



The Climate Precariat: How Climate Change Exacerbates Marginalization through Labor Displacement of the Agricultural Sector

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Abstract

This paper is an analysis of the global agricultural sector as the epitome of the Precariat class amid climate change. Building on Guy Standing's concept of the Precariat, this article discusses how climate change vulnerability, labor vulnerability, inaccess to resources for climate change resiliency, and the dissolving of industrial rights increases precariousness and exacerbates sociocultural, economic, and political marginalization. Examples from Madagascar are used to illustrate the severity of these crises and to make a case for the sense of political urgency they command, but are too often denied. The final analysis invites discussion on the need for accountability and proactivity in applying just solutions for the Climate Precariat, and on what those solutions (could) look like.



Introduction

The ‘Precariat,’ a term used to reference a *New and Dangerous Class* (2011) as described by social scientist and economist Guy Standing, describes a population of working people with a distinguishing level of labor precariousness, particularly due to neo-liberal policies which liberates markets through the transfer of “risks and insecurity onto workers and their families” (p. 1). The word is an intentional combination of the words ‘precarious’ and ‘proletariat,’ and encompasses the millions of working individuals around the world who are critically lacking in income and employment stability to the extent that they are pushed to psychological, physical, and political extremes, lacking a personal sense of purpose and faith in the future of their work (Standing, 2011). The argument affirming the increasing precariousness of work is particularly relevant when considering the deterioration of industrial citizenship, or, industrial “rights which go beyond, and are secured by forces external to, the position which employees are able to win purely through, labour market forces” (Crouch, 1998 as cited in Fuge, 2005, p. 636). This phenomenon is also attributed to neoliberal ideologies removing responsibility from market actors to place it further on individuals (Fuge, 2005). If we are then to say that this argument for the emergence of the Precariat class is sound, which this essay *does* assert, then it can logically be assumed that an increase in risks and insecurity would only further burden the Precariat class. Climate change has, and continues to, introduce devastating risks and insecurities across various scales and labor sectors, with the agricultural sector¹ being uniquely at risk and vulnerable to severe displacement (International Labour Organization, 2019). With respect to the complex story of sociocultural inequality and marginalization already reflected in the agricultural sector of labor, this essay will discuss the ways in which climate change disproportionately increases labor precariousness among already marginalized sociocultural groups through its displacement of the agricultural sector at the global and local level. I will primarily use the case example of Madagascar’s agricultural sector to frame my argument due to its distinct and considerable relevance to the issues presented.



Mapping Climate Precarity & Marginalization

I would first like to draw attention to the precariousness and sociocultural marginalization of the laborers within the global agricultural sector. The agricultural sector, on a global scale, is comprised largely of laborers who make up pre-existing historically marginalized sociocultural demographics (The ILO as cited in The World Bank, 2021a, 2021b; NCFH, 2018; Sinaga, 2013). For example, while 26.76% of the world population is employed in the agricultural sector, countries with the least global political sociocultural representation² tend to have a percentage of agricultural workers well over 50% (The ILO as cited in The World Bank, 2021a). Interestingly, there is a notable overlap in this statistic, and that relating the high percentages of vulnerable workers organized by country (The ILO as cited in The World Bank, 2021b). In figures 1 & 2, we can observe this pattern. To incorporate additional socioeconomic factors contributing to marginalization and inaccessibility of resiliency-improving infrastructure (addressed in more depth later in this paper), I find it relevant to also consider the partial inversion of these map figures when considering GDP per capita, also organized by country in Figure 3 (The World Bank, 2021d; Abeygunawardena et al., 2002).

