

Carbon Hegemony: A Long-standing but Neglected Reality of Setting Carbon Emissions Target

Peiwen Guo*

School of Environmental Science and Engineering, Tianjin University, Tianjin, China

*Corresponding author: PeiwenGuo@hotmail.com

Keywords: Carbon Emission, Hegemony, Carbon Reduction, Carbon Politics.

Abstract: Developed countries tend to impose carbon emissions reduction targets on developing countries in climate agreements after years of economic growth without such restriction. Carbon hegemony are constructed in this process. The hegemony is analysed through a realist lens from two aspects, namely industrial structure and globalisation. A case study approach is adopted to discuss foreign waste. This paper demonstrates that because of the transformation of polluting and energy-intensive industries and the participation in multinational corporations, carbon hegemony is the environmental burdens that are transferred to emerging countries to tackle the challenge of global warming through international corporation. Such hegemony should be deconstructed in order to reach more acceptable reduction schemes.

1. Introduction

At climate conferences, the issues of how we should do to reduce carbon emissions and who, be it developing countries or developed countries, should contribute more efforts or time to carbon management have always been the center of contention. When criticizing developing countries for being the world's top carbon emitters, many seem to ignore the fact that global warming is also a result of the historical accumulation of carbon emissions in consequences of historical concentration of industry and wealth in developed countries. In 1997, the Brazilian Proposal first mentioned the concept of total emissions. The proposal demonstrated the relative contributions of different countries' and regions' emission sources to global climate change and stressed that because greenhouse gases in the atmosphere have a certain lifespan, mainly developed countries were responsible for global climate change. [2]

According to the fifth report of the Intergovernmental Panel on Climate Change (IPCC), to limit the global warming caused by human-made carbon dioxide alone to 2°C (compared with 1861-1880) with a probability higher than 66%, the cumulative emissions of all human-made carbon dioxide since 1861-1880 would need to be limited to 790GtC.[1] Although developed countries proposed several principles quantifying the idea of carbon emission rights and interest distribution from different perspectives such as Per Capita Accumulative Emission Convergence, and are considered to be easy to implement in practice, they ignoring the massive impact of historical emissions on the current increase in greenhouse gases concentration. In the current paper, developed countries refer to those countries who have already completed industrialization and no longer need to rely on high carbon emissions for development.

Few studies on the carbon reduction scheme are trying to relate it to the international political structure. Viola et al.[3] state that climate issue is under the conservative hegemony that current institutions are not able to reach out climate plans that most nations are satisfied with. Later, Huan[4] reveals that international carbon reduction has the essence of "ecological imperialism" that reflects the expansion and development of developed countries' historically formed international hierarchical superiority or exclusive hegemony on the basis of their domestic capitalist economies and politics. In addition, Hulme[5] points out that new reductionism is driven by the scientific-based hegemony, which derives from disproportionate power in political discourse. However, few previous research argues that setting carbon emission targets is essentially a form of hegemonism. Therefore, the

intention of this paper is to fill the gap by discussing the connection between the setting of carbon emission targets and hegemony.

In this paper, we analyze such carbon hegemony situation from the perspective of realism, which “states prefer survival over other ends obtainable in the short run and act with relative efficiency to achieve that end” [6] [7]. Through this prism, the relationship between the level of national development and the setting of emission reduction targets is analyzed. Carbon hegemony is viewed as industrialized countries have mastered advanced emission reduction technologies and now occupy a moral high ground after unlimited development with no carbon emission restrictions, applying carbon hegemony to restrict the carbon emissions of emerging countries. In this case, hegemony denotes a situation of great material asymmetry in favor of several states that own discourse power on climate protocols. In the following sections, we first demonstrate the differences in industrial transformation in developed and developing nations. Next, the role of multinational corporations in the process of international industrial shift is discussed. Finally, the neglected foreign waste issue is taken as a case to further verify the existence of carbon hegemony.

