RCC West and Central Africa
Collaboration for Climate Action

United Nations
Framework Convention on
Climate Change

BENIN BURKINA FASO
CAPE VERDE COTE d'IVOIRE
THE GAMBIA GHANA
GUINEA GUINEA BISSAU
LIBERIA MAURITANIA MALI
NIGER NIGERIA SENEGAL
SIERRA LEONE TOGO

A SYNTHESIS REPORT:
CARBON PRICING APPROACHES IN WEST AFRICA

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ABBREVIATIONS

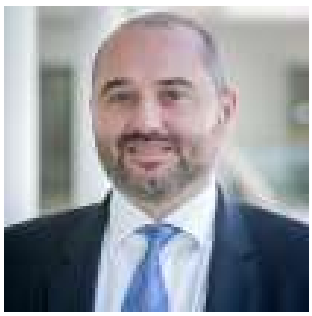
AFOLU	Agriculture, Forestry, and Other Land Use
BAU	Business-As-Usual
BUR	Biennial Update Report
CER	Certified Emission Reduction
CBAM	Carbon Border Adjustment Mechanism
CDM	Clean Development Mechanism
CI-ACA	Collaborative Instruments for Ambitious Climate Action
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
ETS	Emission Trading Scheme
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IETA	International Emissions Trading Association
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contribution
LTV	Long-Term Vision
LULUCF	Land use, land-use change, and forestry
MRV	Monitoring Reporting and Verification
NC	National Communication
NDC	Nationally Determined Contribution
RCCs	Regional Collaboration Centers
REDD+	Reduce Emissions from Deforestation and forest Degradation, and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks.
UNFCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard

FOREWORD

The synthesis report on carbon pricing approaches summarizes the present situation and offers insights into the possible future of carbon pricing in West Africa. It buttresses the continued importance of support from carbon pricing initiatives, included from the Collaborative Instruments for Ambitious Climate Action (CI-ACA) Initiative and reaffirms its dedication to comprehending the intentions of different countries and delivering customized assistance to expedite the adoption of carbon pricing by collaborating with relevant stakeholders.

This study's results are intended to steer the CI-ACA initiative's implementation in West Africa by the RCC WAC Africa and other key partners. They offer valuable insights for policymakers, underpin academic and analytical efforts, and provide essential information for both the private sector and non-governmental organizations in the efforts to support carbon pricing in the region.
At the time this study was conducted, none of the 16 evaluated countries had implemented carbon pricing. Nevertheless, there is a growing awareness and interest in adopting carbon pricing mechanisms. 12 of these 16 countries, which represent 75% of the assessed nations, have shown their intent to adopt carbon pricing tools. This intention is reflected through their Nationally Determined Contributions (NDCs), other national plans, strategies, statements, or by joining carbon pricing initiatives. While most of the countries haven't specified the specific instrument(s) of choice, a significant number have expressed an interest in exploring the possibility of a carbon tax.

Drawing from these insights, the RCC WAC is set to work with designated national actors to develop country-specific engagement strategies for West African states to support them in understanding and designing tailor-made and country-owned instruments that fit their specific national circumstances. By collaborating closely with relevant stakeholders and governments, the goal is to fast-track the efforts of interested countries in adopting carbon pricing instruments as useful tools to achieve a low carbon development.



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EXECUTIVE SUMMARY

As climate change and its associated impacts continue to surge, countries seek to explore holistic and cost-effective solutions to reduce the emissions of greenhouse gases (GHGs). Carbon pricing is one of the prominent policy instruments being largely promoted in many countries as a cost-effective tool for curbing GHGs worldwide in recent years. In this study, carbon pricing explicitly refers to carbon tax and emission trading system (ETS). A carbon tax involves levying a fee based on the quantity of greenhouse gases emitted, whereas emission trading (also known as cap-and-trade) system establishes a maximum threshold (cap) for overall emissions and permits companies to trade emission allowances.

The surge in interest in carbon pricing has come as countries have developed Nationally Determined Contributions (NDCs) under the Paris Agreement and are in search of cost-effective solutions to achieve their GHG emissions reduction targets and more broadly for achieving low carbon growth, in line with Long-Term Low Emission Development Strategies. Although the instrument has a long history of being utilized by advanced or developed economies, its effectiveness and benefits have encouraged developing countries across the globe to adopt carbon pricing instruments aimed at limiting GHG emissions.

Despite the promising opportunities that carbon pricing offers for regulating GHG emissions, the potential of this climate-smart fiscal policy tool is less explored within the framework of climate governance in African countries. For example, in West Africa, only Senegal, Côte d'Ivoire and Nigeria have advance efforts for implementation of ETS or carbon tax according to the World Bank Carbon pricing report[1]. Challenges repressing growth and development of carbon pricing in the regions include poor political will and frameworks on climate change mitigation evidenced in the insufficient number of legislations addressing the issue; inadequate capacity of the policymakers and countries experts to conceptualize and implement carbon pricing policies, and a general lack of financial systems and financial resources to promote climate change mitigation activities.

Although majority of countries have not specified which instruments they seek to explore at this point, four countries comprising Benin, Côte D'ivoire, Senegal, Nigeria and Liberia have indicated intention to explore carbon tax while Sierra Leone seeks to explore the use of a carbon tax or ETS or a combination thereof.

Apart from limiting the growth of emissions, carbon pricing remains an important component of the wider global climate financing landscape which can support the financial needs for NDC implementation in West Africa considering the fact that 85% of the ambitious commitments put forth by these countries is contingent on external financial support. Overall, the concept of carbon crediting is not new in West Africa as our analysis of country experience in carbon crediting mechanisms such as CDM and REDD+ shows a significant number of West African countries have experience. Building on such experiences, technical capacity of countries can be built on carbon pricing design and implementation.

Also, carbon pricing's full potential cannot be currently realized in all countries in West Africa. The GHG emissions to be priced is very low in countries such as Togo, Sierra Leone, Guinea Bissau, The Gambia, Liberia and Cabo Verde. Alternative climate financing instruments such as Results-Based-Funding could be appropriate climate financing instrument. The findings further suggest that that in many West African countries except Ghana, Togo and Sierra Leone, critical monitoring, reporting and verification infrastructure is lacking. It is asserted that implementing carbon pricing will not be practical or feasible until the essential MRV systems are established. Amid these limitations, West African countries could start evaluating the "cost of carbon" in any new major energy/industrial project implemented as they develop in order to start properly managing carbon – for example requiring providing an assessment of the carbon cost at a defined price associated with such projects.

1. https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838fm

1.1 Introduction

Achieving the drastic greenhouse gas emission reduction necessary to meet the Paris Agreement target of keeping warming well below 2 degrees Celsius (and preferably to 1.5) necessitates the utilization of an array of approaches encompassing technology, regulations, behavioral and societal changes, research and development and fiscal measures. Fiscal measures incentivize investment, operations, behaviors and actions that lead to reduced greenhouse gas emissions and increased environmental sustainability.[2] An example of such measures is carbon pricing, a method that seeks to curb greenhouse gas emissions by placing a fee on emitting and/or offering an incentive for emitting less[3]. The concept of carbon pricing is rooted in the "polluter pays principle" which is enshrined in Principle 16 of the Rio Declaration on Environment and Development of 1992 that the costs of pollution and its abatement should be borne by emitter[4].

We acknowledge that in recent times many literatures and experts do refer to all fiscal climate instruments as carbon pricing. In the context of this research, carbon pricing specifically denotes the implementation of a carbon tax and emissions trading systems (ETS). A carbon tax involves levying a fee based on the quantity of greenhouse gases emitted, whereas ETS (or cap-and-trade) establishes a maximum threshold (cap) for overall emissions and permits companies to trade emission allowances. The type of carbon pricing mechanism adopted by a country is determined by its national circumstances such industrial emission intensity.

Carbon pricing has increasingly become an indispensable pillar of ambitious climate action with many countries adopting the measure for contributing to the achievement of domestic climate policy and Nationally Determined Contributions (NDCs). The current state and trend in carbon pricing suggests an expansion in the reach of existing carbon pricing instruments and additional initiatives beyond the coverage of existing carbon pricing systems. For example, in Chile, the carbon tax compliance thresholds were expanded in 2020 to include emitters previously not covered under the compliance thresholds[5]. All carbon pricing initiatives put together are expected to cover 11.66 GtCO2e, representing 23% of global GHG emissions in 2023. The trend of adopting carbon pricing is predominantly seen in advanced economies, primarily because these countries reached a stage of industrialization before they began integrating the cost of carbon into their economic models.

This historical sequence is important to consider. In the early stages of industrialization, many of these now-developed economies prioritized economic growth and industrial expansion, often at the expense of environmental considerations. It wasn't until they faced the escalating consequences of climate change and environmental degradation that they started to recognize the importance of accounting for the environmental costs of carbon emissions. However, this historical pattern does not imply that there is no interest or benefit in incorporating the cost of carbon from the outset in emerging economies. In fact, early adoption of carbon pricing in developing of carbon from the onset, in order to guide development towards a low carbon trajectory.

Beyond offering a cost-effective mitigation, carbon pricing can stimulate the achievement of broader outcomes such as serving as a regulatory instrument for reducing air pollution to limit the negative environmental and health impacts from fossil fuels. This has been the case of the Beijing pilot Emissions Trading Scheme where carbon pricing encourages a shift away from high-emission activities such as fossil fuel combustion in energy production leading to reduction of pollutants associated with coal combustion[6].

In the context of Africa, the "intended" NDCs under the Paris Agreement demonstrate that a majority of African governments desire to use international markets in some form to help finance their mitigation. These include carbon pricing (ETS and Carbon tax), international market mechanism and fossil fuel subsidy reform[7]. Despite the significant potential of carbon pricing as a tool to regulate and thus manage greenhouse gas (GHG) emissions, its use within the climate governance frameworks of African countries remains underexplored. In West Africa, only Senegal, Côte d'Ivoire, and Nigeria have progressed in their considerations for implementing an Emissions Trading System (ETS) or a carbon tax, as detailed in the World Bank's Carbon Pricing Report (Figure 1). Expression of intentions by countries, however, is on the rise. The assessment findings indicates that out of 16 countries, 12 have shown an interest in adopting carbon pricing instruments. This intention is manifest in various forms, such as through their Nationally Determined Contributions (NDCs), other national plans or strategies, official statements, or by participating in initiatives like the CI-ACA initiative.