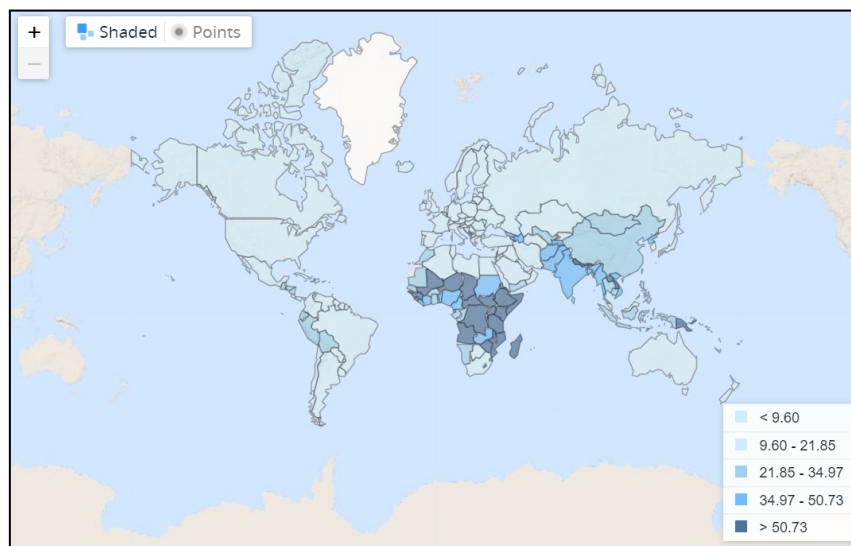


Figure 1- Employment in Agriculture, total as of 2019 (% of total employment) (The ILO as cited in The World Bank, 2021a)

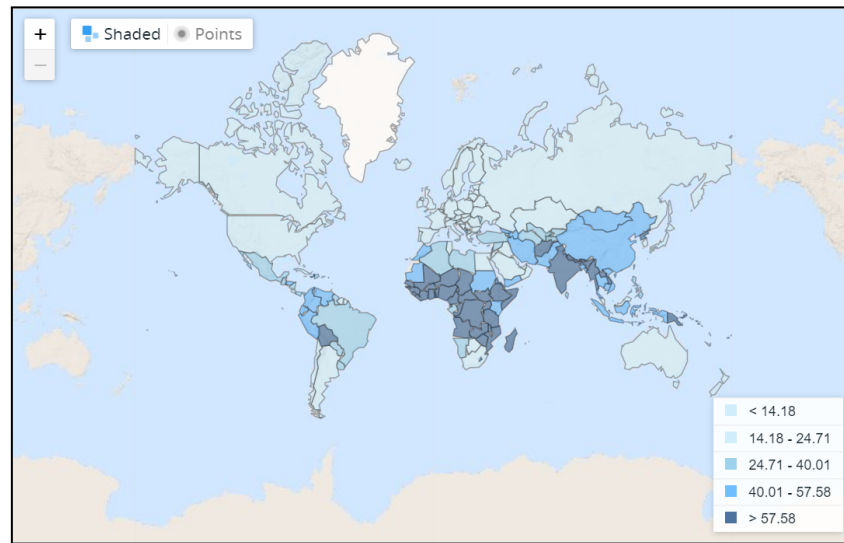


Figure 2- Vulnerable employment, total as of 2019 (% of total employment) (modeled ILO estimate) (The ILO as cited in *The World Bank, 2021b*)

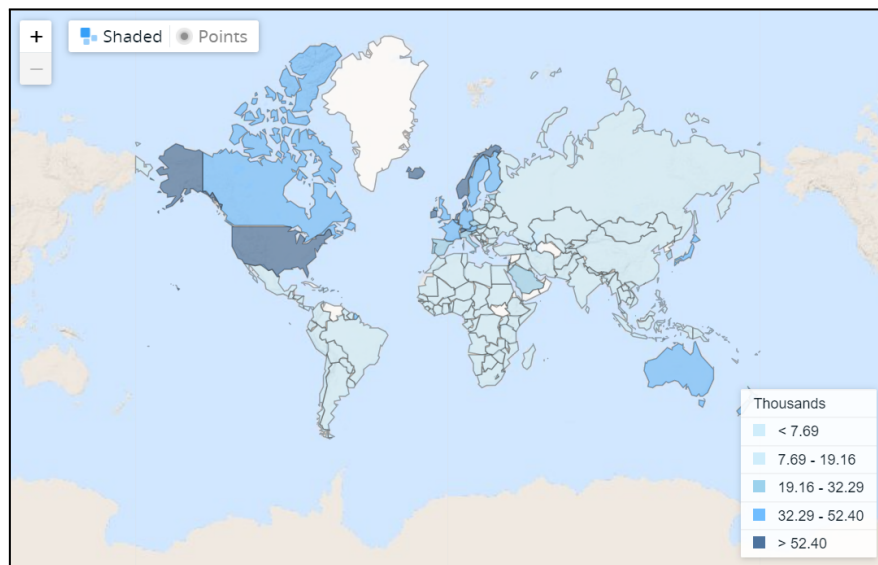


Figure 3 - GDP per capita (current US\$) (The World Bank, 2021d)

