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Quantifying the Economic Cost of Climate Change: The Business and Policy Case for Environmental Equity

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Abstract: The environmental justice movement emerged in the second half of the 20th century, linking various environmental movement issues to social justice for minorities. The need for environmental equity has become politicized, particularly for marginalized populations who lack both the political power to address these issues and the wealth to move away from environmental hazards. These grassroots movements have been targeting governments for their lack of commitment to protect social and racial minorities from such harm. Climate change has accentuated these risks, as environmental disasters are becoming more costly and often targeting weaker populations. At the same time, the need for more environmental justice has started to permeate the private sector, with corporate social responsibility as a means of these new trends. While they can enforce such economic policies on their own or be forced by the countries in which they are located, companies recently became another critical actor in the environmental justice ecosystem.

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I. INTRODUCTION

Since the 1980s, environmental justice movements have continued to criticize how the government and private companies have failed to solve environmental inequality and inequity. As environmental inequality and inequity increase with the increase in intensity and frequency of environmental disasters, the environmental justice movement is being integrated within the basis of governments and private companies.

To develop this argument, environmental equity and environmental justice (EJ) will be defined and differentiated, exploring their historical and theoretical foundations and roles. Then, the paper will analyze the impacts of climate change and environmental disasters on the EJ movements. Finally, the private sector will be examined as it is also adopting practices that are similar to what grassroots movements advocated for decades.

II. ENVIRONMENTAL EQUITY

Historically, studies of discrimination and inequalities focused on various variables, such as economic, political, and racial discrimination. However, concerns about the environment as another variable to quantify disparities between people and communities have started to get more academic and political attention only in recent decades (Pinderhughes 1996, 232). Environmental Equity is the principle that “all individuals and communities have a fair and equal opportunity to live and work in healthy environments," and should be treated equally in environmental decision-making and protection, particularly in terms of exposure to environmental risks (EPA 1992, 1; Pinderhughes 1996, 244).

Environmental discrimination refers to the different treatment of different communities when making environmental decisions. This includes how the government and industries decide where to place hazardous waste facilities, toxic emissions, or polluting industries. Environmental discrimination can be both intentional and unintentional, reflecting the social inequalities inherent in policy and planning (Downey 1998, 769). As environmental equity internalizes fundamental disparities between people, researchers have

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established a causal relationship between racial and class disparities within the environmental equity framework. In other words, people belonging to racial minorities and poor backgrounds will be more prone to living in environmentally disadvantaged places (Pinderhughes 1996, 244).

Environmental racism refers to the unequal exposure to environmental hazards based on race. Environmental racism is due to factors such as inequalities in housing, income, and political power. It stems from Institutional racism, which refers to the policies and practices that cause racial inequality (Downey 1998, 769–771). Rees popularized in academia the terms environmental *racism* and *classism* to describe the disproportionate placement in different communities. The fight against environmental racism already started in 1982 in Warren County due to a protest against the placement of a toxic waste facility in a 66 percent black community. He also used the term classism to describe the situation where low-income communities were targeted due to cheaper land and a lack of political power, following a 1986 survey observing that waste facilities were more prevalent in relatively poorer neighborhoods (Rees 1992, 15–16). Higgins goes into more detail by explaining how environmental racism and classism can be institutionalized, as minorities often have limited political power to change biased decision-making disguised as neutral (Higgins 1993, 287). Environmental injustice also affects developing countries, with an additional factor being the pressure from richer countries to accept working conditions that would be unacceptable in developed countries. For example, silicosis continues to impact gold miners in South Africa, and it can also affect other marginalized groups specific to these countries, such as lower castes in India (London et al. 2019, 554–559).

Equity can be enforced in various ways. Procedural equity refers to the fairness of the enforcement of environmental decisions. It focuses on whether rules, regulations, and enforcement were applied equally without discrimination. Geographic equity refers to the distribution of environmental hazards across different locations. It focuses on whether unincorporated, poor, and colored people are unfairly vulnerable to environmental hazards such as pollution and waste facilities. Social equity evaluates the role of sociological factors such as race, class, culture, political power, etc., on the decision-making process of environmental policies. It highlights how, due to systematic inequalities, minorities live and work in a dangerous environment (Bullard, 2001, 156). Additionally, the minorities and the poor receive less support from the system. For example, the Environmental Protection Agency's National Priority List, which identifies the areas in need of federal support, often excludes areas that consist primarily of low-income residents. Also, even when included, the support is delayed compared to a predominantly wealthy white neighborhood. This instance shows how the systematic inequity within policies exposes communities with weaker economic and political power to pollution (Smollin & Lubitow 2019, 565).

While Rees (1992) views environmental equity as the distribution of environmental benefits and risks, Knox (1993, 33) and Higgins (1993, 292) focus on management and burden-sharing, particularly protecting marginalized communities. Thus, the definition of environmental equity can vary from distributional fairness to equal risk management.