Despite the viewpoint that African countries are low global contributor to GHG emissions and don't need a carbon pricing instrument, this study's approach is that although West African countries are characterized by a very low level of industrialisation and therefore a low emitter of GHGs, large-scale agriculture, forest exploitation, livestock rearing, fossil fuel production and use, etc., contribute to GHG emissions in various degrees no matter how small. Moreover, several governments in the region are committed to the ambitious goal of making the country an emerging economy. These governments ambitions may mean increased pressure on carbon sinks and fossil reservoirs with implications for high GHG emissions in the future. This makes a strong case for the need to design and implement measures that ensure low carbon growth.

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2. *Klenert, D., Mattauch, L., Combet, E., Edenhofer, O., Hepburn, C., Rafaty, R., & Stern, N. (2018). Making carbon pricing work for citizens. Nature Climate Change, 8(8), 669-677.*

3. *Stern, N., Stiglitz, J., and C. Taylor. 2022. "The economics of immense risk, urgent action and radical change: towards new approaches to the economics of climate change." NBER Working Paper 28472.*

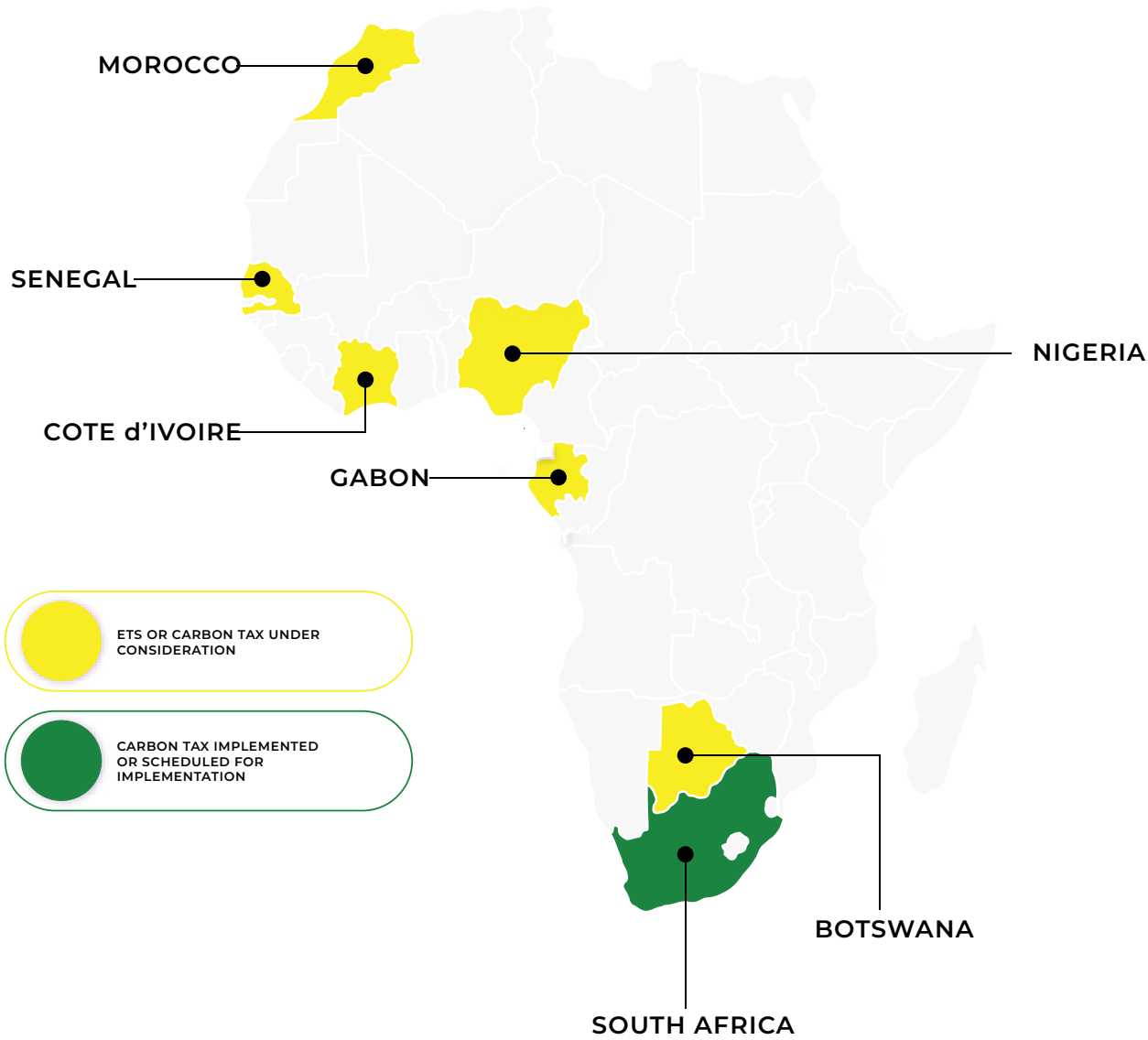
4. https://www.cepal.org/sites/default/files/events/files/pr10_03.2013_janice.miller.implementation_p10.eng_.pdf

5. *State and Trends of Carbon Pricing 2020*
https://openknowledge.worldbank.org/server/api/core/bitstreams/5afce9b5-03e0-5557-a550-6fac52275dde/content

6. *Chai, S., Sun, R., Zhang, K., Ding, Y., & Wei, W. (2022). Is emissions trading scheme (ETS) an effective market-incentivized environmental regulation policy? Evidence from China's eight ETS pilots. International Journal of Environmental Research and Public Health, 19(6), 3177.*
Emission trading: 2 COUNTRIES: Côte d'Ivoire, Egypt: Carbon tax: 2 COUNTRIES: Côte d'Ivoire, South Africa: International market mechanisms (general references): 34 COUNTRIES: Angola, Botswana, Burkina Faso, Burundi,
Cape Verde, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Equatorial Guinea, Ethiopia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Sudan, Sudan, The Gambia, Togo, Tunisia, Uganda, Zambia, Zimbabwe

7. **Emission trading: 2 COUNTRIES: Côte d'Ivoire, Egypt: Carbon tax: 2 COUNTRIES: Côte d'Ivoire, South Africa: International market mechanisms (general references): 34 COUNTRIES: Angola, Botswana, Burkina Faso, Burundi,**
Cabo Verde, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Equatorial Guinea, Ethiopia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Sudan, Sudan, The Gambia, Togo, Tunisia, Uganda, Zambia, Zimbabwe

FIGURE 01
Summary of regional carbon pricing initiatives. Source: State and Trends of Carbon Pricing 2023.[8]



The implementation of carbon pricing instruments in West African countries is contingent on technical institutional capacity and finance. In response to the need for assisting developing countries in their effort to implement carbon pricing, donors unveiled the CI-ACA initiative at COP22, initiating a voluntary program aimed at delivering the necessary support. The initiative operates through UN Climate Changes six Regional Collaboration Centers (RCCs) and in collaboration with key international entities such as GIZ and the World Bank to mobilize transformative climate finance for implementation. As part of this mandate, the RCC West and Central Africa seeks to conduct this study to give an overview of the state and possibility for carbon pricing initiatives in its jurisdiction (West and Central Africa) with this report focusing on West Africa.

8. https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838f

1.2 Objective Of The Study

The objective of this study therefore is to

1. Take stock of carbon pricing initiatives in the West African region.
2. Assess potential opportunities for carbon pricing in the region based on national circumstances and context.
3. Assess market drivers that could create the need for carbon pricing.
4. Assess domestic arrangements and critical infrastructure for the implementation of carbon pricing in the West African countries.

1.3 Methodology Of The Study

In terms of methodology, this study adopted a desk review approach and employed the use a mix of empirical and analytical research methods to investigate and analyze secondary data as it relates to carbon pricing in the context of reducing GHG emissions and assisting countries to achieve their NDCs in West African countries. In the intelligent gathering process, a word and excel-based templates were developed. These tools will support continuous gathering of intelligence and revisions of the information in this first report.

1.3 Document Sourcing & Review

The above methodology was employed to assess relevant country documents especially NDCs, long-term low-emission development strategies, Biennial update reports, national communications, public statements, etc. through the UNFCCC website and other trusted data sources such as the World bank, climate watch data etc. Scholarly articles were also consulted when necessary.

1.32 Scope

COVERAGE

The coverage of this report is West Africa.

FOCUS

The focus of this study is on explicit carbon pricing instruments covering carbon tax and emissions trading scheme and partially covered fossil fuel subsidies.

REPORT

The report only assesses without judgement or prescription of which instrument to be implemented in the respective countries.