While I do not imply that correlation equals causation, it should be noted that countries with a higher percentage of ‘informal workers’ also tend to have an informal sector dominated or at least significantly comprised of vulnerable and agricultural work—and on the other hand, many countries’ data reported throughout history to the International Labour Organization (ILO) on the size of the informal sector is unreliable and incomplete, as it does not account at all for labor in rural or agricultural sectors, regardless of how significant these sectors are in some



countries and despite agriculture having more informal employment than any other sector with an estimated over-90% of its workers being informal (ILO, 1972; ILO, 2018). Consider palm farms in Indonesia (the world's top palm oil producing country): It is common for there to be one man formally employed in an entire family of workers, while the wives and children of those men perform unpaid informal/casual labor to increase the yield of the paid worker. This results in an informal labor sector that is vastly comprised of socioculturally marginalized women and children (Sinaga, 2013). This informality is significant to consider, as informality of work is often considered to be an indicator for heightened precariousness due to a prevalent lack of formal protections, benefits, and/or income stability (Standing, 2011; ILO, 1972; Bangasser, 2000). In fact, much of informal work is not considered work at all, which is often the case with agricultural work, especially performed by women (Fuge, 2005; ILO, 1972). Without frameworks like industrial citizenship to protect workers outside of labour contracts, these informal workers are further barred from the security associated with benefits and rights that market actors are not obligated to offer outside of formal employment (Fuge, 2005). Additionally, we might note the correlation between a low percentage of people in the agricultural sector, a low percentage of vulnerable workers, and a higher GDP per capita (The ILO as cited in The World Bank, 2021a, 2021b; The World Bank, 2021d).

Likewise, even though global superpower countries with comparatively more political representation², such as the US, output significant agricultural production, the populations of agricultural workers are predominantly part of the socioculturally marginalized; In the US, 73% are foreign born (70% being Mexican born), 47% are unauthorized workers, and 30% of agricultural worker households have "total family incomes below the U.S. government's poverty guidelines" according to the National Center for Farmworker Health (NCFH) (NCFH, 2018; FAO of the UN, 2013). However, only 1.36% of the US population works in agriculture, and only 3.89% of the population has been reported as vulnerably employed (The ILO as cited in The World Bank, 2021a, 2021b). Contrastingly, if we consider Madagascar, which has a lower total agricultural output compared to places like the US, 64.12% of the population works in agriculture, and 83.4% of the population is vulnerably employed (The ILO as cited in The World Bank, 2021a, 2021b). Similarly, the agricultural sector in the US accounts for just 0.6% of GDP, when in Madagascar it accounts for 24.12% of GDP, and Madagascar is ranked #14 in the list of countries with the highest percentage of agricultural workers while the US is #168 (USDA, 2021; The World Bank, 2021c; The World Bank as cited in The Global Economy, 2021). Even if



climate change were to be removed (at least explicitly) from the equation, it appears based on these statistics that the agricultural sector can reasonably be considered to be made up predominantly of socioculturally marginalized members of the Precariat class at the international, national, and local level.³

With this information in mind, I now draw attention to the very real impacts of climate change around the world, particularly in places with high percentages of laborers being vulnerably employed and/or in the agricultural sector, as well as those with lower comparative GDPs reflecting their lack of resources for adaptation and climate resilience (Abeygunawardena et al., 2002; The ILO as cited in The World Bank, 2021a, 2021b, 2021d).

