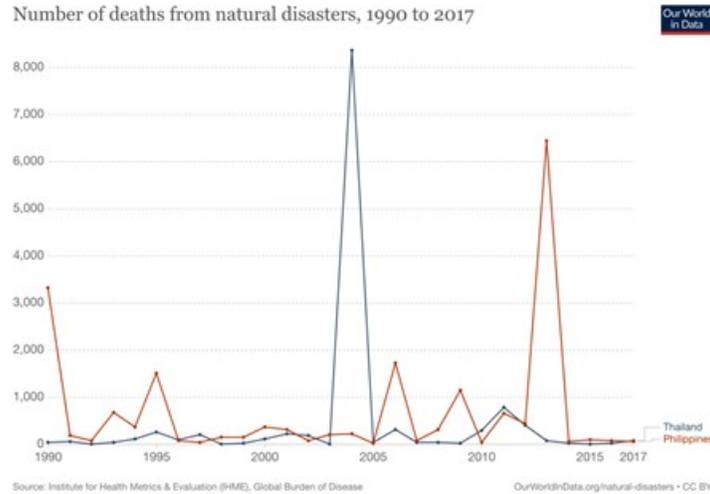
CRI 2000-2019 (1999-2018)	Country	CRI score	Fatalities	Fatalities per 100 000 inhabitants	Losses in million US\$ PPP	Losses per unit GDP in %	Number of events (2000-2019)
1 (1)	Puerto Rico	7.17	149.85	4.12	4 149.98	3.66	24
2 (2)	Myanmar	10.00	7 056.45	14.35	1 512.11	0.80	57
3 (3)	Haiti	13.67	274.05	2.78	392.54	2.30	80
4 (4)	Philippines	18.17	859.35	0.93	3 179.12	0.54	317
5 (14)	Mozambique	25.83	125.40	0.52	303.03	1.33	57
6 (20)	The Bahamas	27.67	5.35	1.56	426.88	3.81	13
7 (7)	Bangladesh	28.33	572.50	0.38	1 860.04	0.41	185
8 (5)	Pakistan	29.00	502.45	0.30	3 771.91	0.52	173
9 (8)	Thailand	29.83	137.75	0.21	7 719.15	0.82	146
10 (9)	Nepal	31.33	217.15	0.82	233.06	0.39	191

Source: Eckstein, Künzel and Schäfer (2021), Table 2.

To reiterate, climate change does not cause all extreme weather events. It is, however, proven to increase their frequency and exacerbate the intensity of them (IPCC, 2015). Figure 10 below breaks down the number of deaths due to extreme weather events, while Figure 11 breaks down the share of these deaths in terms of the total deaths from 1990 to 2017 in each respective year.

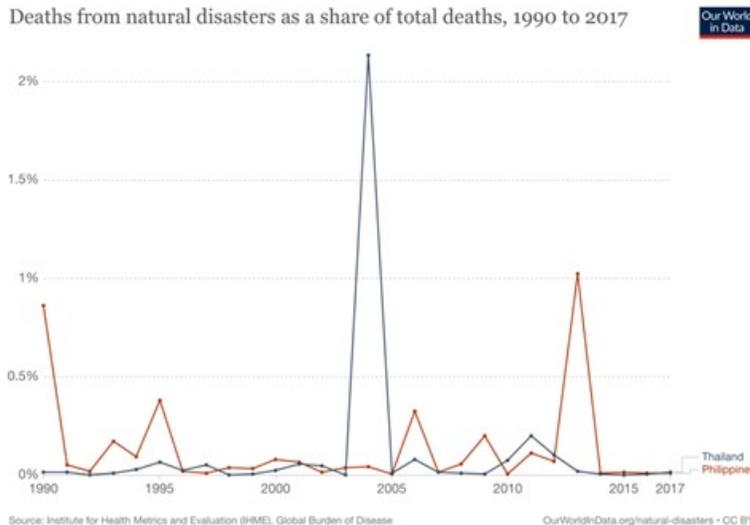
According to Figure 10, Thailand has had a relatively low number of deaths over time, with the exception of a huge peak of over 8,000 deaths in 2004. The Philippines has had several small spikes with a few larger peaks at about 3,250 deaths in 1990 and almost 6,500 deaths in 2013, many of these due to Typhoon Haiyan. Figure 11 shows a similar trend to Figure 10, but the Philippines peaks are shorter, and the Thai peak is taller to account for the Philippines' higher population.

