

Carbon pricing approaches in Eastern and Southern Africa

Annexure A: Country Chapters

A REPORT SUBMITTED UNDER THE COLLABORATIVE INSTRUMENTS FOR AMBITIOUS
CLIMATE ACTION (CI-ACA)

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Country chapter: Ethiopia



1. Ethiopia



Figure 1: Ethiopia
(Source:
<http://www.freeworldmaps.net/africa/ethiopia/location.html>)

The changes in Ethiopia's climate are anticipated to result in a number of negative impacts on vulnerable communities, including droughts and floods. The impacts of past droughts and climatic changes have been particularly detrimental to Ethiopia's agricultural sector. For example, seven major droughts have occurred over the past 25 years, five of which have resulted in famine. At present, Ethiopia is recovering from one of the most severe droughts of the last 30 years brought on by El Niño events in 2015. Considering the devastating effects of climate change in the country, Carbon Pricing in the country must not only be aimed at establishing a lucrative carbon market, but also aspire to address some of the climate related difficulties currently experienced in the country.

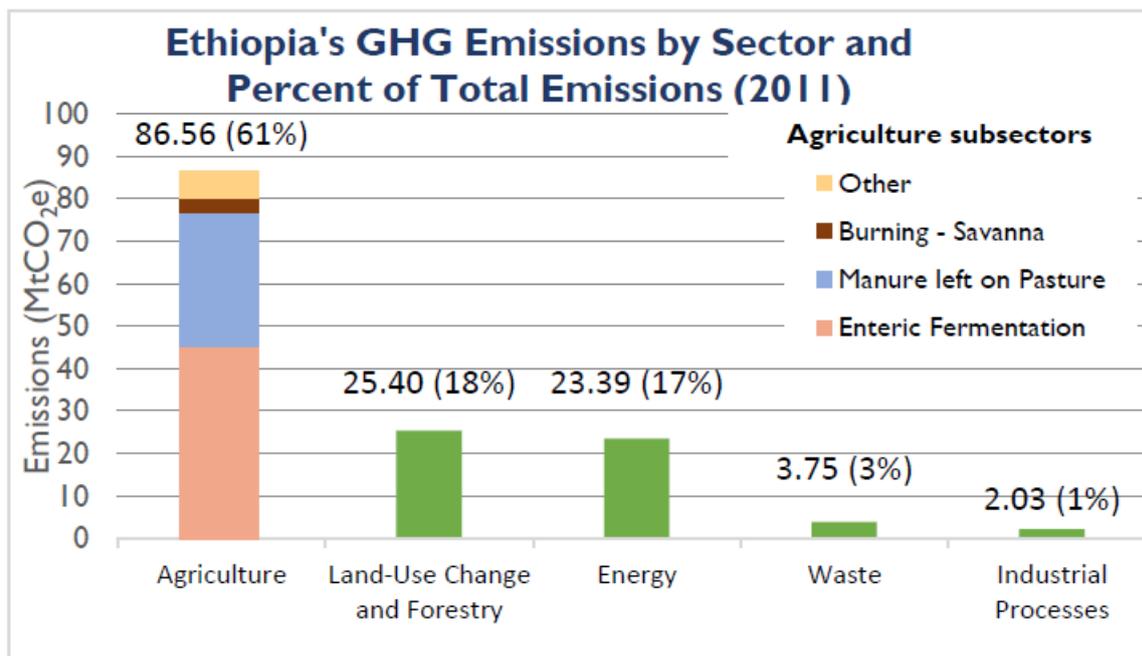
1.1 Country circumstances

Ethiopia is a large, land-locked, and diverse country. Located in the Horn of Africa, Ethiopia extends over an area of 1.1 million square kilometres. Ethiopia's huge population of about 102 million (as of 2016) makes it the second most populous nation in Africa, after Nigeria. Although it is the fastest growing economy in the region,¹ it is also one of the poorest, with a per capita income of \$783. Ethiopia's government aims to reach lower-middle-income status by 2025. However, inflation rose sharply in Ethiopia due to a rapid expansion in credit and currency depreciation.² Furthermore, economic growth in Ethiopia lost momentum as weaker activity in the construction and manufacturing sectors was aggravated by foreign exchange shortages.

Ethiopia's emissions profile is low in comparison with other developing countries in the world. The country's average Carbon Dioxide emissions per capita (tonnes) is set at 0.1 and its carbon dioxide emissions (kilograms per unit of gross domestic product in 2011 purchasing power parity [\$]) is set at 0.08. Ethiopia's GHG profile is dominated by emissions from the agriculture sector, followed by land-use change and forestry (LUUCF), and energy sector emissions, as outlined in Figure 2: Ethiopia emissions profile below.

¹ Interview (Written Response) Yohannes Ameha – Ministry of Environment (1 April 2019).

² World Bank. 2019. Global Economic Prospects, January 2019: Darkening Skies. Washington, DC: World Bank. doi: 10.1596/978-1-4648-1343-6. <http://pubdocs.worldbank.org/en/307811542818500671/Global-Economic-Prospects-Jan-2019-Sub-Saharan-Africa-analysis.pdf>



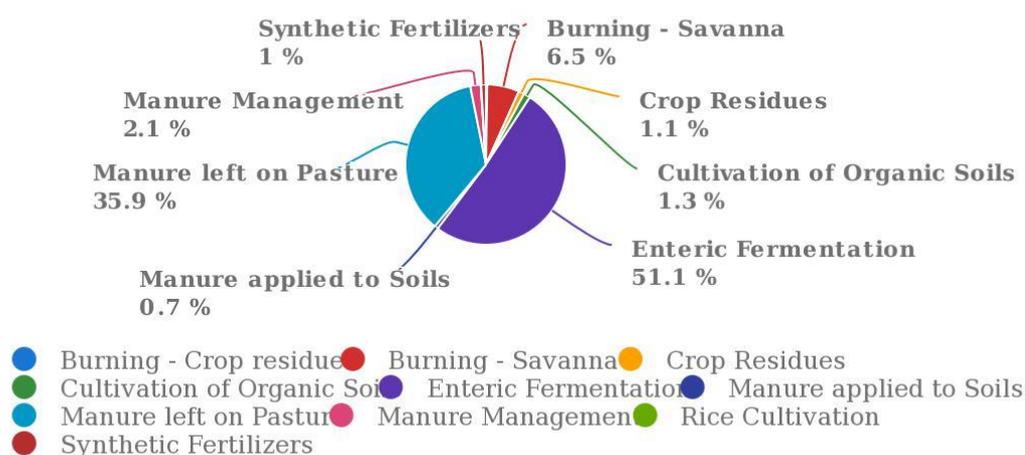
Sources: WRI CAIT 2.0, 2015; FAOSTAT, 2015

Figure 2: Ethiopia emissions profile³

The agricultural activities that contribute the most to the sector’s emissions are enteric fermentation (51.1%), manure left on pasture (35.9%), and burning of the savanna (6.5%), as outlined in Figure 3: Emissions by Agricultural Sector below.

Emissions by sector (CO₂ equivalent)

Average 1990 - 2016



Source: FAOSTAT (Feb 20, 2019)

Figure 3: Emissions by Agricultural Sector⁴

³ Greenhouse Gas Emissions in Ethiopia - USAID

⁴ Food and Agriculture organization of the United Nations. <http://www.fao.org/faostat/en/#country/238> (accessed on 2019-02-20).

Ethiopia has a final energy consumption of around 40,000 GWh, whereof 92 % are consumed by domestic appliances, 4 % by transport sector and 3 % by industry. Most of the energy supply is covered by bioenergy, which in case of domestic use is usually stemming from unsustainable sources. The produced electricity of 9000 GWh/a is mainly generated by hydro energy (96 %) followed by wind energy (4 %), whereof in total 11 % get exported. In contrast the major share of energy supply for transport is imported in forms of petroleum. Ethiopia is endowed with renewable energy sources. These include first of all hydro, but also wind, geothermal, solar as well as biomass. Although only a small portion of the country's potential is harnessed today, the country's renewable energy consumption (as a % of final energy consumption) is set at 92.2%.⁵

Ethiopia's Growth and Transformation Plan is one of the ways in which the Ethiopian government aims to create a business environment that is conducive to investments that facilitate the implementation of carbon pricing, supported by the necessary infrastructure. However, Ethiopia's Doing-Business score under the Distance to Frontier measure was 47.77 for 2018. This score is below Kenya and Rwanda's scores of 65.15 and 73.40 respectively⁶ which indicates that although Ethiopia's economy is growing, conducting business within the country is more difficult compared to other countries covered by the study. This might hinder investment critical to the development of carbon pricing within the country.

Ethiopia has also recently been exposed to climatic events which have affected the economy. Rising temperatures, erratic rainfall distribution, recurrent droughts and floods are worsening access to and the quality of water and food, resulting in food insecurity and famine. The country is highly vulnerable to climate change sensitive diseases (e.g. air pollution-related respiratory diseases, meningitis, vector-borne and water-borne diseases) and as such there is a growing need for climate resilient technologies to be implemented and accessible in the country. The country is also steadily recovering from the 2015/16 and 2017 droughts, with continued expansion of services and industry and a rebound in agriculture.⁷

Being an LDC, Ethiopia is currently not obliged to contribute to the proposed international aviation offset scheme (ICAO's CORSIA). However, if it achieves middle-income status by 2025, Ethiopia will have to participate in the second phase of the scheme (2027-2035) as its share of international aviation activity already falls under the regulated range. CORSIA's second phase (2027 – 2035) is obligatory to all member states whose share of international aviation activity in revenue tonne kilometres (RTK) in 2018 is above 0.5% or whose share falls in the cumulative total of the top 90 % of international aviation emissions (when each member state is ranked from highest to lowest in terms of RTKs), except if they are LDCs, Land Locked Developing Countries and Small Island Developing States.⁸ Owing to the prominent regional and international footprint

⁵ International Energy Agency – Ethiopia <https://www.ica.org/countries/Ethiopia/> (accessed on 2018-11-08), also see UNDP Ethiopia Country Profile <http://hdr.undp.org/en/countries/profiles/ETH> (accessed on 2019-02-20).

⁶ World Bank, “Ease of doing business in Ethiopia” http://www.doingbusiness.org/en/data/exploreconomies/ethiopia#DB_tab (accessed on 2018-10-09).

⁷ W L Filho, A Q Al-Amin *et al* “A Comparative Analysis of Climate-Risk and Extreme Event-Related Impacts on Well-Being and Health: Policy Implications” 2018, 15, *International Journal of Environmental Research and Public Health* p 8.

⁸ See Decision 9 (e) of the ICAO, 2016. ICAO Assembly — 39th Session Report of the Executive Committee on Agenda Item 22 (Section on Global Market-based Measure Scheme), Available at https://www.icao.int/Meetings/a39/Documents/WP/wp_530_en.pdf (accessed on 2018-10-08).

of the state owned Ethiopian Airways, Ethiopia's share of the global civil aviation in terms of RTKs was 0.83 % in the year 2017 already.⁹ Ethiopia's participation in CORSIA will also see it utilising credits generated within its country borders to meet its obligations under CORSIA, which might lead to an insufficient amount of carbon credit to facilitate a functioning carbon pricing mechanism within the country.

1.2 Analysis of supply and demand potential

Ethiopia's current carbon market experience comes largely from its participation in international market-based instruments, particularly the CDM.

Ethiopia is currently host-country to three registered standalone CDM projects¹⁰ and nine registered Programmes of Activities (POAs),¹¹ four of which are multinational POAs.¹² Only three CDM project instances (two PoA project components and one standalone project) have had issuances, of a total of just under 325 thousand CERs. Cook stove projects make up most of the issuances.¹³ The relatively low instances of registered projects and subsequent CER issuances are likely due to the decline of global CER prices in compliance carbon markets and challenges relating to the registration and issuance of CDM projects in the country. Currently there are no projects or PoAs applying for registration under the CDM (as at October 2018).

There are opportunities for the development of CDM projects in Ethiopia, which has been rated as having the highest technical potential among Least Developed Countries (LDCs) to develop CDM projects, estimated at 32 million CERs annually.¹⁴ This potential lies mostly in mitigation activities addressing agricultural residues; followed by hydropower, energy from forest residues and efficient cook stoves. Yet much of this potential has not been translated into registered projects due to a range of domestic, international and mechanism design related challenges. For instance, Ethiopia has a hydropower reliant grid, which means that the grid electricity emission factor for Ethiopia is relatively low. This meant that Ethiopia was unable to benefit from renewable energy opportunities as per the CDM's assessment framework for power projects.

Several other factors have also constrained the participation of Ethiopia in the CDM. A 2012 report by a high-level panel established by the CDM Executive Board summarises drivers that influenced CDM implementation and constrained CDM investments in some countries and regions.¹⁵ These include limitations in national CDM capacities, CDM system complexity, unfavourable national investment climate, smaller overall mitigation potential (represented by

⁹ ICAO, 2017: Civil Aviation 2017 International Total (Scheduled and Non-Scheduled) RTK https://www.icao.int/sustainability/Documents/RTK%20ranking/International%20Total%20RTK%20Rankings_2017_SIDS_LDC_LLDC.PDF (accessed on 2018-10-08).

¹⁰ CDM Project Search: <http://cdm.unfccc.int/Projects/projsearch.html> (accessed on 2018-10-25)

¹¹ CDM List of registered PoAs: <http://cdm.unfccc.int/ProgrammeOfActivities/registered.html> (accessed on 2018-10-25)

¹² Reference CDM pipeline / projects (accessed on 2018-10-25).

¹³ CDM Database for PAs and PoAs (accessed on 2018-10-26)

¹⁴ Arens, C. & Burian, M. "Integrating Africa's Least Developed Countries into the Global Carbon Market" (2012) Wuppertal / Hamburg, For the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Forschung_Foerderung/CDM_African_LDCs_english_bf.pdf (accessed on 2018-10-02).

¹⁵ CDM Policy Dialogue *Assessing The Impact Of The Clean Development Mechanism* (15 July 2012) 131 – 132 http://www.cdmpolicydialogue.org/research/1030_impact.pdf (accessed on 2018-10-02).

national GHG emission levels) and limited prior CDM experience. All these challenges are relevant in Ethiopia's case, as capacity challenges linked to human resources and knowhow in the country on utilising the CDM; scarcity of CDM consultants and verifiers for project development; and limited availability of domestic and international credit for upfront financing of projects made manoeuvring through the complicated UNFCCC process challenging for Ethiopian stakeholders.

These challenges are also evident in other, voluntary carbon standards. There is only one Ethiopian project registered under the VCS, which is jointly registered under the Climate, Community and Biodiversity Alliance Standard. This forestry project, which was registered using a REDD+¹⁶ methodology, has not yet issued verified carbon units (VCUs) although may be intending to so as a verification report was uploaded in mid-2017.¹⁷ Ethiopia also has a project listed in the VCS pipeline as under development (since 2015).¹⁸ The supply of carbon credits in Ethiopia therefore does not accurately reflect the carbon credit generation opportunities associated with the country.

Analysing the supply and demand projections for any country is difficult because the CDM market is currently depressed due to various factors, such as the uncertainties in international climate change negotiations. Voluntary carbon markets, while considerably smaller in volume of credits transacted, continue to see demand especially for carbon credits from AFOLU sector projects within the country.¹⁹ In the CDM, AFOLU projects only make up a tiny fraction (approximately 1%) of the market share of traded emissions reductions for reasons related to complexity, financial constraints and risk. While voluntary carbon markets only trade a small fraction of the volume of the CDM and other compliance markets, they are nonetheless important because they serve as testing grounds for new methodologies, tools and technologies and they have a high representation of methodologies for project in the AFOLU sector. As such voluntary markets serve as important sources of finance for sustainable land management, which is of great importance in an LDC such as Ethiopia, as most communities are reliant of subsistence farming. Measures that result in greater exposure to sustainable land-use and climate resilient practices will contribute to improved community well-being and environmental rights.

It can be argued that carbon pricing is one such measure. The introduction of carbon pricing in the region will create a platform to develop low-carbon initiatives that exploit Ethiopia's carbon credit potential. There are however complexities regarding the management of supply and demand of the underlying commodities of a carbon pricing mechanism. Ethiopia will need to consider and navigate such complexities which include participation in international schemes such as Article 6.2 of the Paris Agreement and the International Civil Aviation Organisation's (ICAO's) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

¹⁶ REDD+ stands for countries' efforts to reduce emissions from deforestation and forest degradation, and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks

¹⁷ VCS listing: https://www.vcsprojectdatabase.org/#/project_details/1340 (accessed on 2018-10-25)

¹⁸ VCS pipeline: https://www.vcsprojectdatabase.org/#/pipeline_details/PL1443

¹⁹ Jirka, S., D. Woolf, D. Solomon, J. Lehmann. "Climate finance and carbon markets for Ethiopia's Productive Safety Net Programme (PSNP): Executive Summary for Policymakers." (November 2015) *A World Bank Climate Smart Initiative (CSI) Report. Cornell University* p 3. <https://ecommons.cornell.edu/bitstream/handle/1813/41302/Climate%20Finance%20for%20PSNP%20-%20Executive%20Summary.pdf;sequence=2> (accessed on 2018-10-09).

Article 6.2 of the Paris Agreement²⁰ outlines the need for NDCs to be accountable to generate and transfer internationally transferred mitigation outcomes (ITMOs). If the majority of Ethiopia’s emission reductions serve as ITMOs this will mean that the quantity of emission reduction units available to implement a national carbon pricing mechanism may prove to be too little to establish a domestic functioning carbon pricing mechanism in the form of a cap-and-trade scheme.

Given the analysis of the supply and demand potential, it is unlikely that an Ethiopian market based on ITMOs will be able to simultaneously accommodate a national carbon pricing mechanism such as a carbon tax or cap and trade system (or a hybrid of both). A domestic carbon market will require retention of carbon units generated in the country, as carbon credits would be required to incentivise local companies to partake in a carbon pricing mechanism as a means to reducing their carbon liability associated with a carbon pricing mechanism.

The implementation of a domestic carbon pricing mechanism may further be unlikely, if the current supply and demand circumstances, which are relatively low, persist in to the future. Significant changes to such circumstances might alter these conclusions.

1.3 Work done to implement Carbon Pricing

The Ethiopian government has made progress in developing Carbon Pricing mechanisms, especially when considering the various emission reduction projects which have been registered as outlined above. Some of the initiatives taken by the government discussed below have the potential to contribute to the implementation of carbon pricing within the country.

- The Ethiopian Development Research Institute and the World Bank recently organised a team to examine the impact of carbon taxation on the growth of GDP and income distribution.²¹ Researchers analysed carbon taxation applying the Computable General Equilibrium as a standard model. It uses economic data to estimate how an economy might react to changes in policy, technology or other external factors. The study found that carbon emissions in Ethiopia come mainly from methane gas released from livestock, soil and forest degradation, fertilisers and fossil fuels such as diesel, benzene and kerosene. As taxing livestock and smallholder farmers is not feasible in an LDC such as Ethiopia, researchers aimed to limit their analyses to fossil fuels.²² This type of taxation could be applied mainly in the cities, especially in Addis Ababa, as it would limit the use of private vehicles and encourage the use of public transportation, and alternative transport means.

²⁰ Article 6.2 of the Paris Agreement provides that: “Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.” – Considering the contents of Article 6.2, what is particularly important is that these are internationally transferred mitigation outcome (ITMO), which can be produced from any mitigation approaches (mechanism, procedure, or protocol), without any reference to the fact that the mechanism, procedure, or protocol needs to operate under the authority of the Conference of the Parties (COP). Furthermore, there is no limitation being introduced in these paragraphs in the Paris Agreement as to what constitutes an ITMO and this broadens the scope of possibilities with regards to potential emission reductions that are eligible.

²¹ Addis Fortune “Carbon Pricing a Way Out of Carbon Emissions” (5 November 2017) <https://addisfortune.net/articles/carbon-pricing-a-way-out-of-carbon-emissions/> (accessed on 2019-02-20)

²² Interview (Written Response) Yohannes Ameha – Ministry of Environment (1 April 2019).

It can significantly raise income that can be used to curb other taxes and finance the country's poverty reduction programmes.

- Related to the aforementioned point of imposing a possible carbon tax in Addis Ababa, there has also been other developments with regards to implementing a Carbon Tax. In 2015, the Ministry of Water, Irrigation and Energy started preparing a policy to levy carbon tax on vehicles.²³ Furthermore, the ministry said it is also working with the Ethiopian Revenue and Custom Authority to increase tax on imported cars that emit high amounts of carbon.²⁴
- From an implicit carbon pricing point of view, the Ethiopian government made the decision to remove fuel subsidy's in Ethiopia in 2008.²⁵ However, the decision to remove the annual USD800 million fuel subsidy was taken in order to utilise the money for stabilising rising food prices. Ethiopia's NDC also mentions the removal of fuel subsidies as a method to enable enhanced generation and use of clean and renewable energy.
- A 2015 report released by Ethiopia's New Climate Economy Partnership found that including carbon emission thresholds in planning incentives and regulations can contribute towards reducing pollution from an urban development perspective.²⁶ Furthermore, the report also states that "fiscal policy can include tax incentives that incentivise certain economic activities through reducing or removing their taxation."²⁷ These provisions support the implementation of an explicit carbon pricing mechanism within the country, and more specifically a carbon tax /offset mechanism as it proposes an emissions threshold, the inclusion of a tax, as well as an incentive to reduce tax liability which point toward an offset mechanism.
- UN agencies have been working with the Ethiopian Designated National Authority in building CDM capacity in under-represented regions under the Nairobi Framework . Efforts under this framework included supporting the Ethiopian Designated National Authority on tasks such as website development.²⁸
- Beyond Ethiopia's NAMAs which are focused on building much-needed infrastructure and capacity in three sectors (waste, energy and transport),²⁹ the Ethiopian government also signed an agreement with Japan to collaborate on the Joint Crediting Mechanism in 2013.³⁰ Furthermore, Ethiopia also participates in World Bank's Carbon for Development (Ci-Dev) initiative, which is supporting two Ethiopian POAs related to off-grid solar and household energy efficiency up to 2024, with results-based payments for achieved

²³ Getnet "Carbon Tax Coming soon to Ethiopia" (3 September 2015) <http://onlineethiopia.net/2015/09/mowie-carbon-tax-coming-soon-to-ethiopia/> (accessed on 2019-02-20)

²⁴ *Ibid.*

²⁵ See in this regard "Ethiopia ends fuel subsidy, increases pump prices" (4 October 2008) <https://www.reuters.com/article/us-ethiopia-fuel/ethiopia-ends-fuel-subsidy-increases-pump-prices-idUSTRE49318S20081004> (accessed on 2019-02-20).

