CS2P Climate Security & Peace Project

IRIS INSTITUT DE RELATIONS INTERNATIONALES ET STRATÉGIQUES

CLIMATE CHANGE & ENERGY

GLOBAL PEACE CONSEQUENCES OF CLIMATE CHANGE MITIGATION: CLIMATE JUSTICE AS A PREREQUISITE FOR SECURITY

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FOREWORD

This article is published as part of a collaboration between the Climate Security & Peace Project (CS2P) of the NGO CliMates, and the Climate, energy & security program of the French institute of international and strategic affairs (IRIS). This collaboration aims to support the engagement and visibility of young research fellows working on the impact of climate change, and other forms of environmental degradation on human security, by offering a supervision contributing to the development of their competencies.

About the Climate Security & Peace Project (CS2P)

Composed of a team of researchers, students and professionals from diverse fields and backgrounds, the **Climate Security and Peace Project (CS2P)** aims to raise awareness and develop knowledge on how environmental degradation and climate change contribute to the emergence and dynamics of risks and threats to human security, peace, and international stability.

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About the Climate, energy & security program (IRIS)

The IRIS's **Climate, Energy, Security Programme** analyses the geopolitical and security issues of climate change and energy transition. This programme is structured around the Observatory of Climate Change Impacts on Defense and Security, the Observatory for the Security of Energy Flows and Materials, contracts led on behalf of the DGRIS of the Ministry of the Armed Forces, and the GENERATE Project (Renewable Energies Geopolitics and Future Studies on Energy Transition), jointly managed with the Ifpen, and supported by the French National Research Agency.

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ABSTRACT

Strong empirical evidence emphasizes that **consumption behaviours** of a **wealthy minority**, most of them living in historically developed economies, bear the **responsibility** for the vast majority of **anthropogenic GHG emissions fuelling climate change**. At the same time, in addition to **disproportionately affecting less economically developed countries**, climate change mitigation policies may arguably further **widen the inequality gap**, thus raising **climate justice concerns**.

This paper explores **why and how climate justice is a prerequisite in the attempt to mitigate climate change and its consequences on global peace, security, and social well-being**. In other words, this paper takes an interest in how climate injustice could lead to the non-viability of current decarbonization policies. It concludes that, by placing disproportionately high burdens on lower- and middle-income households, **failure in integrating climate justice principles in climate change mitigation strategies may undermine the efficiency of emission abatement policies, thereby further delaying climate mitigation actions and putting global peace, security, and social well-being at risk**. Consequently, it seems vital to effectively address climate justice issues when designing and implementing strong climate change mitigation and adaptation policies.

KEY WORDS: Climate change, climate justice, mitigation, inequality, responsibility, security

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INTRODUCTION

Over the past 10,000 years, human economic and social advances were supported by a consistently steady state of the Earth's global environmental systems, called the Holocene equilibrium. As global climate patterns, such as temperature or seasonality, and the overall state of the atmosphere have been mostly constant, climate conditions were optimal for humans to expand and develop (1). Since the middle of the twentieth century, the world has witnessed a "great acceleration" of human activities, which enabled exponential economic and population growth (2).

However, the scientific community is alerting governments to the fact that due to the recent rapid acceleration of human activities, **our Earth system** (the Earth's interacting physical, chemical, and biological processes) **is now entering an unprecedented global change** (3). Current greenhouse gas (GHG) emission trends suggest that, in a time frame of only two decades, **regional and global peace**, **security**, and **social well-being** may be **jeopardised** as a result of failing to mitigate and adapt to climate change (4). As we shall see, the evidence indicates that the **lifestyles of a wealthy minority**, mostly living in rich and developed countries, is **responsible for past and current GHG emissions** that are causing climate change and global warming (5; 6; 7). Yet, as is already the case, it is **poor countries and communities that will suffer the most** (8) from the irreversible perturbations of the climate system, and their impacts (droughts, floods, landslides, cyclones, etc.).
As countries pledged to reduce GHG emissions, and some to reach carbon neutrality, it appears relevant to explore **why and how climate justice is a prerequisite in the attempt to mitigate climate change and its consequences on global peace, security, and social well-being. In other words, this paper takes an interest in how climate injustice could lead to the non-viability of current decarbonization policies.** Climate justice, commonly defined as aiming to "safeguard the rights of the most vulnerable people and share the burdens and benefits of climate change and its impacts equitably and fairly" (9), applies to societies in all countries, bridging economic and social divide (10). While income and wealth have become overall increasingly unequal over the past few decades (11) **lower- and middle-income households may disproportionately suffer from climate change mitigation policies** (12). In this line of thought, we argue that **failure in integrating climate justice principles in climate change mitigation strategies may undermine the efficiency of emissions abatement policies** by placing disproportionately high burdens on lower- and middle-income households that might, in turn, **be less receptive to such policies**.
First, this article will emphasize the **rising concern** expressed by the international security, military and intelligence community regarding the **implications of climate change on global peace, security, and social well-being**. Second, to effectively design decarbonization policies at the national and international levels, **macro-and micro-structures of past and current GHG emissions** throughout the world will be accurately depicted, revealing that **responsibility is shared but highly differentiated**. Finally, we will focus on the need to **ensure that climate justice is integrated** into climate change mitigation and adaptation strategies, **at the risk of** undermining emissions abatements efforts, and ultimately **jeopardize global peace, security and social well-being**.