**Figure 10: Number of Deaths from Natural Disasters, 1990-2017**



Source: Global Change Data Lab (2019b).

**Figure 11: Deaths from Natural Disasters as Share of Total Deaths, 1990-2017**

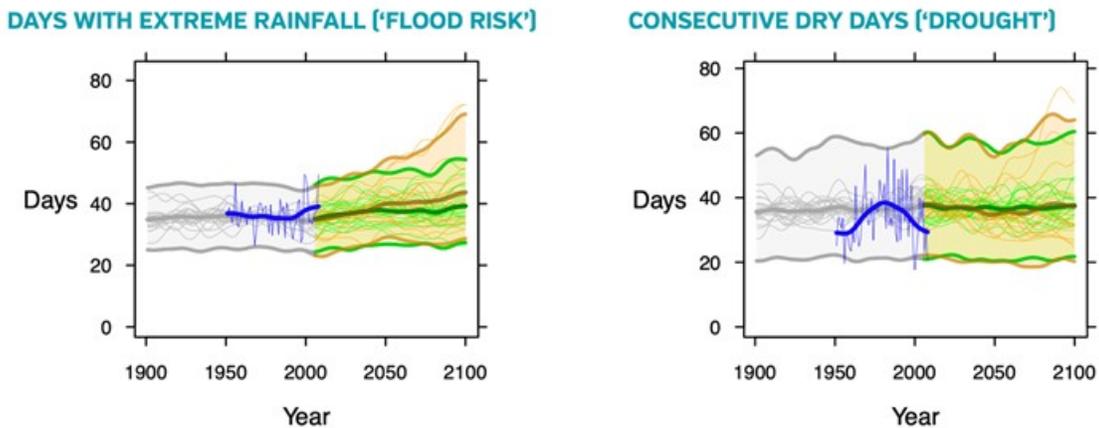


Source: Global Change Data Lab (2019b).

### IV.2.b. Rainfall Changes

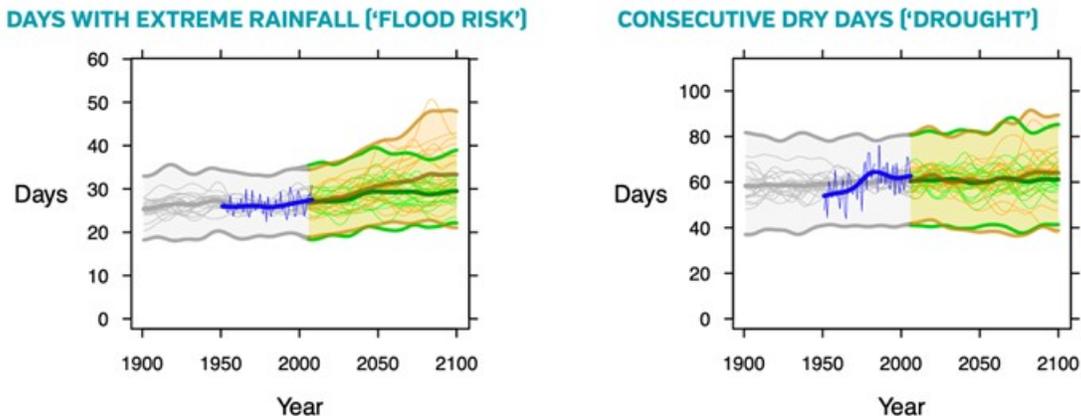
As stated earlier, climate change also implies changes in rainfall, which ultimately impacts agriculture and food productivity. Figures 12-15 show the actual recorded number of days with extreme rainfall and consecutive dry days from 1950-2015 in blue, projected days with high emissions in orange, and projected days with low emissions in green from 2015-2100. Figures 12 and 13 show, respectively, flood risk and drought in the Philippines. Figures 14 and 15 show, respectively, flood risk and drought in Thailand. The Philippines and Thailand could see an increased frequency of flood days by 9 and 7, respectively, by the year 2100 if global emissions are not slowed.<sup>3</sup> Fortunately, drought days are projected to remain steady in both countries.