2. Output of Structure

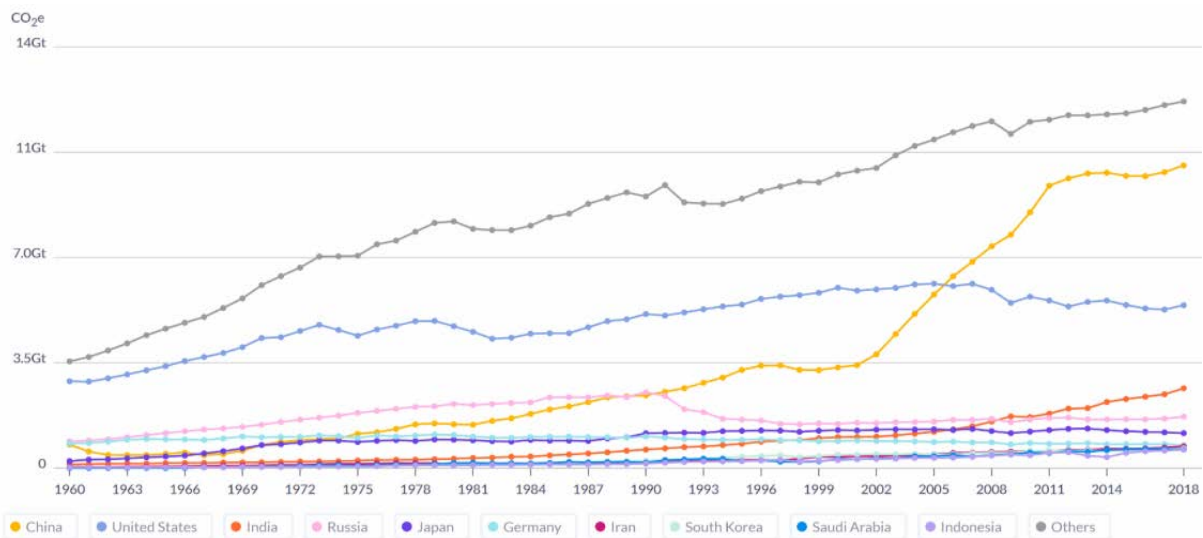


Figure 1. Global Historical Accumulation of Carbon Emissions

Since 1850, the scale of human use of fossil fuels has increased rapidly, and the greenhouse gases that come from the production and use of fossil fuels (including carbon dioxide, methane, etc.) have increased sharply. As early as 1992, Smith[8], an American scholar, pointed out that greenhouse gas emissions caused global warming because the earth is exposed to these gases, but the instantaneous emission intensity plays a relatively small role in the warming; thus, it is better to compare the historical total emissions accumulated over time to discuss the responsibility of each country. As can be seen from Figure 1 (data from Global Carbon Project[9]), the growth trend is not apparent or even declining in developed countries, while the growth is evident in developing countries, particularly China. India is not as developed as China, so the curve is not as steep. Russia is unique because its economy has been stagnant for a long time since the collapse of the Soviet Union and still relies on exports of natural resources.

Figure 2 (data from Global Carbon Project[9]) shows the per capita carbon emissions in the GDP top 10 countries and others, where developed nations, like the USA and Japan are sharing relatively larger numbers than developing countries. There is an inverted “U” shape called Carbon Emissions Environmental Kuznets Curve (CKC)[10] between a country's stage of development and its greenhouse gases emissions. Empirical data from the development process of some countries show that per capita emissions go through a process of low income and low carbon emission, followed by an increase in carbon emission demand as income increases, and then to a process of high income and low carbon emission. Most developed countries have entered the second half of the CKC curve,

known as the “post-industrial era”, and are able to develop with lower carbon emissions.