I.IMPLICATIONS OF CLIMATE CHANGE FOR GLOBAL PEACE AND SECURITY

I.1. RISKS FOR GLOBAL PEACE AND SECURITY RELATED TO CLIMATE CHANGE

Only 5°C separates us from the last ice age, when the United Kingdom looked like the present north of Siberia. If we continue with "business as usual" scenario, global warming of up to +5°C is anticipated by 2100 (13), which would have dramatic and irreversible effects on regional and global peace, security, and ultimately, on social well-being. In their latest report, the International Military Council on Climate and Security (IMCCS) presented the results of a survey on 56 selected security and military professionals on their perceptions of climate change risks to global security (14).

Most respondents anticipate that **the effects of climate change** such as **water security** (98% of respondents), **forced displacement** and scale and tempo of **natural disasters** (96%), **food security** (94%), **conflict within nations** (86%), **conflict between nations** (79%) will result in a "**significant to higher risk to global security**" by 2040 (15). As said by Tom Middendorp, General (ret) of the Royal Netherlands Army and Chairman of IMCCS:

*"**Climate change poses significant risks to global security**, which could become catastrophic in the next two decades. As this report, and the 32-country International Military Council on Climate and Security shows, more and more military leaders are raising this alarm. It's not just environmentalists."*

Based on two future warming scenarios (short term: 1-2°C and medium-long term: 2-4+°C), the National Security, Military, and Intelligence Panel (NSMIP) of the Center for Climate and Security assessed the associated security implications (16). They identified **major threats**, including **heightened social and political instability**, and risks to U.S. military missions and infrastructure, as well as security institutions, with both warming scenarios and **across all regions of the world**. More specifically, even at "low levels" of warming (up to +2°C), climate impacts would further **destabilise most vulnerable areas** (dry and arid regions, least-developed countries, small island states, and the Arctic polar region). In high emission scenarios, **northern** and **industrialised countries** "could experience **catastrophic security risks**, including high levels of migration and a breakdown of key infrastructure and security institutions" (17). Therefore, even in low warming scenarios, **severe risks to national and global security will be faced everywhere in the world** in the next three decades. In high warming scenarios, **catastrophic, and likely irreversible, global**

security risks will be faced over the course of the 21st century (18). However, as F. Femia and C. Werrell, both co-founders of The Council on Strategic Risks and Directors of Research at The Center for Climate and Security, said:

"Though we are facing unprecedented risks from climate change, (…) ***we also possess unprecedented foresight about those risks****. This underscores a responsibility to prepare for and prevent the security consequences of a changing climate. (…). Scientists and national security, military and intelligence professionals agree: the risks are potentially catastrophic, and there's a narrowing window of opportunity to do something about it" (19).*

I.2. ADAPTATION OF ARMED FORCES TO CLIMATE CHANGE

Facing these threats, an **increasing number of military institutions are "concerned about, and planning for, climate change risks to military infrastructure, force readiness, military operations, and the broader security environment"** (20). A recent study conducted for the UK Ministry of Defence (MOD) concludes that "climate change developments could increase demand for the armed forces to respond to unforeseen or extreme climate-related events, both at home and abroad" (21). The US government is also advised to prepare for the national security implications of global warming (22). Amongst the most prominent implications, defence intelligence experts warn that military bodies should prepare for new foreign interventions related to: rising seas and changing coastal geography, the access to the Arctic, increasing range of insect-borne diseases, decreasing freshwater availability and increasing demand, decreasing food security and food system stability, increasing incidence of extreme weather events and power grid collapse. Taking the example of Bangladesh, sea-level rise as a consequence of climate change would imply "the permanent displacement of a large portion of the population" which "would be a regional catastrophe with the potential to increase global instability" (23).

Domestic military intervention may also be required on US and UK territory. For instance, in the US, "effects of climate abnormalities over time introduce the possibility of taxing an already fragile power grid system through increased energy requirements triggered by extended periods of heat, drought, cold, etc." concluding that "the cascading effects of power loss (…) would rapidly challenge the military's ability to continue operations" (24). Resource shortages, defective equipment, military infrastructure vulnerability, supply chain disruptions, and rising logistic costs are also depicted as some of the key strategic implications of climate change for UK MOD (25).

While the world-leading armed forces are increasingly informed regarding the implications climate change may have on global peace and security, the scientific community notifies that **low-lying regions, where most of the world's poorest people live, are more likely to suffer** from rising average temperatures, flooding risks and extreme temperature days, and rising sea levels (26). Consequently, it is projected that **average income in the poorest countries will decline 75% by 2100** compared to a world without warming, while **some of the richest countries could experience gains in income** (27).