**Figures 12 and 13: Flood Risk and Drought, Philippines (1990-2100)**



Source: World Health Organization and United Nations Framework Convention on Climate Change (2015a), Figures 3 and 4.

**Figures 14 and 15: Flood Risk and Drought, Thailand (1990-2100)**



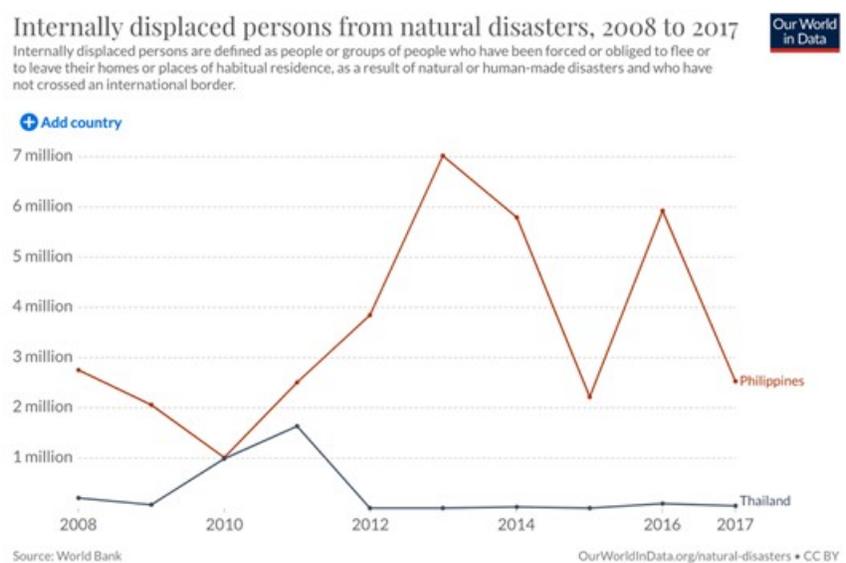
Source: World Health Organization and United Nations Framework Convention on Climate Change (2015b), Figures 3 and 4.

<sup>3</sup> World Health Organization and United Nations Framework Convention on Climate Change (2015a and 2015b).

### IV.2.c. Population Displacement

The last consequence and measure of climate change that will be discussed in this section is population displacement. Forced migration can occur internally, as people must move inland for safety from extreme weather events, which is displayed in Figure 16. According to Figure 16, the Philippines shows a much higher instance of internally displaced persons each year than Thailand. The Philippines has had a significantly higher number every year since 2008, with the exception of 2010, when the two countries were equal. The number of internally displaced persons from natural disasters in the Philippines peaked at 7 million persons in 2013 (which was caused by Typhoon Haiyan) and has since decreased to 4.1 million in 2019.<sup>4</sup> The number of internally displaced persons from natural disasters in Thailand peaked in 2011 with about 1.5 million persons and has also decreased to 61,000 in 2019.<sup>5</sup>

**Figure 16: Internally Displaced Persons from Natural Disasters, 2008-2017**



Source: Global Change Data Lab (2019b).

Tying subsections 1 and 2 of this section together, we can see that the Philippines has relatively low per capita CO<sub>2</sub> emissions compared to Thailand, but it tends to suffer greater consequences. This is only amplified on the global scale, where the poorest and lowest emitting countries suffer the greatest consequences, while mostly rich countries have historically contributed the most to climate change (Paavola, Adgar and Huq (2006)).

## V. Ethical Analysis

Section V discusses the ethical aspects of climate change in the Philippines and Thailand. The first subsection goes deeper into the ethical issues faced by these developing countries and describes

<sup>4</sup> Migration Data Portal (2021).

<sup>5</sup> Migration Data Portal (2021).