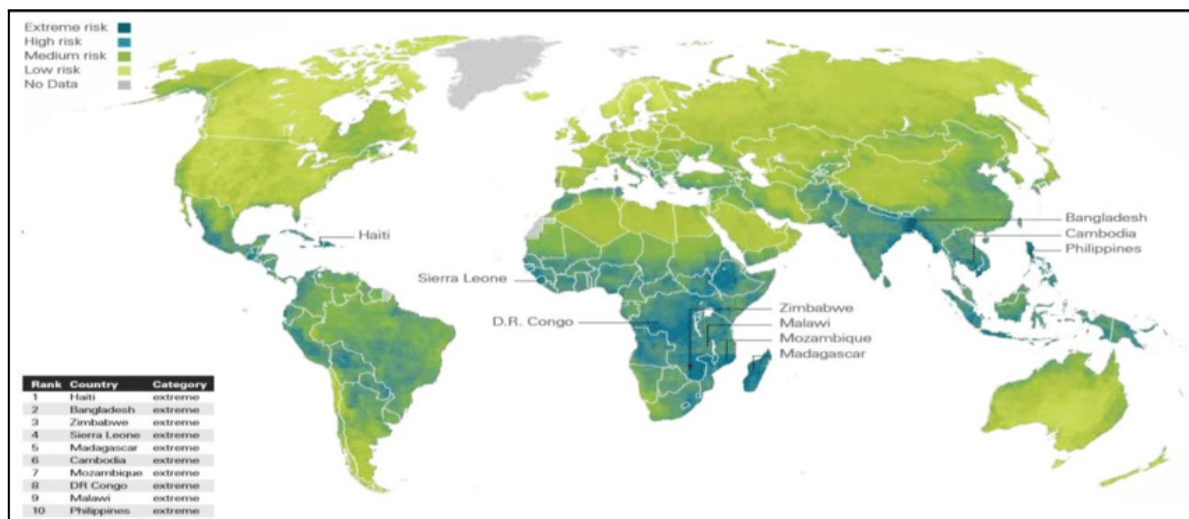


Figure 4 - Climate Change Vulnerability Index (KPMG US, 2012 & Maplecroft, 2012 as cited in Kim & Lee, 2018)

As we can see, the map in Figure 4 when compared to Figures 1-3 demonstrates that climate change vulnerability is heavily skewed to the disadvantage of people in places with a higher percentage of agricultural workers, a higher percentage of vulnerably employed, and a lower GDP per capita. Climate change substantially, devastatingly, and disproportionately exacerbates and “is superimposed on existing vulnerabilities” (Abeygunawardena et al., 2002, p. IX), and this is made evident in its impacts on the already largely precarious global agricultural workforce. The emergence of a Climate Precariat is the direct result of this, as the agricultural sector is critically dependent on climate stability and climate-sensitive environmental services/resources, including predictable and consistent patterns of precipitation, animal migration, sea level variations, crop viability/harvests, storms, land and ocean temperatures, and other climatic



variables, all of which are disturbed as the climate changes and significantly increases precariousness of agricultural work (ILO, 2019; USAID, 2017; The World Bank, 2018; WHO, 2016). These elements of precariousness are not only due to loss of livelihood, but severe impacts on the health and well-being of the Climate Precariat, contributing to the same political, physiological, and psychological extremization forewarned in Standing's 2011 analysis.

Climate Precarity in Madagascar

Madagascar presents a particularly pressing case of the Climate Precariat as a country uniquely reliant on the agricultural sector with an exceptionally vulnerable population in terms of employment and climate risk (KPMG US, 2012 & Maplecroft, 2012 as cited in Kim & Lee, 2018; The ILO as cited in The World Bank, 2021a, 2021b). Just *some* of the most notable impacts of climate change in Madagascar with both direct and indirect⁴ relation to labor precariousness have included:

- Increases in temperatures and carbon dioxide levels.
 - Extreme temperatures have repercussions for “plant development and productivity, leading to changes in the flowering, fruiting, and pollination of important food crops. The impact of extreme temperature events will have synergies with water availability and lead to risks to food security” (The World Bank, 2018, p. 13).
 - “Human labor, primarily outdoors in Madagascar (where [64.12] percent of the population works as agriculturalists) will stagnate as heat increases, leading to reduced agricultural productivity and increases in heat stress and stroke” (The World Bank, 2018, p. 13). “The [already marginalized] and at-risk occupational groups are particularly vulnerable to heat-related [medical] conditions” (WHO, 2016, p. 4).
 - Higher CO₂ causes “reduced micronutrient contents in staple crop foods, thus driving increased micronutrient deficiencies” (The World Bank, 2018, p. 13).
 - “Acute respiratory diseases, known to be exacerbated by higher temperatures, are also a concern as they are the number one cause of death in children under five” (USAID, 2017, p. 4).