The world's poorest being at the forefront of climate change consequences therefore raises the question of **climate justice**, especially as evidence suggests that the **responsibility of climate change is not equally shared among all nations and households.**

II. THE COMPLEX ATTRIBUTION OF RESPONSIBILITY FOR CLIMATE CHANGE

As Glen Peters, research director of the Center for International Climate and Environment Research in Oslo said, "if you want to engage with the non-converted and get them to want stronger climate action, blaming them is not going to be a very fruitful pathway" (28). However, **accurately depicting the macro-and micro-structures of past and current GHG emissions throughout the world remains a prerequisite to effectively design decarbonization policies at the national and international levels while ensuring climate justice.**

II.1. THE HISTORIC CONTRIBUTION OF THE MOST DEVELOPED COUNTRIES

In 1992, the United Nations Conference on Environment and Development (UNCED), commonly known as the Rio Summit, enshrined the principle that **countries do not have the same historic responsibilities for GHG emissions** (29). As depicted in Figure 1, evidence shows that **most economically developed countries have, by far, the highest historic cumulative emissions** (30). It is relevant to notice that these estimations only take into account CO2 emissions, which represent approximately 74% of total GHG emissions emitted in 2018 (31).

However, even though historical GHG emitters remain among the main emitters (in absolute GHG emissions), **China became the largest emitter, with 26% of GHG emissions in 2018**, followed by the United States (13%), the European Union-28 (8%), India (7%), Russia (5%) and Japan (almost 3%) (33). As shown in Figure 2, **the picture drastically changes if we adjust GHG emissions with the population**. Indeed, per capita GHG emissions, an essential indicator in the perspective to achieve climate justice, show that the **countries in which there are the higher economic wealth per inhabitant are also the countries in which the GHG emissions per capita are the highest.** As an example, while a USA citizen emits 15.5 tons of CO2 every year (on average), a Chinese citizen emits less than half (7.2t of CO2/ year) and a Bangladeshi citizen emits 31 times less (0.5t of CO2/ year) (34).

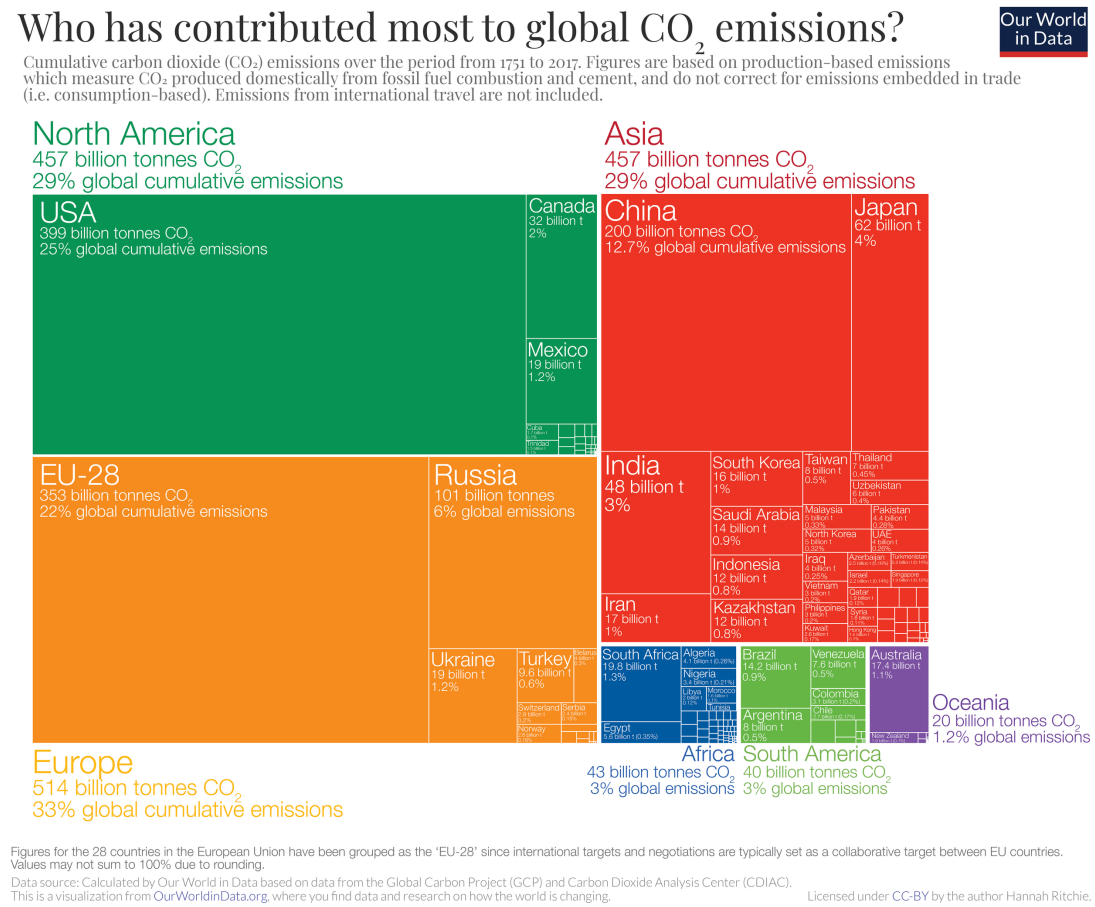

Figure 1: Estimated cumulative CO2 emissions per country from 1751 to 2017 (32)