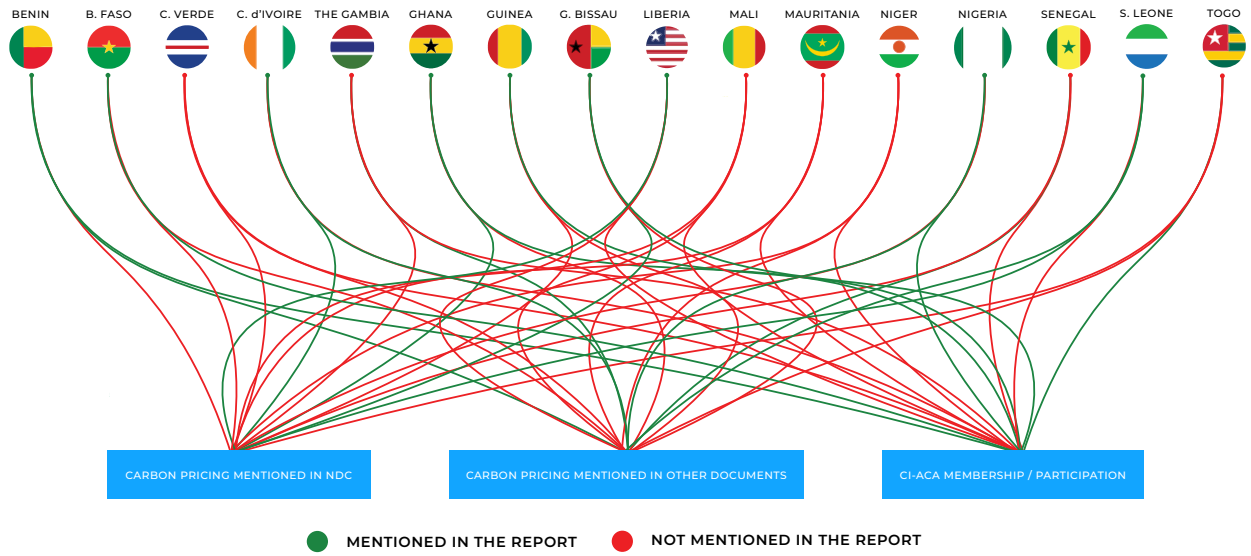
2. TRACKING THE DEVELOPMENT OF CARBON PRICING IN WEST AFRICA

2.1 Main developments

Until the period of this assessment, no West African country has implemented a carbon pricing instrument. However, many countries in the region have expressed interest in developing direct and indirect carbon pricing through NDCs, other documents, policies, public statements, etc. The CI-ACA initiative has also been welcome in many West African countries including Guinea, Guinea Bisssau, Togo, Benin and Burkina Faso. Figure 2 provides overview of channels through which these countries are expressing the carbon pricing implementation intentions.

FIGURE 02

Figure 2. West African countries that have expressed intention to implement carbon pricing.



Overall, 5 West African countries (Côte d'Ivoire, Ghana, Guinea – Bissau, Liberia, and Sierra Leone) explicitly refer to carbon pricing in their NDCs. Benin, Côte d'Ivoire, The Gambia, Nigeria, Senegal and Sierra Leone have expressed intentions to adopt carbon pricing instruments through various means other than NDC, with Nigeria's 2050 Long-Term Vision (LTV - 2050) recognizing carbon tax as a decarbonization measure. Half of the countries in the region are currently at different stages of the CI-ACA initiative. Some countries are already actively exploring carbon pricing as a cost-effective policy option in their efforts to achieve low-carbon and climate-resilient development. Côte D'ivoire, Nigeria and Senegal, are the most advanced countries under the initiative with all having organized national consultations and capacity building workshops and assessment of carbon pricing approaches.

Figure 3 presents the various carbon pricing instruments under consideration by countries. Although majority of countries have not specified which instruments they seek to explore, four countries comprising Benin, Côte D'ivoire, Liberia Nigeria and Senegal have indicated intention to explore carbon tax while Sierra Leone seeks to explore either or a combination of carbon tax or ETS or a combination.
The greater attraction for carbon tax by countries reflects the mechanism's relative simplicity which makes it easier for both businesses and regulators to understand and implement[9]. Unlike ETS, a carbon tax can leverage existing regulations, monitoring, and enforcement mechanisms in many countries whereby reducing cost of implementation. Carbon tax mechanism also provides more stable and predictable carbon price as the price is set by the regulator. This lessens market volatility and reduce the uncertainty associated with the cost of compliance for businesses. The summary of specific carbon pricing initiatives by the West African countries is provided in Figure 4.

9. Parry, I. W., Black, S., & Zhunussova, K. (2022). Carbon Taxes or Emissions Trading Systems?: Instrument Choice and Design. Staff Climate Notes, 2022(006).

CARBON PRICING INSTRUMENTS UNDER CONSIDERATION

FIGURE 03
Various carbon pricing instruments under consideration by West African countries

CARBON TAXES

BENIN
LIBERIA
NIGERIA
SENEGAL
COTE d'IVOIRE

NOT SPECIFIED(REPORTED AS CARBON PRICING)

BURKINA FASO
THE GAMBIA
GHANA
GUINEA
GUINEA BISSAU
TOGO

CARBON TAXES & EMISSION TRADING SYSTEM & FUEL(EXCISE) **TAXES**

SIERRA LEONE

FIGURE 04

Status of carbon pricing initiatives in West African Countries.

COUNTRY INITIATIVES

GUINEA

Guinea is among the new countries currently obtaining support from the CI-ACA to assess carbon options

CÔTE d'IVOIRE

Cote d'Ivoire inicated in its NDC that it will develop innovative financing instruments such as local carbon markets. Key milestone in the operationalization of the carbon pricing include: Access to Carbon Pricing Leadership Coalition(CPLC) and Prime Minister's Intervention in CPLC High-Level Assembly, Self-funded feasibility study on the national carbon price and validation of results(2016); Launch of the Partnership for Market Readiness(PMR) project on the carbon taxation(2018)

GHANA

Ghana referred to adopting appropriate carbon pricing measures in its updated NDC. Key steps towards implementation includes the Carbon Pricing Instruments assessment study and stakeholder consultation in 2020 under the CI-ACA project. The couuntry's focus in recent years has been on the Artcle 6 mechanism and no further discussions on carbon pricing

BURKINA FASO

Burkina Faso is among countries currently undertaking carbon pricing study under the CI-ACA project

BENIN

Benin's low carbon development strategy 2016-2025 has measures to establish a carbon tax with its collection and payment methods. Benin is also among countries currently undertaking carbon pricing study under the CI-ACA project

NIGERIA

Nigeria explicitly stated that it intended not to use carbon pricing in its updated NDC-2021. However, Nigeria's LTS identified carbon tax long- as an important instrument for their long term decarbonization pathway. Nigeria participates under the CI-ACA.
The country has undertaken first national consultation and capacity-building workshop(2021), carbon pricing assessment study(2022) and carbon pricing opportunity awareness workshop(2023) under CI-ACA.

LIBERIA

Liberia's NDC actions include introduction of a 10% tax on luxury vehicles and the integration of a tax on transit vehicles by 2025 and the implementation of a Hydroflourocarbon(HFC) tax for reguating the consumption of flourinated gases in the air conditioning and refrigeration sector.

SIERRA LEONE

Sierra Leone made reference to the EU'S Emissions Trading Scheme as a potential vehicles and sources of climate financing in its NDC. It is not clear how the country intends o achieve this. Sierra Leone under its IMF program is considering levying carbon taxes on certain sectors of the economy as part of policy commitments to restore stability, main debt sustainability and finance climate action.

GUINEA-BISSAU

In its NDC, Guinea-Bissau intends to strengthen its capacities in the field of carbon pricing through the establishment of specific training programs for the actors concerned(energy and energy efficiency). Guinea-Bissau is currently among countries obtaining support from CI-ACA to assess carbon options

SENEGAL

A study assessed different options for the introduction of domestic carbon pricing instruments in Senegal as the first phase of CI-ACA. The study recommended the implementation of a carbon tax. Launch of a study on carbon tax to assess the potential economic impacts of carbon pricing

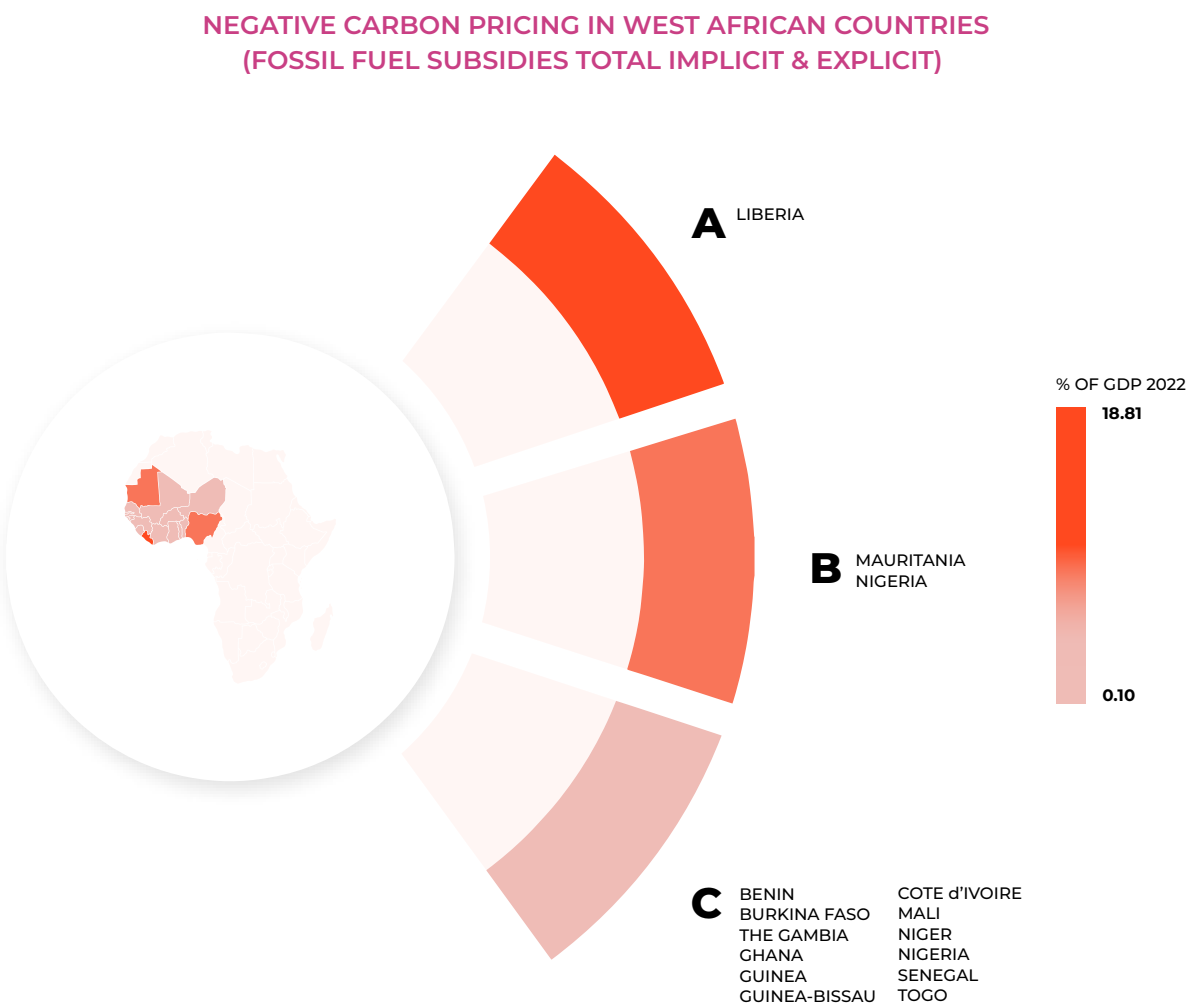
TOGO

Togo is among countries currently undertaking carbon pricing study under the CI-ACA project