²⁶ (Ethiopia's New Climate Economy Partnership, 2015, p. 52) <http://static.newclimateeconomy.report/wp-content/uploads/2015/03/Unlocking-the-Power-of-Cities-in-Ethiopia.pdf> (accessed on 2018-10-02).

²⁷ (Ethiopia's New Climate Economy Partnership, 2015, p. 51)

²⁸ R Tewari M Kurdziel C Warnecke *Germany's carbon market cooperation with Ethiopia: Prospects for engaging with Article 6 of the Paris Agreement* (October 2017) Report for the German Emissions Trading Authority (DEHSt) at the German Environment Agency p 12.

²⁹ UNFCCC "Appendix II - Nationally appropriate mitigation actions of developing country" available at https://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/ethiopiaphaccord_app2.pdf (accessed on 2018-10-05)

³⁰ Joint Crediting Mechanism Japan and Ethiopia signed the bilateral document to start <https://www.jcm.go.jp/et-ip/information/16> (accessed on 2018-10-05)

abatement.³¹ The involvement of Ethiopia in these initiatives and activities can be seen as a positive sign towards the development of a Carbon Pricing mechanism within the country.

- In addition to recent international market based approaches, Ethiopian leaders have also supported broader carbon pricing approaches such as carbon taxes and emissions trading schemes in international platforms. In 2016, the former Ethiopian Prime Minister, Hailemariam Dessalegn, joined five other country counterparts at an event for the World Bank’s High-Level Panel on Carbon Pricing and called upon the international community to double the global emissions covered by explicit carbon prices to 25 % by 2020 and 50 % by 2025.³²
- From a MRV perspective, there has also been developments within government institutions. The Ministry of Environment, Forests and Climate Change has created focussed departments (termed ‘directorates’) for the MRV of CRGE activities, national communications and carbon markets.³³ Although a broad institutional framework exists, details of responsibilities, stakeholder relationships and coordination procedures are still under development in Ethiopia. A few individuals in each ministry have technical expertise, deriving from their involvement in national communications and domestic strategy development. However, this capacity needs to be broadened for Ethiopia to be in a position to establish a functioning MRV system. MRV approaches are being developed in sectors prioritised in the CRGE strategy and the NDC, particularly as sub-sectoral, programmatic-scale interventions. Efforts are underway to institutionalise MRV processes in these sectors, both independently and with the support of donors. Activities so far have furthered familiarity of some domestic stakeholders for designing emission accounting and implementation protocols in priority sectors. In doing so, the country has actively engaged with multilateral agencies and gathered international support on developing accounting and MRV protocols for complex sectors such as forestry or household energy efficiency. These existing activities can serve as primers for developing projects and programmes for carbon markets in the future.

From the indicators discussed above, there appears to be substantial in-country willingness to enhance Ethiopia’s existing participation in the international carbon market, and to implement carbon pricing mechanisms. There are however challenges that still need to be met in order to develop Carbon Pricing in the country. The first set of challenges pertains to domestic capacity. Designing interventions, accounting for emission reductions and the related MRV activities require nuanced technical and administrative capacity. In Ethiopia, such expertise is beginning to develop, but needs to be scaled-up.

³¹ Carbon Initiative for Development – Projects <https://www.ci-dev.org/Projects> (accessed on 2018-10-05).

³² World Bank Group “Carbon Pricing Panel – Setting a Transformational Vision for 2020 and beyond” (21 April 2016) <http://www.worldbank.org/en/news/speech/2016/04/21/carbon-pricing-panel---setting-a-transformational-vision-for-2020-and-beyond> (accessed on 2018-10-08).

³³ R Tewari M Kurdziel C Warnecke Germany’s carbon market cooperation with Ethiopia: Prospects for engaging with Article 6 of the Paris Agreement (October 2017) Report for the German Emissions Trading Authority (DEHSt) at the German Environment Agency

1.4 Nationally determined contributions

Ethiopia's commitment to participating in climate change initiatives is also evident in Ethiopia's positioning of its contributions towards the goals set out in the Paris Agreement. Ethiopia submitted a single target of reducing 255 Mt CO₂e from projected "business-as-usual" (BAU) emissions by 2030 (which would see emissions peak at a level of 400 Mt CO₂e). The target covers the most significant sectors with the breakdown within the different sectors being the following:

- **Agricultural sector**, including crops and livestock, is expected to contribute sequester 90 Mt CO₂e, which will account for more than 35% of the targeted reduction. This will be achieved mostly by improving efficiency of current cropping and livestock management practices and adopting low emission techniques.
- **Forestry sector** is projected to sequester over 50% of the targeted emission reduction, mainly by reducing deforestation through efficient cook stoves, soil carbon sequestration by increasing afforestation and reforestation, and rehabilitation of degraded land for cropping or as pastures.
- **Modernisation of transportation** through local and long-distance rail network development, improvements in urban bus transport in the capital Addis Ababa and implementation of strict fuel and emissions intensity standards are projected to lead to 10Mt CO₂e worth of reductions in 2030 from transport, relative to the BAU level.
- **Industries** are expected to reduce their emissions in 2030 relative to the BAU level by 20Mt CO₂e through various energy efficiency improvements. The cement sector is stated to have the most potential in the Climate-Resilient Green Economy strategy.
- **Buildings sector** is expected to reduce its emissions in 2030 by 5 Mt CO₂e relative to the BAU level. Emission related to waste generation and off-grid energy consumption are included in the sector.

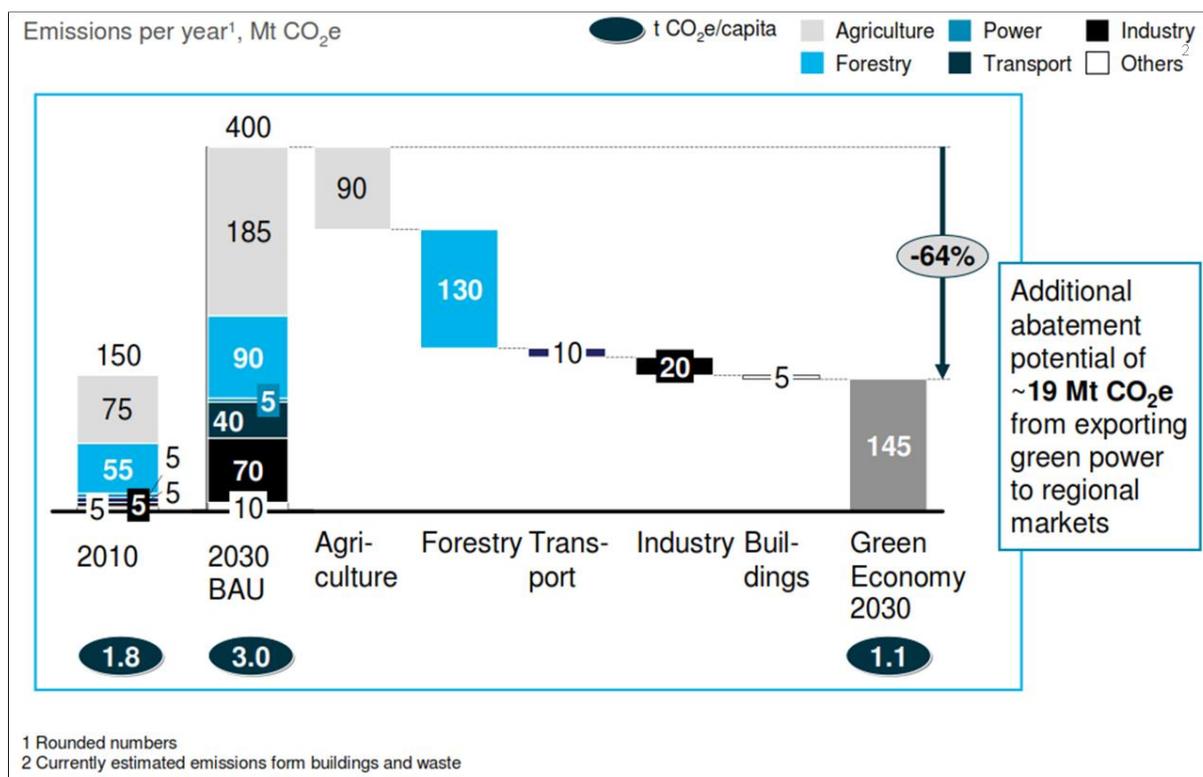


Figure 4: Ethiopia NDC diagram³⁴

Although it is not part of Ethiopia’s official contribution, Ethiopia’s NDC provides for green power to be exported to neighbouring countries such as Djibouti and Kenya and that such exportation can lead to additional emissions reductions of 19 Mt CO₂e.³⁵ Between 2015 and 2016, power exports contributed 123 million USD, or 7%, to Ethiopia’s GDP.³⁶ No details are provided on whether this mitigation would be accounted for by Djibouti or by Kenya, however exporting electricity opens up the possibility of regional carbon pricing within the region as both electricity as well as carbon credits are intangible commodities which can be traded within the financial markets.

Ethiopia has been an active participant in the Article 6 Paris Agreement negotiations as a member of the LDC group and African Group of Negotiators. As an LDC, Ethiopia’s approach to Article 6 entails that its NDC ambition falls under Article 4.6 of the Agreement.³⁷ Furthermore, Ethiopia aims to actively engage in the development of rules for future carbon, particularly the development of the Article 6.4³⁸ mechanism to benefit from the implementation of such a programme. Their interest in rule-making foresees engagement in all aspects, including first rules and standards,

³⁴ Source: Federal Democratic Republic Of Ethiopia, NDC, p 1.

³⁵ See page 3 of Ethiopia’s NDC.

³⁶ O Eremionkhale “Ethiopia Earns \$123 Million in Electricity Exports Between 2015 and 2016” *Ventures Africa* (14 April 2016) <http://venturesafrica.com/turide-is-the-forerunner-in-northern-nigerias-car-hailing-ecosystem/> (accessed on 2018-10-08).

³⁷ Article 4.6 of the Agreement provides that: “The least developed countries and Small Island Developing States must prepare and communicate strategies, plans and actions for low greenhouse gas emissions development reflecting their special circumstances.”

³⁸ Article 6.4 of the Agreement refers to the establishment of a mechanism to produce mitigation outcomes and support sustainable development, and which operates under the authority of the COP. It produces mitigation outcomes that can then be used to fulfil the NDC of another Party. One of the key issues currently under debate is whether the scope of these paragraphs is limited to a mechanism like Clean Development Mechanism, or it is much broader in scope.

governance aspects, representation of members and experts, implementation, governance integrity and accountability mechanisms.

The foundation of Ethiopian positioning on Article 6 is that, as an LDC, its NDC ambition falls under Article 4.6 and is conditional. Ethiopia's plan to engage in Article 6 hence focuses on leapfrogging old technologies using cooperative approaches. At present, Ethiopia sees most of its emissions reductions to serve as internationally transferred mitigation outcomes (ITMOs) to finance the leapfrogging. However, there can be some small emissions reduction efforts that could be categorized as unsupported.

As mentioned above, the agricultural sector is considered to be Ethiopia most emission intensive sector. The forestry and agriculture sectors have also been identified as two of the key sectors which would enable the country to realise its objectives under its NDC. Consequently, there are opportunities to register such projects as emissions reduction projects, which could in turn make the development and implementation of a Carbon Pricing mechanism easier in the future.

1.5 Legal Analysis

Analysis of existing climate change, environmental and developmental law and policy

- General:
 - While Ethiopian Ministry of Water, Irrigation and Energy has been considering implementation of a carbon tax since, at least 2015.³⁹ At present no tax is collected on fuels, lubricants and LPG, with the only products attracting the official 15% VAT being bitumen and petroleum coke.⁴⁰ Given that the introduction of Carbon Pricing in the form of a carbon tax is a non-traditional approach to the evolution of national taxation systems, this is a significant policy position for government to have adopted. Finalisation of such a Carbon Pricing mechanism, however, has still to be concluded, with only limited progress seeming to have been made, in the interim, in regard to carbon taxation and/or other approaches to Carbon Pricing, for example:
 - By 2017, Ethiopian Development Research Institute (EDRI) and the World Bank could announce that they were organising a team to examine the impact of carbon taxation on the growth of GDP and income distribution, including by analysing carbon taxation applying the Computable General Equilibrium (CGE) as a standard model.⁴¹
 - Carbon pricing, in some form or another, is clearly on the national agenda, including in Ethiopia's recent Charing of the Vulnerable 20 Group (V20) which, in its Fifth Ministerial Communique (dated 14 October 2018), indicated having accelerated fossil fuel subsidy reform and support for V20

³⁹ <http://onlineethiopia.net/2015/09/mowie-carbon-tax-coming-soon-to-ethiopia/>

⁴⁰ <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/gx-er-oil-and-gas-taxguide-ethiopia.pdf> and http://www.nocethiopia.com/index.php?option=com_content&view=article&id=28&Itemid=19

⁴¹ <https://allafrica.com/stories/201711070691.html>

carbon pricing efforts, as part of combined activities between the V20 and the G20.⁴²

- This is not to say, however, that there are not opportunities within existing law and policy that might be utilised to implement Carbon Pricing approaches – some of these are discussed below. It is simply the case that, in regard to government’s specific ambition to introduce a carbon tax, further progress is required before this ambition will be realised. It is worth noting that research conducted for the drafting of this legal analysis failed to reveal formal government documentation and/or instrumentation outlining a detailed approach to carbon taxation in Ethiopia. This includes scrutiny of the EDRI and World Bank websites which make no reference to the work of the abovementioned team’s analysis of the impact of carbon taxation.
- Ethiopia’s Environmental Policy dates from 1997 and is aimed at rectifying the economic and social costs of environmental damage and mismanagement of natural resources.⁴³
- While other policy instruments delimit a range of requirements that are environmentally-related, e.g., the Climate Resilient Green Economic Plan (CRGE), the Environmental Policy is still relevant although the recommendation has been made that the country should, either, update the Policy to deal with climate change considerations or develop a bespoke climate change policy.⁴⁴
- The CRGE provides the detailed framework for the development of Ethiopia’s future green economy, including a category of prioritised green economy initiative that attracts carbon financing in exchange for GHG abatement.⁴⁵ While the CRGE is, both, voluminous and specific in its reference to the need for climate, carbon and developmental financial support - including seeking to establish an institutional infrastructure to facilitate access to such finance - the anticipated origin of, specifically, *carbon finance* is limited to the traditional sources, e.g., the CDM, that arise from outside of the country; and, it does not hint at the idea of an in-country carbon pricing mechanism. Notwithstanding this omission, the CRGE is an indicator of Ethiopia’s strong interest in utilisation of carbon financing to support the country’s green development, and sensitivity to the funding demands that such development will require.
- The Environmental Pollution Control Proclamation No. 300/2002 deals with pollution control, and section 2(6) defines the term “environment” to include weather and climate, with section 2(11) defining the term “pollutant” to encompass gas which, directly or indirectly, alters the quality of any part of the receiving environment so as to adversely affect its beneficial use. It is submitted that these definitions are sufficiently broad to include the anthropogenic greenhouse gases that influence climate change. Section 10(1) provides for incentives for the introduction of methods that enable the prevention or minimisation of pollution into an existing undertaking to be determined by regulations

⁴² <https://www.v-20.org/wp-content/uploads/2018/10/V20-4th-Ministerial-Communique-Oct-2018-Adopted-1.pdf>

⁴³ *Ethiopia’s Second National Communication to the United Nations Framework Convention on Climate Change* Ministry of Environment and Forest 2015, at 28

⁴⁴ *Ibid*

⁴⁵ CRGE, *supra*, at 42. It is interesting to note that the CRGE limits the term “market-based initiatives” - a broad notion - to mean only the carbon market.

issued in terms of the Proclamation; while section 10(2) provides that importation of new equipment that is destined to control pollution shall, upon verification, be exempted from the payment of custom duty. If the abovementioned submission on the breadth of the definitions is accepted then the Proclamation might be applied to the control and minimisation of greenhouse gases, and sections 10(1) and (2) suggest that mechanisms exist that may be adapted to provide financial support/incentivisation for the implementation of processes and equipment, the application of which can result in such control and minimisation, e.g., mitigation projects.

Analysis of the NDC

The NDC adheres to the CRGE’s national framework for green development, which is described as the country’s strategy for addressing both climate change adaptation and mitigation objectives, and as the “foundation” for the NDC.⁴⁶ Under mitigation, the NDC indicates that Ethiopia intends to participate (continue its participation) in international market mechanisms, specifically to sell “carbon credits” to contribute to achieving the green economy strategy. This is spelt-out, more specifically, by emphasising that Ethiopia seeks to utilize existing and emerging climate finance mechanisms, and has established the CRGE Facility⁴⁷ as a mechanism to mobilise finance. The key features of the CRGE Facility are stated as being to: provide flexible, coordinated and predictable funding to achieve national priorities under the CRGE; blend diverse sources of climate financing and leveraging public funds to attract private funds; and, provide a unified engagement point, for a range of actors, to make climate change-related decisions.⁴⁸ It is submitted that the flexibility of the CRGE Facility, coupled with the abovementioned features, means that it would be an ideal platform to mobilise revenue potentially generated by a Carbon Pricing mechanism, e.g., using one of the fiscal mechanisms discussed below.

The NDC’s only reference to carbon institutional infrastructure is to indicate support for the development of effective accounting rules under the UNFCCC,⁴⁹ and the NDC makes no mention of in-country approaches to carbon pricing.

Analysis of tax and financial management legislation

- Tax Proclamation 444 – taxes on imported motor vehicles:
 - Ethiopian law allows the following entities to import vehicles into Ethiopia, subject to the imposition of taxation on such import by the Ethiopian Revenue and Customs Authority: Licensed import/export businesses entities (dealers) that have trade license in the automotive industry; Business entities that have investment trade license which endorses vehicles as encouragement; Diasporas who have been living outside the country for more than five years and moving back home for no return; and, Expats who are moving into the country for the first time.

⁴⁶ NDC, *supra.*, at 1 and 12.

⁴⁷ CRGE Facility, <http://www.ethcrge.info/home.php>

⁴⁸ *Ibid.* at 12 and 13.

⁴⁹ *Ibid.*, at 4.

- According to Tax Proclamation 444 every vehicle imported to Ethiopia is liable to five different taxes unless exempted by law, namely Custom Duty, Excise Tax, Value Added Tax (VAT), Sur Tax, Withholding Tax.
- It is submitted that this taxation imposed on motor vehicles offers an existing platform for the extension (of the taxation) to include the potential carbon footprint represented by the motor vehicles that are the subject of the taxation which would, in effect, be the implementation of a Carbon Pricing mechanism.
- Excise Tax Proclamations:
 - In terms of Excise Tax Proclamation, No. 307/2002 or 307/1994 EC, and the amendment 610/2008, thereto, the Ethiopian Revenues and Customs Authority imposes excise tax, in Ethiopia, on selected goods, such as, luxury goods and basic goods which are regarded as demand inelastic.
 - The intention being to seek to reduce consumption of goods considered to be hazardous to health and which are cause to social problem. The excise tax shall be paid on goods mentioned under the schedule of the Proclamation, when imported and/or when produced locally, at the rate prescribed in the schedule; and, currently a 30% excise tax is imposed in respect of Fuel-Super Benzene, Regular Benzene, Petrol, Gas-online and other motor spirits.
 - It is submitted that this excise on fossil fuels represents an existing levy on carbon and that the legal framework provided for in the Excise Tax Proclamations could be adapted to implement a formally constituted carbon tax, as per government's abovementioned ambition.
- Proclamation to Regulate Petroleum Operations (“Proclamation 295/1986”):
 - The legal foundation for upstream activities in Ethiopia is the Proclamation to Regulate Petroleum Operations (“Proclamation 295/1986”), issued in March 1986 and administered by the Ministry of Mines of Ethiopia, which combines the functions of policy maker, regulator and, in the absence of a national oil company, commercial partner in upstream projects.
 - Proclamation 295/1986 is brief but fairly comprehensive in its coverage of upstream issues; and, is important for current purposes due to the exemptions that it authorises in respect of customs duties and levies.
 - Section 21(1) provides that a Contractor and a Subcontractor shall be entitled to import into Ethiopia any and all drilling, geological, geophysical, production, treating, processing, transportation and other machinery and equipment necessary in Petroleum Operations; and that fuels, chemicals, lubricants, films, seismic tapes, house trailers, disassembled prefabricated structures and other materials necessary for Petroleum Operations are free of import duties, taxes, levies and imposts of any kind.
 - Similarly, section 21(4) provides that the Contractor shall be entitled to export petroleum produced free of export duties, taxes or imposts of any kind.
 - It is submitted that the abovementioned exemptions, in relation to mining equipment, demonstrate that the Ethiopian legal system is familiar with this notion

and that, consequently, similar exemption might be introduced in relation to the import of equipment required to generate renewable energy. In essence, this would represent an advantage being provided to a lower carbon intense technology which, if linked to the value of emissions mitigation via the utilisation of the technology could be construed as a Carbon Pricing mechanism.

High level constitutional analysis⁵⁰

Article 96 and 97 of the Ethiopian Constitution regulate the taxes which may be levied and at which level of government (federal or regional) these revenues are to be applied to. These sections contain a list of the types of taxes which may be levied. Air, rail and sea transport taxes (in relation to which theoretically carbon pricing could form a component), customs duties, taxes and other charges on imports and exports, are imposed by the Federal government. Taxes on company profits and dividends, as well as on large scale mining and oil and gas operations are to be jointly levied by Regional and Federal government. Any other tax not expressly provided for in these sections can only be authorised by a two third majority vote by the Federation and the House of Peoples' Representatives, i.e. taxes cannot be authorised by way of executive regulation.

Such taxes are administered by the Ethiopian Revenues and Customs Authority (ERCA). Should any carbon pricing mechanism be imposed in a form of any of the above-listed taxes, e.g. a tax on certain carbon intensive imports or a dedicated tax on mining and oil and gas operations using the existing tax system administered by the ERCA, then the ERCA would administer such a tax.

If, however the Ministry of Environment, Forest and Climate Change wished to impose a carbon price it could only do so in a manner so as to not constitute a tax. It could do so were it to associate the fiscal measure with the imposition of a fee (typically linked to a service) in order for it to not be a tax, or a charge (associated with the consumption of a resource). For example, Ethiopian law⁵¹ requires parties to pay an effluent “service fee” for water discharge permits and their subsequent renewal, alteration and cancellation, permit holders are required to pay the effluent fee annually to the Ministry of Water Irrigation and Electricity (MWIE).⁵² Similarly the statute allows for the payment of water “charges” related to any water uses under the Act including discharges to a water resource. Theoretically the Minister of Environment, Forest and Climate Change could also issue carbon related charges and fees (related either to a service, for example the issue of a licence relating to atmospheric emissions, or for the “use of a resource”), were it appropriately authorised to do so in statute. Nothing in the

⁵⁰ This section provides a high level constitutional analysis of the extent to which a line function government department's exercise of a statutory power is subject to legal/approval processes other than as provided for in the empowering statute - such as in event that the department's exercise of the power impinges upon the competence of another government department. An example of this situation would be when an environmental department is empowered to impose an environmental levy which has fiscal/taxation implications that normally fall into the purview of a national financial department.