- o “Higher temperatures [...] expand the disease vector’s range (e.g. mosquitos), particularly to higher elevations where a large percentage of the population lives” (USAID, 2017, p. 4) and spreading Malaria, a significant cause of death in Madagascar for humans and also important livestock (USAID, 2017).
- Irregular rainfall patterns and extended droughts
 - o “In 2016, the El Nino effect caused rainfall to drop 75 percent compared to the past 20-year average in the southern part of the country, causing soil infertility and harvest losses of up to 95 percent, and forcing more than 1 million people to become food insecure” (The World Bank, 2018, p. 14) with “35,000 children under 5 [suffering] from moderate acute malnutrition and another 12,000 from severe acute malnutrition” (The World Bank, 2018, p. 16).
 - o “30–60 percent of the population of southern Madagascar was suffering from food insecurity due to drought periods” (The World Bank, 2018, p. 14).
 - o “Water stress attributed to irregular rainfall patterns, drought, and deficits in some areas [have led] to inadequate sources for drinking water” (The World Bank, 2018, p. 14).
- Increased intensification and frequencies of natural disasters
 - o “In the past 20 years Madagascar has been struck by 35 cyclones, 8 floods and 5 periods of severe droughts (a three-fold increase over the previous 20 years), causing \$1 billion in damages and affecting food security, drinking water supply and irrigation, public health systems, environmental management and quality of life” (USAID, 2017, p. 1) for an affected 11 million people (USAID, 2017). In fact, 78% of all recorded cyclones in Madagascar took place over the last 30 years (The World Bank, 2018).
 - o There is an “incidence of diarrheal disease increase during the cyclone season, which increases flooding and leaves standing water, a breeding ground for waterborne diseases” (USAID, 2017, p. 4), which



is worsened as cyclones and flooding become more frequent and severe.

- o Increases in cyclones and floods create favorable breeding grounds for swarms of locusts, an insect which Madagascar faces plagues of that destroy crops, harm livestock, and cause widespread famine, “further [threatening] food and nutrition security. It was estimated that the food security of 13 million people, or 60 percent of the population, were affected in the locust plague of 2013, of whom 9 million earned a living from agriculture” (FAO, 2017 as cited in The World Bank, 2018, p. 17)
- Rising sea levels and ocean temperatures
 - o Sea levels are rising at an average rate of 7-8mm per year, causing coastal erosion, the receding of shorelines important for infrastructure and agricultural production, and the catalyzation of increased natural disasters such as cyclones (The World Bank, 2018).
 - o Food insecurity is increased as 95% of the fishing industry has already been destroyed, destroying livelihoods and taking away an important food source, as “fish comprise 20 percent of the animal protein in the Malagasy diet” (USAID, 2017; The World Bank, 2018).
 - o The rise in ocean temperatures and ocean acidification has resulted in an estimated 80% of the northern coral reefs being bleached, feeding the feedback loop of ocean acidification and shifts in animal migration patterns that disrupt the livelihoods of those agricultural workers depending on fisheries (USAID, 2017).
 - o An “increasing dinoflagellate algae accumulation in fish, associated with a rise in sea-surface temperature, has resulted in illness and death” (The World Bank, 2018, p. 14).

Temperatures in Madagascar are expected to increase by an estimated 2.5-3.5 degrees Celsius by the year 2100, which would dramatically worsen the aforementioned problems while catalyzing new issues with unpredictable layers of emergence (WHO, 2016; The World Bank, 2018; USAID, 2017). Many climate



disturbances result in severe public health crises, which, in a population that is already 50% stunted and 40% anemic, is detrimental (The World Bank, 2018). The loss in infrastructure means not only an increase in work precariousness causing people to have fewer resources to afford medical assistance as is increasingly necessary for survival, but also that medical services become more limited as capital is lost, hospitals destroyed, and other institutional losses occur (The World Bank, 2018; USAID, 2017; WHO, 2016). Without industrial rights, the precarious informal agricultural worker is often self-dependent for access to medical care as they have no means of acquiring these benefits via labor contracts (Fuge, 2005). In this, those who are already the most severely disadvantaged and marginalized only pose to become more so as they fall into cycles of inaccessibility to solutions, circumstances which feed into preexisting problems, and the emergence of new ones with their own sets of feedback-loop-catalyzing disadvantages (Abeygunawardena et al., 2002).

