

SHORT PAPER

Carbon Equality Could Play a Positive Role in Mitigating the Climate Crisis

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ABSTRACT

Humans need to solve the urgent problem of analyzing the severe climate crisis and studying its profound impacts on the Earth. This paper introduces the concept of “carbon equality.” By detailing the concept, manifestations, and hazards of the climate crisis, as well as explaining the connotation and practical advantages of carbon equality, and combining this with real-life cases, it demonstrates the crucial role that carbon equality could play as a core solution in responding to the climate crisis. Based on the research results, this paper puts forward practical solutions to provide new ideas for global sustainable development.

KEYWORDS

carbon equality, climate crisis, related concepts, positive role

1 INTRODUCTION

António Guterres, the Secretary-General of the United Nations (2020), said, “The climate emergency is a race we are losing, but it is a race we can win” [1]. On the one hand, this indicates that the whole world is paying attention to the negative impacts brought by this crisis and is making efforts to eliminate it. On the other hand, it also shows that although experts and scholars attach great importance to this crisis, corresponding solutions have not yet been found. Since the beginning of the 21st century, humans have gradually realized that the climate crisis has a huge impact on social development and economic life. This study will explore potential mitigations with “carbon equality” as a core solution.

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2 RELATED CONCEPTS

2.1 Related concepts of the climate crisis

The climate crisis is not something new. It has accumulated from unreasonable activities such as long-term and large-scale carbon emissions, deforestation, and changes in land use since the Industrial Revolution [2]. Due to the massive consumption of traditional energy sources, the burning of coal, oil, and natural gas emits a large amount of greenhouse gases such as carbon dioxide into the atmosphere, breaking the original heat balance of the Earth and intensifying the greenhouse effect, with the global temperature continuing to rise. The scientific community has provided detailed data as evidence. In the past few hundred years, the average temperature of the Earth has risen by 1.56 degrees Celsius, far exceeding the natural fluctuation range. This thermodynamic root cause will lead to a serious climate crisis [3].

From the perspective of atmospheric circulation, the temperature rise disrupts the normal operation of air currents, weakens the stability of the polar vortex, and makes the paths of cold air moving southward and warm and humid air moving northward chaotic, which indirectly catalyzes the formation of extreme weather. First, the marine ecosystem is also deeply affected. The rising sea temperature leads to the rise of sea level, threatening the survival of low-lying island countries, and also causes coral reef bleaching, destroying the foundation of the marine food chain. Secondly, glaciers are accelerating their melting, the balance of fresh water reserves is disrupted, affecting river runoff and regional water supply, and the ecosystem in mountainous areas is deteriorating. These chain reactions indicate that the climate crisis is by no means an isolated abnormal temperature but a complex ecological dilemma [4].

Manifestations and hazards of the climate crisis

Intensification of extreme weather disasters. In recent years, extreme weather has been raging all over the world, with both the frequency and intensity on the rise. On June 1, 2020, more than ten provinces in China were suddenly hit by significant rainfall. The heavy rain in the Northeast and North China seriously endangered the lives and property of the people. The next day, the China Meteorological Administration quickly launched a level-IV emergency response for major meteorological disasters (heavy rain) and went all out to carry out disaster relief and rescue work. Looking at the international situation, hurricanes such as “Katrina” and “Harvey” on the east coast of the United States also severely damaged the coastal cities. The heavy rain in Europe also caused floods in many countries including Germany and Belgium, resulting in huge losses. The high-temperature weather in South Asian countries such as India and Pakistan increased the number of people seeking medical treatment for heatstroke, and extreme weather also seriously affected the growth of crops [5].

Disorder of social and economic order. The climate crisis directly affects agricultural production. Abnormal temperatures and disordered precipitation will lead to reduced or even no crop yields. The shortage of food supply will trigger price increases, impacting the food security system and creating the potential for famine. Secondly, it affects industries. The supply of industrial raw materials is interrupted due to disasters in resource-producing areas, transportation and logistics are blocked, factories are forced to reduce production or even stop production, the upstream and downstream linkages of the industrial chain are out of balance,

and the operating costs of enterprises increase. Thirdly, it affects the tourism industry. For example, due to the rise of sea level and the erosion of beach scenery, seaside bathing beaches are affected. Ski resorts in mountainous areas have fewer tourists and reduced tourism income due to the scarcity of snow. Fourthly, the insurance industry suffers losses. The financial stability of the insurance industry is tested due to the increase in claim amounts [6].

