Climate Change and Inequality in the Developing Countries

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Abstract

To what extent do climate change policies and mitigation measures ensure the survival of the developing countries? Certainly, the continuous increase in temperature threatens the whole globe, but the global crisis created health and economic inequalities between the developing and developed countries. Even though studies show that countries with lower income are more inclined to be negatively affected, there is limited research regarding how these countries can contribute to the process of mitigation without affecting their economic development, leaving them with high poverty levels. Thus, the aim of this paper is to (i) outline the climate variability implications on the most vulnerable regions of the world and describe inequalities caused by the global crisis (ii) explain the different relationships between poverty and climate change and factors such as health, education, and economy (iii) assess how can climate change policies and mitigation measures ensure the continuity of these countries without increasing their poverty rates. Therefore, I suggest that there is a clear intersection between climate change, poverty, and inequality. Finally, the last section shall aim to explain to what extent methods proposed from different sources aim for equality and endurance of developing countries, while still attempting to limit the global crisis.

Introduction

Studies have shown time and time again that the global economy controlled by the elites in the world, is the main drive for the climate change and that the developing countries had the least contribution to the global crisis. The temperature variability is proven to be linked to the burning of fossil fuels, removal of rainforests and green spaces, and the production of greenhouse gases in these regions. Empirical evidence, also, shows that the richest countries, that account for 1% of the world population, are responsible for the emission of double the amount of CO2 produced by the poorest countries from 1990-2015 (Harvey, 2020). The main reason is that during the industrialization era, disadvantaged countries had no access to the resources and technologies that were being used at that time, thus they were still relying on energy efficient and environmentally friendly methods for food supply, transport, and economic growth. Hence, the inequality arising from the climate change crisis raises questions regarding international injustice (Diffenbaugh and Burke, 2019).

Attempting to resolve the crisis, the UN climate change framework convention in 1992 was put together to initiate mitigation measures. The framework, in theory, puts into account developing countries by stating the following:

> *"Recognizing the special difficulties of those countries, especially developing countries, whose economies are particularly dependent on fossil fuel production, use and exportation, as a consequence of action taken on limiting greenhouse gas emissions,"*

> *"Affirming that responses to climate change should be coordinated with social and economic development in an integrated manner with a view to avoiding adverse impacts*

on the latter, taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty" (UNFCC, 1992).

Despite the fact that vulnerable countries have been put into perspective theoretically, the following section of this paper will aim to explain the limitations of this framework based on the implications that the developing countries are forced to withstand. Also, I shall provide evidence on how this framework contradicts the sustainable development goals (SDGs) as poverty, climate change and inequality tend to intersect.

After the post-industrial era, as temperatures started rising, the water precipitation increased as well, disrupting the agriculture process that poorer countries relied on for their primary food supply. As a result, developing countries tried to adapt by resorting to other means which included the use of fertilizers, pesticides, and other agrochemicals to supplement crops and be able to provide enough food supply for their populations. Such behaviors have led to the increased emissions of methane into the air which is a main contributor to climate variability. The problem surfaced as their economies started relying on less-energy efficient sources and chemicals to increase export and produce enough to meet the demand. Since these countries were already vulnerable to poverty, they were forced to find ways to adapt, which could have reinforced the climate change crisis. Now, these countries are not only trying to escape poverty, but they also became partially responsible, in the recent years, for worsening the global crisis and disrupting the mitigation process by using less energy efficient technologies (Grigoryev et al., 2020). Thus, not addressing the crisis on a global level will only keep vulnerable countries

striving to escape high poverty levels, as well as engage in the same less environmentally friendly behaviors as their priorities shift.

Poverty, Inequality, and Climate change

The rest of the paper aims to magnify different aspects relating to poverty by looking at infrastructure, health, and education. But before breaking down these different factors, I will refer to the literature by presenting evidence regarding development, poverty, and climate change.

Recent studies show empirical evidence regarding the dynamic relationship between temperature variability and economic growth. Unpredicted empirical findings show that the relationship between GDP and temperature rise works in the favor of cooler countries, and hinders the growth of warmer regions (Diffenbaugh, Burke. 2019 P.2). This raises the critical question of whether climate change is bound to keep poor countries poor, while elevating richer countries.

As poverty and climate change are both competing for attention, urging for action, the vulnerable countries will only turn heads towards what they view as primary needs. Hence, it is worth noting that the poorer countries' main priority is most likely moving away from poverty, rather than implementing new ways to limit global warming. Accordingly, these countries will fully commit to the mitigation process, when their primary needs are met (food, health, and

education). In this case these needs become the establishing motivation for acting towards a net-zero globe.