III. ENVIRONMENTAL JUSTICE

Compared to environmental equity, environmental justice incorporates an activist component. As Shrader-Frechette states, "Environmental justice requires both a more equitable distribution of environmental goods and bads and greater public participation in evaluating and apportioning these goods and bads." The environmental justice movement criticized the government and private companies, which were considered the two main groups responsible for either creating or preventing environmental harm (Shrader-Frechette 2002, 6).

The environmental justice movement emerged in the early 1980s, challenging traditional environmental agendas by uniquely combining environmental, social justice, and economic issues. It is the result of the convergence of two movements: the social justice and environmental movements. (Bullard 2001,151–152; Higgins 1993, 290).

In a practical sense, the environmental justice framework addresses environmental issues in fair and protective ways. Its goal is to eliminate unequal laws that impact the environment, civil rights, and public health of specific populations unfavorably. The environmental justice framework has five fundamental characteristics. First, it focuses on the right of every individual to live in a safe and healthy environment. Second, it focuses on the importance of prevention rather than waiting for harm to be proven. Third, it aims to shift the burden of proof to the polluters, not the impacted communities. Fourth, it seeks to find patterns of unequal impact as evidence of discrimination. Lastly, it targets resources and actions to the communities most impacted by environmental risks (Bullard 2001,154–155;166).

For example, the 2014 Flint water pollution incident shows environmental injustice. To save money, the government converted the water source for Flint, a city with a 57% black population, from Lake Huron to the Flint River, exposing them to lead-contaminated water. Despite scientific evidence and public concern, government officials did not make a change. However, alongside regular protests and demonstrations from concerned citizens, large corporations like General Motors were allowed to disconnect from the same water supply after reporting corrosion to the engine parts, indicating that the government prioritized private companies over the community. The neglect of public health highlights the systematic neglect that the environmental justice framework aims to solve (Jackson 2017; Smollin & Lubitow 2019, 565).

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IV. ENVIRONMENTAL DISASTERS AND THE ENVIRONMENTAL JUSTICE MOVEMENT

Environmental injustice and inequality are a result of poor political decisions, but are also impacted by climate change. Especially, the strength of natural disasters linked to climate change has increased. The Intergovernmental Panel on Climate Change (IPCC) reported that natural disasters, such as heatwaves, heavy rainfall, and droughts, have increased in frequency and intensity. In the United States, the number of billion-dollar disasters, which was an average of 3.3 per year in the 1980s, increased to 17 per year from 2014 to 2023 (Ritchie 2024; USAFacts 2025). However, the impact of natural disasters is very unequal based on wealth and geographical location. Due to a lack of resources, weak infrastructure, and the absence of warning systems, poorer counties suffer more. Poorer countries have a higher risk of death and time required for recovery, highlighting a strong correlation between wealth and vulnerability (Ritchie & Rosado 2024).

Communities of color are disproportionately impacted by climate change due to environmental racism and systemic inequalities. Communities of color are more likely to live near polluted areas, causing the possibility of exposure to harmful pollutants to increase, leading to frequent health problems. For example, over one million African Americans live less than a half-mile away from natural gas facilities, and more than 6.7 million live in areas with oil refineries. Compared to white children, African American children are about twice as likely to suffer from asthma due to the poor air quality in their communities. After natural disasters, white communities receive more care while minority communities are more likely to face additional threats (Spencer 2022). Black individuals are 40% more likely to live in areas with extreme heat-related mortality, and Hispanic individuals are 43% more likely to be affected by labor hour losses from extreme heat. Native Americans and Native Alaskans face significant damage to their property due to sea level rise, and are 48% more likely to live in flood-prone areas (EPA 2021, 6). The impact of Hurricane Katrina showed how the lack of investment due to historical and systematic problems led to the disproportionate impact on the minority communities. For example, although white households were able to evacuate to other cities, the black households, who were mostly poor, struggled to find shelter (Sherwin 2019; Frank 2020). These populations do not have the financial and logistical ability to evacuate or recover, leading to an increase in mortality, health risk, and displacement. In order to solve this, all the communities should be able to access the resources and methods for protection (Huff 2020).

Regarding classism, low-income people and people without high school graduation certificates had a 25% higher probability of living in areas with high labor productivity losses and a 15% higher probability of living in areas impacted by air pollution. Low-income individuals and those without a high school diploma are up to 24% more likely to live in counties with the most significant labor hour losses. Hispanic individuals are 43% more likely to live in the highest risk areas, reflecting their significant presence in heat-exposed job sectors. This productivity loss causes a significant impact on the economy and wage loss, worsening the existing income inequality (EPA 2021, 6–41).