The Climate Precariat further meets Standing's (2011) expectations of the Precariat in their vulnerabilities related to sociopolitical issues incited by climate change (The World Bank, 2018). The health crises in Madagascar caused by climate-change-induced loss of livelihoods has resulted in new complex situations of emergency and corresponding civil (often violent) conflict, political instability, forced migration, and infringements on civil rights combined with limited freedom of speech and information for citizens to respond with (The World Bank, 2018). Indeed, the climate crisis has given a sense of precariousness to people across the world battling with vulnerability and insecurity about the future and their livelihoods—especially those of historically marginalized demographics lacking industrial rights (who are positioned to suffer the most dire of consequences), resulting in a wave of climate-specific environmental political unrest driven by a population desperate for change (Holmberg & Alvinus, 2021; Bowles, Butler, & Morisetti, 2015). Also aligned with Standing's conceptualization of the Precariat, the Climate Precariat suffers from an identity crisis associated with their labor and the future, as the worsening climate crisis means that “their expectations of welfare are not likely to be fulfilled” (Holmberg & Alvinus, 2021, p. 4), their sense of purpose in working toward a future lost, and planning for the future at all becomes largely impossible (Holmberg & Alvinus, 2021). This rings particularly true for those in the agricultural sector who face insurmountable insecurity in vocations dependent on a disintegrating notion of enduring climate stability.



Discussion

I feel compelled at this point in my argument to offer some potential solutions to the set of crises I have just relayed. Such a discussion, however, should involve significant interdisciplinary research that can be written in essays much lengthier than what I have the capacity to produce in this article. That being said, my analysis would be incomplete and unhelpfully pessimistic without my sharing the hypothetical solutions it has brought me to, even if offered humbly and with the preface that these are incomplete ideas in need of significant elaboration. None of these solutions are to postulate, and I offer them as a starting point for discussion rather than as an assertion of the truth. Such conclusions are what follows.

Proposed solutions for the Climate Precariat are often inaccessible given the nature of associated issues. For example, building sustainable infrastructure requires capital that the Climate Precariat simply does not have, and takes periods of security that are often a thing of the past for vulnerable populations facing natural disasters (The World Bank, 2021d; Abeygunawardena et al., 2002; Kim & Lee, 2018). For example, in Madagascar, 81% of the population lives on less than \$1.25 per day, leaving essentially no wiggle room for spending outside of immediate essentials, let alone sustainability start-ups or complete system overhauls (USAID, 2017). While there are some global powers acting by means of investments, these investments often only serve to resolve symptoms of the deeper-rooted issue of climate change such as investing in public health (although it can be noted that these investments do see significant returns in related avoided losses) (The World Bank, 2012 as cited in The World Bank, 2018). Alternatively, global powers have proposed and put in place plans which disproportionately put the responsibility of climate change mitigation on affected populations to reduce their own emissions as a solution, despite emissions of the most vulnerable being negligible, making these reductions all but inconsequential in their benefit and exploitable as a scapegoat for the world's biggest climate-change-offenders (see Figure 5) (Climate Watch, 2020 as cited in The World Bank, 2020b; The World Bank Group, 2021). While the Directorate of Climate Change under the Ministry of Environment and Forests has represented Madagascar at international negotiations and been a signatory of the Paris Agreement in 2016 and the United Nations Framework Convention on Climate Change, Madagascar is still extremely lacking in representation compared to those less vulnerable to, and more responsible for, climate catastrophe (UN, 2021a; USAID, 2017). Despite the overwhelming toll that climate change is taking on people



around the world, world leaders have largely failed to treat it as a global emergency in policy or investments, and the “estimated adaptation costs in developing countries are five to ten times greater than current public adaptation finance flows” (UNEP, 2021).