The imbalance and endangerment of the ecosystem. The ecological cost of the climate crisis has led to a sharp decline in biodiversity. The rise in temperature prompts the habitats of animals and plants to migrate to places with more suitable living conditions at higher latitudes and altitudes. However, the migration speed is difficult to match to the pace of climate change, and the living space of species is rapidly compressed. For example, the tropical rainforest biomes have caused a large number of rare species to be endangered and extinct due to drought and frequent forest fires. The melting of sea ice in the Arctic Circle has put the survival and reproduction of animals such as polar bears and seals to the test. The migration routes of migratory birds are disrupted. Due to the disruption of biological clocks and the disappearance of supply points along the way, the population of migratory birds has dropped sharply. Due to the breakage of the animal ecological links, the disappearance of key species will trigger a chain reaction. The self-repair and purification functions of ecosystems are gradually declining, which will cause an irreversible vicious cycle and thus affect the ecological environment of the Earth [7].

2.2 The basic concept of carbon equality

Carbon equality (Equal Rights of Carbon, abbreviated as ERC) refers to the fact that every individual has equal rights to carbon emissions and bears the same carbon responsibilities. On this basis, carbon management and carbon reduction driven by the consumption side are important directions for solving the climate crisis.

The core essence of carbon equality lies in endowing every resident on the earth with equal rights to carbon emissions and simultaneously shouldering an equal amount of carbon responsibilities. That is to say, every individual, every ethnic group, and every country living on the earth has the same carbon rights. This means that regardless of identity, status, race, skin color, nationality, or region, from individuals to ethnic groups and from ethnic groups to countries, all enjoy the share of carbon resources for development and utilization equally, without any privileges or special cases [8].

Behind carbon equality lies in-depth considerations of human rights and the right to development. It guarantees the rationality of carbon emissions generated by the basic living, education, and medical needs of individuals. However, at the national level, it also needs to take into account the national conditions at different stages of development. Emerging economies can obtain appropriate carbon emission space to catch up with development, while developed economies can take advantage of their technological and financial superiority to take the lead in deep carbon reduction to achieve a dynamic balance. The corresponding carbon responsibilities require countries to accurately calculate their carbon footprints and control carbon emissions in all aspects, such as people's clothing, food, housing, transportation, production, and consumption. By urging individuals to practice a green lifestyle, it forces enterprises to upgrade clean technologies, thereby promoting countries to optimize their energy structures and finally realizing all-round and multi-level carbon reduction coordination [9].

3 THE ROLE PLAYED BY CARBON EQUALITY IN SOLVING THE CLIMATE CRISIS

3.1 Reshaping the motivation for carbon reduction on the consumption side

Consumption is an important source of carbon emissions. If the concept of carbon equality is implanted into the consumption process, it can stimulate consumers' awareness of carbon reduction. When consumers clearly understand the boundaries of their carbon rights, they should make rational choices when purchasing low-carbon products, forcing high-energy-consuming and high-emission products to gradually lose their market share and forcing enterprises to innovate production processes and develop green and energy-saving products, thus accelerating the green transformation of industries. For example, the European carbon emission labeling system can intuitively display the carbon emission values of products throughout their life cycle. Energy-efficient home appliances and new energy vehicles have also achieved sales growth with the help of carbon equality. In particular, traditional fuel vehicle enterprises and high-carbon manufacturing industries have invested huge amounts of money to start their transformation and develop new products for green consumption and green production [10].

3.2 Balancing the pattern of international carbon reduction cooperation

The focus of the game in international emissions reduction often lies in the uneven distribution of development rights and interests. To this end, the Paris Agreement has improved new rules to make the nationally determined contributions of various countries more fair and reasonable. First, developing countries have obtained commitments for financial and technological assistance to fill the shortfall in their emissions reduction capabilities. Secondly, developed countries have expanded the carbon market, exported advanced emissions reduction technologies, and achieved a win-win situation in both economy and environment. The agreement has also formulated a carbon border adjustment mechanism, taking into account the carbon content of exported products and curbing "carbon leakage." The agreement urges countries to strictly abide by the rules of carbon equality and work together to reduce carbon emissions in the upstream and downstream of the global industrial chain, jointly gathering the strength of international carbon reduction [11].

3.3 Stimulating the enthusiasm of the people to participate in environmental protection

Carbon equality endows the public with the responsibility for daily carbon management. At the community level, residents spontaneously organize energy-saving competitions and garbage classification contests. On campus, students engage in low-carbon scientific research and environmental protection publicity. On social media, "Carbon Equality Life Check-in" activities are held to share experiences in carbon reduction. With the participation of people, folk wisdom is pooled, injecting inexhaustible impetus into the resolution of the climate crisis.

4 CONCLUSION

The climate crisis has brought humans to a crossroads of survival and development, and it is urgent to break the deadlock. The concept of "carbon equality" starts

from the balance of rights and responsibilities and directly targets the crux of carbon emissions. The whole process requires consumption-driven international cooperation and public participation. It is also necessary to refine international rules, overcome technological bottlenecks, and innovate social concepts.

It is hoped that the whole world will work together and persevere in implementing the carbon equality strategy. By promoting fair emission reduction, facilitating international cooperation, guiding carbon reduction at the consumer end, and contributing to global sustainable development, we can completely solve the climate crisis, protect the ecological environment of the Earth, and determine the future fate of mankind.

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