Associations and organizations are aiming for environmental justice and are trying to adapt to climate change. Specifically, as they aim to prepare for the impact of climate change, they advocate for equitable change. For example, *People for Community Recovery* (PCR) supported systematic change, progressively abolishing the use of fossil fuels in vulnerable populations and providing renewable energy and jobs based on renewable energy for people of color by supporting the signing of the *Illinois Climate and Equitable Jobs Act* (2021) (People for Community Recovery 2025). Also, *Blacks in Green* established a self-sufficient black community, Sustainable Square Mile, using clean energy microgrids, urban agriculture, and renewable workforce development (Blacks in Green 2025). Their work has influenced citywide and national policy. In Chicago, frontline EJ communities led by PCR helped push the city's commitment to change to a total renewable energy by 2035. Nationally, organizations have partnered with mainstream environmental groups to advocate for climate investments. These movements are trying to ensure that the communities most vulnerable to environmental harm are also at the lead of shaping solutions, where they lead climate justice to an effort for a proactive, equitable approach.

V. CORPORATE SOCIAL RESPONSIBILITY (CSR) AND CLIMATE JUSTICE

Corporate Social Responsibility (CSR) started as businesses introduced social responsibility due to concerns about the use of women and child labor in the mid-to-late 1800s, during the Industrial Revolution. In this period, corporate philanthropy also developed, leading to people such as Andrew Carnegie and John D. Rockefeller donating their wealth to education, science, and the community. In 1953, Howard Bowen coined the term Corporate Social Responsibility as "the obligation of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of objectives and values of our society." (Bowen 1953). In the 2000s, as companies highlighted the importance of sustainability and responsibility, the environment became the center of CSR strategies.

Although Environmental Justice (EJ) is a framework aimed at correcting disproportionate burdens, CSR is voluntary and mainly corporate-defined. EJ and CSR both provide a framework based on human rights and against discrimination for environmental decisions**.** They try to promote participation in sustainability and development that link human rights and environmental protection. Both treat the impacted community as stakeholders (Monsma 2006, 445–449). They ultimately aim at fair community outcomes, focusing on how environmental burdens and benefits are allocated. EJ and CSR argue the

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private sector should support fairness by providing communities information, participation, and bargaining power in decisions that affect them (Jaffe 1995, 660–661; Gremme 2023, 3).

Many companies also adopt sustainable practices voluntarily. Publicly, initiatives use public resources for support. For example, Scotland's Climate Justice Fund and Scottish agencies use government support to help developing countries, specifically aiming to help them adapt to climate change (Anderson 2013). Additionally, the Green Climate Fund (GCF) under the UN aims to develop a business model that focuses on environmental equity. According to the Institutional Investors Group on Climate Change, 53% of surveyed asset managers have divested or refused to invest based on climate concerns, while 69% of asset owners responded that climate change integration influenced their fund manager decisions. Companies should use their ability to change environmental challenges into opportunities by including sustainability within their governance, performance, accountability, R&D, and overall business strategy (Anderson 2013). Companies, such as Nestle and Unilever, carefully measure deforestation, water stress, or pesticide contamination through Human Rights Due Diligence (HRDD). The Roundtable on Sustainable Palm Oil receives complaints from smallholder farmers and indigenous groups about water pollution and land violation, verifying the problem and making companies implement action plans to restore ecosystems and livelihoods (Sato 2025).

However, not all companies are willing to voluntarily implement these CSR policies. In this case, the government needs to force companies to consider environmental protection, often using taxation, financial penalties, and sanctions. For example, France's 2017 "Duty of Vigilance" law requires human rights and environmental due diligence in the companies' global supply chains. Countries have also included mandatory Environmental and Social Impact Assessments (ESIAs), integrating human rights considerations. For example, South Africa's National Environmental Management Act requires assessment of air and water emissions' impact on local health, livelihoods, and cultural rights, also requiring consultations with indigenous and low-income populations (Sato 2025).

Companies that do not follow the policies face legal penalties. The oil spill in the Gulf of Mexico caused by the explosion of an oil rig operated by British Petroleum (BP) released crude oil into the ocean, causing significant environmental damage. For the damage, the U.S. Government imposed a $20 billion settlement on BP (Kasperkevic 2016). Also, after Dieselgate, a scandal where car companies, especially Volkswagen, were found to manipulate the results of emission tests, governments imposed a fine on the companies involved. They were also ordered to recall vehicles that had the manipulation program (Hotten 2015).

VI. CONCLUSION

The impact of climate change is being distributed unevenly, worsening different types of inequalities and inequities. The vulnerable communities are the most impacted and also have the weakest political and economic power to respond. To change these inequalities and inequities, the environmental justice movement has expanded. Now, environmental justice is being incorporated in actions, policies, and practices of communities and government, influencing companies to consider social justice. Companies are integrating environmental justice principles into corporate social responsibility, sustainability governance, and global supply chain standards. This shift represents a shift from voluntary to necessary.

This article showed that environmental equity is now an essential part of our society. In order to solve these problems, every part of society, such as businesses, policymakers, and communities, should put environmental justice at the core of the principle for sustainable development. Importing equity and justice would allow building resilience while reducing disparities.

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