⁵¹ Ethiopian Federal Water Resources Management Proclamation No 197/2000, Negarit Gazette, Year 6 No 25, Article 20(1)(c)-(d)

⁵² Article 20(3)-(4) and 30.

Constitution or empowering statutes appear to suggest a need for ERCA’s consent or approval to do so in such instances.

Identification of the location(s) of administrative responsibility⁵³

Agency	Mandate relevant to Carbon Pricing
Ministry of Environment, Forest and Climate Change (MEFCC)	Responsible for environmental management across the country, including primary responsibility for climate change matters. Included within its mandate is a specific duty to “prepare a mechanism that promotes social, economic and environmental justice and channel the major part of benefit derived thereof to the affected communities to reduce emissions of greenhouse gases that would otherwise have resulted from deforestation and forest degradation”. ⁵⁴
The Ethiopian Revenues and Customs Authority (ERCA)	ERCA is responsible for collecting revenue from customs duties and domestic taxes. It would likely be the administrative authority responsible for the collection of revenue as part of any future direct carbon pricing mechanism.
Ministry of Finance	The Ministry’s primary mandate includes fiscal policy and budget allocation. It houses the United Nations Agencies, Climate Change and Regional Economic Cooperation (CGRE) Directorate responsible for, <i>inter alia</i> , the mobilisation, blending and sequencing of domestic and international finance to support the institutional building and implementation of Ethiopia’s Climate Resilient Green Economy (CRGE) Strategy. The Directorate also monitors GHG emissions coordinates national partners in the development and implementation of mitigation strategies. Any policy to implement direct carbon pricing mechanisms would likely emanate from this directorate jointly or with the support of the MEFCC.
Ministry of Trade	This Ministry is primarily responsible for trade regulation and trade relations, it sets fuel tariffs and is responsible for fuel subsidies. ⁵⁵
Ministry of Water, Irrigation and Electricity	This Ministry is responsible for water, irrigation and electricity. Its mandate is primarily water focused however it also includes the promotion of the growth and expansion of the country's supply of electric energy.
Ministry of Agriculture and Natural Resources	Responsible for regulation of the agricultural sector, its mandate includes responsibility for the Resilient Landscape and Livelihood Project

⁵³ This section provides for the identification of the location(s) of administrative responsibility, across government, for issues that may have consequences for Carbon Pricing, the purpose of which identification would be to note potential overlaps in such responsibility - without analysis of the origins, implications and consequences of such responsibility.

⁵⁴ Proclamation No. 916/2015

⁵⁵ For example this Ministry removed a fuel subsidy on oil 2008 in order to use the same funds to support food prices.

1.6 Access to climate financing

Climate-resilient green growth is a major objective of the Ethiopian government's economic policy, as outlined in its CRGE vision, which sets out a vision for sustainable, low-carbon growth.⁵⁶ But realising this goal will require both widespread institutional mainstreaming and considerable financial resources. The country is undergoing a period of economic transformation, and emissions are expected to rise markedly if it pursues business-as-usual development. Without significant efforts to capitalise on current mitigation opportunities, it is unlikely that Ethiopia will reach the targets presented in its NDC. Debt sustainability has also deteriorated in the country as the country was downgraded from a moderate risk to high risk rating.⁵⁷ As such, while growth in Ethiopia is expected to remain strong, it will be weighed down by a tighter fiscal stance, as the government aims to stabilize public debt.

With regard to CRGE implementation, one of the priorities has been to mobilize adequate resources, which would assist environmental developers. In this context, financial resources have been mobilized from various donors. For example, to facilitate CO₂ trading in the country, a REDD+ National Secretariat was established with USD 13.5 million grants from the Norwegian Government. Furthermore, the country's Growth and Transformation Plan aims to enable each sector to implement emission reduction programmes.⁵⁸ This will include sufficient budget and capacity building assistance to each sector. In addition the government aims to implement strong participatory systems across all stakeholders to enhance the participation of women, youth and private sector at all levels.

However developing Ethiopia's green economy will require an estimated expenditure of around 150 billion over the coming 20 years.⁵⁹ This figure underlines the significant funding needed to build a green economy and to enable the implementation of carbon pricing, despite the overall low average cost of abatement, and the need to mobilize capital investment in the early years of the development of the green economy. The largest share of this total will go towards power generation (48%). The sector with the most potential with regards to its possible contribution towards carbon pricing, being forestry, will only require 12% of the investment total. In fact, the development and implementation of REDD projects have been identified as one of the four initiatives for fast tracking the creation of a green economy in Ethiopia. Should Ethiopia be able to access enough finance to generate the majority of its carbon credits from REDD+ projects, it will not only provide a solid platform for the implementation of carbon pricing, but will also create additional social benefits for rural communities such as job creation and access to basic services associated with REDD+ products.

⁵⁶ Federal Democratic Republic of Ethiopia (FDRE) (2011) *CRGE Vision: Ethiopia's vision for a climate resilient green economy* p 19.

⁵⁷ World Bank. 2019. *Global Economic Prospects, January 2019: Darkening Skies*. Washington, DC: World Bank. doi: 10.1596/978-1-4648-1343-6.

⁵⁸ Federal Democratic Republic of Ethiopia *Growth and Transformation Plan II (GTP II) (2015/16-2019/20) Volume I: Main Text* May, 2016 p 213.

⁵⁹ The USD 150 billion is made up of around USD 80 billion capital investment and the remaining USD 70 billion operating and programme expenses. – see Federal Democratic Republic of Ethiopia (FDRE) (2011) *CRGE Vision: Ethiopia's vision for a climate resilient green economy* p 38.

1.7 Conclusion

Although there are various hurdles to overcome before Carbon Pricing can be implemented in Ethiopia, based on the analysis above, the project team has established that Carbon Pricing may be possible in the future in the form of a carbon tax on fossil fuels.⁶⁰ Fossil fuels make only a small contribution to total GHG emissions in Ethiopia. This is because energy use in general is relatively low and that most of Ethiopia's electricity comes from hydroelectric power. Therefore, taxing fossil fuels will most likely not have an adverse effect on poorer communities as higher-income households are more intensive consumers of fossil fuels, and may be able to afford the higher costs associated with fossil-fuels. Care must be taken however, not to burden poorer rural communities with carbon taxes on fossil fuels such as kerosene, which is considered to be an essential resource to access basic needs, such as cooking, heating and lighting. It was also suggested during the interview process that the effects of carbon pricing on the country's economy could be minimised by piloting a carbon pricing mechanism and to consequently create awareness of how a carbon pricing mechanism would operate.⁶¹ There is however a possibility to recycle carbon revenue associated with a carbon tax on fossil fuels to buffer against the effects that such a tax may have on poorer communities.

In addition to taxing fossil fuels, it may also be possible to tax emission intensive industries such as cement plants. Ethiopia has 16 cement plants located in the country, with 8 of them being situated in Addis Ababa.⁶² The cement industry's major role lies in real estate development, projects, industrial expansion, infrastructure development schemes by government or other institutions. For a LDC such as Ethiopia, the cement industry has big part in the development of the country. As such, imposing a carbon tax on the cement industry in Ethiopia will have to be carefully considered, as burdening the industry which is so vital to industrial expansion, may not be a viable option in the short term.

As with the other countries covered by this study, Ethiopia lacks a functioning MRV system. The capacity of federal agencies to oversee MRV design and implementation of actions is limited to a few 'champions' who have a history of participating in different national efforts. Agencies are often understaffed to administer mitigation action at the necessary scale. Fiscal constraints to allocate such dedicated resources are identified as a critical challenge. Furthermore, implementation capacity, particularly technical capacity to define and administer protocols for designing MRV in priority sectors; and continual data collection and monitoring progress of interventions is limited.

Developing arrangements for a robust economy-wide emissions inventory will be challenging for Ethiopia as the current experience in such exercises is limited. Ethiopia's sole experience of recording economy-wide emissions is for national communications to UNFCCC. Two national communications have been submitted so far, through technical support from multilateral organisations. A lack of formalised and standardized protocols for data reporting, monitoring

⁶⁰ Interview (Written Response) Yohannes Ameha – Ministry of Environment (1 April 2019).

⁶¹ Interview (Written Response) Yohannes Ameha – Ministry of Environment (1 April 2019).

⁶² Cement Plants located in Ethiopia <https://www.cemnet.com/global-cement-report/country/ethiopia> (accessed on 2019-02-20)

recognised as a key challenge in Ethiopia, although one must note the efforts underway to synchronise reporting, especially in the national region states, through institutional restructuring.

Country chapter: Kenya



April 2019

2. Kenya



Figure 5: Kenya
(Source:
<http://www.freeworldmaps.net/africa/kenya/location.html>)

Kenya is a middle income country. The country is amongst the countries regarded as being the most vulnerable to climate change due to a dependency on climate sensitive sectors such as the rain-fed agriculture, which directly contributes 24% of the GDP; tourism contributing 27% of the foreign exchange earnings and 12% to the GDP, and hydro-electric energy generation contributing 50% of the total energy production. The combination of these factors has considerably increased Kenya's vulnerability to climate change. Subsequently, the implementation of carbon pricing in Kenya has the potential to alleviate some of the climate change threats within the country by utilising climate resilient technologies which underpin the establishment of carbon pricing.

2.1 Country circumstances

Kenya is the economic, financial and transport hub of East Africa. Kenya's real GDP growth has averaged over 5% for the last decade. Service sectors, agriculture, industries and tourism are important economic sectors and dominating contributions to the country's GDP. Kenya's services sectors contribute about half of the GDP and natural resource sectors account for 42 % of GDP. The industry sector contributes the remaining 10 %.

Kenya's GHG emissions and removals by sinks for the year 2000, as well as additional years between 1995 and 2010 have been reported in accordance with the recommendations of the IPCC.⁶³ According to the World Resources Institute Climate Watch Tool agriculture was the leading source of GHG emissions in Kenya in 2013, contributing 62.8% of total emissions, excluding the land-use change and forestry (LUCF) sector as outlined in **Figure 6: Kenya Emissions Profile** below.⁶⁴ Energy was the second largest source of emissions (31.2%), with other fuel combustion and transportation contributing 74.3% of energy emissions. Industrial processes (IP) and waste contributed 4.6% and 1.4%, respectively.

⁶³ Kenya Second National Communication to the United Nations Framework Convention On Climate Change Executive Summary, p 5.

⁶⁴ Climate Watch Kenya <https://www.climatewatchdata.org/countries/KEN> (accessed on 2019-02-26)

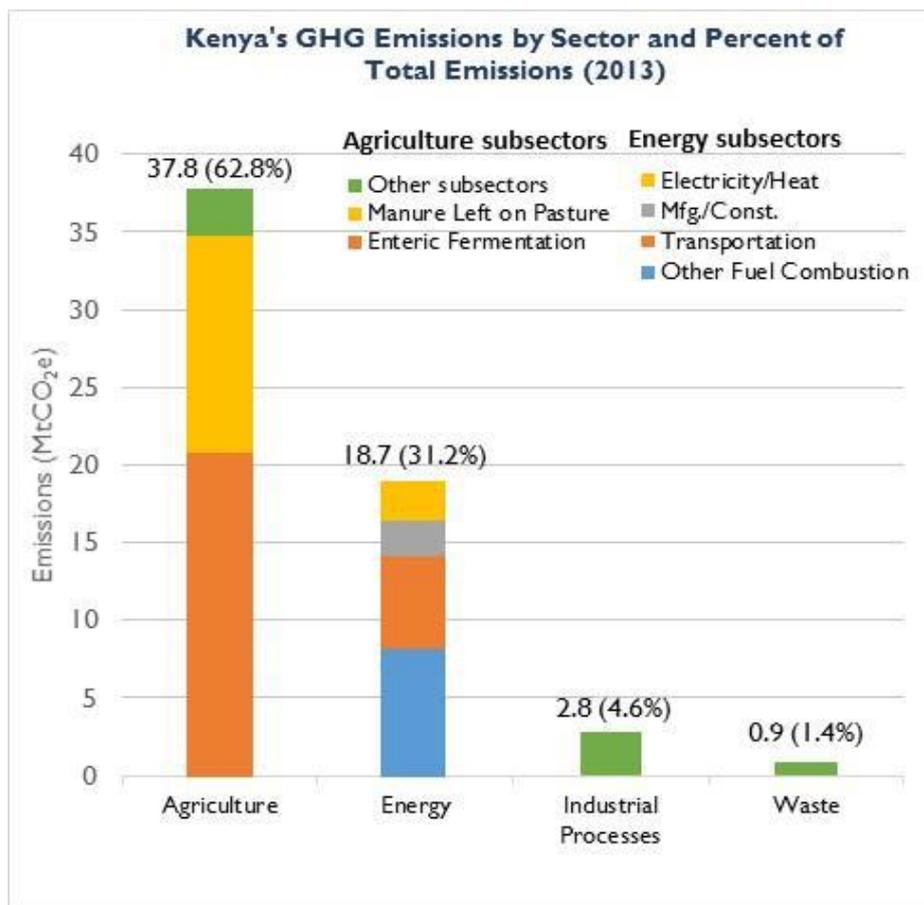
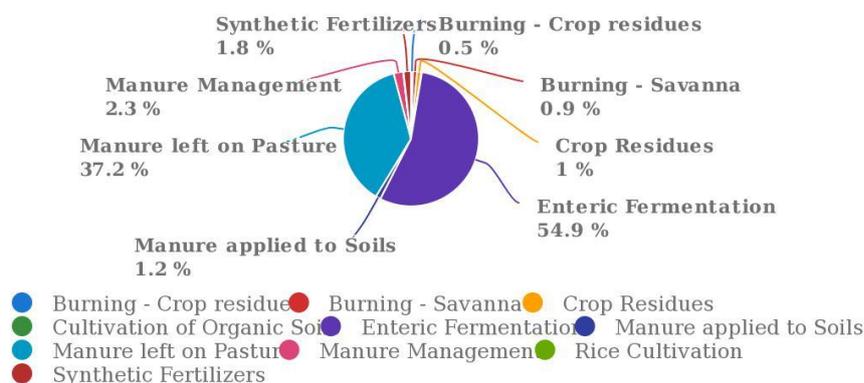


Figure 6: Kenya Emissions Profile⁶⁵

Within agriculture, 55% of emissions were due to enteric fermentation from livestock and 36.9% due to manure left on pasture as outlined in Figure 7: Emissions by Agricultural Sector below.

Emissions by sector (CO₂ equivalent)

Average 1990 - 2016



Source: FAOSTAT (Feb 26, 2019)

Figure 7: Emissions by Agricultural Sector⁶⁶

⁶⁵ Source: Greenhouse Gas Emissions in Kenya - USAID

⁶⁶ Food and Agriculture Organization of United Nations <http://www.fao.org/faostat/en/#country/114> 9 (accessed on 2019-02-26)

Agriculture is the main or part-time income source for about 80 % of Kenya's population. The dominating part of the agricultural outputs (75 %) originates from rain-fed, small scale farming or livestock production. Industrial activities are centred on the three major urban centres, Nairobi, Mombasa and Kisumu⁶⁷ and are dominated by food-processing of agricultural products, consumer goods manufacturing, aluminium, steel and cement. Most of the sectors are therefore highly sensitive to the consequences of climate change because of their dependence on the natural environment.

Kenya's climate ranges from tropical in the coastal regions to arid in the country's interior with the country being subjectable to natural disasters such as recurring droughts and flooding during the rainy seasons. About 67.7 % of the country's population resides in the rural areas and relies predominantly on an ever-degrading environment and scarce natural resources for their livelihoods. Two consecutive years of failed rains have left 3.4 million Kenyans in need of food aid and 480,000 children requiring treatment for acute malnutrition.⁶⁸

Kenya's wider economy is also at risk of climate change. The country is largely dependent on hydropower, which has in the past been constrained by poor rainfall levels which has resulted in hydropower generation ranging between 38-76% in relation to total energy generation.

The introduction of carbon pricing may be used by the Kenyan government as a buffering mechanism to adapt to the effects of climate change. Carbon pricing could alleviate some of the effects of extreme climatic events in the country, as emission reduction projects linked to carbon pricing mechanisms may improve electricity access and provide vital infrastructure to address climate change in the country.

In order to facilitate the implementation of carbon pricing, the Kenyan government must create a business environment that is conducive to investment supported by the necessary infrastructure. Kenya's Doing-Business score (part of the Distance to Frontier measure) for 2018 is 65.15 which is significantly higher in comparison to Ethiopia's score. The 2018 report ranks Kenya at position 80 out of 190 countries globally, an improvement from last year's 92nd position. Cumulatively, Kenya has moved up global rankings 56 spots over the last three years. The 2018 score is one of the country's best in the last 15 years. This creates a supportive environment for the implementation of carbon pricing.

Kenya's energy mix also supports the successful implementation of carbon pricing in the long term. The country's energy mix comprises of 52.1% hydro, 32.5% fossil fuels, 13.2% geothermal, 1.8% biogas cogeneration and 0.4% from wind, respectively. Current electricity demand is 1,600 MW and is projected to grow to 2,600-3,600 MW by 2020.⁶⁹ With a 20-year feed-in-tariff for

⁶⁷ Central Intelligence Agency, The World Fact book - Kenya, <https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html> (accessed on 2018-10-18).

⁶⁸ Consecutive droughts spell disaster and hunger for Kenya in 2018 (10 January 2018) <https://www.irinnews.org/feature/2018/01/10/consecutive-droughts-spell-disaster-and-hunger-kenya-2018> (accessed on 2018-10-24).

⁶⁹ Kenta Energy Situation https://energypedia.info/wiki/Kenya_Energy_Situation (accessed on 2018-10-24).

renewable resources established, as well as a zero rating of export duty and a removal of VAT on renewable energy technologies, the Kenyan government is actively facilitating renewable energy growth at utility, commercial and industrial scales. Furthermore, the development of renewable energy as an off-grid solution makes the implementation of carbon pricing even more sensible for the country.⁷⁰

2.2 Analysis of supply and demand potential

From an African perspective, Kenya was an early participant in the international carbon markets, considering that the first Kenyan CDM project was registered in September 2008. There are currently 20 standalone projects registered with the CDM in which Kenya is the host country.⁷¹ Kenya is also host country to 24 PoAs, of which 13 are multinational PoAs.⁷² There were no projects or PoAs requesting registration with the CDM at the time of writing.

Four standalone projects and five component project activities (CPAs) are recorded as having completed issuance, of just under 766 thousand CERs in total. Geothermal electricity and cook stove projects contributed about 45% and 44% respectively of the issued CERs.⁷³ In terms of total revenue from the commercialisation of CERs in Kenya, income associated with the commercialisation is expected to exceed EUR 52 million in 2020. If CDM projects and PoAs with first CPAs under validation or requesting registration are included, total emission reductions by 2020 in Kenya are expected to reach 18 million tCO_{2e} and generate more than EUR 90 million in revenue.⁷⁴

The above figures do not consider carbon credit revenue from voluntary market projects, so with the conservative price it is reasonable to expect that there will be more than EUR 100 million in carbon credit income to projects in Kenya by 2020.

Kenya has recently taken action to address climate change and requested the counties within the state to note climate change actions and priorities as part of the process of developing the country's National Climate Change Action Plan (2018-2022). All but one of the counties identified afforestation and reforestation as key actions to address climate change.⁷⁵ The possibility of registering REDD+ projects within Kenya is therefore substantial although levels of such projects are currently low. The generation of carbon credits from REDD+ may assist in the implementation and operation of a carbon pricing mechanism within the country.

Renewable energy deployment in Kenya, especially in the power sector, is a subject that has been amply described in official national documents.⁷⁶ The Kenyan National Environment Management

⁷⁰ Green Power Renewable Energy Opportunities in Kenya – a Snapshot p. 6 <https://www.filepicker.io/api/file/BHdNGfKSBSe10h3hezsr> (accessed on 2018-10-24).

⁷¹ CDM Project search- <https://cdm.unfccc.int/Projects/projsearch.html> (accessed on 2018-10-10)

⁷² CDM List of registered PoAs: <http://cdm.unfccc.int/ProgrammeOfActivities/registered.html> (accessed on 2018-10-26)

⁷³ CDM Database for PAs and PoAs (accessed on 2018-10-26)

⁷⁴ Republic of Kenya – Finance *Analysis of the Carbon Market Landscape in Kenya* Prepared by Carbon Africa for Adam Smith International p 4.

⁷⁵ Ministry of Environment and Forestry – Climate Change Directorate, National Climate Change Action Plan (2018-2022) Consultation with County Government Climate Change Representatives – Meeting Report

⁷⁶ See the Republic of Kenya National Climate Change Action Plan 2013-2017.

Authority estimates that geothermal energy alone could yield a GHG abatement of as much as 14 MtCO₂e in 2030, while wind and solar energy could deliver about 1.4 and 1.0 MtCO₂e in emissions reduction respectively, in that year.⁷⁷ As such, Kenya's National Climate Change Action Plan makes provides a platform to further increase the country's participation in the carbon markets. Kenya's active participation in the carbon market was also described as an essential aspects which would simplify the implementation of Carbon Pricing in the country.⁷⁸

The government of Kenya recognises that renewable energy sources which include wind, biomass, small hydros, geothermal, biogas, solar and municipal waste energy, have potential to generate income and employment, over and above contributing to the electricity supply and diversification of generation sources. As such, the Kenyan government introduced a Feed-in-Tariff as an instrument to promote the generation of electricity from renewable energy sources.⁷⁹ The advantages of introducing FITs in the renewable energy sector includes that it promotes environmental integrity including the reduction of greenhouse gas emissions which can be registered with one of the respective carbon standards to generate carbon offsets. Furthermore, a FIT system enhances energy supply security, reducing the country's dependence on imported fuels, and coping with the global scarcity of fossil fuels and its attendant price volatility. A FIT model may not be a form of carbon pricing, but it does however provide an incentive to increase the use of renewable energy in the country, which ultimately has the same effect as any carbon pricing mechanism, which is to reduce the amount of GHGs in the earth atmosphere.