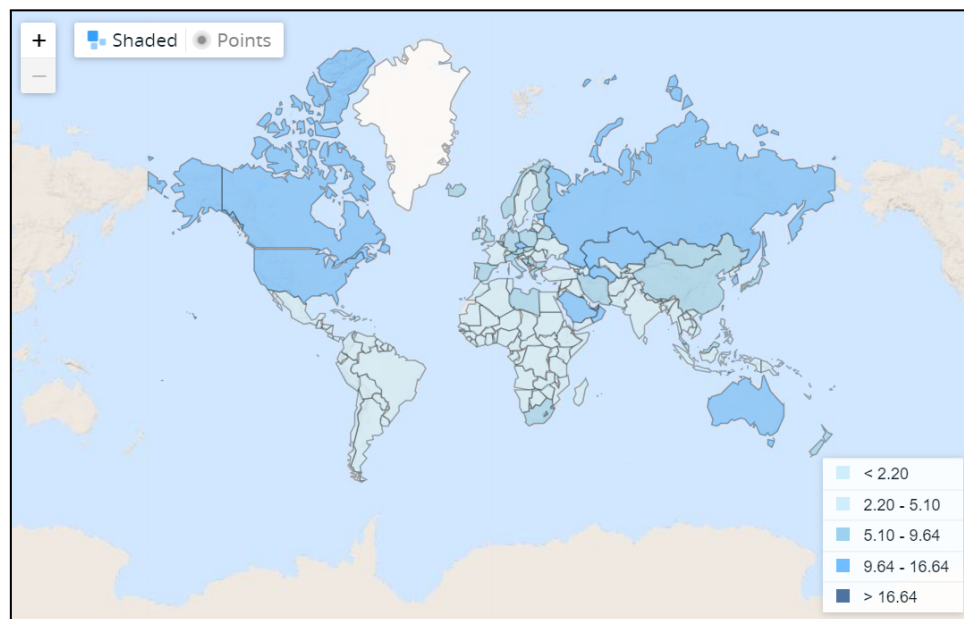


Figure 5 - CO2 emissions (metric ton per capita) (Climate Watch, 2020 as cited in The World Bank, 2020b)

The COVID-19 pandemic has made clear that, in large capacity, world leaders have the power to take radical, necessary, and prompt action to address a global emergency (UN, 2021b). And yet, this level of urgency has been absent from climate action (Zhongming et al., 2021). To refer to a 2021 interview of activist Greta Thunberg conducted by AI Roker with NBC News:

“AI Roker: *We saw what’s happened with Covid, and it was this global emergency. People have rallied and there’s billions of dollars being poured into this. Do you think that the climate emergency is being treated the same way, say, as a Covid emergency?*

Greta Thunberg: *Well I think that you can objectively say that the climate crisis is not being treated as an emergency, especially when you compare to Covid in many parts of the world. The climate crisis is not being treated as an emergency, and it never has”* (as cited in Goldberg, 2021).



Later in this interview, Thunberg cites educating people as the priority step toward treating the climate crisis with due urgency (Goldberg, 2021). However, what I have personally found so disturbing in the writing of this paper is that most of the sources from which I have extracted the quantitative and qualitative data I have presented are the very governing bodies with the power to incite massive political changes, but are instead proposing and investing largely in inadequate ‘solutions’ that disown equitable responsibility for representatives from more-culpable and less-vulnerable nations while assigning it to those already marginalized and with minimal-culpability (The World Bank Group, 2021; Climate Watch, 2020 as cited in The World Bank, 2020b). The distribution of power within these bodies, however, is extremely skewed to favor those in more affluent, less vulnerable, and less agriculturally-dominant nations, both in numerical representation and power of the seats held (UN, 2021a; The World Bank, 2020a, 2021a, 2021b, 2021d; Kim & Lee, 2018). For example, while nearly 18% of the global population lives in Africa and only about 9% in Europe, European countries make up five of the fifteen seats in the UN security council, three of which hold permanent positions and veto power (a status that no African country or representative holds) (UN, 2021a; The World Bank, 2020a).

One might predict that through redistributing representation to be more inclusive of the marginalized Climate Precariat, a new sense of urgency would catalyze more political proactivity that would relieve some of the precariousness of the agricultural sector. However, one study conducted in Germany asserts that “although perceived urgency is key in driving support for ‘low-cost’ mitigation policies, it does not lead to more support for ‘high-cost’ mitigation policies where the behavioral implications are visible,” and “messages highlighting the urgency of climate change do not increase policy support” (Fesenfeld & Rinscheid, 2021, p. 411). Perhaps then, if being wholly informed on the severity of the crisis (as the key global governing bodies are) and feeling a sense of urgency are not sufficient for adequate action to take place, maybe there is a different set of prerequisites to consider. Perhaps, through some combination of being informed, feeling urgency, and having a higher degree of personal stake in the matter, high-cost proactive policies can be enlivened.

