

The Challenges of Implementing Emission Control Policies in the Developing World: Nigeria As A Case Study

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ABSTRACT

The Paris Agreement under the UN framework convention on climate change was signed in 2016 by 196 state parties to deal with greenhouse gas emissions mitigation, adaptation and finance. The temperature goal of the Paris agreement is to keep the global average temperature to well below 2°C above pre-industrial level and to pursue efforts to limit the increase to 1.5°C postulating that this will reduce the impacts and risks of climate change.

Under the Paris agreement, countries are required to determine, plan and regularly report on the contribution it undertakes in mitigating global warming. The developing world most notably Africa is faced with several developmental issues, challenges of pollution are fast-rising thus bringing about the occurrence of respiratory diseases amongst the populace.

This study focuses on the implementation of emission control policies in the developing world, the challenges and opportunities towards proper policy framework were analysed, the study further articulated the comparative analysis between African countries on the various policy measures towards emission control. The Federal Republic of Nigeria was taken into cognisance thereby looking at its setbacks and how proper policy implementation process can be put in place in attaining the goal of the Paris Agreement.

With the ever-growing globalized world, technology is constantly changing lives and the dynamics on how social change and can be implemented. This study reiterated how policymakers can inculcate technology to drive the policy implementation process of emission control in the developing world. The methodology in carrying out this study encompassed using qualitative analysis to derive explanation in understanding the challenges and opportunities that exist in the implementation of emission control policies in the developing world and the role technology could play in the policy implementation process in a post COVID-19 world.

The concluding section of this study portrayed a positive correlation in the usage of technology in the attainment of emission control in the developing world and showcased the need for proper enlightenment of all relevant stakeholder during pre and post policy making and implementation process.

1. Introduction

According to the United Nations, Climate Change is the defining issue of the world today and the world is at a defining moment. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly.

Greenhouse gases occur naturally and are essential to the survival of humans and millions of other living things, by keeping some of the sun's warmth from reflecting back into space and making Earth livable. But after more than a century and a half of industrialization, deforestation, and large scale agriculture, quantities of greenhouse gases in the atmosphere have risen to record levels not seen in three million years. As populations, economies and

standards of living grow, so does the cumulative level of greenhouse gas (GHGs) emissions.¹

In October 2018 the Intergovernmental Panel on Climate Change (IPCC) issued a special report on the impacts of global warming of 1.5°C, finding that limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented changes in all aspects of society. With clear benefits to people and natural ecosystems, the report found that limiting global warming to 1.5°C compared to 2°C could go hand in hand with ensuring a more sustainable and equitable society. While previous estimates focused on estimating the damage if average temperatures were to rise by 2°C, this report shows that many of the adverse impacts of climate change will come at the 1.5°C mark.

The United Nation family is at the forefront of the effort to save the planet. In 1992, its “Earth Summit” produced the United Nations Framework Convention on Climate Change (UNFCCC) as a first step in addressing the climate change problem. Today, it has near-universal membership. The 197 countries that have ratified the Convention are Parties to the Convention. The ultimate aim of the Convention is to prevent “dangerous” human interference with the climate system.

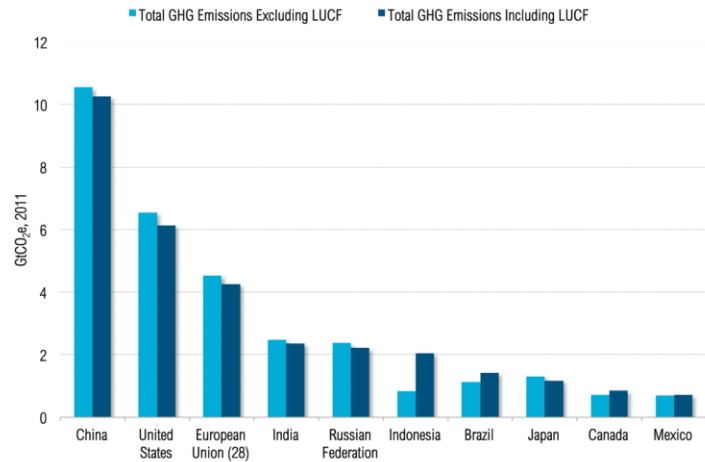
The Paris Agreement’s in 2015 which was signed in 2016 by 196 state parties central aim is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