Although the majority of emission reduction projects have been registered with the CDM, there have been some activity in the voluntary market space. Kenya is currently host to 15 projects registered under the Verified Carbon Standard (VCS), that is under the management of Verra. Fourteen of these projects have issued VCUs amounting to nearly 10 million VCUs, most of which (about 96%) were generated by projects in the agricultural sector⁸⁰. Of these projects, three have been registered as REDD/REDD+ projects under the VCS, with one other REDD project registered under the Plan Vivo standard⁸¹. Kenya also has two projects undergoing VCS validation (since 2015 and 2017 respectively).⁸² Several projects have been registered under the Gold Standard, and in the 2nd quarter of 2016, 17 571 tons of CO₂e have been issued to these projects⁸³. Even though emission reduction or sequestration projects applying voluntary market carbon standards are sometimes seen as being of secondary importance to the CDM, they are pioneering carbon transactions in sectors of relevance to Kenya, such as avoided deforestation. Voluntary market projects are also delivering real emission reductions and attracting carbon finance to Kenya.

⁷⁷ *Ibid* p 36.

⁷⁸ Interview, Anne Nyatichi Omambia Chief Compliance Officer/Climate Change Coordinator National Environment Management Authority (2 April 2019).

⁷⁹ Ministry of Energy, Feed-In-Tariffs Policy on Wind, Biomass, Small- Hydro, Geothermal, Biogas And Solar Resource Generated Electricity, available at https://renewableenergy.go.ke/asset_uplds/files/Feed_in_Tariff_Policy_2012.pdf (accessed on 2019-02-27).

⁸⁰ VCS listing: https://www.vcsprojectdatabase.org/#/projects/st_/c_KE/ss_0/so_/di_/np (accessed 2018-10-26)

⁸¹ ID-RECCO: <http://www.reddprojectsdatabase.org/view/projects.php?id=404&name=Kenya&type=project> (accessed 2018-11-06)

⁸² VCS pipeline: https://www.vcsprojectdatabase.org/#/pipeline_details/PL1468 and https://www.vcsprojectdatabase.org/#/pipeline_details/PL1662

⁸³ Gold Standard, Supply Report Q2 2016, https://www.goldstandard.org/sites/default/files/documents/gs_supply_report_q2_2016.pdf

Considering the above, both the CDM and voluntary carbon markets in Kenya have, since 2008, shown increasing activity in terms of carbon project development, successful registration and transactions, carbon credit volumes, capital investment and diversification of sectors and sizes of projects. Increased activities in the international carbon markets are positive indicators that could support a domestic carbon pricing system. Kenya would however need to consider the complexities of participating in both international carbon pricing schemes, such as the scheme envisaged by Article 6.2 of the Paris Agreement and the ICAO's CORSIA.

The demand for carbon credits will be determined by the markets in which Kenya participates in. Kenya's NDC allows for participation in international scheme envisaged by Article 6.2 as the NDC states that "Kenya does not rule out the use of international market-based mechanisms in line with agreed accounting rules."⁸⁴ Currently, Kenya is not obliged to contribute to ICAO's CORSIA as its share of international aviation activity in RTK is 0.17% and consequently below the 0.5 % participation threshold. However, Kenya decided to voluntarily participate in the CORSIA scheme with effect from 2021 to 2023.⁸⁵ As such, this might affect Kenya's ability to implement carbon pricing as some of the countries carbon credits will have to be surrendered to the CORSIA scheme. Transferring outcomes or trading emission reductions under these mechanisms may therefore limit options for Kenya to count domestic emissions reductions towards the achievement of its own NDC GHG emissions reductions and subsequently also limit the potential to develop and implement carbon pricing in the country. If this is not managed carefully, it may leave only higher cost mitigation options for the government to pursue.

It should also be noted that although Kenya's NDC makes no mention of ITMOs, the country has recognised the potential behind ITMOs to attract foreign investment to the country's economy. The country's National Policy on Climate Finance⁸⁶ includes this statement but also acknowledges the fact that transferring mitigation outcomes or trading emission reductions under the new Paris mechanism may limit options for Kenya to count domestic emissions reductions towards the achievement of its own NDC GHG emissions reductions. If this is not managed carefully, it may leave only higher cost mitigation options for the government to pursue.

Kenya has developed numerous NAMAs for various sectors, including the transport sector, the waste sector, the agriculture sector and the energy sector.⁸⁷ Kenya has also committed itself to develop Nationally Appropriate Mitigation Action (NAMA) for its dairy sector, which, as outlined in the emissions profile above, contributes significantly to the country's emissions. The project supported private and public stakeholders at local and national levels to develop, pilot, and scale up activities that promote dairy development. In particular, this research supports activities that deliver higher productivity while reducing emissions. This project supported the development and

⁸⁴ Republic of Kenya National Treasury, National Policy On Climate Finance, May 2016, See section 2.1.3, p 11.

⁸⁵International Civil Aviation Organization, Seventh Meeting Of The Directors General Of Civil Aviation Administration Of The Afri Region (AFI-DGCA/7) 20 July 2018, Niamey, Niger , p 4. <https://www.icao.int/WACAF/Documents/DGCA/DGCA-7/AFI-DGCA.7%20-%20WP.14.%20-%20Status%20of%20Priority%20Implementation%20Plan%20on%20Environmental%20Protection.pdf> (accessed on 2018-10-24)

⁸⁶Republic of Kenya National Policy on Climate Finance (December 2016) p 11.

⁸⁷ NAMA database <http://www.nama-database.org/index.php/Kenya> (accessed on 2019-04-03)

implementation of the Kenyan NAMA to scale up and reach more than 600,000 dairy farmers and reduce greenhouse gas emission intensities in the dairy sector by at least 30%.⁸⁸

Based on the above and Kenya's current circumstances, the supply and demand forecasts related to carbon credits seem to be localised. Turning to the international market, demand for carbon credits from Kenya seems to be relatively restrained, as Kenya's views towards ITMO mechanism has not yet been clarified. The potential for a national carbon pricing mechanism will therefore be reinforced by the current supply and demand forecasts associated with the carbon space in Kenya.

2.3 Work done to implement carbon pricing

One of the recent, most significant indicators that suggests Kenya's willingness to implement carbon pricing is the announcement in 2016 that Kenya's stock market would be launching an emissions trading platform which would be aimed at providing companies with a platform to sell their carbon credits to foreign buyers.⁸⁹ The Nairobi Securities Exchange stated that the scheme would help Kenyan firms, including the country's largest utilities such as KenGen, Mumias Sugar, East Africa Portland Cement and grid operator Kenya Power, to sell their emissions credits. It is envisaged that the scheme will also be designed to include new type of carbon units to be generated by future market-based mechanisms such as the mechanism to be introduced in terms of Article 6 of the Paris Agreement. Although anecdotal reports indicate that the mechanism was "65%" complete, the emissions trading scheme has not yet been launched.⁹⁰

The emissions trading platform could be based on the Africa Carbon Exchange that was established in Kenya in 2011. The exchange aimed to replicate those in places elsewhere in the world and facilitate the transaction of greenhouse gas allowance trading with price transparency. The plan was to have a registry and trading platform that seeks to match orders for buying and selling, not only for projects in Kenya but for all African countries. However, the exchange never quite took off with no active participants buying or selling carbon credits on the exchange.⁹¹

From an implicit carbon pricing point of view, electricity subsidies in Kenya were eliminated over the course of 7–8 years through a combination of tariff increases, improvements in collections, and reductions in technical losses.⁹² A key feature which helped to secure the cooperation of the private sector was the commitment by the government that the additional cost of energy would help finance the development and expansion of domestic sources of renewable energy that would ultimately reduce the cost of power and strengthen competitiveness. The implementation of implicit Carbon Pricing in the form of tariff increases were more acceptable because they were

⁸⁸ Climate Change, Agriculture and Food Security "Kenya develops and implements a Nationally Appropriate Mitigation Action (NAMA) in the dairy sector. <https://ccafs.cgiar.org/nationally-appropriate-mitigation-actions-kenya%E2%80%99s-dairy-sector> (accessed on 2019-04-03)

⁸⁹ Brittlebank "Kenya to launch new emissions trading scheme" (26 February 2016) http://www.climateaction.org/news/kenya_to_launch_new_emissions_trading_scheme (accessed on 2018-10-10)

⁹⁰ Interview, Anne Nyatichi Omambia Chief Compliance Officer/Climate Change Coordinator National Environment Management Authority (2 April 2019).

⁹¹ Please also note that, as discussed in the legal section's analysis of the *National Policy on Climate Finance* (2016), a domestic carbon trading platform is no longer part of national climate change policy.

⁹² International Monetary Fund *Energy Subsidy reform in Sub-Saharan Africa – Experiences and Lessons*

accompanied by improvements in the quality of service delivery and access through proper revenue recycling measures.

From a MRV perspective Kenya's Climate Change Act (2016) puts in place the structures and framework for implementing the NDC, including establishing a coordinating body: the Climate Change Directorate. The Act calls for National Climate Change Action Plans (NCCAPs) every five years. In the first such five-year plan, a Monitoring, Verification and Reporting (MRV+) system was proposed for Kenya to effectively measure, report and verify its climate actions.⁹³ This would sit within a wider National Performance and Benefit Measurement Framework. Some of the framework components have been implemented, however there are significant challenges to successfully implementing a full MRV+ system. Particular effort is required to define clear roles and responsibilities for MRV at different levels of government: because Kenya's national government has devolved significant power to the county level. The second *National Climate Change Action Plan* will cover NDC implementation and build on the existing elements of the MRV+ system.

Flowing from the requirements of the Climate Change Act, the *National Policy on Climate Finance* (2016), sets out the interventions necessary for a national Tracking, Monitoring, Reporting and Verification Framework, which will be established with the aim of providing a clear overview of domestic and international climate financial flows, trends, sources and purposes. The anticipated interventions are listed, as follows: ⁹⁴

- a) Develop a strategy and make regulations setting out procedures and powers to monitor financial, technology transfer, and capacity building support received to comply with the Paris Transparency Framework.
- b) Develop a strategy to monitor and track uses of climate finance by various national, county, non-state and private sector actors, to enhance integrity and to eliminate corrupt practices.
- c) With the support of the climate finance mechanism (Climate Change Fund), establish a climate finance tracking system, including development of required subsidiary legislation, taking into account international best practices and the Paris Transparency Framework requirements.
- d) Prioritise and enhance the use of existing MRV processes, data collection and information management systems (such as the Integrated Financial Management Information System [IFMIS], National Integrated Monitoring and Evaluation System [NIMES] and Electronic Project Management Information System [E-ProMIS]) for completeness, transparency, comparability, accuracy and efficiency in regard to climate finance.
- e) Integrate the climate finance tracking system with performance, outcomes and benefits sharing and reporting.
- f) Ensure that the climate finance MRV system is transparently linked with national and county sustainable development planning, budgeting and monitoring systems.
- g) Publish and disseminated update information on climate finance, and provide necessary inputs to international reporting obligations on climate finance.

⁹³ Kenya National Climate Change Action Plan 2013-2017, page 130.

⁹⁴ National Policy on Climate Finance (2016), page 31.

- h) Support capacity building of the NDA, NIEs and other climate finance actors to monitor the climate change and sustainable development impacts of projects under implementation, and report on climate change programmes to policymakers and donor agencies.
- i) Build capacities of national and county entities to participate in the MRV process and systems, including tracking the flow of financial, technology transfer and capacity building support received; and tracking national and sustainable development impacts resulting from activities.
- j) Develop institutional capacity to undertake baseline calculations in the major GHG-emitting entities in order to facilitate GHG emission monitoring and reporting that will enable MRV of results-based finance.

2.4 Nationally determined contributions

Kenya's commitment towards the Paris Agreement is evident when considering its ambitious NDC. Kenya seeks to abate its GHG emissions by 30% by 2030 relative to the BAU scenario of 143 Mt CO₂e and to consequently align its emissions with its sustainable development agenda. However, this is also subject to international support in the form of finance, investment, technology development and transfer, and capacity building. While the NDC is limited in scope and detail in relation to Carbon Pricing, it indicates that Kenya “does not rule out the use international market-based mechanisms in line with agreed accounting rules” to facilitate the NDC's mitigation objectives. The NDC does not provide any guidance on the potential for the implementation of carbon pricing in Kenya, although this is set out *inter alia* in the *National Policy on Climate Finance* (2016), discussed in the legal section, below.

Kenya has been guided by the IPCC guidelines for sectors and aims to cover the following sectors within the NDC scope:

- **Energy:** Kenya aims to expand its energy mix by making greater use of geothermal, solar and wind energy production as well as other renewables and clean energy options. From an adaptation perspective, Kenya aims to increase the resilience of current and future energy systems.
- **Industrial Processes:** Kenya aims to enhance energy and resource efficiency across the different sectors. Kenya also aims to increase the use of clean energy technologies to reduce overreliance on wood fuels. Turning to adaptation, Kenya seeks to create an enabling environment for the resilience of private sector investment, to demonstrate an operational business case for financial outlays.
- **Transportation:** Kenya aims to develop and implement low carbon and efficient transportation systems.
- **AFOLU:** Kenya aims to make progress towards achieving a tree cover of at least 10% of the land area of Kenya. Furthermore, Kenya aims to implement Climate Smart Agriculture in line with the National Climate Smart Agriculture Framework.
- **Waste Sector:** The Kenyan Government means to develop and implement sustainable waste management systems.

Kenya's commitment to the Paris Agreement has been clear given recent global events. At the 72nd UN General Assembly held in New York, the Foreign Affairs Cabinet Secretary, Amina Mohamed, stated that climate change costs Kenya's economy approximately 3 per cent of its GDP annually.⁹⁵ The Cabinet Secretary further stated that it is essential that developing nations meet their pledges towards the Green Climate Fund (GCF) in order to enable the country to attain and realise its SDGs through its SDG Partnership Programme. Considering the afore-mentioned, it is clear that access to funding is quintessential for Kenya to meet its climate change goals. The funding will not only contribute towards realising more SDGs, but also contribute towards the implementation of emission reduction projects that are directly linked to the successful implementation of a carbon pricing mechanism.

2.5 Legal Analysis ⁹⁶

Analysis of existing climate change, environmental and developmental law and policy

- Climate Change Act (No. 11 of 2016) (Act):
 - Analysis:
 - This Act provides the regulatory framework for Kenya's enhanced response to climate change and for mechanisms and measures to achieve low carbon development.⁹⁷
 - The Act provides *inter alia* for the mainstreaming of climate change actions into decisions making and implementation of functions by sector ministries, state corporations and county governments; and, defines "mitigation" to mean efforts that seek to prevent or slow down the increase of atmospheric greenhouse gas concentrations by limiting current or future emissions and enhancing potential for sinks.⁹⁸ The term "sector ministries" is undefined and, consequently, it is assumed that this term relates, generally, to all government ministries, including the National Treasury.
 - The Act is required to be applied in all sectors of the Kenya economy and the national and county governments, including to: provide incentives and obligations for private sector contribution in achieving low carbon resilient development; promote low carbon technologies, improve efficiencies and reduce emissions intensity by facilitating approaches and uptake of technologies that support low carbon, and climate resilient development; and mobilise and transparently manage public and other financial resources for the national climate change response.⁹⁹

⁹⁵ "Kenya takes stand for Paris climate accord at UN General Assembly" (23 September 2017) <https://www.capitalfm.co.ke/news/2017/09/kenya-takes-stand-paris-climate-accord-un-general-assembly/> (accessed on 2018-10-24).

⁹⁶ Grateful thanks are due to Ms Clarice Wambua, a Kenyan climate change specialist lawyer, for providing comments for improvement on an earlier draft of this section.

⁹⁷ Climate Change Act (N. 11 of 2016), Long Title.

⁹⁸ *Ibid.*, section 2.

⁹⁹ *Ibid.*, section 3(2)(f), (g) and (h).

- The Act establishes a National Climate Change Council, chaired by the President.¹⁰⁰ The functions of the Council include: ensuring the mainstreaming of the climate change function by the national and county governments; approving and overseeing implementation of the National Climate Change Action Plan; advising national and county governments on legislative, policy and other measures necessary for climate change response and attaining low carbon climate change resilient development; providing guidance on review, amendment and harmonization of sectoral laws and policies in order to achieve the objectives of the Act; administering the Climate Change Fund established under the Act; and, setting targets for the regulation of greenhouse gas emissions.¹⁰¹
- The Cabinet Secretary exercises control and provides guidance over climate change governance and implementation of the Act,¹⁰² including on mitigation responses, assisted by the Climate Change Directorate (Directorate), the latter also established by the Act.¹⁰³
- The Directorate is the lead agency for national climate change plans and actions to deliver operational coordination,¹⁰⁴ tasked *inter alia* with establishing and managing a national registry for appropriate mitigation actions by public and private entities; and, collaborating with other agencies and county governments to identify low carbon development strategies and optimize Kenya's opportunities to mobilize climate finance.¹⁰⁵
- The Cabinet Secretary is required to formulate a National Climate Change Action Plan (Plan) which shall address all sectors the economy and provide mechanisms for mainstreaming of the Plan into such sectors.¹⁰⁶ The Plan shall *inter alia* prescribe measures and mechanisms to guide Kenya toward low carbon climate resilient sustainable development; to set out actions for mainstreaming responses into sector functions; for mitigation; to identify all actions required as enablers to the climate change response; to review and recommend duties of public and private bodies on climate change; to review levels and trends of greenhouse emissions; and, to identify outputs, overall budget estimates and timeframes to realize expected results.¹⁰⁷
- In formulating the Plan, the Cabinet Secretary shall be informed *inter alia* by economic circumstances (including the impact of the Plan on the economy, the competitiveness of particular economic sectors; small and medium-sized enterprises; employment opportunities; and, socio-economic well-being of the population); fiscal circumstances (including the likely impact of actions, strategies and policies on marginalised and disadvantaged communities); and international climate change law and

¹⁰⁰ *Ibid.*, section 5(1) and (2).

¹⁰¹ *Ibid.*, section 6(a), (b), (c), (f), (g) and (h).

¹⁰² *Ibid.*, section 8(1), (2) and (3).

¹⁰³ *Ibid.*, section 9(1).

¹⁰⁴ *Ibid.*, section 9(2).

¹⁰⁵ *Ibid.*, section 9(8)(b) and (d)(i), (ii) and (iii).

¹⁰⁶ *Ibid.*, section 13(1) and (4).

¹⁰⁷ *Ibid.*, section 13(3)(a), (b), (d), (e), (l), (m) and (n).

policy.¹⁰⁸ The Cabinet Secretary, all public bodies, and any person or entity engaged in climate change governance and administration shall, when exercising any power or discharging any statutory duty or function, be bound by the contents of the Plan.¹⁰⁹

- The Council may, on recommendation of the Cabinet Secretary and in consultation with relevant Cabinet Secretaries and county government, impose duties relating to climate change on any public entity at all levels of government. Any public entity on which a climate change duty has been imposed shall, in exercising functions under the Act or any other law, act in a manner best suited to achieve the successful implementation of the Act and the Plan, with the duty *inter alia* to integrate the Plan into sectoral strategies, plans and other implementation projections for the assigned legislative and policy functions.¹¹⁰
- The Council may, in consultation with the Cabinet Secretary and relevant State Departments, impose climate change obligations on private entities; and, shall make regulations governing the nature and procedure for reporting on performance by private entities, including the authority to monitor and evaluate compliance.¹¹¹
- The National Environmental Management Authority shall, on behalf of the Council, monitor, investigate and report on whether public and private entities comply with the assigned climate change duties; ascertain that private entities are in conformity with instructions prescribed under the Act; and, regulate, enforce and monitor compliance on levels of greenhouse gas emissions, as set by the Council under the Act.¹¹²
- The Act establishes the Climate Change Fund (Fund), vested in National Treasury, as a financing mechanism for priority climate change actions and interventions approved by the Council.¹¹³ The finances for the Fund shall *inter alia* be drawn from monies that are made payable to the Fund, under an Act of Parliament.¹¹⁴ In the event mobilisation of revenues from a notional Carbon Pricing mechanism are deemed as priority climate change actions, then the Fund could be used as the platform for such mobilisation.
- The Cabinet Secretary shall, in accordance with the appropriate law, and in consultation with the Cabinet Secretary responsible for finance, grant to persons who: encourage and put in place measures for the elimination of climate change including reduction of greenhouse emissions and use of renewable energy; put in place measures to mitigate against the adverse effects of climate change; are involved in the conduct of accredited training in programmes that are aimed at eliminating climate change, such

¹⁰⁸ *Ibid.*, section 13(5)(c)(i), (ii), (iii), (iv) and (v) and (d) and (f).

¹⁰⁹ *Ibid.*, section 13(9).

¹¹⁰ *Ibid.*, section 15(1), (2) and (5)(a).

¹¹¹ *Ibid.*, section 16(1) and (2).

¹¹² *Ibid.*, section 17(1)(a), (b) and (c).

¹¹³ *Ibid.*, section 25(1) and (2). See discussion, below of the draft Public Finance Management (Climate Change Fund) Regulations, 2018

¹¹⁴ *Ibid.*, section 25(3)(c).

incentives as may be necessary for the advancement of the elimination of, and mitigation against, climate change and the effects of climate change.¹¹⁵ Such incentives shall be granted in terms of regulations prescribed in terms of the Act.¹¹⁶

- It is an offence to fail to comply with prescriptions under the Act, and transgressions are subject to fines and/or imprisonment.¹¹⁷
 - The Cabinet Secretary shall, in consultation with the Council, make regulations for the better carrying into effect the provisions of the Act, and such regulations may *inter alia* provide for anything required to be prescribed by the Act.¹¹⁸ The power to make regulations may be delegated to the Council.¹¹⁹
- Discussion – flowing from the abovementioned analysis of sections of the Act, the following submissions are made:
- General:
 - The Act addresses general matters relating to climate change, including a wide range of mitigation considerations and greenhouse gas emissions reduction measures (unspecified in the Act) that are anticipated to be formulated and prescribed for implementation.
 - The provisions of the Act relating to greenhouse gas emissions reduction measures are sufficiently broadly framed as to include financial measures, including carbon pricing measures, provided that such measures adhere to the overarching objectives of the Act, including mitigation objectives.
 - Regulations under the Act:
 - The implementation of greenhouse gas emissions reduction actions may be prescribed for private sector entities by regulations made in terms of the Act by, either, the Cabinet Secretary or the Council.
 - The draft *Public Finance Management (Climate Change Fund) Regulations, 2018*, actualize the provisions of the Act relating to the set-up of the Climate Change Fund; and, while not, explicitly, referring to Carbon Pricing (or containing the word “carbon”, as the focus is strictly on climate finance), the Regulations provide *inter alia* that: sources of funds shall include monies appropriated by Parliament and charges levied on assets or goods and services which are linked to climate change adaptation and mitigation; and, resources shall be mobilised *inter alia* through engagement with the communities, development partners and the private sector; and, development of bankable proposals on climate change adaptation and mitigation initiatives (section 11), with various sections detailing processes for the identification, administration, financing and implementation of projects. Given general government approval of the international carbon

¹¹⁵ *Ibid.*, section section 26(1).