Figure 2. Carbon Emissions per Capita in Major Countries

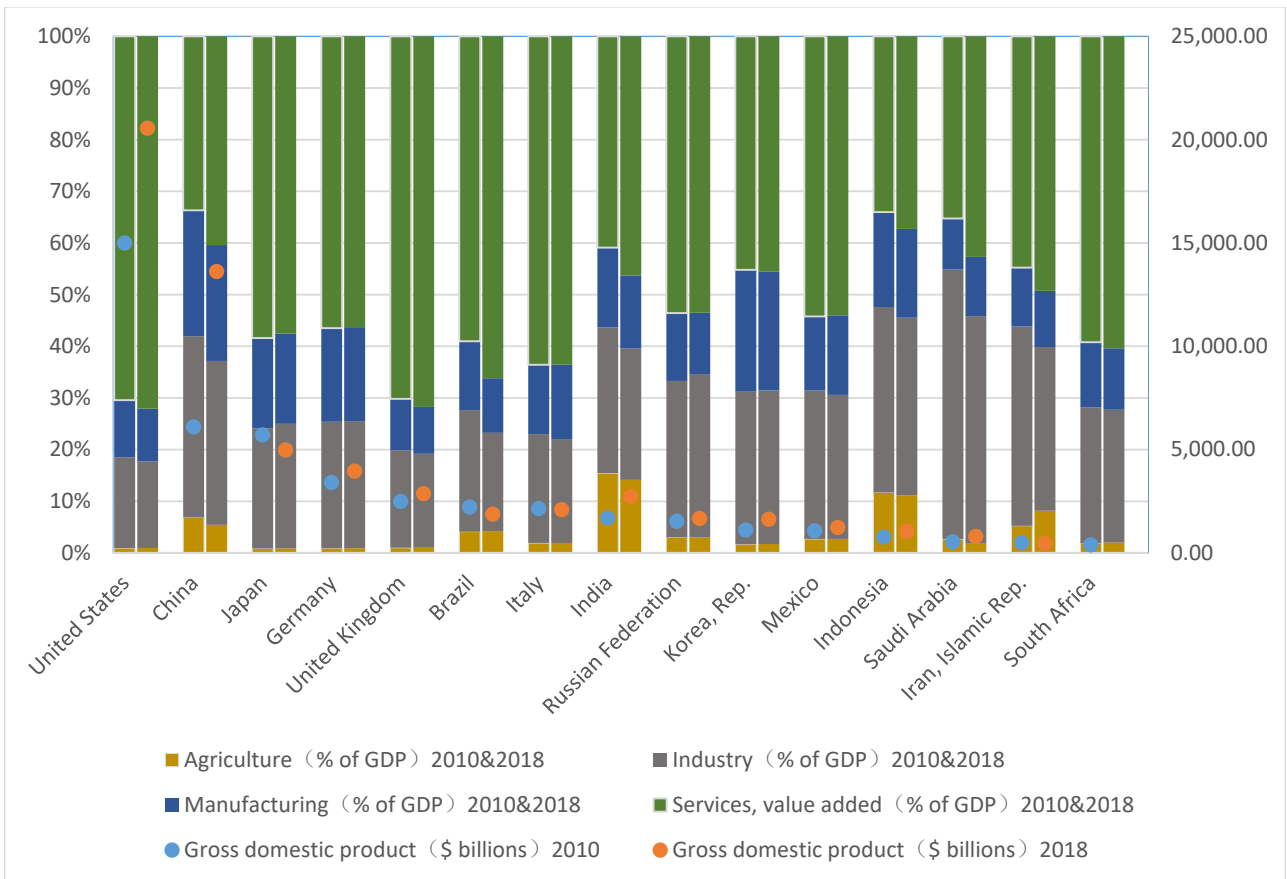


Figure 3. Structure of Output of Major Countries in 2010&2018

Figure 3 (data from The World Bank[11]) shows the impact of the production structure on carbon emissions in 2010 and 2018. In developed countries, the countries with the most carbon emissions are those with strong and heavy industries, such as the United States, Japan, and South Korea. The countries with the lowest carbon emissions are the ones that heavy industry does not occupy the mainstream of the domestic economy. For example, Italy is built on fashion instead of industry. In the same developed countries, the proportion of the industrial part in the output structure accounts for more carbon emissions, which can prove that industry and carbon emissions are positively correlated. Therefore, it is already clear that emission reduction is cutting heavy industry. These countries usually have some high-end industrial chains with high added value. They own advanced information

and financial industries and are in the stage of phasing out middle and low-end industrial chains. So, their carbon emissions will not increase or even decrease. Reducing carbon emissions is only a matter of accelerating the shift of the middle and lower end of the industrial chain (which is usually the highest carbon emission) out of these countries, namely carbon exporters. Also, their carbon emissions trends are already going downward, and the reduction of emissions will not greatly hinder their economic development.

For developing countries, carbon emissions per capita are in direct proportion to a country's economic development. The problem is particularly acute for China and India, which are in the phase of the mid-range booming industry chain. It is undoubtedly necessary to improve energy efficiency to reduce carbon emissions per unit of output. However, the total manufacturing output of these developing countries is bound to increase at a much faster rate than the rate of energy conservation. If the industries of developing countries are to develop, their carbon emissions per capita and total carbon emissions are almost certain to rise. The trends of carbon emissions in China and India are bound to be upward. Cutting emissions means: to stop growth. Due to the existence of low-cost human capital caused by the low level of development, developing countries appear to have no choice but to develop industries with high carbon emissions as carbon importers in order to grow.