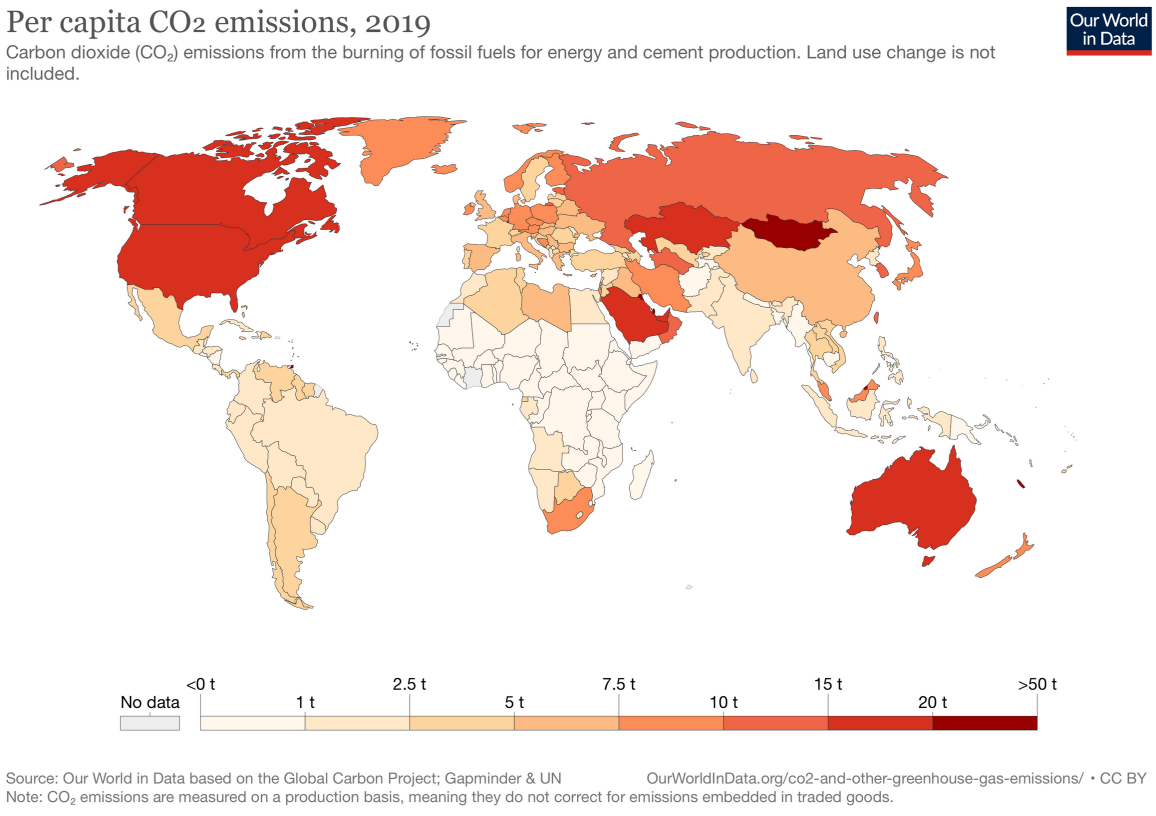

Figure 2: Estimated per capita CO2 emissions, in 2019 (35)

Past and current absolute and per capita GHG emissions trends support the claim that a **handful of the most developed countries bear responsibility for the vast majority of anthropogenic GHG emissions** that cause climate change. However, as formalized by the United Nations Framework Convention on Climate Change (UNFCCC) through the Common but Differentiated Responsibilities (CBDR) principle, denying equal responsibility of all states does not imply that states do not have a shared obligation to address climate change. Additionally, as supporting evidence suggests that **a limited number of transboundary industries and companies have fuelled climate change to a large extent**, it seems relevant to complement this country-specific approach to climate change responsibility by applying the CBDR principle at an industry level.