2.2 Fossil Fuel Subsidy & Subsidy Reforms

A fossil fuel subsidy constitutes any government action that lowers the cost of fossil fuel energy production or lowers the price paid by energy consumers[10]. By lowering the final price to consumers, a fossil fuel subsidy may be viewed, somewhat simplistically, as a negative carbon price. A working paper by The New Climate Economy reveals that the costs of fossil fuel subsidies far outweigh the benefits when considering the full economic, social, and environmental impact of these subsidies in Africa. The International Monetary Fund (IMF) provides data and global analysis of the comparative burden of subsidies on Gross Domestic Product (GDP) and government revenue by countries. Based on this analysis, fossil fuel subsidies in West Africa are estimated to average about 5% of GDP ranging from the 0.2% (Burkina Faso) to 18% (Liberia) in 2022 (Figure 5). Such burden on governments in West Africa will undermine efforts to domestically finance climate action. Removing fossil fuel subsidies is therefore an essential first step towards climate mitigation. Countries in the region making efforts to dismantle fossil fuel subsidies. A typical example is Nigeria's announcement in May this year to remove its consumer fuel subsidy. Nigeria spent almost USD 10 billion (NGN 4.39 trillion) last year just on subsidizing gasoline which is more than four times the health budget (NGN 827 billion)[11]. Shifting subsidies away from fossil fuels offers the additional advantage of freeing up additional public funds that can be allocated to a broader range of social and sustainable development goals, such as education, innovation, and healthcare.

FIGURE 05
Negative Carbon Pricing in West African Countries.



10. https://www.imf.org/en/Topics/climate-change/energy-subsidies
11. https://www.iisd.org/articles/deep-dive/nigeria-fuel-subsidy-reform

3. ASSESSMENT OF IMPLEMENTATION OF POTENTIAL CARBON PRICING APPROACHES

Globally, a large and growing number of non-Annex I countries under the United Nations Framework Convention on Climate Change (UNFCCC) are pursuing carbon pricing: South Korea, China, Thailand, Singapore, Bangladesh, Kazakhstan, South Africa, Côte d'Ivoire, Colombia, Chile, Argentina, Brazil, Mexico, Panama, Trinidad and Tobago, others. The requirement for instituting a carbon pricing framework is intricately tied to the unique circumstances of individual countries. To ascertain the need and potential implementation of carbon pricing in the West Africa countries, the global GHG emissions contribution of the West Africa countries was assessed. This is because the level of economy-wide or sector emission is a reflection of how much revenue can be generated from imposing a carbon price. Most African countries have contributed among the least to global greenhouse gas emissions causing climate change and the entire continent has about 2 to 3 per cent of global emissions attribution[12]. Figure 6 presents the GHG emissions (in million tonnes Carbon Dioxide Equivalence (MtCO2e)) of the West Africa countries in 2020 excluding Land Use, Land-use Change and Forestry (LULUCF). The top five emitters in the West Africa region are Nigeria, Niger, Mali, Ghana and Burkina Faso. Nigeria and Ghana are developing countries while Niger, Mali and Burkina Faso are Least Developing Countries.

FIGURE 06

Annual GHG emission of West Africa countries in 2020.

COUNTRY	GHG EMISSION(MTCO2e)	GROUP
NIGERIA	**322.34**	**DC**
NIGER	**44.8**	**LDC**
MALI	**43.49**	**LDC**
GHANA	**39.07**	**DC**
BURKINA FASO	**32.26**	**LDC**
SENEGAL	**30.29**	**LDC**
GUINEA	**29.75**	**LDC**
COTE d'IVOIRE	**26.41**	**DC**

DC **LDC** **SIDS**

COUNTRY	GHG EMISSION(MtCO2e)	GROUP
BENIN	**16.19**	**LDC**
MAURITANIA	**14.06**	**LDC**
TOGO	**8.4**	**LDC**
SIERRA LEONE	**5.95**	**LDC**
GUINEA-BISSAU	**2.55**	**SIDS**
THE GAMBIA	**2.45**	**LDC**
LIBERIA	**2.16**	**LDC**
CABO VERDE	**0.79**	**SIDS**

12. https://cdkn.org/sites/default/files/2022-03/IPCC%20Regional%20Factsheet%202_West%20Africa_web.pdf

These complexities often make carbon pricing less efficient for LULUCF compared to other sectors. Consequently, alternative strategies, such as direct regulation, incentive-based approaches likeresult-based payment, might be more effective in managing LULUCF emissions, as evidenced by successful initiatives in countries like Mozambique and Ghana[13].

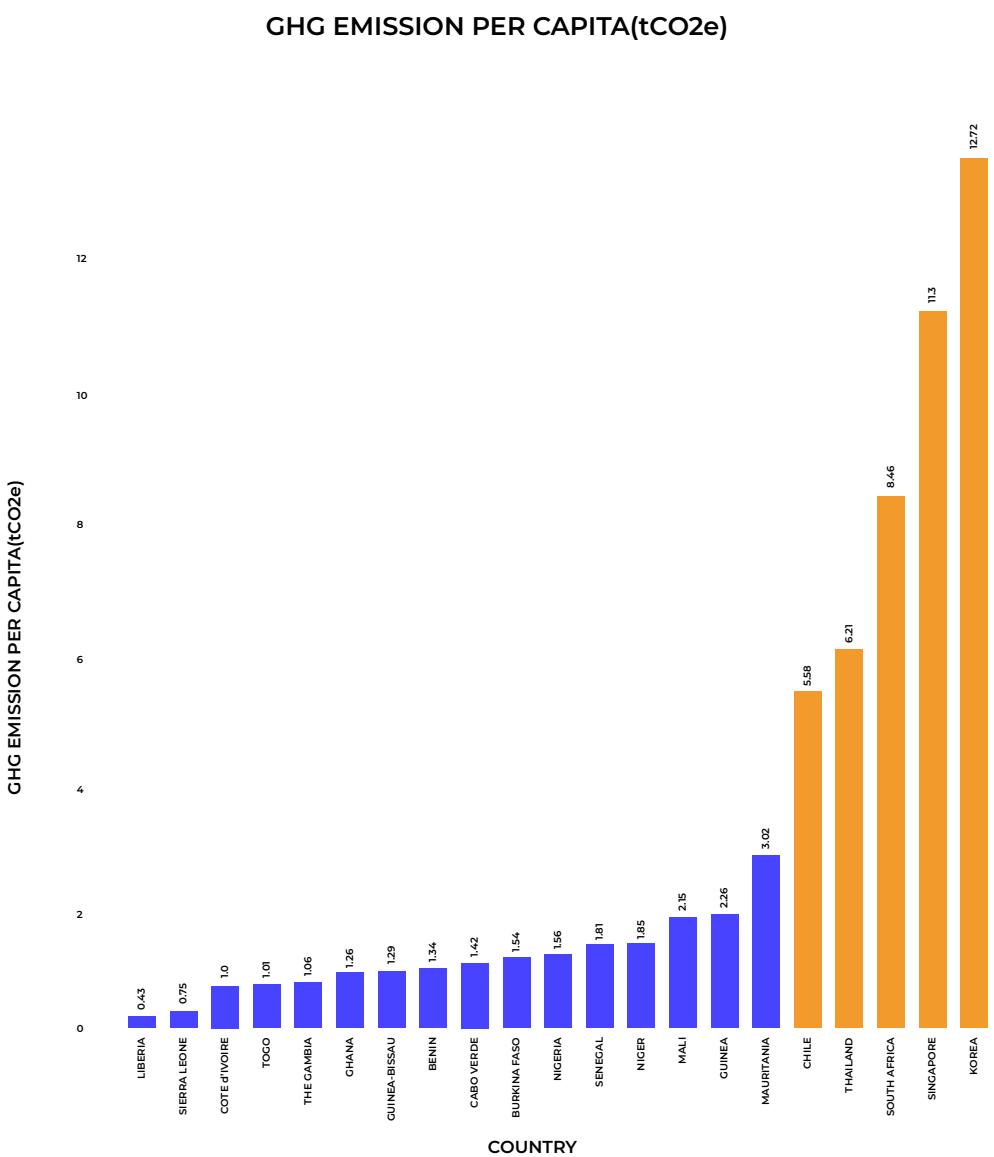
The main parameters assessed are GHG emissions per capita, annual GHG emissions and Gross Domestic Product (GDP).GHG emissions per capita reflects the average individual's contribution to the overall greenhouse gas emissions of a nation. It provides insights into the lifestyle, consumption patterns, and economic activities of the country. Different countries have varying population sizes and economic structures and analyzing emissions on a per capita basis offers a clearer understanding of the relative contributions of each nation. The results shows that GHG emission per capita of all West African countries is lower than the peer countries (Figure 7). South Korea is the peer country with the highest GHG emissions per capital (12.72 tCO2e) while Mauritania is the West African country with the highest GHG emissions per capita (3.02 tCO2e). The difference between the country with the largest emissions per capita (South Korea) and that with lowest (Liberia) is 12.29 tCO2e. The high GHG emissions per capita of the peer countries is associated with their relatively high industrialization and higher levels of economic development compared to many West African countries. The industrial processes, energy production, and transportation in these countries rely on fossil fuels and tend to be more GHG-intensive. The level of urbanization and population density in countries like Singapore lead to higher energy use per capita, contributing to higher GHG emissions.