One main difference between developed countries and developing countries is that the former one went through the process earlier than the latter. Developed countries industrialized early and emitted a large number of greenhouse gases in the process. Developing countries, on the other hand, are heading in the industrialization phase of their development and will maintain high carbon emissions for some time to come. Less harm can be done to developed countries in the context of global carbon restriction. They can retain high value-added industries and vigorously develop information and financial industries. However, developing countries will only be left in a deadlock. They cannot leapfrog their current stage of development and enter a stage which is characterized by high-value-added industry with high-speed information and finance out of thin air.

3. Globalization and Multinational Corporations

At this point, it is necessary to bring out the two main actors that play in this issue: globalization and multinational companies. Since the 1990s, due to globalization of the world economy, many developing countries, including China (due to its abundant natural resources and cheap labour), have gradually become the leading agricultural and manufactured goods factory for developed countries. According to Peters et al.[12], carbon dioxide emitted from the production of services and goods, most of which are exported from developing to developed countries, have risen rapidly from 4.3 billion tons in 1990 (20% of global emissions) to 7.8 billion tons in 2008 (26% of global emissions).

“The net emission transfers via international trade from developing to developed countries increased from 0.4 Gt CO₂ in 1990 to 1.6 Gt CO₂ in 2008, which exceeds the Kyoto Protocol emission reductions... Collectively, the CO₂ emission reduction of ~2% (0.3 Gt CO₂) in industrialized countries from 1990 to 2008 is much smaller than the additional net emission transfer of 1.2 Gt CO₂ from emerging nations to developed countries (equivalent to subtracting the net emission transfers in the same period).”

Developed countries have shifted high pollution, energy-intensive, high-emission industries to developing countries, which results in reduced emissions of carbon dioxide. Nevertheless, these countries consume many products are imported from developing countries, and the carbon dioxide emitted by generating these products are classified as their responsibilities.

These industries and resources transfers are the results of the global allocation of the market economy. Developed countries are at the high end of the global value chain and, because of their selfish nature in the context of realism, they have wished to permanently “lock-in” this pattern and continue to reap high value-added returns from it. Developing nations are also self-interested and profit-driven. In order to meet the demand for rapid development, they are often willing to follow the traditional model of relying on industrial transformation for development which produces mass emissions. Due to the profit-seeking nature of multinationals, they tend not to set up factories in rich countries where costs are higher, but in emerging countries hungry for economic growth. If

globalization promotes the reallocation of technical resources, then transnational corporations are the “bridges” among them, accelerating and consolidating the contemporary “Central, Semi-periphery, Periphery” world system according to Wallerstein [13].

Based on the dependency theory of Liberalism, this world system redistributes surplus-value from the periphery to the core. The core is the developed and post-industrialized nations, while the periphery is the “underdeveloped,” typically raw materials-exporting nations. By applying financial and technological penetration to those peripheral societies, the developed capitalist central countries can guarantee their status and continue to create an unbalanced economic structure within the periphery. Within the framework of the carbon issue, the core keeps using the mature low-carbon industrial structure and the transfer of local energy-intensive enterprises (technological superiority) to constrain those emerging nations who are in the primary stage of industrialization, so as to maintain their advantages at the negotiating table of climate and carbon reduction agreement. In the face of carbon emission reduction targets, emerging countries are trying to break this unbalanced development pattern through industrial transformations at the cost of high carbon emissions. Nevertheless, their actions are constrained by “carbon hegemony “ in the name of “carbon reduction.” The rejection of foreign waste is one example of an attempt to transform within the periphery.

4. Case Study of Carbon Emissions Transfer: Foreign Waste

Foreign waste is also an area which is often overlooked but closely linked to carbon emissions. In a recent Fortune article [14], 90% of the plastic will end up not being recycled, but burned, buried, or dumped. Since the end of WWII, a total of 8.6 billion tons of plastic have been produced, of which 6.3 billion tons have become waste. Only 9% of the waste is recycled, 12% is incinerated, and the rest is sent to landfill. No matter what method is adopted to deal with garbage, carbon emissions in the treating processes are inevitable, which in turn increases the emissions of waste-receiving countries and imposes these additional responsibilities on them.