II.2. THE CONTRIBUTION OF INTERNATIONAL COMPANIES TO CLIMATE CHANGE

As illustrated in Figure 3, the IPCC estimates that the energy sector (electricity, heat, and other energy production) emitted approximately 35% of the world's GHG emissions in 2010 (36). However, we can question the relevance of such a repartition as, in most cases (excluding AFOLU emissions), GHG emissions are the direct result of burning fossil fuels (oil, coal, gas) to

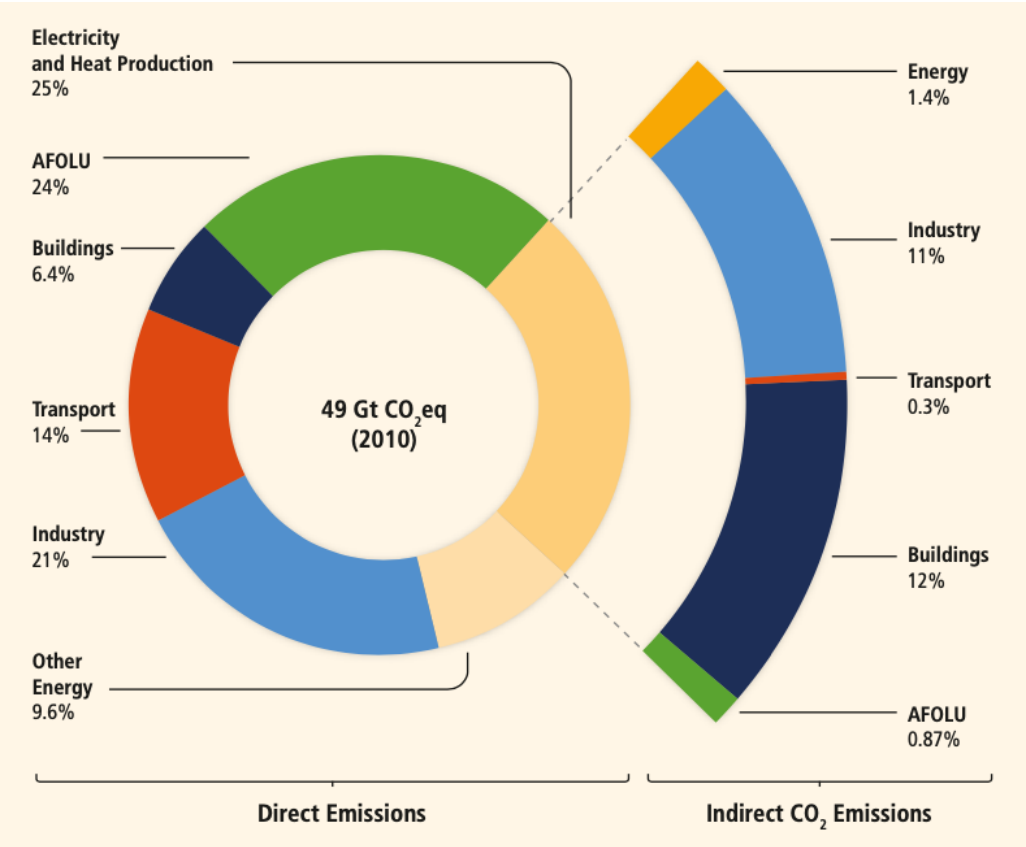

Figure 3: Total anthropogenic GHG emissions (GtCO2eq/yr) by economic sectors (37)

power all the technologies we use to produce the goods we have, to move around and to heat (or cool). Figure 4 shows that **energy production from fossil sources can thus be held accountable for 73.2% of global GHG emissions** (38).

It can then be claimed that **fossil fuel companies and their investors carry a significant influence on global GHG emissions.** Pedro Faria, technical director at environmental non-profit CDP "pinpoints how a relatively small set of just 100 fossil fuel producers may hold the key to systemic change on carbon emissions" (40). According to the results depicted in the Carbon Majors Report, 100 active fossil fuel producers are linked to 71% of industrial GHG emissions since 1988 (41).

Despite the prominent historical responsibility of the oil and gas sector, evidence shows that none of the climate commitments of the largest oil and fossil gas companies are currently compatible with the objective of the Paris agreement to keep global warming below 1.5°C (42). In light of this evidence, we could claim that, amongst developed countries, **a handful of international companies bear the responsibility for the vast majority of anthropogenic GHG emissions responsible for climate change**. At last, recent studies highlight the preponderant role of the **living lifestyle of the wealthiest part of the world's population in the ongoing rise of the global temperature**, once again illustrating the prominence of the CBDR principle in climate change responses.