13. https://www.un-redd.org/post/ghana-receives-its-first-payment-emissions-reductions

Since a country's emissions is an important signal for carbon pricing potential, the emissions of these West African countries are compared with "Peer Countries" who are currently implementing carbon pricing while being mindful that these countries have different national circumstance. The peer countries selected Chile, Thailand, South Africa, Singapore and South Africa. These countries are Non annex I countries like the West African countries. Because LULUCF is excluded from the coverage of all countries with carbon pricing instruments (except New Zealand), this assessment took the approach to compare emissions excluding LULUCF. The low application of carbon pricing in addressing emissions from LULUCF is due to the unique challenges, such as difficulties in accurately measuring and verifying changes in carbon stocks, the long-term nature of forestry projects, and the risk of indirect effects like leakage. LULUCF emissions are also widely driven activities from dispersed and informal sources.

FIGURE 07

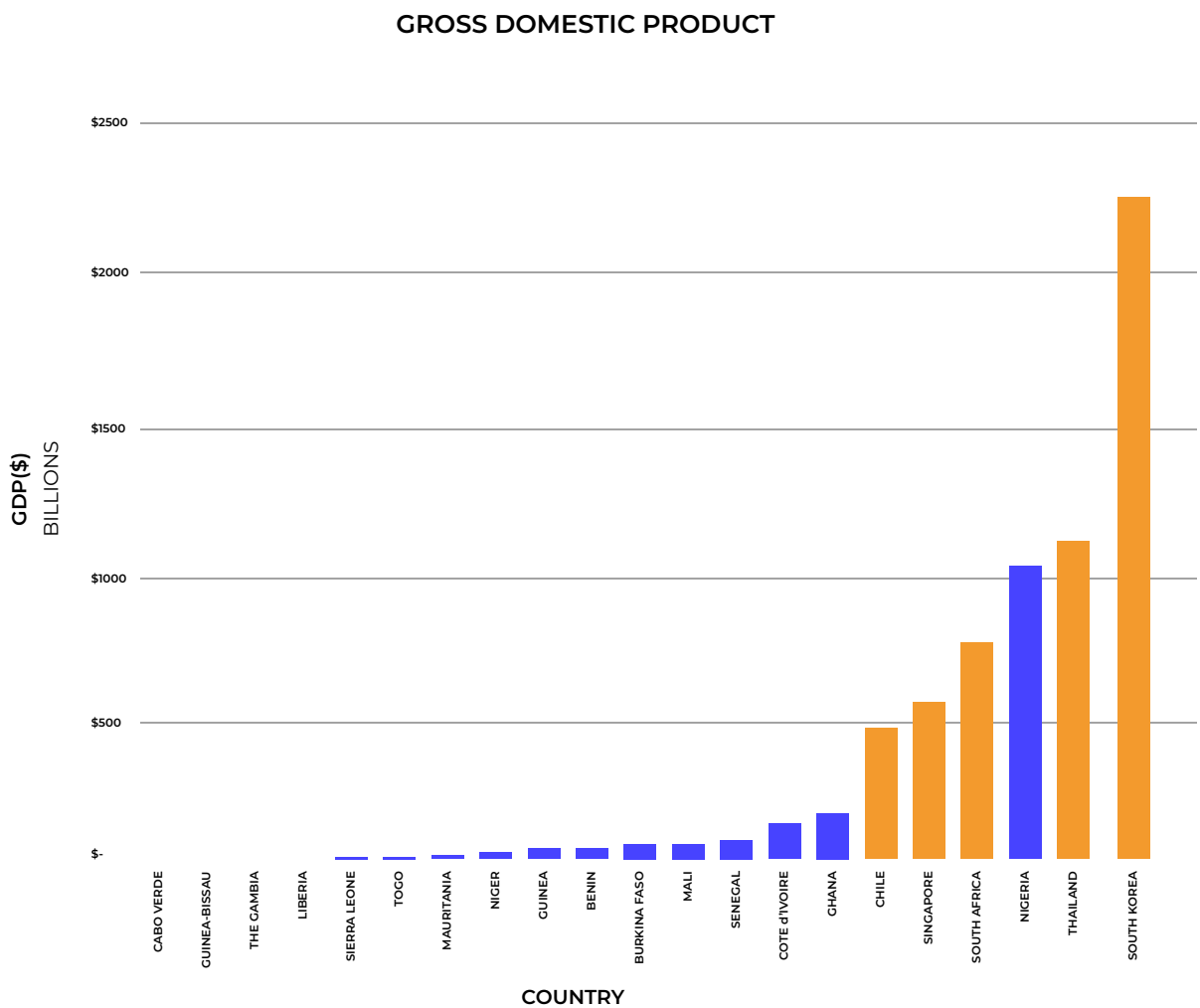
Per capita emissions intensity of the West African countries and other countries implementing carbon pricing schemes.



GDP in several countries remains coupled with GHG emissions intensity. Figure 8 shows that the GDP of the five peer countries are greater than all the West African countries except Nigeria (Figure 9). Nigeria's GDP in 2020 was ($1.01 trillion) which is greater than that of Chile ($444.25 billion), Singapore ($537.34 billion) and South Africa ($753.60 billion). Historically, there has often been a positive correlation between GDP and GHG emissions. As countries experience economic growth, their energy consumption tends to increase, often leading to higher emissions. Achieving GDP growth has been a top priority of West African countries as they have outlined in their long-term strategies/plans with countries such as Côte d'Ivoire, Ghana and Nigeria achieving high economic growth in recent years before the outbreak of the covid-19 pandemic[14]. A traditional economic growth will lead to high GHG emissions in the future. While its implementation is said pose challenges to some economic sectors, carbon pricing can drive innovation, stimulate economic growth in green industries, and address the economic risks associated with climate change, such as the risk of getting locked in a carbon-intensive development model.

FIGURE 08

GDP of the West African Countries and other countries implementing carbon pricing schemes[15]

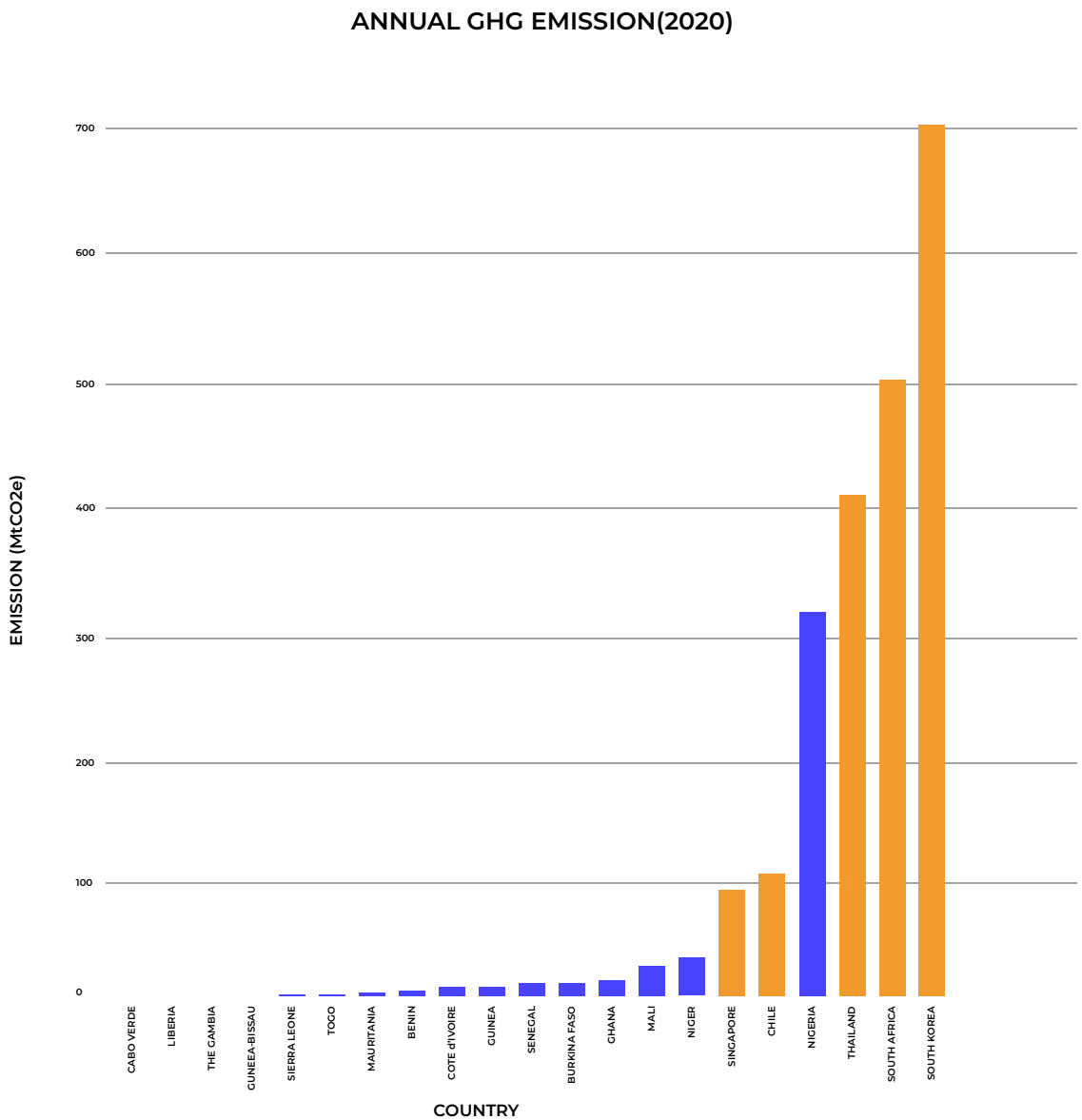


14. https://www.afdb.org/en/documents/west-africa-economic-outlook-2023
15. https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD

Nigeria has a significantly higher annual GHG emissions which is several points higher than Singapore and Chile which currently have carbon pricing instruments (Figure 9). With exceptional large GHG emissions of Nigeria, the current emissions of the rest of the WAC Africa countries is relatively low. Secondly, emissions trend of West African countries as depicted in Figure 10 show that emissions has been on the rise in all countries in the past decade. Also, these emissions are projected to rise in the future under BAU scenario. Under this circumstance, the value of Carbon Pricing may lie less in the potential to reduce emissions, and more in the prospects offered for curbing expected emissions growth.