The degradation of garbage releases CH₄, and there are carbon emission problems in garbage disposal from collection, transportation, treatment and other links. For example, in the process of waste collection and transportation, it will consume energy and produce CO₂, such as the consumption of gasoline. These costs are borne by the receiving countries. Although developed countries have stable and efficient waste classification systems (Japan, for example, waste recycling has become a social, moral burden for citizen because waste classification can vary by dozens according to the regulations of various counties and cities), this sorting level still does not play an adequate role in the efficient utilization of waste. In order to rationalize the delivery of waste and address the issue of high disposal costs, a new market logic has emerged for the developing countries: the waste contains many valuable things, and the labour cost in poverty-stricken areas is low, so people can sort them out in exchange for wages to support a family. At first, developing countries agreed on such logic, but the adverse effects of foreign waste are getting worse.

Developed countries have an option of reducing their emissions by exporting waste and shipping it to the developing world, without worrying about the side effects of disposing of it. No matter how much environmentalists and large enterprises in waste exporting countries claim to have done their best to protect the environment, the harm that waste does to developing countries is still a real existent fact.

That is why when China- the world's largest importer of garbage- announced that it would no longer accept foreign waste in 2018, developed countries were rattled by their heavy dependence on developing countries for disposal[15][16]. Subsequently, India, Malaysia, Vietnam, and Thailand issued restrictions on “foreign waste” because they did not want to pay for the developed countries anymore[17][18]. Such waste management is also normal in European Union even though some of the E.U members are dealing with waste well according to the European Union Eurostat. For example, some German companies make use of the Schengen Agreement to ship waste to Poland.

Is it true the developed world cannot deal with the waste domestically? The answer is NO. After the ban on foreign waste, the way the world handles waste has changed dramatically. In the United States, states are looking for more comprehensive and “national” ways to create new markets for

recycling, improve processing infrastructure and launch environmental awareness campaigns to reduce pollution. “The shift from China really shined the light on our bad practices for waste [in the U.S.],” says Keefe Harrison, CEO of a national nonprofit called The Recycling Partnership [19]. Japan, the world's second-largest exporter of plastic waste after the U.S., is trying to encourage the development of its domestic waste disposal industry, setting aside billions of yen to subsidize private companies' plastic recycling machines. Moreover, Simon Ellin, chief executive of British Recycling Association, said that they are approaching a market crisis in the U.K. where they simply don't have the capacity in the U.K. and it is this market that the merchants collecting the materials rely on [20]. As it turns out, these countries are not incompetent but will only take action if they can no longer export their “problems” abroad.

5. Conclusions

Carbon hegemony describes the dominance of developed countries in the issue of carbon emissions. Through transnational transfer of material-extensive, energy-extensive, and polluting industries, environmental pollution or burden is transferred to a vast number of developing countries, especially the emerging economies, in a more hegemonic discourse and model. As a result, the rapid development of a small number of emerging or developing economies in terms of economic scale or total volume is fasted in heavy “green shackles,” which perpetuate the hierarchical nature of modern society. Behind the seemingly new global climate and governance issues, it is still a distinct characteristic of structural imbalance of the old political framework and practice of logic. Although developed and developing countries are placed on the same global “carbon politics” platform, they are not equal in terms of rights to speak, nor do they have the same power over policy initiative and institutional supply.

Although carbon hegemony has been around for a long time and have held the world back from agreeing on various climate agreements, it will gradually be overshadowed by the weakening link between traditional energy ownership and country growth. The global economy has grown by 23%, with only 3% energy-related emissions in the past six years[21]. Also, booming renewable energy is making the rise and prosperity of nations no longer based on carbon and crude, which contribute to the majority of carbon emissions. Such changes would allow developing countries to be less constrained by such hegemony.

However, the realization of switching to “green” energy is far from being the final solution because the debate over carbon emissions is polarized between developed and developing countries. When asking for a reduction in emerging nations, the wealthy world should also support the energy shifting with low-cost and mature technologies. The German policy of FITs (feed-in tariffs) contributed to the transformation of social energy and also indicates the trend of developing new energy in the future. It is based on this concept that China has begun to develop and promote mature, low-cost green energy technologies that not only radically reduce carbon emissions but also help countries that cannot afford the expensive technologies to meet their climate commitments.

Our neglect of these issues causes many newly-presented environmental problems, and their costs are far beyond our expectations. Before climate problems or grey rhinos become more out of control, nations should put aside their prejudices and confront each other with an open mind and understanding attitude. If “peace” between governments is based on the fear of sanctions or benefit loss, then carbon hegemony will always shape international relations. There will still be a lack of understanding among countries of different levels of development about how to set emissions targets, and the discussion will rest on the Numbers rather than the national implications. Hence countries are difficult to agree on feasible plan.

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