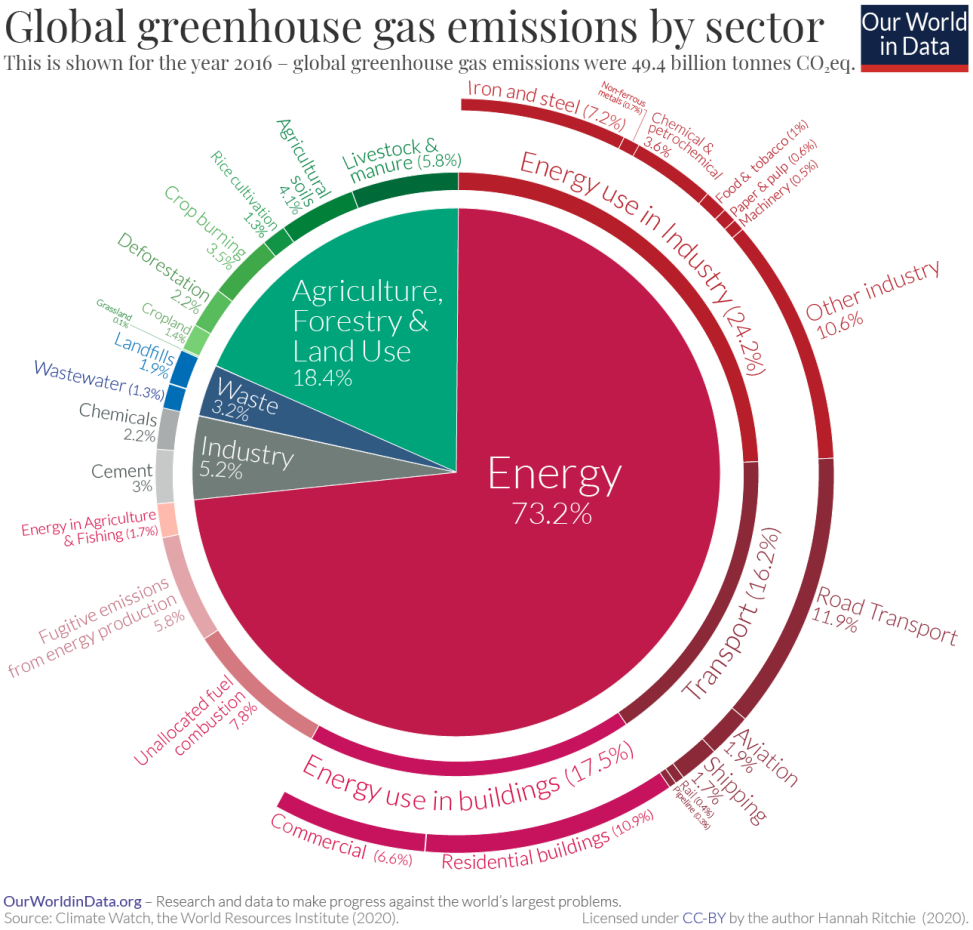

Figure 4: Estimated global GHG emissions by sector, in 2016 (39)

II.3. THE DEVASTATING LIFESTYLE OF THE RICH

At an individual level, **global GHG emissions could also be considered as the result of the living lifestyle of the wealthiest part of the world's population.** A recent joint research study, conducted by the Stockholm Environment Institute and Oxfam International, assessed the GHG emissions of different income groups between 1990 and 2015. As depicted in Figure 5, results reveal that **the world's richest 1% and 10% would be responsible for respectively 15% and 52% of the cumulative GHG emissions, against only 7% for the poorest half of humanity** (43). While carbon emissions of the richest 1% are more than double the emissions of the poorest half of humanity, they also found that, in the same period, the total emissions growth of the richest 1% was three times higher than that of the poorest 50% (44).

These significant carbon inequalities should not only be considered comparing rich and developed countries with poor and developing or underdeveloped countries. We also see **outstanding disparities in carbon emissions between the wealthiest and poorest parts of the population within rich and highly developed countries**. A study conducted by French Agency for the Environment and Energy Management (ADEME) shows that, in 2011, while a French household's average carbon footprint was 24.5 tonnes per year (11.2 tonnes per person), the **carbon footprint of the richest 10% was 2.7 times higher than the carbon footprint of the poorest 10%** (40.4 tonnes versus 15.2 tonnes of GHG emissions per household) (46). Taking only into account financial assets per French household, estimates show that the wealthiest 10% carbon footprint is equivalent to 46 tCO2eq per year, against 2.9 tCO2eq per year for the poorest 10%.