2. Emission Control Policies in the Developing World

The Industrial Revolution was largely driven by fossil fuel technologies and have been driving economic growth, so reducing emissions may appear to threaten developing countries’ progress, but in order to attain the Paris agreement objectives, this is exactly what needs to happen. The World Resources Institute in 2017 conducted a study and stated that the world’s top three emitters of greenhouse gases, namely China,

the European Union and the US, contribute more than half of the total global emissions while six of the top 10 emitters are developing countries.²

Top 10 Emitters



<http://bit.ly/11SMpjA>

WORLD RESOURCES INSTITUTE

Figure 1, Top 10 Emitters³

The World Economic Forum (WEF) recognises that carbon emissions and countries being lifted out of extreme poverty are linked. An increase in carbon emissions observed over 30 years shows that poverty has been reduced within East Asia and Pacific and South Asia, while sub-Saharan Africa has, during the same time period, reduced their emissions and almost doubled the number of people living in poverty.⁴

The Paris Agreement acknowledges that the efforts toward reducing carbon emissions will be common, but not equal among developed and developing countries. The fairness of these contributions should be determined by national circumstances so that there will be equity in the responses and responsibilities to address climate change. This means that developing countries will be allowed to emit more carbon until they have developed enough that they no longer need to rely on carbon-intensive

¹ United Nations, Climate Change, <https://www.un.org/en/sections/issues-depth/climate-change/> (Accessed July 01, 2020)

² World Resources Institute <https://www.wri.org/blog/2014/11/6-graphs-explain-world-s-top-10-emitters> (Accessed July 10, 2020)

³ World Resources Institute <https://www.wri.org/blog/2014/11/6-graphs-explain-world-s-top-10-emitters> (Accessed July 10, 2020)

⁴ World Economic Forum, what is the link between carbon emissions and poverty? <https://www.weforum.org/agenda/2015/12/what-is-the-link-between-carbon-emissions-and-poverty/> (Accessed July 12, 2020)

industries.⁵ However, data compiled by the World Resources Institute stipulates that since 2000, 21 countries have reduced annual emissions while simultaneously growing their economies, indicating that the decoupling of economic growth with emissions is possible.

The 21 countries are:

Since 2000, More Than 20 Countries Have Reduced Annual GHG Emissions While Growing Their Economies

COUNTRY	CHANGE IN CO ₂ (2000–2014)	CHANGE IN GDP (2000–2014)
Austria	-3%	21%
Belgium	-12%	21%
Bulgaria	-5%	62%
Czech Republic	-14%	40%
Denmark	-30%	8%
Finland	-18%	18%
France	-19%	16%
Germany	-12%	16%
Hungary	-24%	29%
Ireland	-16%	47%
Netherlands	-8%	15%
Portugal	-23%	1%
Romania	-22%	65%
Slovakia	-22%	75%
Spain	-14%	20%
Sweden	-8%	31%
Switzerland	-10%	28%
Ukraine	-29%	49%
United Kingdom	-20%	27%
United States	-6%	28%
Uzbekistan	-2%	28%

Sources: BP Statistical Review of World Energy 2015; World Bank World Development Indicators



Low Carbon Index are intended to help identify potential risks associated with the transition to a low carbon economy while representing the performance of the broad equity market.⁶ The Low Carbon Index found that several G20 countries have reduced their economies' carbon intensity while maintaining GDP growth, including countries classified as 'developing', such as China, India, South Africa and Mexico.

Barriers that prevent developing countries from adopting renewable energy plans such as decarbonisation often not seen as a priority compared to economic growth and poverty alleviation. Many of the developing countries struggle with gaps in technical and financial expertise, a lack of resources and poor governance. Adopting lowest-emission or renewable energy strategies shaped to each country's unique circumstances is vital to maintaining and encouraging growth while reducing emissions.