Another significant problem that should be regarded when moving away from poverty is that developing countries are encouraged, globally, to move towards sustainable development. However, a recent study on climate change and inequality claims that two of the Sustainable Development Goals (SDGs) are contradicting, SDG 13 and SDG 10. In other words, the study argues that they should be regarded in a comprehensive manner to be able to tackle both problems (Grigoryev et al., 2020).

Inequality

The implications of temperature variability on the developing countries' food supply, health, education, and economic development need to be one of the main discussions on an international level to be able to properly alleviate the crisis.

Infrastructure: Given the fact that more vulnerable countries tend to have weaker infrastructure, natural disasters caused by the climate change such as floods, heatwaves and storms increases their risk of being exposed to environmental dangers and the chances of the loss of their homes due to destruction (Mertz et al., 2009). Also, due to their limited resources and funding, overcoming such environmental crises can pose a burden on the economy, if they were able to overcome it at all.

Agriculture and food supply: There is no doubt that agriculture has been negatively affected by the temperature fluctuations, disrupting the main source of food supply in developing and poor countries. Season instabilities caused difficulties to grow certain crops during certain times of the year as the globe is warming up. This has led to the use of fertilizers, pesticides, and other agrochemicals to increase food production to be able to meet the needs of populations. Not only do such chemicals contribute to the global warming crisis, but they also, increase the risk of diseases such as cancer and chronic illnesses.

Diseases and health: Other diseases such as salmonellosis and malaria are relevant in this context as well. Salmonella is a food borne disease usually transmitted through contaminated food and water and it could be linked to climate change since it has become more common to process food than to rely on natural sources, as previously mentioned. Malaria is another prominent infection, and it is a vector-borne disease. What these diseases have in common is the fact that they are most common in regions with higher temperatures, usually countries in Africa, where there are high levels of poverty.

Water and health: Another health issue that we should consider, relating to climate change, would be due to the warming of water. The increase in temperatures of water had resulted in the growth of plankton blooms which, in turn, decreased the quality of drinking water. Poor quality of water and the rise of sea levels, that affected the salination of fresh water, gave rise to an important health issue (Patz and Olson, 2006). As the quality of water decreases, proper hygiene and sanitation decrease as well, which in turn increase health risks such as liver diseases (i.e yellow fever), and kidney failures. This particularly affects lower-income families

living in industrial regions or countries with the least pure drinking water such as Mexico, Congo, and Nigeria.

Pollution and Health: Other health issues arise from, not just polluted food and water, but also from polluted air. As CO2, methane, and CO increases in the air by the use of power plants, cars, chemical plants and other chemical sources resulting in the increase in 8-h ozone standard. Also, the abundance of CO2 in the air leads to excessive plant growth, which releases more pollens in the air. Consequently, the risk of allergic reactions becomes more common due to the increased levels of pollen, as well as respiratory problems caused by methane and CO. Without doubt, pollution has affected the whole globe, but it is harder for less developed countries to transition to green alternatives as it would not be convenient given their economic status.

Building on the points mentioned above, inequality arises when adaptation is not possible in some of the regions. Not only do these countries have access to limited resources that would help them limit the consequences of the crisis, but most importantly they have weaker health care, compared to other well-developed countries. In other words, their health care cannot withstand the effects and diseases caused by the change in temperature when it comes to treating diseases such as cancer and other life-threatening diseases. Additionally, the sanitation of hospitals is extremely poor. Having said that, being hospitalized to get treated from Malaria infection, yellow fever or other infectious diseases could result in increased transmission between individuals and lower probability of proper treatment and recovery.

Education and inequality: Moving on, looking at climate change and poverty from the lens of education, I suggest that education plays a huge role in such crises. Not only does the access to proper education allow for better opportunities and higher-income, but it potentially increases the independence of developing countries as they would be able to self-supply and create methods that suit their environment without external interreference. Yet, the access to good education in developing countries is limited, and the levels of uneducated people are high, which results in limited awareness about what is happening in the world and decreases the chances of innovation and problem solving.

Thus, social, and economic inequality are bound to result in higher poverty rates and lower motivation towards adaptation to climate change.

Mitigation and adaptation and economic inequality

In this section, I shall address economic inequality in the context of adaptation. The literature shows evidence regarding how climate change is affecting developing countries and how mitigation and adaptation measures are set to benefit all countries globally, but there is little research on how the mitigation measures will burden the developing countries economically. Some of the adaptation methods mainly focus on agriculture, water, droughts, and floods (Nations, n.d.), and even though adaptation is mandatory to minimize environmental and social losses caused by the crises, these measures are bound to keep poor countries at the bottom, struggling to economically catch up with the world, trying to escape poverty and adapt to the landscape changes caused by climate change.

A different perspective would be how adaptation measures set by policy makers tend to only serve the countryside. For example, there are emerging climate-smart and resilient methods for farmers and fishermen in countries like Costa Rica, India's Himalayan region and Peru, to help adapt and decrease the impacts of the climate change (Nations, n.d.), yet research shows little support to big poor cities that are overly populated have high levels of poverty such as Delhi, Cairo and Mumbai.