There is a lack of empirical data on how international governing bodies may behave differently under equitable sociocultural distribution of power within their ranks. Thus, I cannot say with conviction that the problem is not one of significant sociocultural differences that leave those in power less inclined to act in such a dire



situation. There are many additional sociocultural variables to consider which might provide insight on this uncertainty, such as international race relations and/or conflicts of interest among policy-makers, but in a paper of this length, I am unable to address them further, and can note this an important topic for future research. However, my interpretive presumption based on the information presented (which is, importantly, a reflection of my personal experiences and positionality) is initially that if it were the families and livelihoods of the most powerful policymakers within governing bodies such as the United Nations that were being decimated at the rates of the world's most vulnerable and marginalized Climate Precariat, political action would be taken with the accountability, force, urgency, and collaboration necessary to mitigate climate change to the fullest possible extent; and yet, should this degree of personal stake increase precariousness, particularly amid a lacking of industrial rights and citizenship, then theory would suggest that so too would the instability and inefficiency of the governing bodies in question increase.

Perhaps then the solution lies somewhere else—perhaps, our hope for the future lies in the possibility of inspiring profound empathy. This could be realized through the replacement of current policymakers with newer more empathetic ones, a conscious effort on part of academics and voices in the media to transform environmental dialogue, a shift in the personal feelings of the currently powerful, or any number of pathways one might imagine and enact, and there is significant space for research to be conducted on the mechanisms of inciting such empathy amid these particular crises. I find a particularly interesting avenue to be a combination of the works by Butler and Willox on the role of the media in framing perceptions of losses around the world, particularly of humans and the environment, and how their subjecthood and grievability as portrayed in the media can act as a catalyst or hinderance to political action (Butler, 2009; Willox, 2012). I direct those interested in carrying on this discussion to these works first. In any case, I predict that positive change will require not just knowledge and urgency, but intentionality toward cultivating empathy. Once it is second nature for those positioned to incite change to consider the suffering of strangers across the globe as personal, and worth tackling, will these crises be addressed with due vigilance and accountability.



Endnotes

¹The nature of work in the agricultural sector is incredibly varied, from rural farmers in the Global South operating without electricity, to urban farmers in the Global North depending heavily on electronic technology. However, the latter is part of a minority, and this paper will focus on the shared precariousness of the majority of agricultural workers amid climate change without, for the sake of brevity, diving into individual differences between one precarious worker to the next.

²The level of global political sociocultural representation was determined by comparative decision-making power in the United Nations (UN), particularly in the UN security council, as this international governing body is unique to other international multilateral institutions in its span, inclusivity, and its capacity to address global problems at a national and international level, including those associated with labor precariousness and displacement resulting from climate change. I also acknowledge the limitations of regarding a country and its population as socioculturally marginalized due to lack of representation, while also feeling it is still a useful metric for analyzing sociocultural and economic inequalities at a global scale within the bounds of this paper.

³Scale acts in part as a determining factor in whether or not the agricultural workers in question would be considered marginalized. For example, while a particular country with a high percentage of agricultural workers may lack political representation and/or economic power at the global level, those same workers at a local level could be politically/economically powerful with industrial citizenship. This varies substantially by location and scale, but majorly trends toward agriculture as a predominantly precarious sector in the context of climate change (ILO, 2018; Abeygunawardena et al., 2002; ILO 2019).

⁴Given the complex nature of socioecological issues, I have chosen to keep this list of impacts together rather than attempting to explicitly categorize into direct and indirect impacts. When it comes to complex adaptive systems, there are layers of emergence, feedback loops, and interdependence which do not reasonably or effectively allow simplification or categorization into direct vs. indirect boxes. There is space in research to dive further into each impact listed here and create models and causal loop diagrams further explaining their relationships to one another, the environment, and labor, but that space is outside the scope of this paper.



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