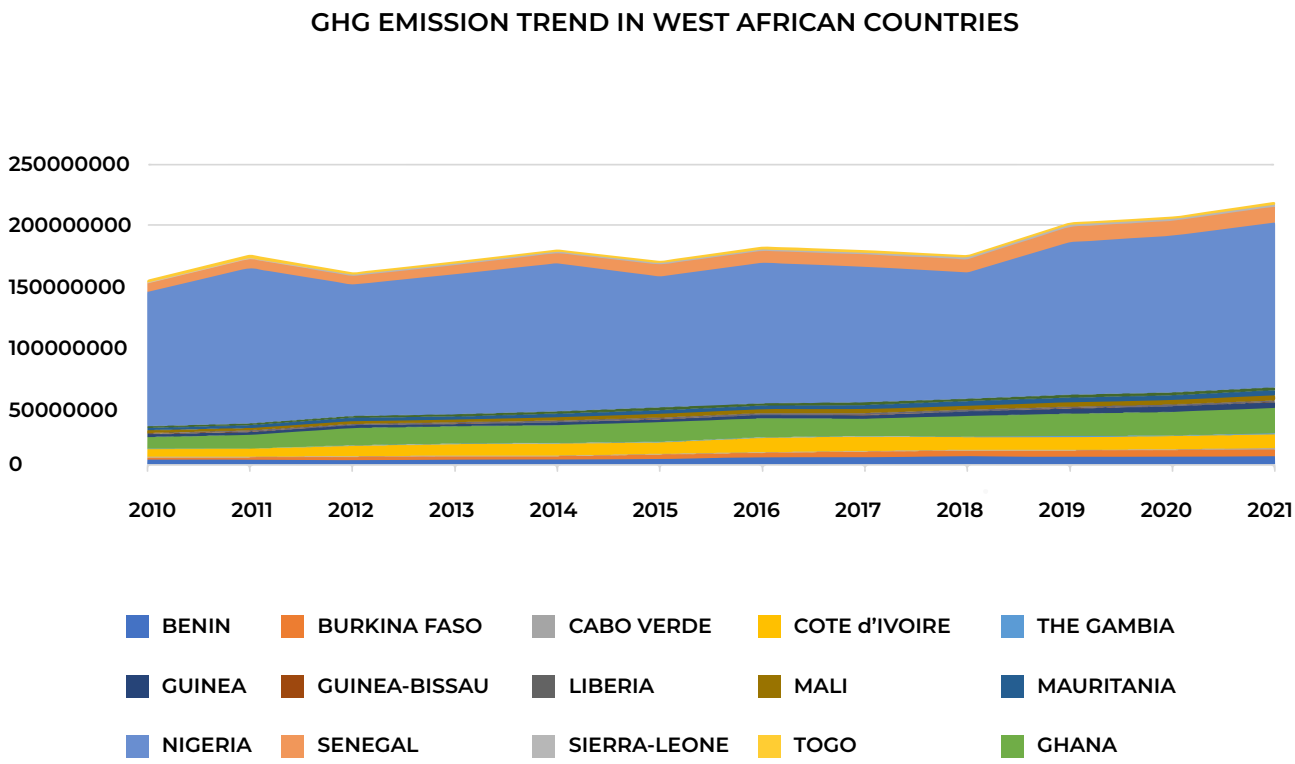
FIGURE 09

Annual greenhouse gas emissions of the West African Countries and other countries implementing carbon pricing schemes.



16. Data source: https://www.un-redd.org/post/ghana-receives-its-first-payment-emissions-reductions[16]

FIGURE 10
Emission trend in West African countries[17]



17. Data source: https://www.climatewatchdata.org/ghg-emissions?source=CAIT

4. SUPPLY AND DEMAND IN CARBON PRICING SCHEMES

Carbon credits can represent emission reductions achieved through either avoidance, for instance by capturing methane from landfills, or removal from the atmosphere, such as sequestering carbon through afforestation or directly capturing carbon from the air and storing it. Each carbon credit represents 1 metric ton of carbon dioxide equivalent (tCO2e) reduced or removed. The presence of carbon credit markets in West African countries in the past has created a demand and supply for carbon credits.

Supply of carbon credits is represented by issuances from carbon crediting mechanisms, including international crediting mechanisms established under international treaties, such as the Kyoto Protocol (CDM) and Paris Agreement (Article 6); domestic crediting mechanisms established by regional, national, or subnational governments; and independent crediting mechanisms (or independent standards), which include standards and crediting mechanisms managed by independent nongovernmental entities, for example Verra's Verified Carbon Standard (VCS) and Gold Standard.

Demand for carbon credits comes from a range of sources. Voluntary demand consists of (mostly private) entities purchasing carbon credits to compensate emissions to meet voluntary goals or green claims. International compliance demand includes countries seeking credits representing emission reductions in other countries to help meet their own emission reduction commitments, such as those established under the Paris Agreement, and airlines purchasing credits eligible for meeting their obligations established under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Carbon pricing approaches such as ETS in other countries are also creating the demand for carbon credits in West African countries. For example, a Cookstove Programme of Activity in Ghana was linked to generate 832,608 certified emission reductions (CER) under CDM standards for the Korea Carbon Market in 2020 with a seven-year crediting period renewable twice[18]

The major off taker of carbon credit in West Africa is the voluntary and international compliance demands. Although West African countries have put forward ambitious targets in their NDCs, about 85% are conditional measure that will require some sort of external finance[19]

International assistance from developed countries, including in the form of carbon finance, is a key requirement for achieving NDC targets. Carbon pricing can therefore serve the purpose of revenue generation which can be recycled into government spending for green technologies, helping vulnerable communities adapt to the effects of climate change, or managing the economic impacts of the transition to a low-carbon economy.

Domestic compliance demand comes from companies seeking credits to meet their obligations under a domestic law, usually an ETS or a carbon tax. In the context of West Africa, none of the 16 countries has implemented a carbon tax or ETS yet and therefore, the domestic compliance demand does not exist currently. However, high levels of emissions create a more stable domestic market for carbon credits under ETS approaches. Considering the emission profile of the West African countries, a potential domestic demand for carbon credits could be generated for Nigeria due to its higher non-AFOLU sector GHG emissions among other countries such as Niger, Mali, Ghana, Burkina Faso, Senegal, Guinea, Côte d'Ivoire, Benin and Mauritania. The domestic carbon credit demand, however, will be insufficient to successfully implement ETS in West Africa countries with small Non Agriculture, Forestry and Other Land Use (AFOLU) emissions such as Togo, Sierra Leone, Guinea Bissau, The Gambia, Liberia and Cabo Verde in the current context. Indeed, the international experience shows that ETS efficiency is linked with having a sufficient scale of coverage, in terms of number of participants and emissions covered[20].

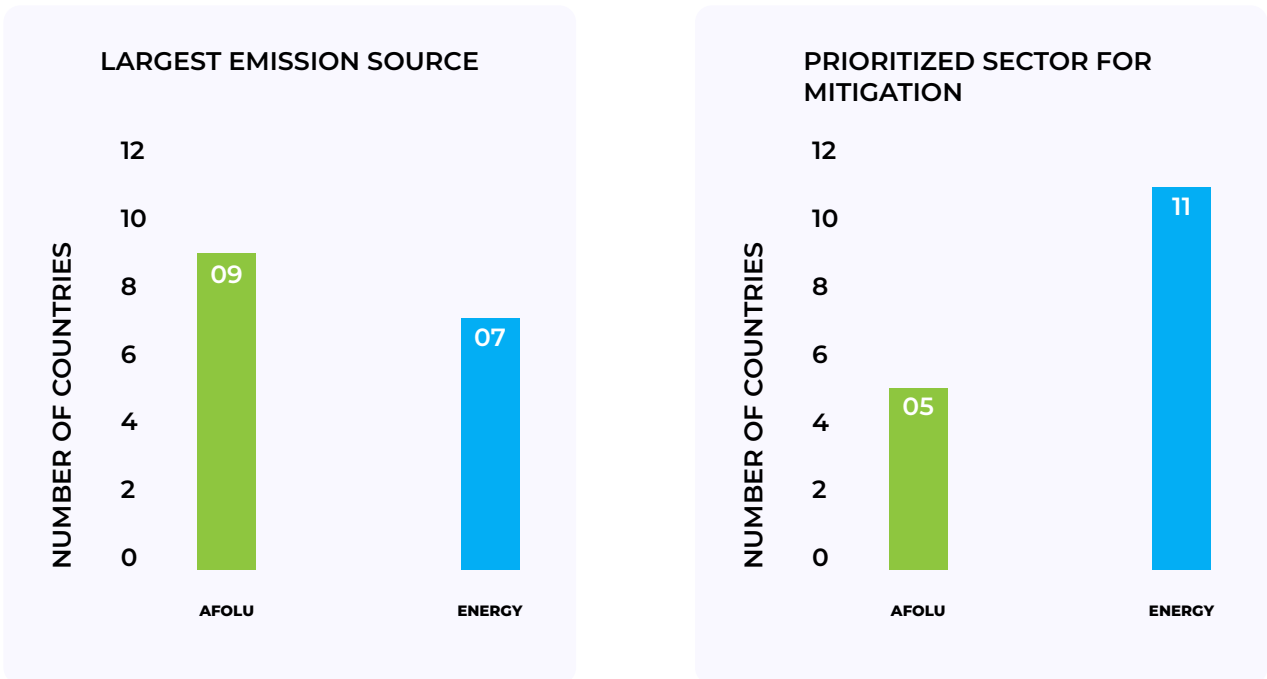
From Figure 11, AFOLU and Energy sectors are the largest source of GHG emissions in all the 16 countries. The quantity and source/sector of emissions is critical to deciding where to put a price on carbon. Carbon pricing in Agriculture and Forestry has been unpopular because AFOLU activities, such as deforestation, reforestation, and agricultural practices, can be highly complex and challenging to quantify and monitor accurately. This complexity makes it difficult to establish clear and transparent pricing mechanisms. Secondly, emissions from AFOLU activities can be highly variable and subject to uncertainties related to land-use changes, ecosystem dynamics, and natural disturbances.