Developing countries need to implement policies that shift the economy away from carbon-intensive industries. These should be coordinated at a global level to ensure a worldwide shift towards an equitable and environmentally responsible future.⁷

3. Emission control Policy formulation challenges and opportunities

Developing countries have established laws and formal governmental structures to address serious environmental problems which often falls under the government agency called the Ministry of Environment but few national or subnational government have been successful in alleviating those problems.

Due to decades of rapid urbanization, population growth, and industrialization, developing countries are now home to many of the world's most severe air, water, and solid waste pollution problems. The key challenges in effectively implementing emission control policies are often due to environmental regulatory agencies lack adequate funding, expertise, and personnel. The issue of funding is also a critical challenge in the implementation of emission control in the developing world. Funding priority is given to projects that will address issues of poverty and hunger as well as education, health, and security while funding

⁵ Carla Delgado, Earth.Org, How Developing Countries Can Reduce Emissions Without Compromising Growth <https://earth.org/how-developing-countries-can-reduce-emissions-without-compromising-growth/> (Accessed July 14, 2020)

⁶ MSCI, <https://www.msci.com/msci-low-carbon-indexes#:~:text=The%20MSCI%20Low%20Carbon%20Indexes,e%20missions%20and%20fossil%20fuel%20reserves.> (Accessed July 17, 2020)

⁷ Carla Delgado, Earth.Org, How Developing Countries Can Reduce Emissions Without Compromising Growth

towards implementing emission control often take the back seat.

With the developing world adhering to the Sustainable Development Goals (SDGs), this presents an opportunity for the developing world in the adaptation of emission control policies. Karen Ellis of the Overseas Development noted that regardless of whether a country wants to undertake mitigation itself, or seeks a low carbon growth path, optimal growth strategies will need to be reassessed in light of the changes that will be brought about both by climate change itself and by international mitigation efforts. Developing countries will need to find climate resilient growth strategies (i.e. growth strategies that are achievable despite the impact of climate change). They will also need to identify and manage opportunities (such as new markets or sources of finance) and risks (such as trade barriers or changing patterns of demand) that arise from international mitigation efforts, if they are to maximise their future growth prospects.⁸

4. Comparative Analysis

More than 230 million people are without electricity access in the West African sub-region, translating to about 66% of the entire population. Also, it is estimated on a yearly basis that 3.5 million people die from indoor air pollution caused by the use of wood stoves, more than AIDS and malaria combined.⁹

The Economic Community of West Africa (ECOWAS) agreed to reposition the power sector in order to achieve universal access for the sub-region in line with global practices. Thus in 2000, the West African Power Pool (WAPP) was established to harness all the available energy resources for electricity supply system for the sub-region. WAPP was established at the 22nd Summit of the Authority of ECOWAS Heads of State and Government. West Africa has an estimated population of 322 million in 2012 and is ranked to have one of the highest growth rates in the world at between 3.81% and 2.7% per

annum. Of the 14 countries associated with the sub-region, 52% is accounted for from Nigeria of the total population, covering a surface area of only 18% of the estimated size of about 5,105 million km². The Member States of West Africa Community are energy deprived countries. Only three countries in the sub-region, namely Ghana, Guinea Bissau and Nigeria, have access (in whatever definition) to electricity that is above 50%. Liberia has the lowest access level at 4.1%. The total electricity generating capacity of the sub-region is 20 GW (which represents only about 45% of South African electricity generating capacity), giving it an average per capita power capacity of 0.05 kW/person. In energy terms, the average per capita electricity consumption is 114 kWh/person. However, production and consumption levels are highly skewed towards a few countries in the sub-region. It is held that for a country to be electricity sufficient, it must have an average per capita consumption of 500 kWh/person, while for industrialization it must be up to an average of 1000 kWh/person. The highest per capita electricity consuming country in the West African sub-region is Ghana at about 266 kWh/person.¹⁰