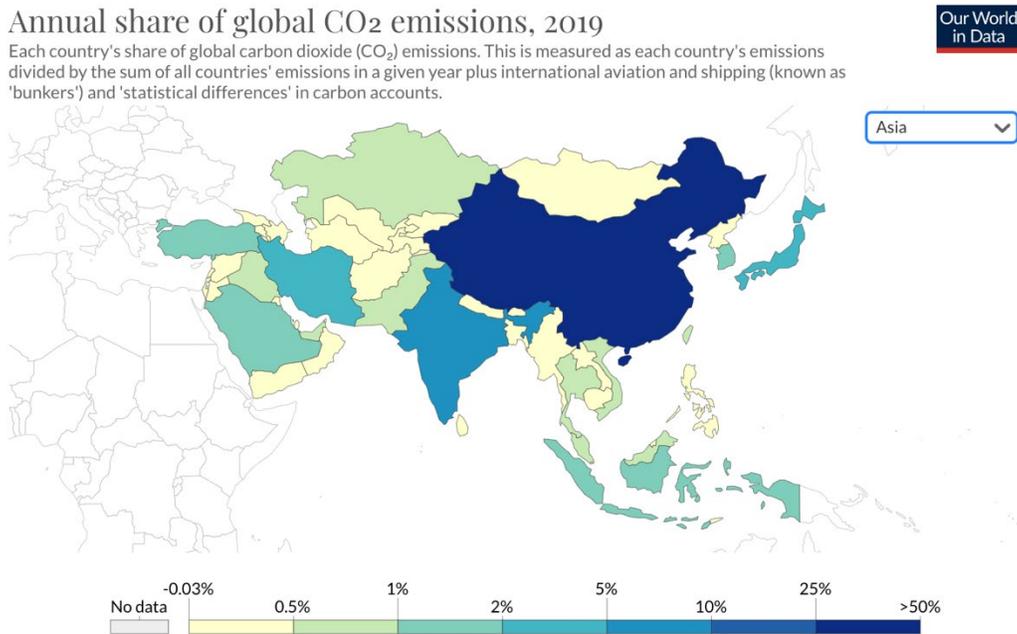
how global and national institutions fall short in addressing them. The second subsection applies ethical perspectives to the content of the first subsection and offers insights into possible steps towards addressing these problems.

### V.1. Ethical Origins and Structures

Climate change poses several ethical questions on different levels. On a subnational level, different groups are forgotten in policy considerations. As a global problem that knows no national borders, entire countries face injustices based on distribution of effects and exclusion in decisions.

First of all, climate change vulnerability is highly variable on both international and subnational levels. Stephen M. Gardiner and Lauren Hartzell-Nichols (2012, paragraph 2) argue that “there are skewed vulnerabilities: at least in the short- to medium-term, many of the most vulnerable countries and people are those who have emitted the least historically, and whose emissions levels continue to be relatively low.” Jouni Paavola, W. Neil Adgar and Saleemul Huq (2006, p. 263) also describe this issue of “distributive justice,” meaning that the distribution of climate change effects is uneven across space. On a national level, the Philippines and Thailand have low shares of global carbon emissions. For example, the Climate Action Tracker shows the United States’ actions as critically insufficient to reach the 2°C target, while the Philippines’s actions are on target. No data is shown for Thailand. As shown in Figure 17, the Philippines’ share is 0.4 percent and Thailand’s share is 0.79 percent of global emissions. Despite this fact, as mentioned in Section IV, both countries are ranked in the top ten countries with the highest climate risk (as was shown in Table 1 above). It is hard to measure the extent to which emitting countries should be responsible for mitigation, but the inequities are clear.

**Figure 17: Annual Share of Global CO<sub>2</sub> Emissions, 2019**



Source: Our World in Data based on Global Carbon Project [OurWorldInData.org/co2-and-other-greenhouse-gas-emissions](https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions) • CC BY

Source: Global Change Data Lab (2019a).

For the inhabitants of these countries, dealing with climate change means either adaptation or migration. Climate change has disproportionately affected rural communities in both of these countries and many others. Bohra-mishra et al. (2017, p. 300) found that increased temperatures significantly increase the incidence of out-migration in rural provinces of the Philippines, most likely due to declines in agricultural productivity. Likewise, Curran and Meijer-Irons (2014) explain in their article that Thailand's economy depends on agriculture for domestic consumption and export, and that rural villages are responsible for these agricultural products. The authors assert (p. 47) that "[t]his agricultural dependence means that rural communities are particularly vulnerable to climate uncertainties." Research done by Curran and Meijer-Irons also shows that environmental issues worsen political conflicts and intensify the push to migrate.