¹¹⁶ *Ibid.*, section 26(2).

¹¹⁷ *Ibid.*, section 33(1).

¹¹⁸ *Ibid.*, section 36(1).

¹¹⁹ *Ibid.*, section 36(2)(c) and 3(a).

market, mitigation projects might include those with the potential to generate carbon assets. Another Act of Parliament:

- The Act provides that all sector departments are subject, and must adhere, to the requirement of the Act, as these apply to such sector departments; and, must mainstream climate change considerations into their operations, including the legal instruments they are responsible for administering.
- The resources of the Fund are to be applied to financing climate change interventions identified by the Council; and, the sources of financing for the Fund include monies made payable to the Fund by an Act of Parliament.
- The Fund is vested in the National Treasury; and, the ambit of Treasury's mandate includes being empowered to legislate for financial and other measures, including taxation, upon private sector entities, as a means to contribute to the fiscus and/or for other, identified, objectives. Such objectives could include securing funds to support implementation of national priorities, including the national climate change response, particularly where Treasury is tasked, by legislation, with administering the financial means to achieve such support, e.g., the Fund.
- National Treasury, in mainstreaming climate change considerations into its operations and administration (in compliance with the Act) and to establish a source of monies payable to the Fund, might develop a new statute the objective of which is to support implementation of the Act through the application of climate change-related financial measures.
- Such new statute could provide for the implementation of a carbon pricing mechanism, e.g., carbon taxation on private sector greenhouse gas emitters, aimed at raising carbon revenue made payable to the Fund. This would constitute a source of financing for the Fund in the form of monies made payable to the Fund by an Act of Parliament, as anticipated by the Act, which monies would constitute revenue collected from greenhouse gas emitters that could be applied to financing the climate-friendly initiatives supported by the Fund. This approach would amount to the recycling of carbon revenue into the economy, to facilitate achievement of the objectives of the Act.
- The financial legal regime established by Treasury's new statute might also provide for the type of incentives for the advancement of the elimination of, and mitigation against, climate change and the effects of climate change, anticipated to be implemented via regulations under the Act. Such incentives could be applied to alleviating the financial burden imposed by the carbon pricing mechanism on private sector greenhouse gas emitters, e.g., by

institutional infrastructure for the implementation of carbon pricing in Kenya.

- The abovementioned submission on National Treasury potentially developing a new statute that implements a carbon tax is based on a broad interpretation of the requirements and objectives of the Act, read with a further interpretation of Treasury's mandate in relation to the imposition of taxation.
 - It is submitted, however, that the Policy's specific reference to: the identification and implementation of fiscal and taxation policy options to support the national climate change response; and, raising carbon revenue from a range of sources, including the private sector, is support for the notion that the provisions of the Act can be read to encompass Treasury's implementation of a carbon pricing mechanism in the form of a carbon tax. This is because reference can be made to the Policy in seeking to understand the various implications of the Act. For example, the Policy also anticipates the promotion of private sector involvement in climate finance opportunities *inter alia* through the introduction of incentives.¹²⁴
 - **It is submitted that this factor favours an interpretation of the Policy as providing support for the abovementioned proposition for National Treasury's implementation of a Carbon Pricing mechanism in the form of a carbon tax, including incentives aimed at alleviating the financial burden imposed by the tax on liable entities (greenhouse gas emitters).**
- National Climate Change Response Strategy (Strategy):¹²⁵
 - Analysis:
 - A component of the Strategy is the development of a National Wildlife Adaptation Strategy, to be achieved through a series of interventions including evaluation of the potential socio-economic impacts of remedial measures on Kenya's tourism sector, with a carbon tax being specifically mentioned as an example of a remedial measure.¹²⁶
 - Discussion:
 - **It is submitted that the Strategy's specific mention of carbon tax indicates that this sort of action, to support national climate change policy, has been contemplated in the formulation of such policy; and, is support for the abovementioned submission relating to the implementation of a carbon pricing mechanism in the form of a carbon tax.**
- National Climate Change Action Plan, 2013 (Action Plan 2013):
 - Analysis:

¹²⁴ *Ibid.*, at 29.

¹²⁵ Government of Kenya *National Climate Change Response Strategy*, 2010.

¹²⁶ *Ibid.*, at 56.

- The Action Plan 2013 *inter alia* provides for eight sub-components, representing long-term and integrated strategies for achieving key climate change goals, including Subcomponent 8: Finance which developed various financial mechanisms, including the Fund, an investment strategy and a carbon trading platform to position Kenya to access finances from various sources.¹²⁷
 - Among the Action Plan 2013's set of enabling actions to support the transition to a low carbon resilient development pathway, and financing of the Action Plan 2013, there is the recommendation to establish a carbon trading platform to market Kenya's carbon market activity.¹²⁸ The recommendation is for a primary platform, the purpose of which is described as being to "facilitate the origination of carbon credits from individual projects and their initial purchase from project developers". The European Union's Emission Trading Scheme is cited as an example of such an initiative.¹²⁹
 - Three key options for the design of the platform were identified: a more efficient DNA; an export promotion agency model where public resources are used to increase the supply of Kenyan credits and promote their sale in overseas markets; and, a brokerage model where a new body is created which looks to bring together buyers and sellers of credits and works on a commission basis. Either, or both of the first two options were indicated as likely to be the most appropriate for Kenya.¹³⁰
 - The Action Plan 2013's set of enabling actions also recommended enacting overarching a standalone climate change law – it is likely that this recommendation led to the promulgation of the Act. An obvious, but unstated, element of a standalone climate change law would, presumably, be the establishment of the legal regime and required administrative and institutional infrastructure to operationalise the proposed carbon trading platform.
- Discussion:
- As abovementioned, the development of a carbon trading platform was announced in 2016 but no further progress on this initiative has been forthcoming. In this regard, a reading of the *National Policy on Climate Finance* (2016), discussed below, clarifies, without elaborating upon the reasons, that a domestic cap and trade system is not likely, in the foreseeable future, and is no longer on the climate change policy agenda.¹³¹ This ties-in with the comment, below, made in relation to the *2018 National Climate Change*

¹²⁷ Ministry of Environment and Forestry *National Climate Change Action Plan 2013*.

¹²⁸ *Ibid.*, at 41.

¹²⁹ *Ibid.*, at 87.

¹³⁰ *Ibid.*, at 88.

¹³¹ The *National Policy on Climate Finance*, 2016, indicates that, in line with the UNFCCC Standing Committee on Finance's (SCF) recommended operational definition, the Policy considers climate finance to include all finance that specifically targets low-carbon or climate-resilient development. As such, climate finance includes domestic budget allocations, public grants and loans from bilateral and multilateral agencies, and private sector investment. The government has tools to generate carbon finance, including encouraging the generation and sale of carbon credits, putting a price on carbon, and establishing an emissions trading system (such as a domestic cap and trade system which is not likely in the foreseeable future).

Action Plan's failure to mention carbon trading as potentially indicative of a deliberate policy shift away from the establishment of such a platform.

- National Climate Change Action Plan, 2018 (Action Plan 2018):¹³²
 - Analysis:
 - The Action Plan 2018 updates the Action Plan 2013 but, significantly, contains no mention of a carbon trading platform. It is currently impossible to ascertain whether this omission is a deliberate policy shift away from the establishment of such a platform, but the 2016 announcement of the intention to develop this sort of facility tends to imply that the shift has not occurred; and, that carbon trading is still on the climate change policy agenda.
 - The Action Plan 2018 continues and develops the Policy's theme of enhancing Kenya's participation in the international carbon markets, generation of carbon units and access to carbon finance; also addressing fiscal measures to support the national climate change response and emphasising obtaining climate and carbon finance from a wide and diverse range of international sources, particularly the existing *suite* of funds (the majority of which are named and the national potential for accessing them is discussed).
 - Attracting investment to support implementation of the national climate change policy:
 - It is interesting to note that, while the Policy mentions taxation as a policy option to support mitigation actions - without specifying the nature of such taxation, i.e., specifying that such taxation is anticipated to be applied, either as a means to price local greenhouse gas emissions (in the manner as proposed, above, in our submission on Treasury's potentially legislating for a carbon tax) which would constitute a disincentive for emitters or, incentivise climate-friendly initiatives in the form of tax-breaks for implementing emissions-reducing actions - the Action Plan's references to taxation are limited to the provision of tax incentives to support private sector investment, including enticing Foreign Direct Investment in the national economy.
 - It is impossible to determine, from the content of the Action Plan, whether this omission signals a deliberate policy-shift, i.e., towards the utilisation of taxation, only, as a means to incentivise desired actions and away from the notion of a carbon trading platform; or, whether this simply reflects a variation in the approaches adopted to the drafting and use of terminology by the authors, respectively, of the Policy and the Action Plan 2018 (should different authors be responsible for the content of these documents). If the omission

¹³² Ministry of Environment and Forestry *National Climate Change Action Plan 2018-2022* "Volume 3: Mitigation Technical Analysis Report", 2018.

is indicative of a deliberate shift towards taxation as incentivisation for climate-friendly action, then this would curtail the desirability of the implementation of a carbon tax. In order to clarify the position, reference must be had to the National Policy on Climate Finance, 2016, which clarifies, without elaborating on the underlying reasons, that a domestic cap and trade system is not likely in the foreseeable future, and that a domestic carbon trading platform is no longer on the climate change policy agenda.¹³³

- By contrast, the Action Plan 2018’s continuation and development of the Policy’s theme of enhancing Kenya’s participation in the international carbon markets, generation of carbon units and access to carbon finance, is further enhanced by specific indication that attention must be given to delivering *inter alia* “market-based signals”, as a means to secure private sector investment and foreign direct investment in appropriate mitigation projects. It is submitted that the importance accorded to “market-based signals” is support for implementation of international carbon market best practice, including signalling firm and consistent pricing for greenhouse gas emissions reductions, e.g., in the form of a national carbon price, which would have the added effect of enhancing the attraction, effectiveness and efficiency of the Kenyan carbon market.¹³⁴

○ Discussion:

- **If the abovementioned submission is correct, then the notion of introducing a carbon pricing mechanism, pursuant to the Act, is sustained; albeit that, in order to accommodate a potential shift in the policy on utilisation of taxation, such mechanism might not take the form of a carbon tax on greenhouse gas emissions but, rather, constitute an alternative approach that tends to incentivise private sector investment in appropriate mitigation projects and the generation of carbon units.** For example, such incentivisation could take

¹³³ The National Policy on Climate Finance, 2016, indicates that, in line with the UNFCCC Standing Committee on Finance’s (SCF) recommended operational definition, the Policy considers climate finance to include all finance that specifically targets low-carbon or climate-resilient development. As such, climate finance includes domestic budget allocations, public grants and loans from bilateral and multilateral agencies, and private sector investment. The government has tools to generate carbon finance, including encouraging the generation and sale of carbon credits, putting a price on carbon, and establishing an emissions trading system (such as a domestic cap and trade system which is not likely in the foreseeable future), page viii.

¹³⁴ Barazini A et al *Seven Reasons to Use Carbon Pricing in Climate Policy* Centre for Climate Change Economics and Policy Working Paper No 253 and Grantham Research Institute on Climate Change and the Environment Working Paper No. 224, February 2016, provide a cogent argument for the implementation of carbon pricing as a means to support a national climate change response. These authors list the following seven reasons for their conclusion: (1) A national carbon price externalises the economy-wide cost of emissions and promotes investments that are specifically informed by such costs, providing the impetus for consumers and producers to adjust their financial decisions to pricing levels corrected to take account of the climate change externality; (2) Carbon pricing addresses the heterogeneity of GHG emitters by providing a common metric to access marginal abatement costs which will drive emitters to choose the level of emissions abatement for which the associated marginal cost equals the (common) carbon price, thus resulting in a reduction in pollution; (3) Carbon pricing provides a financial incentive for consumers and producers to invest in more efficient technology; (4) Lack of carbon pricing discourages the more intense use of a more efficient and – without a carbon price – cheaper technology, the contrary also being true; (5) An international carbon price would prevent carbon leakage between countries; (6) Carbon Pricing lets emitters choose their favoured abatement action that their preferred cost; (7) Carbon Pricing permits the consumer to choose to purchase the goods they prefer, based on the environmental footprint of the goods.

the form of a tax break on the income earned from the sale of Carbon Units. There is international precedent for such an approach.¹³⁵

- National Policy on Climate Finance, 2016 (Policy):
 - The Policy anticipates positioning the country to achieve better access climate finance through a variety of mechanisms, while indicating that such access can help advance the *Kenya Vision 2030* agenda by increasing the country's adaptive capacity and resilience to climate change while promoting low carbon sustainable development.¹³⁶
 - The Policy sets out how the National Treasury, other government departments and agencies, and county governments will deliver on the climate finance aspects of the Act Kenya's NDC obligations, by indicating that, in line with the UNFCCC Standing Committee on Finance's (SCF) recommended operational definition, consideration of climate finance, in the Policy, encompasses all finance that specifically targets low-carbon or climate-resilient development, including domestic budget allocations, public grants and loans from bilateral and multilateral agencies, and private sector investment. In this regard, the Policy notes that government has tools to generate carbon finance, including encouraging the generation and sale of carbon credits, putting a price on carbon, and establishing an emissions trading system (such as a domestic cap and trade system, which is not likely in the foreseeable future).¹³⁷
 - The Policy prioritises various interventions, including: government's development of new legislative instruments to govern the terms and type of involvement of entities in GHG emission reduction initiatives and carbon market initiatives; the identification and implementation of fiscal, taxation and other policy options (such as green bonds) in priority areas with high GHG emission abatement potential or high climate resilience benefits; and, the use of policies, laws and regulations to develop market-based and non-market-based mechanisms.¹³⁸
 - The Government will establish a clear and flexible legal and regulatory framework for climate finance that is responsive to developments in Kenya, including delivering on the climate finance elements of the Climate Change Act, 2016, and climate finance elements required under the international climate change regime, including:
 - identifying and implementing fiscal, taxation and other policy options (such as green bonds) in priority areas with high GHG emission abatement potential or high climate resilience benefits;
 - using policies, laws and regulations to develop market-based and non-market-based mechanisms (the Policy lists a comprehensive set of statutes that are relevant for these purposes, various of which are analysed in this section); and,

¹³⁵ Section 12K of the South African Income Tax Act, as amended, provides that income earned from the sale of CERs generated by eligible CDM projects, located in that country, do not attract the usual income tax. The intention behind this section is to promote investment in South African CDM projects by allowing for an enhanced flow of carbon revenue income stream, to the owners of such projects, in the form of a legislated tax break.

¹³⁶ *National Policy on Climate Finance, 2016, page viii.*

¹³⁷ *Ibid.*

¹³⁸ *Ibid.*, pages 27 to 28.

- establishing rules to determine the responsibility for paying costs and liability for taxes.
- The Policy provides a framework to attract flows of climate finance and promote climate investment through financial and economic instruments, and cooperative approaches/market-based mechanisms, in which benefits and risks are distributed equitably, including specific interventions which have relevance for the carbon market, such as:
 - developing robust and flexible public financial instruments to support and leverage private sector investments in low carbon and climate resilient activities;
 - promoting investor confidence and participation in market-based mechanisms, focusing on the voluntary carbon market over the short term, while preparing for the mechanisms created under the Paris Agreement;
 - facilitating Kenyan participation in the design and implementation of cooperative approaches and market-based mechanisms;
 - enhancing the generation, management and issuance of emission reduction credits and trading of carbon credits;
 - enhancing Kenyan capacity to engage in carbon asset activities, by strengthening the viability of domestic carbon asset production and increasing access to international carbon markets; and,
 - establishing innovative mechanisms for additional resource mobilisation, such as green bonds.¹³⁹
- The Policy notes that carbon markets have incentivised international private sector investment in mitigation activities (Kenya having hosted several innovative CDM and voluntary market projects), while expressing the view that the CDM market holds very little promise to generate investments before 2020, because of a decline in demand and uncertainty around functionality of the new, market-based mechanisms, to be created under the Paris Agreement. Market readiness activities and a strong engagement in UNFCCC negotiations on markets are of great importance due to the expectation for elevated flows of private sector carbon investment, through existing and new market-based mechanisms. To date, extensive private sector investment (geothermal, biomass, solar and small hydroelectric projects; and, in providing financial and insurance services), has been encouraged through various fiscal incentives, implemented by government, e.g., exempting the importation, construction and sale of photovoltaic cells from duty and tax; and, ten-year tax holidays for small-scale solar projects. In relation to government-driven financial measures that influence investment, the Policy acknowledges that trade could be negatively impacted by carbon taxes and obligations for emissions reduction – effectively being countered by the promotion

¹³⁹ Kenya has recently launched its green bonds market, through the publication of a *Policy Guidance Note (PGN) on Issuance of Green Bonds* (2019), and the approval of amendments to the *Nairobi Stock Exchange Listing Rules*, by the Capital Markets Authority. Kenyan banks plan to issue the first green bond by the end of 2019. While not constituting a form of Carbon Pricing, the green bond mechanism is a tool to mobilise private capital towards financing the transition towards low-carbon investments; which, it is submitted is substantially the same objective as Carbon Pricing (in terms of seeking to reduce GHGs in the atmosphere).

of low-carbon and green commodities and goods.¹⁴⁰ This acknowledgement leads to the submission that the Policy implicitly envisages Kenya’s implementation of Carbon Pricing, in the form of a carbon tax, although there is no further reference, specifically, to carbon taxation, in the Policy. In this regard, see the following analyses of the Energy Act, 2006, and the Energy Bill, 2017, and the related submissions that both of these instruments empower the relevant regulatory authorities to implement various forms of Carbon Pricing.

- The Energy Act, 2006 (Energy Act):

- Analysis:

- The Energy Act regulates the energy generation industry, including the promotion of renewable energy. The Energy Minister (Minister) may perform such functions and exercise such powers as may be necessary to promote the development and use of renewable energy, including “harnessing opportunities under the CDM and other mechanisms, including but not limited to, carbon credit trading to promote the development and exploitation of renewable energy sources”.¹⁴¹ The term “other mechanisms” is not defined but the rules of legislative interpretation (which indicate that in interpreting a list appearing in a statute the preceding words in the list inform the meaning and understanding of the following words in the list) lead to the conclusion that this term denotes other mechanisms, similar to the mitigation/carbon-related focus of the CDM.
- The Energy Act establishes the Energy Regulatory Commission (Commission) which is empowered *inter alia* to make proposals to the Minister for regulations which may be necessary or expedient for the regulation of the energy sector or for carrying out the objects and purposes of the Energy Act.¹⁴²
- The Commission is also empowered to make the regulations to be made under the Energy Act (presumably this means *any* of the regulations, including those assigned to the Commission and those assigned to the Minister, in terms of the Energy Act, although this is not explicitly stated), on its own motion.¹⁴³
- The Minister may *inter alia* make the abovementioned regulations (as recommended by the Commission); and/or, make further regulations (also on the recommendation of the Commission) for or with respect to any matter that by the Energy Act is required or permitted to be prescribed, or that is necessary or expedient for carrying out or giving effect to the Energy Act.¹⁴⁴ Regulations made by the Minister may impose conditions, requiring acts or things to be performed or done to the satisfaction of the

¹⁴⁰ *Ibid.*, page 23.

¹⁴¹ The Energy Act, 2006, section 103(2)(g).

¹⁴² *Ibid.*, section 6(b).

¹⁴³ *Ibid.*, section 110(2).

¹⁴⁴ *Ibid.*, section 110(1).

Commission, prohibiting acts or things from being performed or done and may prescribe periods or dates upon, within or before which such acts or things shall be performed or done or within which such conditions shall be fulfilled.¹⁴⁵

○ Discussion:

- **It is submitted that the abovementioned analysis of the Energy Act permits the implementation of a Carbon Pricing mechanism in the form of emissions trading, in Kenya, provided that such trading supports the development of renewable energy resources, in the country.** Support for this proposition is drawn from the Act’s provisions empowering the Minister to perform such functions and exercise such powers as may be necessary to promote the development and use of renewable energy, including “harnessing opportunities under the CDM and other mechanisms, including but not limited to, carbon credit trading to promote the development and exploitation of renewable energy sources” (own emphasis). Given this specific reference to carbon credit trading, it is submitted that the Act is a useful (and unique, in Kenyan law) vehicle to use as a platform to establish emissions trading, as a Carbon Pricing mechanism. The empowering provision is broadly stated and an emissions trading scheme might be formulated to utilise, as tradeable carbon commodities, either CERs, other species of carbon units, or a combination of these. The scheme would be implemented via regulations made under the Energy Act. In the event that such regulations are made by the Minister, then development of the scheme would need to be recommended, to the Minister, by the Commission; alternatively, the Commission is mandated to make the regulations, on its own motion.
- Notwithstanding the abovementioned potential to establish Carbon Pricing, in the form of emissions trading, it should be noted that the *National Policy on Climate Finance*, 2016, indicates that, while government has various tools to generate carbon finance, including establishing an emissions trading system, this approach is no longer part of national climate change policy and, consequently, is not likely in the foreseeable future. In light of this policy-shift, the breadth of the Act’s empowering provision has relevance: “...harnessing opportunities under the CDM and other mechanisms, including but not limited to, carbon credit trading...” In accordance with the abovementioned the rules of legislative interpretation, it is submitted that the inclusiveness of the words: “...and other mechanisms, including but not limited to...” when placed after the words: “...harnessing opportunities under the CDM...” envisages use of other mitigation/carbon-related mechanisms, similar to the focus of the CDM, such as Carbon Pricing. Support for this submission comes from the implicit reference, in the *National Policy on Climate Finance*, 2016, to carbon taxation in Kenya; and, it is, therefore, further submitted that the

¹⁴⁵ *Ibid.*, section 110(4).

introduction of a carbon tax is part of the national climate change policy agenda (see discussion of the implicit reference to carbon taxation in the analysis of the *National Policy on Climate Finance*, 2016, earlier in this section).

- Energy Bill, 2017 (Bill):
 - The Bill was recently signed into law, by the President, with an anticipated future date for implementation; and, will *inter alia* repeal the Energy Act, 2006,¹⁴⁶ and establish the Rural Electrification and Renewable Energy Corporation (Corporation), which shall perform such functions and exercise such powers as may be necessary under the Act (own emphasis).¹⁴⁷ Note that use of the word “shall” indicates that the Corporation’s performance of functions and exercise of powers are obligatory, i.e., such powers and functions are legally required to be undertaken.
 - In this regard, the Corporation is provided with a very wide mandate, including supporting the uptake of renewable energy, including:
 - harnessing opportunities under the clean development mechanism and other mechanisms, including, but not limited to, carbon credit trading to promote the development and exploitation of renewable energy sources; and,
 - undertaking any other duty or perform such other function as may be necessary for the execution of its mandate.¹⁴⁸
 - The former is a direct repetition of the abovementioned provision of the Act, that has been submitted as empowering the Minister to implement Carbon Pricing; while, the latter is very widely framed and, it is submitted, can be interpreted as including duties and functions that implement Carbon Pricing, provided this is supportive of renewable energy initiatives, as part of the Corporation’s mandate. Consequently, it is further submitted that the Bill empowers the Corporation to implement a range of Carbon Pricing mechanisms.