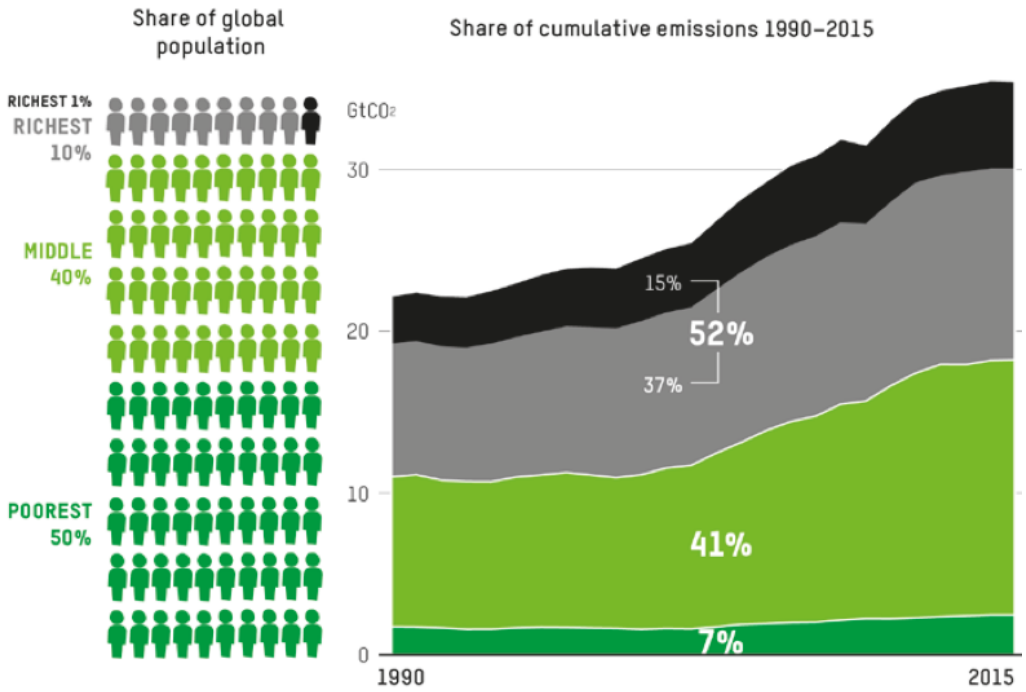

Figure 5: Share of cumulative emissions from 1990 to 2015 linked to consumption by different global income groups (45)

A number that increases to 189 tCO2eq per year for the wealthiest 1%. Thus, **the financial wealth of the 1% richest households is associated with a carbon footprint 66 times greater than that of the poorest 10%** (47). Consequently, we could claim that a minority of **wealthy individuals and households bear responsibility for a significant part of anthropogenic GHG emissions** that cause climate change.

In light of these findings, it is therefore difficult to **allocate the responsibility** of climate change **to a single entity**. However, it seems clear that the **way of life and consumption behaviours of a wealthy minority, most of them living in rich and developed countries, and made possible by fossil fuel producers, are the primary drivers of climate change**. Research suggests that global warming negatively impacted the GDP for most poor countries, while, on the other hand, global warming seems to have benefited wealthier nations (48), thereby increasing the divide. It is therefore clear that **climate change mitigation and adaptation need to be thought in close connection with climate justice.**

III.CLIMATE JUSTICE AS A PREREQUISITE TO MITIGATE CLIMATE CHANGE

III.1. STATING THE SOCIAL UNFAIRNESS OF CURRENT CARBON PRICING POLICIES

To overcome the economic market failure triggered by the negative externalities associated with GHG emissions, economists have developed **carbon pricing mechanisms** that aim to **internalize the cost of emissions to make the "polluter pays principle" effective** - through for instance the adoption of the Kyoto Protocol in 1995. To this matter, many governments and business leaders support the adoption of a **carbon tax, a tax rate on GHG emissions,** as an efficient mechanism to reduce GHG emissions (49). However, while a minority of wealthy individuals and households bear responsibility for a significant part of anthropogenic GHG emissions that cause climate change (50), **decarbonization costs using a carbon tax may be incurred primarily to lower-income people.**

Even though rich households would have to pay more than poor households (as they consume more), in absolute terms, **the share of available income of poor households which will be devoted to paying this carbon tax would be higher than that of the rich** (51). Three main reasons can explain this regressive effect. First, in relative terms, carbon-intensive spending (i.e. heating, road transportation) as a share of income is significantly higher for poorer households than for wealthier households (52). Second, higher energy prices will disproportionately affect lower-income households as they may not be able to invest in better-insulated homes, electric vehicles, or low-energy heating systems to offset higher energy costs (53).

Third, reduced purchasing power due to higher prices combined with low income and high bills may prevent households from meeting their energy needs. Households that experience this can be defined as 'fuel-poor' (54). Consequently, **without any social redistribution policies, the living standards of the poorest may be negatively impacted to a larger extent than that of the richer**. Therefore, the necessary decarbonization process through carbon pricing will certainly strengthen various forms of inequalities and contribute to further increase the gap between a rich minority and middle and lower socio-economic classes.

Consequently, **climate justice seems to first and foremost be a pragmatic rationale and as such a prerequisite to ensure the effective implementation of climate change policies**. As stated by 3,000 economists, including 27 Nobel Prize winners, a carbon tax that increases every year and redistributes revenues to households, to limit the social impact of this measure, would be the **most effective tool to move our societies towards low carbon modes** (56). However, **if governments don't manage to combine carbon pricing with socio-economic measures against inequality, there will likely be resistance and social unrest.**