This makes it challenging to establish a stable and predictable carbon price. Also, Land-use activities in the AFOLU sector often involve complex issues related to land rights and ownership. Determining who is responsible for emissions and removals can be contentious and difficult to address within carbon pricing frameworks.

Currently, only New Zealand has a LULUCF covered in its ETS. Under the CDM, Niger, Senegal, Ghana and Mali participated in afforestation and reforestation projects. Figure 12 shows that 10/16 West African countries are participating in REDD+ and at various stages of the process. Performance or Results-based payment crediting mechanisms which links payments to verified mitigation outcomes, by disbursing funding ex-post and upon the achievement of a set of pre-defined results. Results-Based payment, therefore, provides strong incentives for the countries to achieve the results. Leveraging results-based payments for mitigation projects that produce carbon offsets could empower West African nations to catalyze their domestic offset production, contingent upon a suitable level of international demand.

Although AFOLU constitute the largest source of emissions, majority of West African countries (11/16) prioritized emission reduction in the Energy sector in their NDCs (Figure 11). Countries such as Nigeria, Ivory Coast and Senegal which are leading carbon pricing implementation efforts in the region have energy as the top priority sector for achieving emission reduction in their NDCs. Carbon pricing can therefore serve as an effective instrument to achieve energy sector decarbonization if implemented right.

FIGURE 11
Large emission sources versus the mitigation priority sectors of West African countries NDCs. (Data source: Countries NDC).

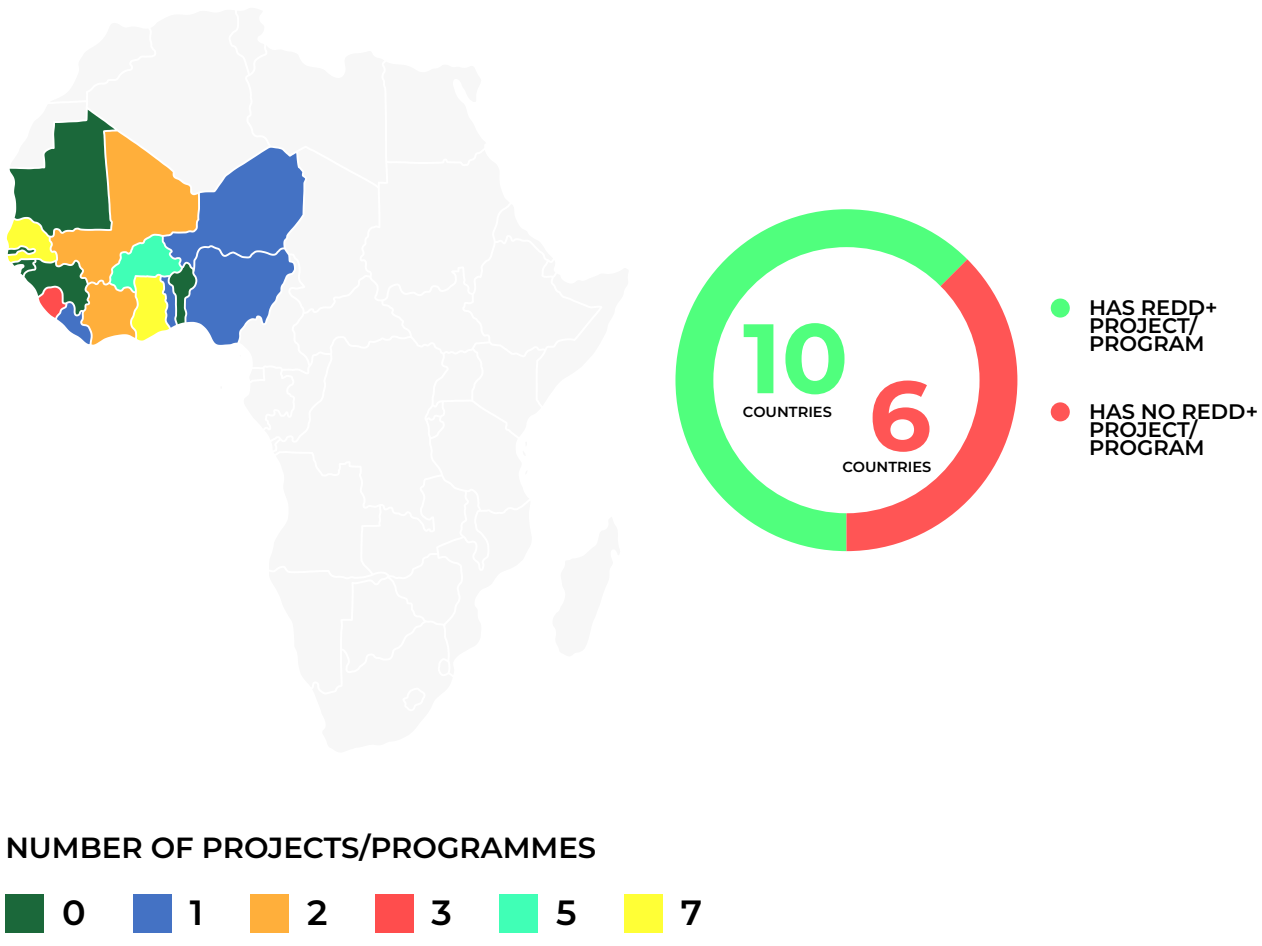


18. https://unfccc.int/sites/default/files/resource/gh_BUR3_1282021_submission.pdf
19. https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa-ndc-hub
20. *Empirical cases support this notion, as seen in Singapore opting against an ETS due to a limited pool of potential participants. Similarly, Switzerland expressed doubts about the effectiveness of its ETS unless it's connected with the EU's system. Quebec made a strategic choice to link its ETS with California's (https://www.edf.org/sites/default/files/quebec-case-study-may2015.pdf), while Nova Scotia chose to discontinue its ETS altogether (https://climatechange.novascotia.ca/cap-trade-regulations)*

5. RELEVANT COUNTRY EXPERIENCE FOR CARBON PRICING

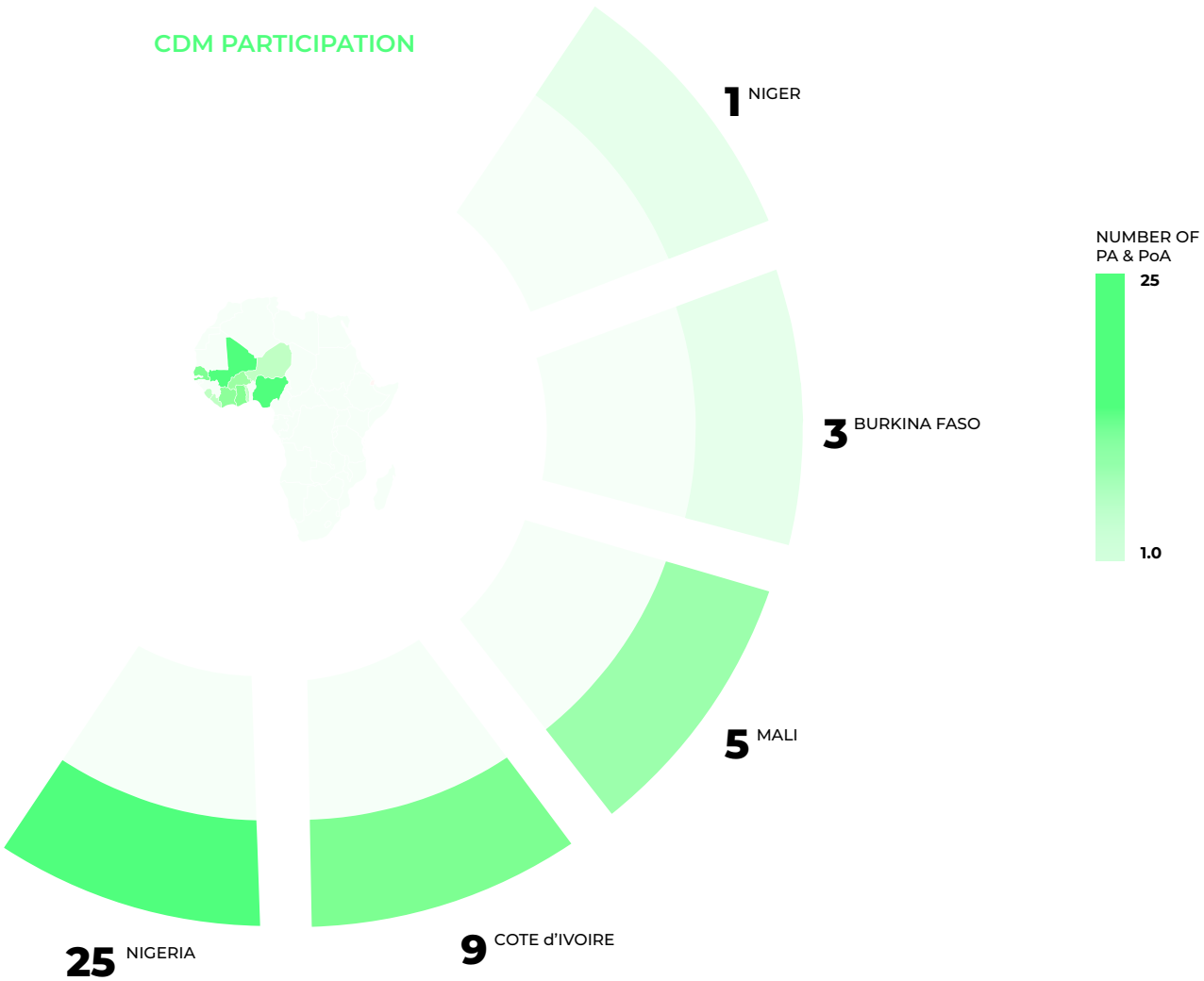
Previous carbon market participation experience is crucial for building effective, efficient, and politically viable carbon pricing mechanisms. Depending on the carbon pricing option and the sector which it is applied, the Designated National Authorities (DNA), regulatory/enforcement framework, monitoring frameworks, etc. would be useful for the establishment of a carbon pricing mechanism. An analysis of West African country experience in REDD+ revealed that 10 countries (Burkina Faso, Côte d'Ivoire, Ghana, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo) have developed a project/programme in the past.