Analysis of tax and financial management legislation

- General:
 - It is interesting to note the mention, in the National Policy on Climate Finance, 2016, that equitable sharing of climate finance and carbon market benefits is a constitutional requirement, specifically: any benefits that might accrue from carbon market activities and transactions, such as fees or taxation-related income, would need to be shared between the national government, county governments and local communities.¹⁴⁹
 - The National Policy on Climate Finance, 2016, also indicates that government can consider economic and financial instruments to leverage private sector investments into low carbon and climate resilient initiatives, including guarantees to enable

¹⁴⁶ Energy Bill, 2017, Kenya Government Gazette Supplement No. 194 (National Assembly Bills No 50) section 252(1)

¹⁴⁷ *Ibid.*, sections 42(1) and 43(1)(*chapeau*), read together.

¹⁴⁸ *Ibid.*, sections 43(1)(q) and (t), read together.

¹⁴⁹ *National Policy on Climate Finance*, 2016, *supra.*, page 18.

small- and medium-sized enterprises to access funds from financial institutions; and guarantees, insurance and concessional loans to address the barriers associated with risky investments and up-front investment costs. This Policy proposes that the viability of compliance and voluntary carbon market activities will depend on government's further consideration of the security of property rights surrounding the carbon assets, the taxation regime and financial services arrangement of the transactions; and, the costs involved in complying with additional regulation, such as environmental approvals and project approval processes.

- Kenya is a member of the Vulnerable 20 Group (V20), and subscribes to the V20 declaration on carbon pricing and the V20's Fifth Ministerial Communiqué (dated 14 October 2018), which indicates the Group's having accelerated fossil fuel subsidy reform and support for V20 carbon pricing efforts, as part of combined activities between the V20 and the G20, and with a view to introducing carbon pricing by 2025.¹⁵⁰
 - Certain of the fiscal policy decisions made in Kenya seem to contradict one another. For example, in 2016, the Kenyan National Treasury scrapped the levies imposed by the National Environmental Management Agency (NEMA) and the National Construction Authority (NCA). The notion underpinning this move was apparently to ease the burden of investors seeking to venture into real estate and fast-track procedures to start such businesses. Before the move, developers in Kenya were paying the NCA 0.5% of the total value of those construction projects worth over Kenyan Shillings (Sh) 5 million, while the cost of environmental audits, commonly ran to between Sh10,000 and Sh40 million depending, on the project risk level. The move has caused political consternation, in Kenya, where the government has been accused of jeopardising the financial sustainability of the NEMA and the CBA.¹⁵¹ The point is that the move suggests government's dislike of levies and charges related to the environment, which have been removed to promote investment; but, which flies in the face of certain other fiscal policy decisions, discussed below. Recently, for example, government increased the various charges associated with fossil fuel purchases, namely the fuel levy (managed by the Kenya Roads Board), excise duty, the petroleum development levy and the petroleum regulatory levy.¹⁵²
- Kenya Finance Act 2018:
 - The Act introduces various new exemptions (as of 1 July 2018), e.g., on the value added tax (VAT) applicable to various items, including specialised equipment for the development and generation of wind energy (previously the exemption only applied to equipment used to generate solar energy, so the change represents a

¹⁵⁰ <https://www.v-20.org/wp-content/uploads/2018/10/V20-4th-Ministerial-Communique-Oct-2018-Adopted-1.pdf>

¹⁵¹ <https://www.businessdailyafrica.com/news/House-team-faults-Uhuru-over-ban-on-environmental-levies/539546-4337324-m5xssd/index.html> ; <https://constructionreviewonline.com/2016/07/sigh-of-relief-for-kenyan-developers-as-nca-nema-levies-scraped/>

¹⁵² https://www.the-star.co.ke/news/2016/07/14/why-fuel-prices-shot-up-governemnt-collects-sh38-levies-taxes-per_c1385534

- widening of the ambit of the exemption). The effect of this change is to support renewable energy development, in Kenya, by way of a fiscal measure.
- The Act introduces an increased excise duty for imported private passenger vehicles - above 2,500 cc diesel engine capacity and above 3,000 cc petrol engine capacity - from 20% to 30%, effective 1 July 2018. The effect of this change is to use an existing mechanism to increase the costs of importing vehicles that will be responsible for higher levels of carbon emissions.
 - The Act introduces a single excise duty rate for both illuminating kerosene and gas oil of KES 10,305 per 1,000 litres, effective 1 July 2018, whereas, previously, illuminating kerosene attracted a duty rate of KES 7,205 per 1,000 litres while gas oil was subject to excise duty at the rate of KES 10,305 per 1,000 litre. The effect of this change is to use an existing mechanism to increase the aggregated costs of these items and, effectively, to impose a higher charge on the carbon emissions generated by their utilisation.
 - Feed-In-Tariff: a second revision of feed-in tariffs for Kenya was adopted in December 2011, entering into force on January 2012.¹⁵³ The revision Act introduced: standardised power purchase agreements (PPAs) templates to be used as a basis for negotiations; guidelines for connecting small scale renewables to the grid to be used when undertaking grid connection study that all developers are required to perform; Revised implementation guidelines to include a standardised application form and progress reporting and monitoring frameworks; and, changed feed-in tariff levels. The effect of this change is to support renewable energy development, in Kenya, through the fiscal mechanism of a Feed-In-Tariff.

High level constitutional analysis¹⁵⁴

The Kenyan Constitution provides that only national government, may impose income and value-added taxes, customs duties and other duties on import and export goods and excise taxes.¹⁵⁵ It requires any tax or duty imposed by “national government”, i.e., including but not limited to taxes or duties imposed by National Treasury, to be authorised by an Act of Parliament.¹⁵⁶ Accordingly, should National Treasury or other government Ministry wish to finalise an Act of Parliament to implement a Carbon Price, it could do so in the ordinary course by way of ensuring the passage of a draft Bill. If it were to do so by executive order under the Climate Change Act it would be limited to do so in the form of Carbon Pricing incentives.

In the latter regard - and as discussed, above, under the Climate Change Act - the Cabinet Secretary for the Ministry responsible for climate change is required, in accordance with the appropriate law

¹⁵³ <https://www.ica.org/policiesandmeasures/pams/kenya/name-127280-en.php>

¹⁵⁴ High level constitutional analysis of the extent to which a line function government department’s exercise of a statutory power is subject to legal/approval processes other than as provided for in the empowering statute - such as in event that the department’s exercise of the power impinges upon the competence of another government department. An example of this situation would be when an environmental department is empowered to impose an environmental levy which has fiscal/taxation implications that normally fall into the purvey of a national financial department.

¹⁵⁵ Section 209 of the Kenyan Constitution 2010.

¹⁵⁶ Section 209 of the Kenyan Constitution 2010.

and *in consultation* with the Cabinet Secretary responsible for finance, to develop regulations for the effective implementation of the Act. As noted above, we consider the language of the Act to be sufficiently broad to include implementation of Carbon Pricing, in the form of an incentive, i.e., not as a tax with general application, by way of regulation. Any such regulations would need to be jointly developed with the Cabinet Secretary responsible for Finance; and, administered in collaboration with National Treasury (as the sector department responsible for the *fiscus*).

Agency	Mandate relevant to Carbon Pricing
Ministry of Environment and Forestry	This Ministry is responsible for the protection, restoration, conservation, development and management of the environment. It has a primary responsibility for climate change policy development and implementation. Kenya’s Climate Change Act also provides for the development of a National Climate Change Council was constituted with council members having been gazetted in terms of Gazette Notice No. 9227 of 7th November 2016..
National Treasury (Ministry of Finance)	This Ministry is responsible for formulating and implementing macro-economic policies involving expenditure and revenue, including policies that facilitate socioeconomic development in conjunction with other departments. This Ministry also developed the Draft Climate Change and Finance Policy. It tends to work with other ministries in relation to climate change, for example it worked with the Ministry of Environment and Natural Resources and the Ministry of Devolution and Planning to implement the Climate Public Budget Expenditure and Budget Review to mainstream climate change budget coding within the Integrated Financial Management Information System.
Kenyan Revenue Authority	The Kenyan Revenue Authority is responsible for the assessment, collection and accounting for all revenues in the country and would play an administrative role in tax collection in any future direct carbon pricing mechanism.
Ministry of Industry, Trade and Cooperatives	This Ministry is responsible for industrialisation policy, and development of “strategies for the private sector”, and the promotion of sustainable industrial development. Any carbon pricing mechanism would strategically require the support or cooperation of this Ministry.
Ministry of Energy and Petroleum	This Ministry is responsible for energy policy and development, thermal power development, oil and gas exploration, renewable energy development and energy regulation. The State Department of Energy is housed within it. Under the State Department of Energy is a semi-autonomous agency, the Energy Regulatory Commission, which is mandated to regulate the retail pricing of petroleum products and to set

		and review electricity tariffs. It would likely play an important role in any energy subsidy reform within these sectors.
Ministry of Agriculture, Livestock, Fisheries and Irrigation	of	This Ministry is responsible for the formulation, implementation and monitoring of agricultural legislation and policies. It also develops, implements and coordinates programmes within the agricultural sector.
	and	Any carbon pricing mechanism that related to carbon pricing of emissions from this sector would require the support of this Ministry.

2.6 Financing and carbon pricing

With regards to financing, Kenya has made considerable progress with the establishment of the government’s GCF (Green Climate Fund) Readiness Programme. The GCF is a multilateral fund established under the UNFCCC which aims to provide \$2.5 billion by the end of this year and US\$6 billion by mid-2017 to countries to tackle climate change. The Readiness Programme supports the Government of Kenya in strengthening national capacities to effectively plan for, access and monitor climate financing once the fund is fully operational.¹⁵⁷

However, inadequate infrastructure continues to hamper Kenya’s efforts to improve its annual growth so that it can meaningfully address socio-economic circumstances and environmental degradation. The administration under President Uhuru Kenyatta has been successful in courting external investment for infrastructure development. International financial institutions and donors remain important to Kenya's growth and development, but Kenya has also successfully raised capital in the global bond market issuing its first sovereign bond offering in mid-2014, with a second occurring in February 2018. The first phase of a Chinese-financed and constructed standard gauge railway, connecting Mombasa and Nairobi, opened in May 2017. From the above, it is clear that investment is growing in the country which will ultimately make the implementation of a carbon pricing mechanism easier.

At present there are no specific Kenyan fiscal or taxation requirements for CDM projects and carbon credit revenues, although government officials have indicated that such may be implemented in the future. This is likely to incentivise investors to develop emission reduction activities in the country and would ultimately be beneficial for the development of carbon pricing in the region.

While determining Kenya’s contributions to the global agreement on climate change signed in Paris in December 2015, it was estimated that over USD 40 billion would be required for adaptation and mitigation across sectors, up to 2030. Domestic and international finance needs to be materialized quickly in order to fully achieve Kenya’s targets. The GCF will be a key player in facilitating international finance.

¹⁵⁷ UNDP – Kenya Green Climate Fund Readiness Program <http://www.ke.undp.org/content/kenya/en/home/projects/Green-Climate-Fund.html> (accessed on 2018-10-22).

In Kenya, four arid and semi-arid counties (Isiolo, Garissa, Kitui, and Wajir) are at an advanced stage of approving their County Climate Change Fund legislation (as at April 2016). These new measures are providing local communities with access to climate finance and greater say in how it is spent.¹⁵⁸ County Climate Change Fund legislation commits counties to contribute a minimum percentage of their development budget to local adaptation finance, empowering residents through their elected Ward Adaptation Planning Committees to set priorities on how the 70% of the funds set aside for adaptation will be used. Whether the inputs of local communities pertaining to the utilisation of climate funds will be favourable towards the implementation of carbon pricing is yet to be established. Community involvement in climate financing may however guide the design of a carbon pricing mechanism to improve the socio-economic circumstances of local communities.

2.7 Conclusion

It is projected that biomass and oil products will remain two of Kenya's main sources of energy until at least 2030.¹⁵⁹ Without the introduction of GHG emission reduction policies, energy consumption will mainly rely on fossil fuels which includes mostly coal and oil products with relatively small contributions from biomass and electricity. The use of fossil fuels will largely be utilised in the transport and residential sectors. Although transport provides a relatively small contribution to energy consumption it is projected to gain in both absolute and relative terms in the near future. The driver behind this growth is the economic development taking place in the country as well as the associated increased demand for aviation, passenger cars and trucks, which are all associated with higher income households as well as industry. Therefore, taxing fossil fuels will most likely not have an adverse effect on poorer communities as industries and the higher-income households are more intensive consumers of fossil fuels, and may be able to afford the higher costs associated with fossil-fuels.

There are however studies that have found that the introduction of a carbon tax on energy consumption in the country, might have adverse effects on the country's economic growth.¹⁶⁰ Implementing a carbon tax of US\$10 per ton of carbon on energy consumption is projected to cause a 0.04% decrease on the real GDP by 2030. Such a tax will however lead to a primary energy consumption decrease of 7.3%, and a fossil fuel consumption decrease of 8.0%. In detail, coal consumption will decrease 15.3%, but oil consumption and natural gas will increase 2.4% and 0.4%, respectively. Fuel import is expected to increase from 710Mtoe in BAU to 729Mtoe, and the ratio of payment for energy import will rise from 9.8% to 10.1%. This result furthermore means a carbon tax might aggravate the energy security problem in Kenya.

It is generally submitted that the legal analysis of climate change, energy and fiscal law tends to suggest that Kenya has the existing legal capacity to a domestic realisation of the V20 Group's ambition of introducing Carbon Pricing, by 2025. By this is meant that a number of existing legal

¹⁵⁸ International Institute for Environment and Development, "Accessing climate finance in Kenya" (16 April 2016) <https://www.iied.org/accessing-climate-finance-kenya> (accessed on 2018-11-05).

¹⁵⁹ F Dalla Longa, B van der Zwaan "Do Kenya's climate change mitigation ambitions necessitate large-scale renewable energy deployment and dedicated low-carbon energy policy?" (5 June 2017) *Renewable Energy, An International Journal* 1559 1561.

¹⁶⁰ See *Policy Options in Achieving the Kenya Vision 2030: Environmental issues and the Kenya Vision 2030* <http://www.efdnitiative.org/sites/default/files/kenya20vision20203020and20the20environment.pdf> (accessed on 2019-02-27)

mechanisms have been identified that can be used as vehicles for the implementation of Carbon Pricing; and, suggestions have been made, above, on how such existing mechanisms can be utilised, to achieve this outcome.

Kenya can expect significant challenges in the power, energy and transport sectors in the future.¹⁶¹ The introduction of climate action policies in the form of Carbon Pricing mechanisms will likely induce deeper modifications in the way energy is produced and consumed in the country. As such, there is a need for a better understanding of how such profound transformations will affect society, and more research efforts should be dedicated to this subject.

¹⁶¹ F Dalla Longa, B van der Zwaan “Do Kenya’s climate change mitigation ambitions necessitate large-scale renewable energy deployment and dedicated low-carbon energy policy?” (5 June 2017) *Renewable Energy, An International Journal* 1559 1567.

Country chapter: Uganda



3. Uganda



Tackling climate change is a top priority for the Government of Uganda, as the country is already witnessing increased flooding and other types of extreme weather events which are likely to increase as climate change becomes an increasing global problem. Uganda is highly vulnerable to climate change and variability as its economy and the wellbeing of its people are tightly bound to climate. The country has made significant progress in the development of policy aimed to address climate change. The possibility of implementing carbon pricing within the aforementioned context will be discussed below.

Figure 8: Uganda (Source: <http://www.freeworldmaps.net/africa/uganda/location.html>)

3.1 Country Circumstances

Uganda, one of the LDCs in East Africa, occupies an area of 241,038 square kilometres, with water bodies and wetlands covering about a third of it, and standing astride the equator. Its tropical climate has an average temperature ranging from 18 to 28 °C, and this provides the country with a rich natural resource base. With an average total fertility rate of six children per woman, Uganda has an annual growth rate of 3.2%; and the population is expected to grow from 34.8 million people in 2014 to 93.4 million people in the 2040s. Uganda has a low per capita income of USD 584, where most of population relies on subsistence farming.

Uganda has one of the lowest greenhouse gas emissions per capita in the world, estimated at 1.39 tCO₂e, far below the global average of approximately 7.99 tCO₂e. Furthermore, Uganda's contribution to world's total greenhouse gas emission is estimated at 0.099%. Paradoxically, the country is highly vulnerable to global warming and climate change impacts.¹⁶²

Considering Uganda's emissions profile, it is very similar to that of the other countries covered in this study. Agriculture was the leading source of GHG emissions in 2012, with land use change and forestry (LUCF) as the second most significant source.

¹⁶² Statements made during the Leaders Event at the Paris Climate Change Conference - COP 21 / CMP, H.E. Mr. Edward Kiwanuka Ssekandi, Vice-President of Uganda p 2 11https://unfccc.int/sites/default/files/cop21cmp11_leaders_event_uganda.pdf (accessed on 2018-10-31).

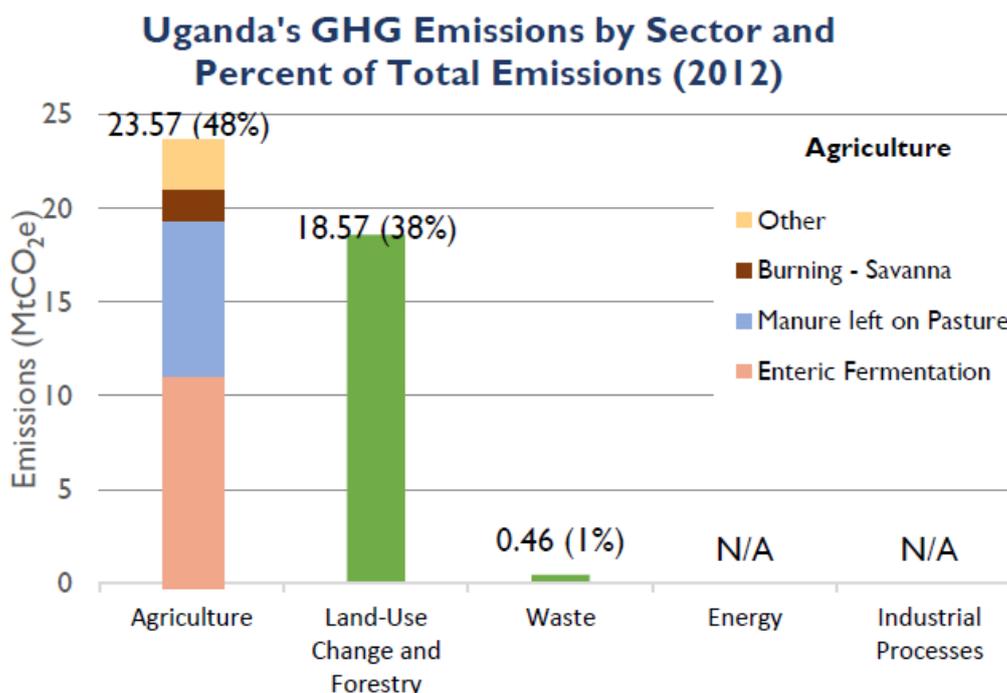
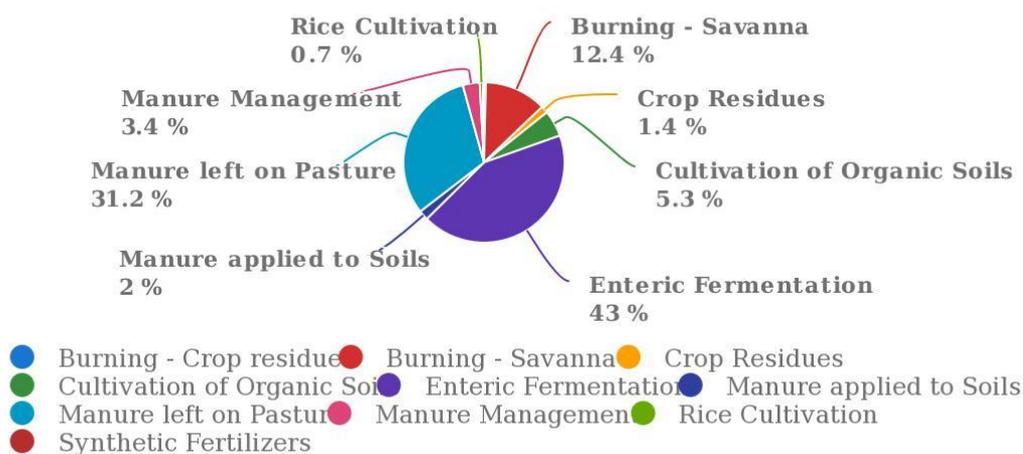


Figure 9: Uganda emission profile¹⁶³

The country's emissions related to the agricultural sector are outlined in **Figure 10: Uganda Agricultural** below with the main source of emissions coming from enteric fermentation (43%) as well as manure left on pastures (31.2%).

Emissions by sector (CO₂ equivalent)

Average 1990 - 2016



Source: FAOSTAT (Feb 28, 2019)

Figure 10: Uganda Agricultural emissions

¹⁶³ USAID Greenhouse Gas Emissions in Uganda.

The emission intensity of Uganda is shown below, compared to other countries in the developing world that are designing or implementing domestic carbon pricing systems. The Ugandan emission intensity, at 0.1 ton CO_{2e} per person, is 18 times lower than Vietnam, at 1.8 ton CO_{2e} per person, and 90 times lower than South Africa at 9 tons CO_{2e} per person. Within the context of common but differentiated responsibilities, irrespective of what equity metric is used, the imposition of a domestic carbon tax on a country with such low emission intensity, will in present circumstances, be out of place.