III.2. INTEGRATING CLIMATE JUSTICE TO SUSTAIN EMISSIONS ABATEMENT EFFORTS

In recent years, as countries pledged to reduce GHG emissions, and some to reach carbon neutrality, attention will need to be paid to the economic and social fairness of the unveiled decarbonization policies. Indeed, in a context in which income and wealth have become overall increasingly unequal over the past few decades (55), it must be considered that **further increasing those inequalities may generate a negative attitude towards perceived unfair decarbonization policies.** For instance, as we have recently witnessed with the **Yellow Vest movement in France**, people may **react, resist, and revolt** against decarbonization policies if they perceive that they have an **unfair impact on their standard of living or well-being.**

CONCLUSION

Strong empirical evidence emphasizes that **consumption behaviours of a wealthy minority, most of them living in historically developed economies, bear the responsibility for the vast majority of anthropogenic GHG emissions** fuelling climate change. At the same time, in addition to disproportionately affecting less economically developed countries, **climate change mitigation policies may arguably further widen the inequality gap, thus raising climate justice concerns.** As illustrated in Figure 6, **failure in integrating climate justice principles in climate change mitigation strategies may undermine the efficiency of emission abatement policies, thereby further delaying climate mitigation actions and putting global peace and security at risk**. Consequently, it seems vital to effectively address climate justice issues when designing and implementing strong climate change mitigation and adaptation policies.

While the newest climate simulations used for the forthcoming sixth IPCC report indicate that even the most optimistic scenario may not limit global warming to +2°C (57), global CO2 emissions have continued to increase since the adoption of the Paris Agreement (+3.4% in 2019 compared to 2015 levels) (58). As recently acknowledged by the European Environment Agency, "it is unlikely that a long-lasting, absolute decoupling of economic growth from environmental pressures and impacts can be achieved at the global scale" (59). The idea that there should be a limit to the amount of GHG emissions of an economy puts climate change politics in conflict with mainstream politics, where a healthy system equals a growing economy (increasing GDP).

Therefore, **if our societies intend to limit global warming to an acceptable level and its associated security risks, moving away from the ideology that happiness and success are linked to economic wealth seems to be a prerequisite**. Such an ideology shift would imply a major change, away from politics of growth and towards politics of sufficiency. Material accumulation would no longer hold a prime position in the population's cultural imagination. The primacy of efficiency will be substituted by a focus on sufficiency, and innovation will no longer focus on technology for technology's sake but will concentrate on new social and technical issues.

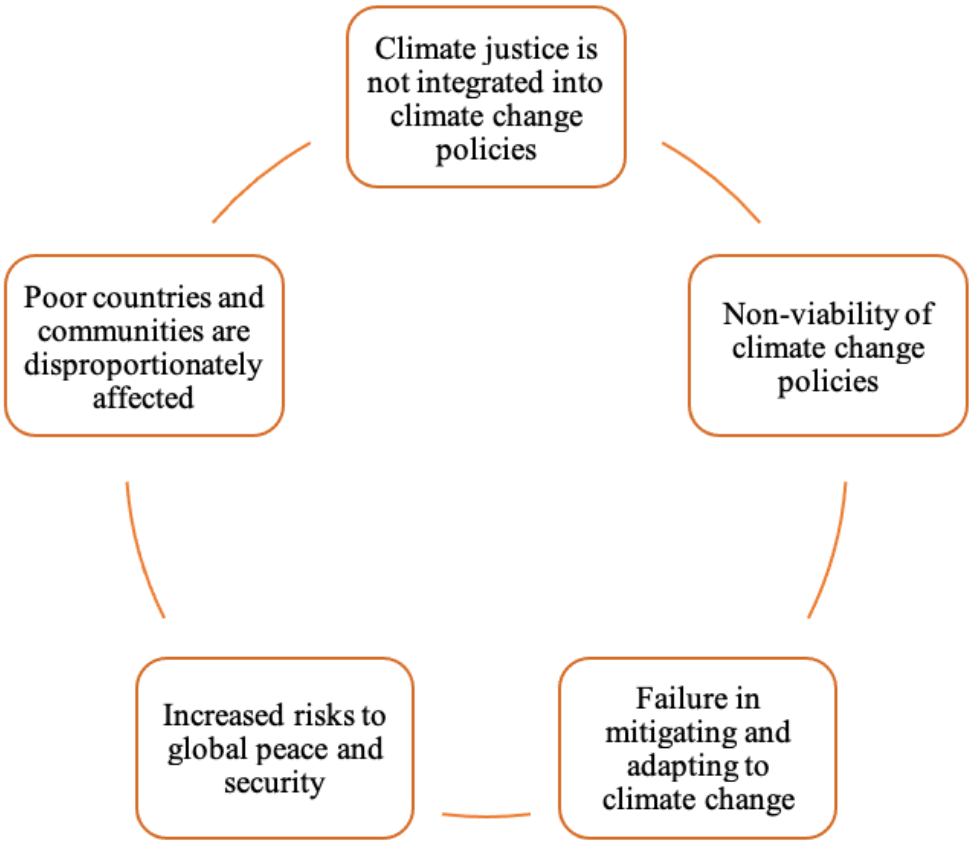

Figure 6: The climate justice destructive feedback loop

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