FIGURE 12
REDD+ experience in West African countries.



Africa initially barely saw any benefits from the CDM as only 3% of the total CDM projects came from Africa. However, the experience and infrastructure from CDM participation will be critical to understanding the credit generation and trading under carbon pricing systems such as ETS. Burkina Faso, Cape Verde, Ivory Coast, Gambia, Ghana, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo constitute 12 West African countries that have participated in the CDM.

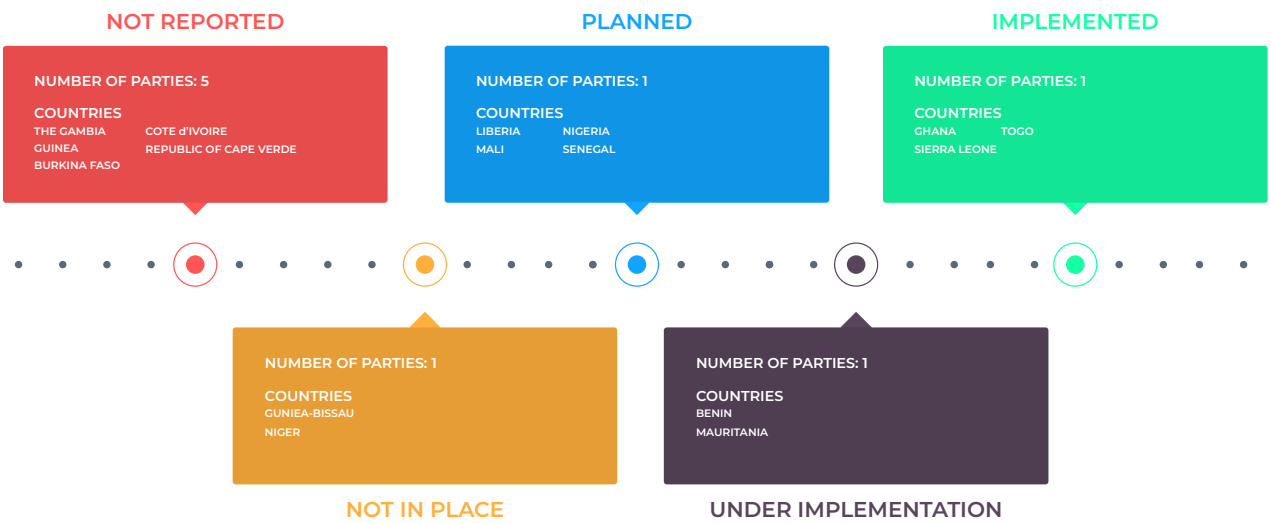
FIGURE 13
CDM participation by West African Countries.



6. MONITORING, REPORTING & VERIFICATION

The Bali Action Plan introduced language on “measurable, reportable and verifiable” greenhouse gas (GHG) mitigation actions and commitments, as well as support for GHG mitigation actions in developing countries. Measurement is needed to identify emissions trends, determine where to focus greenhouse gas (GHG) reduction efforts, track mitigation-related support, assess whether mitigation actions planned under NDCs or otherwise are proving effective, evaluate the impact of support received, and monitor progress achieved in reducing emissions. Reporting and verification are important for ensuring transparency, good governance, accountability, and credibility of results, and bedrock for building confidence that resources are being utilized effectively[21]. MRV has become relevant infrastructure for operating a credible carbon pricing mechanism. It is a key requirement to ensure transparency, essential for guaranteeing the integrity of any Carbon Pricing scheme, and for preventing fraud or manipulation.
The assessment of the status of MRV in West African countries through reports submitted to the UNFCCC (BUR and NC) shows that only 3 countries Ghana, Sierra Leone and Togo have MRV implemented (Figure 14).

FIGURE 14
Status of MRV in West African countries (Data source: Data compiled by Transparency Division of UNFCCC).



Due to the absence of MRV infrastructure in West African countries, it is asserted that implementing carbon pricing will not be practical or feasible until the essential MRV systems are established.

21. https://transparency-partnership.net/sites/default/files/mrv_101_0.pdf

8. REGIONAL TRADING

As at the time of this report, no regional carbon pricing initiative exists in West Africa although the discussion of a regional carbon pricing initiative is gaining attention in several dialogue platforms and fora. These include the West African Carbon Market Hub[22] maiden event in Abidjan 2023, the Africa Climate Week 2023 in Nairobi, and Regional Dialogue on Carbon Pricing (REdiCAP). A regional carbon pricing has the potential to stimulate clean technology innovation and green investment by making it more cost-effective to invest in renewable energy and energy efficiency. If implemented right, carbon pricing could support West African governments budget, which can be reinvested into local communities, help fund sustainable infrastructure, or support adaptation and mitigation strategies against climate change. It can promote economic efficiency by incorporating the external costs of greenhouse gas emissions into the cost of fossil fuels, leading to more environmentally sound market outcomes.[23]

Moreover, a regional carbon pricing framework has the potential to buffer West African nations against the repercussions of external trade directives, such as the European Union's Carbon Border Adjustment Mechanism (CBAM). The CBAM is found to have a moderate impact on the economies of African countries but in a low-income country context, the effect in terms of revenue loss will be a significant hit. In comparative terms, the impact on African countries is larger, as a share of their GDP, than on all other regions because the EU is a particularly important export market for African countries. Forecasts by the European Commission indicate an intention to broaden the range of products under the CBAM, which could lead to more pronounced economic challenges for African countries. A collaborative analysis by the African Climate Foundation and the London School of Economics' Firoz Lalji Institute for Africa, which entertained a theoretical application of the CBAM across all imports, projected a contraction of 5.72% in total African exports to the EU, alongside a potential 1.12% decrease in Africa's GDP, equating to a fiscal contraction of approximately $31 billion based on the continent's GDP figures from 2021.[24]

By establishing a regional carbon pricing mechanism, West African countries could align more closely with the environmental standards of the CBAM, potentially reducing the tariffs or adjustments faced under the CBAM.

The prospect of enacting a regional Carbon Pricing mechanism presents considerable challenges due to the diverse legal systems across the West African countries. Harmonizing these distinct legal structures to create a cohesive regional Carbon Pricing system is significantly more intricate than implementing a system like an ETS. It is however proposed that working through pre-existing institutions such as the Economic Community of West African States (ECOWA, West African Economic and Monetary Union (WAEMU) could potentially simplify the crafting and implementation of a carbon pricing framework. This has currently been the approach of the RCC.

West and Central Africa through the West African Alliance for Carbon Markets and Climate Finance and to foster the sharing of experiences and promotion of carbon markets and carbon pricing opportunities to the Alliance members and private sector.

22. https://westafricaclimatealliance.org/2023/10/03/abidjan-call-for-a-west-africa-carbon-market-hub/
23. https://icapcarbonaction.com/system/files/document/benefits-of-ets_updated-august-2018.pdf
24. https://www.lse.ac.uk/africa/assets/Documents/AFC-and-LSE-Report-Implications-for-Africa-of-a-CBAM-in-the-EU.pdf

9. OVERARCHING RECOMMENDATIONS AND CONCLUSIONS

This study assessed the overall state and possibility for carbon pricing initiatives in West Africa under the CI-ACA initiative to deliver the necessary support to countries to overcome such challenges and rip the full benefits of carbon pricing. This relevant to give donors and agencies supporting carbon pricing initiatives signal on what instruments currently exists in these countries, the possibility of adopting carbon pricing, challenges and support needed.

The study, amongst other things, demonstrates that:

1. While sub-Saharan African NDCs initially did not express an intention to adopt traditional carbon pricing mechanisms, such as carbon taxation and ETS, there is growing interest in the region in the possibility of doing so. Such interest is still within its very embryonic stages and the focus of many West African countries at present remains on carbon tax.

2. With such growing interest, countries' decision to adopt carbon pricing should be premised on the context of country-level GHG emission profiles, national policy objectives, sectors at risk, and other national circumstances. While the benefits of the carbon pricing mechanisms are certainly acknowledged, the introduction of such measures in context of very small economies in the West African country contexts requires careful consideration and deliberation.

3. West African countries have significant experience in carbon crediting mechanisms such as CDM and REDD+. Building on such experiences, technical capacity of countries could be built on carbon pricing design and implementation.

4. In many West African countries except Ghana, Togo and Sierra Leone, critical monitoring, reporting and verification infrastructure is lacking. It is asserted that implementing carbon pricing will not be practical or feasible until the essential MRV systems are established.

5. Also, in most West African countries, the GHG emissions to be priced is very low such as in Togo, Sierra Leone, Guinea Bissau, Gambia, Liberia and Carbo Verde. This implies that the domestic demand for carbon credits in these countries would be insufficient to support ETS; and domestic supply is an essential factor for successful implementation of any carbon pricing mechanism. In this regard, existing international mechanisms such Results Based-Funding should be utilised to attract foreign investment and increase the international demand for emissions reduction units generated in the project countries.

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