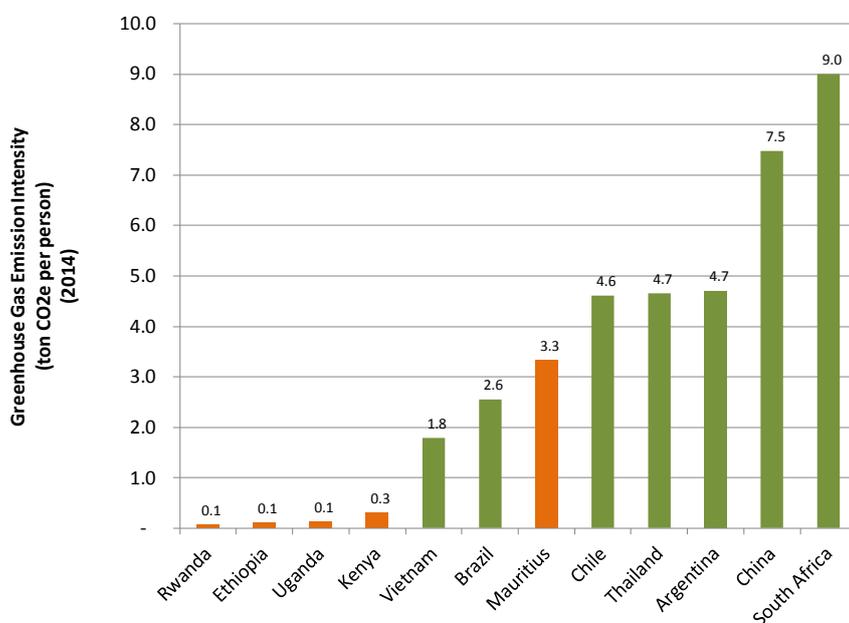


Figure 11: Per capita emissions of Uganda and other countries implementing carbon pricing schemes

Concerning electricity generation, Uganda has an installed capacity of 822 MW, mostly consisting of hydropower (692 MW; 84%)¹⁶⁴. As of 2011, only 15% of Uganda’s population had access to electricity. Uganda’s NDC includes a policy to increase renewable energy generation capacity to at least 3.2 MW by 2030. The country will also prioritise the construction of enabling infrastructure for the electricity sector. The rollout of renewable energy will allow Uganda to reduce its emissions by approximately 3.2 MT CO_{2e} per year¹⁶⁵. It will also enable greater access to reliable and sustainable energy for the 85% of Uganda’s population that live in rural areas, in turn, improving the livelihoods and health of rural populations.

The planned rollout of renewable energy could assist with the implementation of carbon pricing in the country as the emission reductions associated with the renewable energy technologies may increase Uganda’s participation in carbon markets. The issues of suppressed demand will however be have to considered in detail if this is to be a viable basis for carbon pricing in the economy.

There are however certain challenges which have been identified during the interview processes with the focal points which prohibits the implementation of Carbon Pricing in the country. This includes institutional and capacity challenges within the country. These challenges relate to the

¹⁶⁴ Energypedia – Uganda Energy Situation https://energypedia.info/wiki/Uganda_Energy_Situation (accessed on 2018-11-08)

¹⁶⁵ NDC, Page 14

political will of the country to commit to climate change policies and to develop the technical skills within government departments to deal with climate change.

3.2 Analysis of supply and demand potential

Uganda has historically been exposed to the international carbon markets. The country has the second highest number of registered CDM projects of the East African countries considered in this study¹⁶⁶. The country has registered 19 standalone projects and 11 PoAs, seven of which are multinational PoAs. There are no projects or PoAs currently requesting validation of registration with the CDM. Ten Ugandan standalone projects and four CPAs have completed issuances, of just under six million CERs¹⁶⁷. This marks the highest number of issued CERs of the countries considered in this report. Most of the Ugandan CERs have been generated by hydro projects.

Eleven projects have been registered with the VCS and all have issued VCUs (nearly 1.9 million ton CO₂e in total), with around 37% of the VCUs issued from hydro projects.¹⁶⁸ There are no Ugandan projects currently listed as applying for validation or verification in the VCS pipeline. While Uganda has various forestry projects, it doesn't have any registered as REDD/REDD+ projects.¹⁶⁹

Uganda is planning a range of emission reduction measures as part of the country's NDC, which could outstrip the national demand for such credits. Uganda could consider trading excess carbon credits in an ITMO system which will attract foreign investment to the country and may aid the development of carbon pricing.

The Ugandan government never submitted its intention to implement NAMAs to the UNFCCC. This has however not restricted the country in registering NAMA projects with the UNFCCC, as the country currently has nine NAMA projects listed with the UNFCCC. The projects include emissions reductions actions within the agricultural; waste management, transport and infrastructure and energy demand sectors. All of the projects are however still seeking support for preparation and has been unable to attain financial support.¹⁷⁰

With respect to the ICAO CORSIA scheme, Uganda has not been ranked on the international Revenue Tonne-Kilometres (RTK) table for 2017 as it is a LDC, and will not be voluntarily participating in CORSIA. The fact that Uganda will not participate in CORSIA means that any planned emission reductions can be used in other carbon pricing schemes.

With respect to an emission trading system, the options available range from traditional cap-and-trade schemes such as the European Union Emissions Trading Scheme (EU-ETS) to Results-based Climate Finance (RBCF) schemes, and bilateral arrangements such as the Japanese Joint

¹⁶⁶ Kenya has the highest number of registered CDM projects.

¹⁶⁷ CDM Database for PAs and PoAs (accessed on 2018-10-26)

¹⁶⁸ VCS listing: https://www.vcsprojectdatabase.org/#/projects/st/_c_KE/ss_0/so/_di/_np (accessed 2018-11-06)

¹⁶⁹ ID-RECCO: <http://www.reddprojectsdatabase.org/view/projects.php?id=800&name=Uganda&type=project> (accessed 2018-11-06)

¹⁷⁰ UNFCCC Public Nama registry – Uganda, <https://www4.unfccc.int/sites/publicnama/SitePages/SearchResults.aspx?k=Uganda&cs=This%20Site&u=https%3A%2F%2Fwww4.unfccc.int%2Fsites%2FPublicNAMA> (accessed on 2018-11-09).

Crediting Mechanism (JCM). All these forms of emission trading systems have a number of components in common:

- **Supply:** The supply of carbon offset credits to a trading system must come from a scheme such as the CDM, REDD+ or NAMA. The nature of the supply is that the projects must be implemented in the host country. This therefore represents domestic supply of carbon credits.
- **Demand:** The demand for credits can be created either as domestic or international demand:
 - **Domestic demand:** Domestic demand can be created in a scheme such as the European Emission Trading scheme. Similar schemes are being implemented in countries such as China and South Korea. South Africa is implementing a hybrid system, where carbon offsets can be traded into a carbon tax system as a means of reducing a company’s carbon tax liability. For a system that creates domestic demand is concerned, a certain amount of infrastructure needs to be put in place. The figure below shows the absolute emissions of Uganda in relation to other countries in the developing world that are implementing system that would create domestic demand.

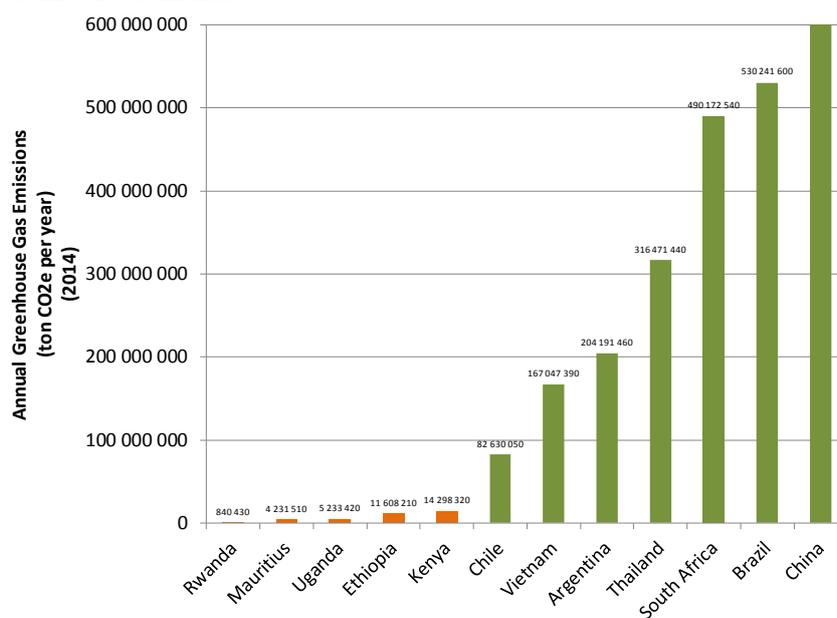


Figure 12: Emissions of Uganda and other countries implementing carbon pricing schemes

Error! Reference source not found. shows that the absolute Ugandan emissions, at 5.2 million tons CO₂e per year, is almost 16 times lower than Chile at 82 million tons CO₂e per year, and 2 000 times lower than China at 10 300 million tons CO₂e per year. It is the opinion of the project team that the imposition of a carbon pricing system that is based on the creation of domestic demand will put a burden on the economy that can only be borne by an economy with a certain threshold value of total domestic emissions. Whereas we are not aware that studies have been done to assess what such a value could be, there is a high probability that the economy of Uganda does not meet such a threshold. A carbon pricing scheme

that is aimed at the creation of domestic demand should not be implemented in Uganda unless detailed economic modelling has been done to prove that the economy can actually carry such an administrative burden.

- **International Demand:** Schemes like the CDM, REDD+, NAMAs, the JCM, and Results-based Climate Finance can create international demand for emission reduction credits generated in Uganda. Such schemes could be in line with the country's NDC in the following ways:
 - **Agriculture and forestry** –The NDC indicates that the Ugandan government aims to save 2.7 MtCO₂e/ year through agriculture based intervention by 2030. The NDC further states the aim to reverse deforestation trends and to increase forest cover to 21% in 2030, from approximately 14% in 2013. Whereas the CDM does not allow for the generation of permanent emission reduction or sequestration credits from land-based projects, other schemes do. If a way can be found to create an international demand for credits from agriculture and forestry, it could provide significant carbon finance for projects aimed at achieving these objectives of the NDC.
 - **Infrastructure:** The Ugandan NDC has a focus on infrastructure. Significant contributions to emission reduction can be achieved through smart infrastructure developments. Schemes like the CDM, NAMA's and the JCM could create offsets that can be used to ensure that the development of infrastructure can be augmented by international climate funds to ensure that the development is aligned with low carbon best practice.
 - **Energy:** The Ugandan NDC states the aim to reduce emission through interventions in the energy sector. Energy projects have traditionally been a good source of emission reduction credits. The challenge in Uganda will be to address the issue of suppressed demand in the establishment of the emission baseline for schemes like the CDM. If the challenges of the low baseline can be solved, then energy sector projects could form a substantial base for project to access international carbon finance through carbon pricing systems.

3.3 Work done to implement carbon pricing

In recent years, Uganda has increasingly been undertaking climate related work which could assist in developing and implementing carbon pricing in the country.

The Government of Uganda has developed a Climate Change Policy (NCCP) framework geared towards addressing the consequences of climate change and its causes and which also promotes sustainable development and a green economy. As analysed in the legal section, below, the

National Climate Change Bill, 2017 (Bill) is intended as the future framework for national climate change governance, including mitigation and adaptation strategies. The interview process with the focal points revealed that the Ugandan Government has considered implementing a carbon tax, as part of mitigation policy, but that a feasibility assessment is required to inform this step.¹⁷¹ In this regard, the relevant focal point also mentioned that a carbon tax could be linked to a green investment fund, where all proceeds of the carbon tax, are allocated to mitigate and adapt to the effects of climate change. The Bill provides for the utilisation of certain carbon market tools, as is discussed in the legal analysis.

The country's NDC is also aimed at addressing climate change with the BAU scenario as set out in the NDC estimating an output of 77.3 million MtCO₂e/year by 2030. The priorities for adaptation measures will be the agricultural sector as discussed below.

In order to kick-start the implementation of its NDC, Uganda has developed a Partnership Plan as part of the NDC Partnership's In-Country Engagement programme. Together with the Ministry of Water and Environment, the Ministry of Finance, Planning and Economic Development, and the National Planning Authority, the NDC Partnership has elaborated on the 11 priority areas of support that were identified by the country. These priority areas include strengthening government institutions to support NDC implementation through capacity development, providing support in devising bankable project proposals, developing and implementing a robust monitoring, reporting and verification framework and greenhouse gas inventory systems, and identifying financing for NDC implementation. Throughout the planning process, various stakeholders were brought together including government experts from relevant ministries and authorities, private-sector actors and other development partners.

Through the GIZ Promotion of Renewable Energy and Energy Efficiency Program, the German Government is assisting Uganda's Ministry of Energy and Mineral Development by enhancing sector planning and monitoring and evaluation capacities; supporting climate-smart energy planning at sub-national levels; assessing energy efficiency for large energy consumers; and supporting renewable mini-grids run by the private sector in rural communities. Furthermore, the Ugandan and German Governments, GIZ has developed financing tools to enhance energy efficiency in Uganda's small-scale industry and to secure Green Climate Fund accreditation for the Ministry of Water and Environment.

With support from the German Ministry for the Environment, the GIZ Global Carbon Markets programme in Uganda aims to support the development of economic and carbon-pricing instruments that will support NDC implementation among the countries of East Africa. The project also encourages greater private sector involvement, for example, supporting commercial stakeholders in identifying and developing project ideas. Furthermore, it is promoting the harmonisation of carbon markets and emission trading systems in the region.¹⁷²

From the projects and initiatives mentioned above, it is clear that Uganda is actively pursuing the realisation of its NDC and is seeking to promote sustainable development within the country's

¹⁷¹ Interview: Gloria Namande, UNDP Uganda, Project Manager, 14 March 2019.

¹⁷² GIZ Global Carbon Market – Uganda <https://www.giz.de/en/worldwide/42196.html> (accessed on 2018-10-31)

sectors. These initiatives, combined with Uganda’s focus on becoming more climate resilient, create a conducive atmosphere towards the development of a carbon pricing mechanism in the country.

Other policies that will contribute to the Ugandan climate change effort are:

- The Uganda Green Growth Development Strategy has, as one of its aims, to ensure that the social and economic transition is achieved through a low carbon development pathway that safeguards the integrity of the environment and natural resources. Empirical macroeconomic sector modelling indicates that full implementation of the Uganda Green Growth Development Strategy’s interventions (green growth scenario) will enhance national GDP by 10 percent beyond the business as usual (BAU) target, deliver an additional 4 million green jobs and reduce greenhouse gas emissions by 28 percent relative to the conventional growth pathway. However, it has been mentioned in the interview process with the focal points that there seems to be a lack of commitment from the Ugandan government to implement the provisions of the Strategy. This political unwillingness to commit to the Strategy is a hurdle which will have to be overcome should a carbon pricing mechanism be developed in the future.
- The National Climate Change Communication Strategy is intended to communicate the objectives of the National Climate Change Policy (NCCP) framework.

With regards to the development and implementation of a functioning MRV system, The Global Green growth Institute is currently supporting the Climate Change Department (CCD) of the Ministry of Water and Environment in Uganda to develop an operational Measurement, Reporting and Verification (MRV) framework.¹⁷³ There has been meetings held in this regard to discuss the draft National MRV framework, Institutional structure of MRVs and the coordination of the National MRV. Furthermore, the UNDP has issued requests for proposals for a consultancy firm to develop an integrated MRV system and GHG databases for the energy and waste sectors for Uganda’s NDC. The system must be able to not only track GHG emissions, but also be able to track the flow of climate finance and the sustainable development impacts that contribute to the realisation of the NDC goals.

3.4 Nationally determined contributions

Uganda is a signatory to the UNFCCC. Uganda publicly supports the adoption of a legally binding instrument and has stated that the country’s participation in climate action is dependent on the support of developing countries.¹⁷⁴

Uganda’s NDC sets out its various adaptation and mitigation measures using a sector approach. In order to identify the potential of the NDC to contribute to towards the development and

¹⁷³ Stakeholders’ consultation meeting on Uganda’s Monitoring, Reporting and Verification system <http://gggi.org/stakeholders-consultation-meeting-on-ugandas-monitoring-reporting-and-verification-system/> (accessed on 2019-02-28).

¹⁷⁴ Statements made during the Leaders Event at the Paris Climate Change Conference - COP 21 / CMP, H.E. Mr. Edward Kiwanuka Ssekandi, Vice-President of Uganda p 3 https://unfccc.int/sites/default/files/cop21cmp11_leaders_event_uganda.pdf (accessed on 2018-10-31).

implementation of carbon pricing, it is necessary to assess the priority areas identified in the NDC. Moreover, the possibilities of carbon pricing in relation to realising the NDCs will also be discussed by analysing which priority areas offer the greatest potential for the development and implementation of carbon pricing. Through this NDC, Uganda hopes to reduce emissions from its BAU scenarios by 22% by 2030 via a series of policies and measures to mitigate and adapt to climate change. The country aims to work on reducing vulnerability in the following priority sectors:

- **Agriculture** – The Ugandan government aims to reduce emissions from the agricultural sector by a range of activities including expanding climate smart agriculture; diversification of crops and livestock (particularly climate resilient crops and animal breeds); rangeland management; small scale water infrastructure; off-grid solar systems to support value addition and irrigation, and more. Through these initiatives the Ugandan government aims to save 2.7 MtCO₂e/ year by 2030,

Agriculture is mentioned under REDD+ as a driver of deforestation and the needs to reward farmers that intensify rather than expanding into forest land is a problem which many developing countries face. Imposing a carbon pricing mechanism (be it a tax or a cap-and-trade) on an agricultural sector in a LDC might have a considerable impact on the food security in the country. International funding in this sector will therefore be vital in order to subsidise farmers under a carbon price scheme as consequently protect food security in the country.

- **Forestry:** Uganda’s plans to effectively adapt to climate change include: promoting intensified and sustained forest restoration efforts (including in urban areas); promoting biodiversity and watershed conservation (wildlife corridors); encouraging agroforestry and efficient biomass energy production and utilization technologies. The Ugandan government aims to reverse deforestation trends and to increase forest cover to 21% in 2030, from approximately 14% in 2013.

Private sector funding is necessary for long-term sustainable finance of forests. Therefore, any carbon pricing mechanism associated with forestry emission reduction projects must be carefully designed in order to reduce the risk and support of investment from the private sector. This can be done by ensuring that forestry projects are aligned with global forest management goals. Investments from wealthy countries have the potential to slash emissions at a “bargain” price, the researchers found. . A carbon price associated with forestry preservation reduces the potential to gain agricultural revenue from converting forests for crops relative to the potential to gain carbon revenue from conserving forests, reducing expected deforestation as a result.¹⁷⁵ In a LDC such as Uganda, agricultural costs are low in comparison to that of developed countries. Similarly, the costs of implementing emission reduction activities in these countries are also lower in comparison with

¹⁷⁵ Jonah Busch and Jens Engelmann. 2015. “The Future of Forests: Emissions from Tropical Deforestation with and without a Carbon Price, 2016–2050” CGD Working Paper 411. Washington, DC: Center for Global Development. <http://www.cgdev.org/publication/future-forests>

developing countries. Land-use decision makers in Uganda will therefore want to see which costs are lower (agriculture or emission reductions) Should the input costs of emission reduction activities in the forestry sector be lower than that of agricultural input costs, decision makers might prefer carbon revenue to agricultural revenue if carbon revenue has lower input costs and therefore higher profit margins. It is the opinion of the project team that an in-depth analysis will need to be conducted in order to establish the input costs associated with the scenario set outlined above, as it will inform the implementation of carbon pricing related to the forestry sector in the country.

- **Water:** The Ugandan government aims to implement a range of adaptation measures related to water which will include: improving water efficiency; ensuring water supply to key economic sectors, especially agriculture and domestic use; managing water resource systems so that floods are prevented and existing resources conserved (through the establishment of an Integrated Water Resources Management system) and extending electricity or expanding use of off-grid solar system to support water supply. Linking the efficient use of water with a potential carbon pricing mechanism will be difficult, as the emissions associated with the use of water in the country is minimal.
- **Infrastructure:** Uganda views infrastructure to include human settlements, social infrastructure and transport and aims to improve climate resilience by ensuring that land use plans and building codes reflect the need to make public and private buildings more climate-resilient. Uganda further aims to invest in making existing and new buildings more resilient; update transport codes and regulations and implement measures to ensure compliance with them; update risk assessment guidelines and improve water catchment protection. Whilst the implantation of a cap-and-trade scheme within the infrastructure sector will be difficult, the possibility of offering tax incentives associated with carbon efficiency within these sectors might be a more viable option for Uganda. The implementation of a provision for businesses to implement energy efficiency savings could allow for tax deduction of the saved energy in consumption. For the efficient and successful implementation of such an incentive, the Ugandan government will have to put in place a number of institutions to ensure transparency, cohesion and efficiency. Such a mechanism will also incentivise industry to further reduce emissions which would contribute towards the realisation of the NDC.

Energy: The Ugandan government aims to: increase the efficiency in the use of biomass in the traditional energy sector; promote renewable energy and other energy sources; increase the efficiency in the modern energy sector, mainly of electricity; ensure the best use of hydropower by careful management of the water resources and climate proofing investments in the electricity power sector. From a mitigation perspective, Uganda aims to:

- Achieve at least 3,200 Mega Watts renewable electricity generation capacity by 2030, up from 729 Mega Watts in 2013.
- Reduce emissions by implementing sustainable energy solutions in public buildings to reduce emissions of 82 ktCO₂e/year.

- Promote wider uptake of solar energy systems to reduce about 1.5 MtCO_{2e} by 2030.

During the interview process, the energy sector was identified as being one of the potential sectors in which carbon pricing may be implemented in the future.¹⁷⁶ Carbon Pricing within the energy sector has the potential to provide a roadmap for future energy investment and help achieve a level playing field for all energy sources. However, the implementation of carbon pricing in a LDC where a renewable energy source such as hydropower is already its primary source electricity generation means the “playing field” is fundamentally different with that of a developed economy where there are multiple sources of energy involved. The implementation of carbon tax on a country such as Uganda may have detrimental impacts on the economy of the country. It is the opinion of the project team that incentivising energy utilities and consumers to be more energy efficient via a tax incentive as discussed above will be the most applicable given Uganda’s economic circumstances and energy. If energy efficiency policies are well designed to encourage not only an increase in the purchase of more energy efficient equipment, but also a reduction in their operation (the rebound effect), then the ensuing lower energy needs would, in most cases, deliver lower CO₂ emissions. This, in turn, would also help realise the emission reduction goals as set out in the NDC.

- **Health:** Uganda’s population is dependent on subsistence farming and as such, Uganda’s climate change approach not only addresses the economic impacts of climate change, but also considers human health and well-being even though human health is not linked to the implementation of carbon pricing. An increase of emission reduction activities related to AFOLU projects in the country, will educate communities on climate change and its ensuing health impacts whilst reinforcing the implementation of carbon pricing.
- **Risk management** (particularly in urban areas). The government will manage potential climate risks better by: mainstreaming climate resilience in all sectors; developing vulnerability risk mapping based on better data on climate change impacts at sectoral and regional level; identifying better drainage plans; building more effective early warning systems; improving emergency related institutions and establishing a contingency fund to take care of emergency needs following an extreme climate event.