Taking Action

Going Net-Zero is very ambitious and hopeful, however to what extent is it affordable for vulnerable economies?

Allocating almost USD 70 Billion, the adaptation fund is keen on providing support for the most vulnerable countries and small islands to eradicate climate variability implications. However, given the implications of COVID-19 on these regions (in terms of health and economy), more support is needed to be able to overcome economic costs to ensure the participation of these developing countries in the mitigation process and 2050 net-zero goal. In other words, if these countries stay pre-occupied with recovering from the consequences of the pandemic as well as trying to escape poverty, there will be no room to move towards the climate change goal set by the elite world. Thus, a collective action including efforts from NGOs, policy makers, private businesses and government agencies is crucial to ensure the survival of the developing countries (Sustainability transitions in developing countries: Stocktaking, new contributions, and a research agenda, 2018).

Nevertheless, not only should the framework include financial efforts, but I suggest that education plays a huge role when it comes to mitigation methods. Education reform projects would, also, benefit future generations in these countries if they were well taught about how to overcome crises. This does not only ensure the ability of self-eradication in times of crises (i.e climate change consequences and COVID-19) but it could potentially help these countries escape poverty without relying on outer funds that eventually burdens their economies and keeps them dependent. Also, proper education will help overcome health inequality and improve health risks, which is crucial when it comes to climate change adaptation.

Limitations and future research

As previously mentioned, there is not many literature sources and studies that directly address the implications of mitigation and adaptation methods on the developing world. Additionally, despite the fact that climate change policy framework does account for the most vulnerable countries but it there is a gap between these countries, the developed countries and the countries that lie in between (experiencing high poverty rates but are also able to develop in some respects).

Conclusions

The above analysis aims to bridge the gap between climate change, poverty, and mitigation measures in the developing world. Climate change implicated infrastructure, food supply and health care, which in turn negatively affected their economy and development. Yet, it is difficult for these countries to implement suggested methods due to their poor economies.

Hence, in order to reach net-zero, collectively, by 2050 the developing world needs to be the center of the international discussions as they need more education to revert from using older and less-efficient technologies, a plan for adaptation without hindering their development and increasing their poverty rates.

To sum up, the urge to work with both poverty (SDG10) and climate action (SDG13) will enable us to move towards a more sustainable future by 2050.

References:

UNFCCC (1992). *UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE UNITED NATIONS*. [online] Available at: https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

Diffenbaugh, N.S. and Burke, M. (2019). Global warming has increased global economic inequality. *Proceedings of the National Academy of Sciences*, 116(20), p.201816020.

Grigoryev, L., Makarov, I., Sokolova, A., Pavlyushina, V. and Stepanov, I. (2020). Climate Change and Inequality: How to Solve These Problems Jointly? *International Organisations Research Journal*, 15(1), pp.7–30.

Patz, J.A. and Olson, S.H. (2006). Climate change and health: global to local influences on disease risk. *Annals of Tropical Medicine & Parasitology*, 100(5-6), pp.535–549.

Nations, U. (n.d.). *Climate Adaptation*. [online] United Nations. Available at: https://www.un.org/en/climatechange/climate-adaptation [Accessed 11 Nov. 2021].

Sustainability transitions in developing countries: Stocktaking, new contributions and a research agenda. (2018). *Environmental Science & Policy*, [online] 84, pp.198–203. Available at: https://www.sciencedirect.com/science/article/pii/S1462901117311838?via%3Dihub [Accessed 26 Sep. 2020].

Taconet, N., Méjean, A. and Guivarch, C. (2020). Influence of climate change impacts and mitigation costs on inequality between countries. *Climatic Change*.

Mendelsohn, R. (2008). The Impact of Climate Change on Agriculture in Developing Countries. *Journal of Natural Resources Policy Research*, 1(1), pp.5–19.

King, A.D. and Harrington, L.J. (2018). The Inequality of Climate Change From 1.5 to 2°C of Global Warming. *Geophysical Research Letters*, 45(10), pp.5030–5033.

Harvey, F. (2020). World's richest 1% cause double CO2 emissions of poorest 50%, says Oxfam. *The Guardian*. [online] 20 Sep. Available at: https://www.theguardian.com/environment/2020/sep/21/worlds-richest-1-cause-double-co2-emissions-of-poorest-50-says-oxfam.

Mertz, O., Halsnæs, K., Olesen, J.E. and Rasmussen, K. (2009). Adaptation to Climate Change in Developing Countries. *Environmental Management*, [online] 43(5), pp.743–752. Available at: https://link.springer.com/article/10.1007%2Fs00267-008-9259-3 [Accessed 2 Sep. 2019].