The ethical aspect is the consideration of those left out of climate decisions and policies on a subnational level. First off, although they are relatively low emitters, these rural communities are largely ignored. For example, the Philippines' National Climate Change Action Plan 2011-2028 outlines the country's aims to promote mitigation and adaptation.<sup>6</sup> The Action Plan discusses the way that migration will reduce security,<sup>7</sup> but the report is vague and does not mention the impact of climate change on agricultural productivity. Thailand's Climate Change Master Plan 2015-2050 is similar, citing only "migration due to the rise of sea level or other changes."<sup>8</sup>

Similarly, the Philippines' Intended Nationally Determined Contributions to the United Nations Framework Convention on Climate Change (UNFCCC)<sup>9</sup> describes the actions that have already been taken by the Philippine Government, including enacting the National Disaster Risk Reduction and Management Law of 2010 and issuing the Biodiversity Strategy and Action Plan. It does not mention the many people who are forced to migrate due to climate change. Thailand's Intended Nationally Determined Contributions to the UNFCCC was the only document found explicitly mentioning agricultural migrants.<sup>10</sup>

David Rotman (2013) asserts that future generations are also often forgotten in decision-making. However, a balance must be found in impacts for the existing and future populations. Taking immediate, transformative, and overly ambitious measures can be harmful to current inhabitants of each country. At the same time, quality of life must be ensured for those who come after.

Another ethical aspect is that developed countries often fail to fairly consider developing countries. Paavola, Adgar and Huq (2006, p. 264) refer to this as "procedural justice," and explain that "vulnerable developing countries are not equal partners in international negotiations on climate change". Paavola, Adgar and Huq (2006) also mention that these developing countries are hindered in pushing their interests by long-standing injustices. The well-known colonialism, dependency, and institution theories of development may offer insight into these injustices.

Huan Qingzhi (2017, p. 91) expresses that, "[...] the logic of ecological imperialism in international carbon politics within the framework of the Convention and the Kyoto Protocol is a demonstration of the way a few Western countries perpetuate and extend their international hierarchical superiority or exclusionist hegemony on the basis of their domestic capitalist economy and politics." This substantiates the claim by Paavola, Adgar and Huq (2006) that developed countries

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<sup>6</sup> Government of the Philippines (2011).

<sup>7</sup> Government of the Philippines (2011), page 16.

<sup>8</sup> Government of Thailand (2015a), p. 73.

<sup>9</sup> Government of the Philippines (2015).

<sup>10</sup> Government of Thailand (2015b).

exert power over developing countries in international climate agreements by playing on existing power dynamics. The Philippines and Thailand have both ratified the Kyoto Protocol and the Paris Agreement and are currently doing what they can to reduce GHG emissions, led by suggestions from the most powerful countries.

Moreover, Calmfors et al. (2019, p. 37) acknowledge that “developing countries that developed countries have fallen short of their promises on providing climate finance and want reassurances of predictable financial flows from developed countries.” In 2020, the United States Agency for International Development (USAID) provided \$14.7 million dollars to the Philippines and \$5 million dollars to Thailand for climate change funding (ClimateLinks, 2020a and 2020b, respectively). However, referring back to Table 1, the Philippines experienced losses averaging to more than \$3 billion per year from 2000-2019, while Thailand experienced losses averaging slightly less than \$8 billion per year from 2000-2019 in climate change-related damages and lost economic assets. Due to the international injustices mentioned earlier, the Philippines and Thailand do not have the financial resources to combat climate change on their own, and it must be questioned whether the support from the richer countries is sufficient.

## **V.2. Ethical Frameworks and Recommendations**

Several ethical approaches can be applied to the issue of climate change injustices, and since it is a multi-level problem, different levels may be better addressed using different approaches. The Markkula Center for Applied Ethics (2009) identifies five main approaches to ethics. The Philippines’ and Thailand’s domestic and international climate change policies follow the utilitarian approach, which is aimed at finding the most favorable balance of positive outcomes over negative. For example, by implementing an energy sector restructuring plan, the Philippines is doing what it can to promote slowed emissions, while trying to manage responsible financing for its people and addressing other problems. In the Paris Agreement, the two countries must find a balance between solving a global issue, the associated costs, and acting in their own national interests.