African countries are arguably faced with the two greatest developmental barriers, namely climate change and energy access. In West Africa, Nigeria has the largest energy and population resources and energy related activities are estimated to account for about 55% of total national greenhouse gas (GHG) emissions. Curbing these activities through low-carbon development for climate change mitigation and adaptation to increase energy access, requires being done in a manner to avoid 'choking' developmental efforts. South Africa occupies the 13th position on the world emitting countries while Nigeria competes with Russia for the number one position in global gas flaring. South Africa rising profile as emitting nation is based majorly on the fossil fuel CO₂ industry, and closely followed by emission from the oil industry. Similarly, Nigeria's oil production centres in the Niger Delta are known major sources of emission from gas

<https://earth.org/how-developing-countries-can-reduce-emissions-without-compromising-growth/> (Accessed July 14, 2020)

⁸ Karen Ellis, Must developing countries sacrifice growth to save the planet? (Overseas Development), <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5526.pdf> (Accessed July 19, 2020)

⁹ World Health Organisation, Household air pollution and health <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health> (Accessed July 20, 2020)

¹⁰ Momodu AS and Addo A, Global CO₂ emission reduction policies and West African electricity system: Case for transformational access <https://doi.org/10.12688/aasopenres.12915.1> (Accessed July 22, 2020)

flaring, generators, bush burning and crude method in refining crude oil.

The World Resources Institute estimates that Nigeria's greenhouse gas emissions (its latest record for the country) exceeded 296 MtCO₂e (excluding land use). Key barriers to Nigeria's reducing its greenhouse gas emissions are dependence on fossil fuels for energy and foreign exchange as well as significant levels of gas flaring during petroleum exploration and production.

Many Nigerians, because of limited electricity supply from the national grid, provide their own electricity for business and personal use by means of privately owned fossil fuel powered generators and according to the World Trade Organisation (2015) in its report on international trade, fuels constituted 79.3% of Nigeria's exports in 2018.¹¹ Nigeria, in its Paris Agreement Intended Nationally Determined Contributions (INDCs) noted that to meet its conditional and unconditional targets, the country would have to end gas flaring by 2030, reduce dependence on fossil fuel powered generators while enabling access to energy for all Nigerians, and establish significant (13Giga Watts) off-grid solar electricity as well as be given technical support to improve energy efficiency.

The implementation of emission control policies in Nigeria in a post COVID-19 world, the infusion of technology towards alternative electricity, crude oil refining and promoting of alternative renewable fuel towards motor vehicles.

5. Conclusion

Only by planning for this end goal which is to drastically reduce emission in line with the Paris agreement, rather than short-term milestones, can governments make the choices needed to achieve a future of low-carbon production and avoid locking in high-carbon development patterns. Slow-changing assets, including transport, electricity, and buildings infrastructure, are particularly at risk of locking-in emissions intensive pathways.¹²

Nigeria is dependent on the exploration and sale of crude oil as its major source of revenue for the country. Gas flaring and several negative externalities occur in the process of crude oil exploration. The country is also

heavily dependent on petrol or diesel generators for the provision of electricity which further causes harm on the environment. The Nigerian government at the sub national and national levels of governments have adopted several strategies in the control of emission through policy making. Policy is critical in the control of emission but the political will to implement such policies is imperative in achieving the set-out target of the Paris agreement.

The issue of adequate funding and proper coordinated sanctions is crucial in attaining emission control in Nigeria. Correlation exist between the usage of technology in the reduction of emission. The infusion of technology to drive alternative electricity, crude oil refining and promoting of alternative renewable fuel towards motor vehicles is crucial in emission control and policies that will favour the use of such technology in emission control should be adopted by the Nigerian state.

¹¹ Chiudo Ehirim, Climate Scorecard, <https://www.climatescorecard.org/2016/08/nigeria-emission-reduction-challenges/> (Accessed July 25, 2020)

¹² J. R Hogarth, Caroline Haywood and Shelagh Whitley, Low-carbon development in sub-Saharan Africa, Overseas

Development Institute, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9878.pdf> (Accessed July 30, 2020)

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