However, perhaps the Markkula Center’s common good approach could be more successful than the utilitarian approach in responding to multi-level complications. This approach stresses that community relationships and protecting the most vulnerable of society are the foundation of strong ethics. Similarly, Paavola, Adger and Huq’s (2006) communitarian theory of justice also emphasizes the role that community relationships play, as well as how contexts and relativity shape social justice. These sources of ethics apply deeply on a domestic level for the Philippines and Thailand because the government must utilize local, community-based solutions in order to adapt to climate change. Wealthy community members and those who will be less affected by climate change must contribute what they can in order to protect the most vulnerable. For instance, local governments in urban areas could create education and training programs for migrants losing their livelihoods due to declines in agricultural productivity. The Filipino and Thai governments should increase their budgets to implement more support strategies for the most vulnerable, rather than focusing the majority of their resources on reaching the targets of the Paris Agreement, which many developed countries have failed to do.

Moreover, the common good approach could also be applied on a global scale by setting more binding standards for rich developed countries that have the economic means to rapidly reduce emissions. As mentioned by Paavola, Adger and Huq (2006), contexts and relativity matter because formerly colonized countries with underdeveloped industry and infrastructure must be

allowed to develop in order to sustain their populations. Additionally, countries with relatively low per capita emissions (typically the Global South) should not necessarily have the same responsibilities as those with relatively high per capita emissions (typically the Global North). The Global North must include the Global South in decision-making and possibly contribute more than their fair share for the common good.

The fairness/justice approach and rights approach may be helpful when examining the intergenerational impacts of climate change. According to the Markkula Center, the justice approach concludes that all humans should be treated equally and fairly, and the rights approach intends to preserve the rights of each individual affected by the outcome. These relate to the cosmopolitan theory of social justice detailed in Paavola, Adger and Huq (2006), as justice must be universally available, regardless of location or time. As discussed in the previous subsection, gains must be made to benefit the current population, however, the interests of future generations must also be taken into account. Using these approaches, future generations must be viewed as deserving of equal rights and fair treatment. Degrading the environment and reducing the chances of their survival and ability to make decisions is unethical. These considerations provide a framework for climate policies and actions that promote sustainability in the long-term.

## **VI. Conclusion**

To summarize, the Philippines and Thailand have both experienced promising rates of human development, albeit Thailand more so than the Philippines. However, this development is and will continue to be hampered by the devastating impacts of climate change. Per capita GHG emissions on the part of these two countries is on the rise, contributing to increasing earth surface temperatures, sea level rise that encroaches on highly populated cities, fatalities due to worsening and more frequent natural disasters, changing weather patterns, and rising rates of internally displaced persons attributed to any combination of these changes.

Nevertheless, as discussed in Section V, these impacts are compounded by other countries' emissions, particularly of highly developed nations who emit more than their fair share of GHGs. The Philippines and Thailand have not been given the opportunity to have an equal seat at the table in global climate decisions. Furthermore, certain communities such as rural dwellers and future generations are forgotten from national policies. These inequalities constitute ethical issues that can be looked at from a variety of different perspectives: what comprises the best balance of good compared to evil, what is in the best interest of the community, and what best protects the human rights of those involved.

Moving into the future, the global community should better integrate developing countries into the climate conversation. Better yet, lower income countries should urge high-income countries to hit binding targets on GHG emission reductions and to scale up climate mitigation and adaptation funding for developing countries. Non-governmental organizations may also have a role to play in increasing aid flows to developing countries, as long as they listen to local citizens and avoid imposing certain standards on recipients. Both, the Philippines and Thailand must go beyond reducing their emissions. They must focus on implementing legislation that considers and protects all vulnerable communities, offering support potentially through cash transfers, free/low-cost job training and higher education programs, and housing assistance for displaced persons and those impacted in any way by climate change. There are most certainly opportunities for these countries to work together in this process.

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