Based upon the abovementioned priority areas, it is clear that the Ugandan government aims to address a substantial amount of its emissions within the forestry and agricultural sectors. The potential to link a carbon pricing mechanism with these sectors are therefore considerable and it is the opinion of the project team that the potential of linking an emissions trading scheme with these sectors will provide the Ugandan government with a more feasible option to increase the county’s carbon market participation in comparison to that of a carbon tax. Should the government be able to build on the emissions reduction capacity identified in the agriculture and forestry sectors, there would be an ample amount of emission reduction units available to enable the

¹⁷⁶ Interview: Gloria Namande, UNDP Uganda, Project Manager, 14 March 2019.

implementation of a cap-and-trade scheme. However, it is the opinion of the project team that domestic demand would be limited as Uganda is not a heavy emitter and setting a cap based on Uganda’s current emissions profile could be difficult. Should the government aim to exploit the potential of the agricultural and forestry sectors to generate carbon credits as well as set caps on emission that are too low, the government runs the risk of having an excessive amount of carbon credits in the market place, which would drive down prices and ultimately weaken the economy.

International demand does however have the potential to not only utilise the domestic supply of emission reduction units generated from agriculture and forestry projects, but to also increase climate financing in the country. The notion of participating in the international carbon market is also supported by the country’s NDC which states that:

“Uganda intends to meet its commitments and/or increase the level of its contribution through the use of international market mechanisms where appropriate, building upon the experience of the Clean Development Mechanism and other existing market mechanisms”

Seeing as the CDM does not accredit REDD+ projects, which is essential for the implementation of emission reduction projects in the agriculture and forestry sectors, the Ugandan government will have to consider implementing more projects within “other market mechanisms” which will predominantly be the voluntary market. This will also inform the nature of the carbon pricing mechanism as the type of credits available will help determine which sectors will be subject to the carbon pricing mechanism.

In order to successfully implement carbon pricing, a fundamental element that needs to be in place is a functioning and efficient Monitoring, Reporting and Verification system. Through the UNDP NDC Support Programme that is implemented with support from the governments of Germany, Spain and the European Union, support will be given in the development of Monitoring Reporting and Verification systems for the NDC priority sectors such as energy. This will be fundamental for tracking and reporting on progress towards mitigation actions, sustainable development impacts and emissions in key sectors such as energy, agriculture, transport. The project also aims to support the private sector in the implementation of mitigation actions, facilitate access to climate finance and develop investment plans to support NDC implementation. To date, no formal MRV framework has been released, and work towards the implementation of a Ugandan MRV system is still continuing.

3.5 Legal Analysis ¹⁷⁷

Analysis of existing climate change, environmental and developmental law and policy

- **The 2007-2017 Renewable Energy Policy (REP):**

¹⁷⁷ Thanks are due to Mr. Alex Kibandama, a Ugandan environmental specialist lawyer, for his comments for improvement on an earlier version of this legal analysis.

- The REP aims to increase the share of renewable energy from 4% to 61% of national energy consumption by 2017. In order to facilitate reaching the goal, REP establishes appropriate fiscal and financial tools to attract investments, and inserted renewable electricity access targets in gender and pro-poor policies; and, provides for measures to disseminate information on sustainable biomass management and waste-to-energy conversion, while encouraging research into, and development of, renewable energy opportunities and advocating the use of biofuels as a substitute to fossil fuels.
 - The REP exempts all renewable energy equipment from any tax levies, as follows: Solar Thermal, Bioenergy, Biofuels for transport, Bioenergy, Biomass for heat, Bioenergy, Biomass for power, Geothermal, Geothermal, Power, Hydropower, Multiple RE Sources, Heating, Multiple RE Sources
- **The National Climate Change Bill, 2017 (Bill):**¹⁷⁸
 - Analysis:
 - The Bill is a framework statute providing, primarily, for range of institutional arrangements to implement Uganda’s national climate change response. The Long Title indicates that the Bill addresses a range of considerations, including “to provide for a climate change financing mechanism”; while the Bill’s purposes are broadly stated to include: giving the UNFCCC and Kyoto Protocol (Protocol) the force of law in Uganda; ensuring that Uganda takes effective and timely action to meet her obligations under the UNFCCC and Protocol; and, mainstreaming climate change into different sectors.¹⁷⁹
 - The Bill provides that the UNFCCC and the Protocol, included in the Bill as Schedules 2 and 3, “shall have the force of law in Uganda”.¹⁸⁰ Enshrining the UNFCCC and the Protocol in domestic legislation is a significant step which requires a detailed consideration of the implications for Carbon Pricing of introducing these international legal instruments into the Ugandan national statute book, an exercise that is beyond the scope of this study.
 - The Climate Change Department (Department) in the Ministry of Water and Environment is the national climate change focal point and is tasked with various responsibilities, including (the following is selectively drawn - from a very lengthy listing of the Department’s responsibilities): “planning the development of future regulatory arrangements” for mitigation;¹⁸¹

¹⁷⁸ Climate Change Department in the Ministry of Water and Environment *The National Climate Change Bill*, 26 July 2017

¹⁷⁹ *Ibid.*, Long Title and section 3.

¹⁸⁰ The only version of the Bill that could be accessed is one published on the internet at: <https://www.scribd.com/document/356357987/Draft-Uganda-Climate-Change-Bill-2017-Ver-July-2017>. The published Bill appears to have various content and formatting errors and omissions. For example, the quoted words appear at the top of page 6, without being included in a numbered section, immediately preceding section 5 and following on from section 2. Sections 3 and 4 of the Bill are missing from the published version and it is assumed that the quoted words are intended to be part of the missing section 4.

¹⁸¹ *Ibid.*, section 5(2)(b).

formulating and implementing mitigation policies and programmes; optimising opportunities to mobilise climate finance (in collaboration with other agencies);¹⁸² ensuring that Uganda meets her obligations under the UNFCCC and the Protocol;¹⁸³ implementing measures promoting the CDM;¹⁸⁴ and , performing any other activity necessary to facilitate the discharge of its function.¹⁸⁵

- The Bill establishes a National Climate Change Advisory Committee with various functions, including: advising the Department on climate and strategic policy; identifying obstacles to climate change policy implementation and making proposals for the resolution of such obstacles; and, performing any function that may be assigned to the Committee by the Minister of Water and Environment (Minister).¹⁸⁶
- The Department is required to devise a Framework Strategy on Climate Change (Framework Strategy), in the development of which the Department must consider potential for mitigation; climate change best practice; and, the UNFCCC, the Protocol and other international agreements on climate change.¹⁸⁷ The Framework shall include various information, including on national priorities and compliance with national obligations.¹⁸⁸
- The Department is further required to develop a National Climate Change Action Plan (Action Plan), in accordance with the Framework Strategy, the components of which include the identification of GHG mitigation potential.¹⁸⁹ Note that the *chapeau* to this section of the Bill reads: “The components of the National Climate Change Action plan include-...“. This wording is both non-prescriptive and non-exhaustive, meaning that the wording can be interpreted simply as guidance to the Department on the content of the Action Plan that does not limit the Department’s approach to the Action Plan. This interpretation of the wording grants the Department a fairly broad discretion with regard to the scope and content of the Action Plan, and means that issues the Department feels are important for inclusion can, quite legitimately, be included in the Action Plan. Consequently, if the Department was of the view that Carbon Pricing were important, then this could be made part of the Action Plan.
- Specific mitigation measures are to be implemented by lead agencies, the responsible officers of which are required to prepare and implement (a) “carbon dioxide emission and targeted greenhouse gas emission mitigation plan” which provides for mechanisms to: reduce the production of carbon

¹⁸² *Ibid.*, section 5(2)(h)(iii).

¹⁸³ *Ibid.*, section 5(2)(k) and repeated at (n).

¹⁸⁴ *Ibid.*, section 5(2)(s), (t) and (u).

¹⁸⁵ *Ibid.*, section 5(2)(ff).

¹⁸⁶ *Ibid.*, section 8(1).

¹⁸⁷ *Ibid.*, section 11(3).

¹⁸⁸ *Ibid.*, section 11(5).

¹⁸⁹ *Ibid.*, section 12(1) and (2).

dioxide and other targeted GHGs; increase capture and sink potential; and identify ways for participating in climate change related activities.¹⁹⁰

- The Bill specifically provides for CDM project implementation in a series of detailed sections (39 to 46), all of which address only the functional and administrative aspects of such projects, i.e., the Bill does not deal with any aspect of project investment, e.g., initiatives and incentives to secure carbon financing or access the carbon market.
- The Bill provides that the Minister may make regulations for the better carrying out of the provisions thereof.¹⁹¹

○ Discussion:

- Legal implications – the implications of two aspects of the Bill are difficult to understand, in the context of this report, namely:
 - Firstly, while the Long Title indicates that the Bill provides for a climate change financing mechanism, this wording is the Bill’s single specific reference to such a mechanism. Consequently, the Bill appears **not** to provide for climate change financing, unless:
 - The intention is for the sections addressing the CDM to be the Bill’s climate change financing mechanism. It is submitted that this position would be incorrect as the CDM is a carbon financing mechanism; and, the abovementioned sections deal only with CDM functionality and do not refer to investment or financing.
 - The intention is for the Department to include a climate change financing mechanism in the Framework Strategy and/or the Action Plan. This intention is conceivable given that the Department’s responsibilities include “optimising opportunities to mobilise climate finance (in collaboration with other agencies)”.
 - Secondly, the section providing the force of law to the UNFCCC and the Protocol is simply (and cryptically) the bald statement, without any elaboration of the consequences of this legislative step within the system of national governance and administration, e.g., how the introduction of these international legal instruments into Uganda law will affect the domestic rights, duties and obligations of relevant persons. For present purposes, it is assumed that this cryptic approach to legislating is complete and correct under Ugandan law; and, that other statutes, e.g., the Constitution, regulate these matters.
- Role of the Department/Committee/Minister:
 - For the reasons as abovementioned, e.g., the broad ambit of the Department’s responsibility and the equally wide content of the

¹⁹⁰ *Ibid.*, section 16(4) and (5). The lead agencies are land use; forestry; wetlands; agriculture; energy generation; energy utilisation; works and transport; waste management; industries;

¹⁹¹ *Ibid.*, section 58(1).

Framework Strategy and the Action Plan, it is submitted that the Bill might be interpreted as permitting the Department's inclusion of a Carbon Pricing mechanism into these instruments, with a view to its implementation in Uganda.

- Related to this are the Committee's advisory and obstacle identification functions; and, the mandate to perform any function assigned by the Minister. Again, these very broad statements of the ambit of the Committee's role lead to the submission that the Committee, should it so choose, could (one example for illustration): identify the lack of a national Carbon Pricing mechanism as an obstacle to climate change policy implementation; further identify the development of such a mechanism as a means to resolve the obstacle; and, advise the Department to develop the mechanism. Similarly, the Minister could assign the development the mechanism as a function of the Committee.
 - The Minister might also decide to enact regulations providing for a Carbon Pricing mechanism as a means of better carrying out of the provisions of the Bill.
 - Political will and interest in evolving the Ugandan carbon market would be essential conditions precedent to taking the abovementioned steps.
 - UNFCCC and Protocol as national law:
 - It is beyond the scope of this report to consider, comprehensively, the legal and governance implications of the introduction of the UNFCCC and the Protocol into Ugandan domestic law, however, given the generality of the Bill (including the breadth of the Department's mandate) and the fact that the UNFCCC and Protocol (with emphasis on the latter) contain the legal bases for the international carbon market, it is submitted that the Bill can be widely interpreted as encompassing the implementation of Carbon Pricing in Uganda.
 - Finally, it should be noted that specialist in-country legal review of this legal analysis cautioned that the form and content of the Bill is likely to evolve, before the final statute, is settled. For this reason, it is submitted that reliance is not placed on the Bill, as it currently stands, as the foundation for Carbon Pricing, in Uganda.
- The National Environment Act, 2019 (Act):¹⁹²
 - Analysis:
 - The Act empowers the Minister responsible for finance, in consultation with the National Environmental Management Authority (NEMA), to

¹⁹² *National Environment Act, 2019*, Acts Supplement to the Uganda Gazette No. 10, Volume CXII, dated 7th March, 2019.

provide for: fiscal, tax and other instruments to encourage good environmental practise, including the conservation of the environment and natural resources and the prevention or abatement of pollution; or, tax and economic disincentives to deter deleterious environmental behaviours that leads to depletion of the environment and natural resources or activities that cause pollution.¹⁹³

- NEMA is the custodian of environmental governance, in Uganda, and works with the relevant lead agency in the management of climate change-related issues. NEMA may periodically prepare proposals and packages of economic tools and financial instruments and submit these to the Minister responsible for finance for purposes of enhancing environmental management and protection.¹⁹⁴
- The potential for Carbon Pricing couched within the provisions of Uganda’s newly-minted National Environment Act, 2019,¹⁹⁵ illustrates the point that the legal and policy analysis is, partly, a creative exercise.
- While NEMA administers the Act, section 69(2) thereof requires (the modal verb used is ‘shall’) a lead agency (a government department with jurisdiction over an aspect of the environment), in consultation with NEMA, to take measures and issue guidelines to address the impacts of climate change, including for mitigation and adaptation.

○ Discussion:

- It is submitted that the Act can be interpreted as being permissive of the implementation of Carbon Pricing. For example, given its purposes, a carbon tax might be construed as a tax disincentive to deter deleterious environmental behaviour that leads to depletion of the environment and natural resources or activities that cause pollution.
- Given that section 69(2) is both prescriptive and expansive, it can be argued that the lead agency must take a broad range of measures to address the impacts of climate change, which could include Carbon Pricing.

Analysis of the NDC

- The NDC indicates that Uganda intends to meet its mitigation commitments and/or increase the level of its mitigation contribution through the use of international market mechanism, where appropriate, building upon the experience of the CDM and other existing mechanisms. The NDC, neither anticipates the implementation of in-country Carbon nor provides for the administrative or institutional means to facilitate such a mechanism.

¹⁹³ *Ibid.*, section 42(1) .

¹⁹⁴ *Ibid.*, section 42(2).

¹⁹⁵ *National Environment Act, 2019*, Supplement No. 2 to *The Ugandan Gazette* No. 10, Volume CXII, dated 7th March 2019.

Analysis of tax and financial management legislation ¹⁹⁶

It is submitted that the examples provided, below, indicate beyond adequate understanding of the utilisation of tax and fiscal measures aimed at achieving environmental objectives. This is support for the further submissions that: one or more of the examples might serve as the basis, duly adapted, for the implementation of Carbon Pricing; or, Carbon Pricing might be separately framed, as a mechanism similar to those found in the examples, and flowing from their illustration.

- Taxation ¹⁹⁷
 - VAT is governed by the VAT Act and administered by the Uganda Revenue Authority (URA). VAT is charged at the rate of 18% on the supply of most goods and services in the course of business in Uganda. Specified goods and services, as well as exports outside of Uganda, attract a zero rate of tax. Some supplies are exempt from VAT, including petroleum products subject to excise duty.
 - Zero rating is preferred to exemption because the VAT on costs incurred in making a zero-rated supply can be recovered while those incurred in making an exempt supply cannot be recovered. The zero-rated supplies include the supply of goods and services exported from Uganda; the supply of drugs and medicines; the supply of seeds, fertilisers, pesticides, and hoes; and the supply of leased aircraft, aircraft engines, spare engines, spare parts for aircraft, and aircraft maintenance equipment.
 - Besides the exempted and zero-rated supplies, there is a deemed VAT regime that applies to the upstream and midstream operations in the oil and gas sector, mining operations, as well as aid-funded projects. The tax payable on a taxable supply made by a supplier to a contractor executing an aid-funded project and by a contractor to a licensee to undertake mining or petroleum operations is deemed to have been paid by the supplier (in the case of
 - The aid-funded project) or the contractor (in the case of mining and petroleum operations) provided the supply is for use by the contractor solely and exclusively for the aid-funded project or the petroleum/mining operations.
 - Certain income and bodies are exempt from tax. These include income derived from agro processing and from exportation of consumer and capital goods (subject to certain conditions), the income of Bujagali Hydro Power Project up to 30 June 2022, the income of a savings and credit co-operative society up to 30 June 2027, and bodies established by law for the purpose of regulating the conduct of professionals, such as Uganda Law Society and Institute of Certified Public Accountants.

¹⁹⁶ The specialist in-country legal review of an earlier version of this legal analysis noted that the examples provided in the analysis of tax and financial management legislation fiscal, accurate as at the date of drafting, are susceptible to change; and, while these examples are useful illustrations (for the purposes of this study), should these be considered as any legal basis for formal Carbon Pricing, their framing/continuation should be re-checked for the purposes of accuracy.

¹⁹⁷ <http://taxsummaries.pwc.com/ID/Uganda-Corporate-Other-taxes#>

- There is a new five year income tax exemption for developers and operators in industrial parks or free zones. The minimum capital investment is USD 100 million for developers.¹⁹⁸
- Customs duties:
 - Many goods imported into Uganda are subject to customs duties. However, exemptions are available to various classes of plant and machinery imported into Uganda. The rates of duty are provided by the East African Community common external tariff code.
 - Certain products imported from the East African Community and the Common Market for Eastern and Southern Africa (COMESA) region enjoy special custom duty rates. Imported items are classified according to the nomenclature established under the international convention on the harmonised commodity description and coding system. Duties range from 0% to 60%, depending on the item imported.
- Environmental levies:
 - These are charged on every person who imports motor vehicles that are eight years old or older. Levies are also imposed on the importation of used household appliances. The levy on motor vehicles is 20% of the value of the vehicle as determined for customs duty purposes. Levies on electrical appliances range from UGX 20,000 to UGX 50,000 per item, depending on the nature of the item.
- Excise duties: are imposed on goods considered luxuriant. Examples include locally manufactured soft drinks, cigarettes, alcoholic drinks, and spirits. A schedule of some of the rates is provided below:

Goods	Duty
Fuel and oils	Between UGX 200 and UGX 1,200 per litre, depending on the type of fuel/oil. Nil for gas oil and thermal power generation to the national grid.
Motor spirit (gasoline)	UGX 1,200 per litre
Gas oil (automotive, light, amber for high speed engine)	UGX 880 per litre
Motor vehicle lubricants	10%

- Cement import duty: there is a cement import duty of 25% of cost, which is augmented by VAT at 18% and Withholding Tax at 6%.

¹⁹⁸ See <http://taxsummaries.pwc.com/ID/Uganda-Corporate-Tax-credits-and-incentives>

- The Excise Duty Act, 2014 (Excise Duty Act):¹⁹⁹
 - Analysis:
 - The Excise Duty Act provides that certain excisable goods and services, listed in Schedule 2, shall be chargeable with the specified excise duty.²⁰⁰ Schedule 2 lists for the excisable goods and services, which listing does not, currently, reflect climate change or carbon-related goods and services.
 - Discussion:
 - It is submitted that the Excise Duty Act could be used to implement Carbon Pricing in Uganda, by amending Schedule 2 to include one or more climate change or carbon-related goods and services, e.g., GHG emissions (which would need to be interpreted as an environmental good or service, for these purposes). This application of the Excise Duty Act is clumsier than using the Act or the Environment Bill and is, therefore, less desirable than using the environmental instruments.

- The Excise Duty (Amendment) Act 2018: provides for an increase in the rate applicable to motor spirit (gasoline) from UGX 1,100 per litre to UGX 1,200 per litre and Gas oil (automotive, light, amber for high speed engine) to UGX 780 per litre to UGX880 per litre respectively.²⁰¹

High level constitutional analysis²⁰²

Like other Constitutions, Section 152 of the Ugandan Constitution requires every tax to be imposed in the form of an Act of Parliament. The import of this is that any carbon pricing mechanisms developed by the Executive under, for example, the National Climate Change Bill in the form of regulations could not take the form of a tax. They could however take other forms, such as a resource charge, broadly defined, or a form of a fiscal incentive introduced by way or regulation under the Bill. When exercising the power to develop any such regulations, however, the Minister would not need to obtain the consent of any other agency or Ministry.

Identification of the location(s) of administrative responsibility²⁰³

Agency	Mandate relevant to Carbon Pricing
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¹⁹⁹ The Excise Duty Act, 2014 *Acts Supplement to the Uganda Gazette No. 61 Volume CVII*, 24 October 2014.

²⁰⁰ *Ibid.*, section 4(1) read with Schedule 2.

²⁰¹ See <http://taxsummaries.pwc.com/ID/Uganda-Corporate-Significant-developments>

²⁰² High level constitutional analysis of the extent to which a line function government department's exercise of a statutory power is subject to legal/approval processes other than as provided for in the empowering statute - such as in event that the department's exercise of the power impinges upon the competence of another government department. An example of this situation would be when an environmental department is empowered to impose an environmental levy which has fiscal/taxation implications that normally fall into the purview of a national financial department.

²⁰³ Identification of the location(s) of administrative responsibility, across government, for issues that may have consequences for Carbon Pricing, the purpose of which identification would be to note potential overlaps in such responsibility - without analysis of the origins, implications and consequences of such responsibility.

Ministry of Water and Environment	The Ministry has primary responsibility for climate change policy and regulation in the country, as part of its overall responsibility for regulating and managing the country’s water and environmental resources. Uganda’s Climate Change Department falls under the authority of this Ministry. Similarly the Climate Change Policy Committee is also chaired by this Ministry.
Ministry of Finance, Planning and Economic Development	The mandate of this Ministry is to mobilize financial resources, regulate their management and formulate policies that enhance overall economic stability and development. Based on available evidence it appears this Ministry is also responsible for fuel taxes. In the event of a direct carbon pricing mechanism being developed it would likely be jointly developed by this Ministry together with the Ministry of Water and Environment, potentially with the collaboration of other ministries mentioned in this section.
Ugandan Revenue Authority	The Authority’s mandate is to assess, collect and account for government revenue and to advise on policy matters relating to all revenue sources. It would play an advisory and administrative role in any future direct carbon pricing mechanism.
Ministry of Trade, Industry and Cooperatives.	This Ministry is responsible for promoting trade and industry and cooperatives, including “environmentally sustainable industrialization”. Its mandate includes the promotion of internal and external trade and the oversight and implementation of strategies and programmes aimed at trade, industry and cooperatives development. It would likely play an advisory role in any future carbon pricing mechanism.
Ministry of Energy and Mineral Resources	This Ministry is responsible for the management and regulation of mineral resources and energy in the country. Its mandate is primarily concerned with energy policy, investments in mining, and the establishment of new power generating infrastructure. Again, any carbon pricing mechanism would strategically require the support or cooperation of this Ministry.
Ministry of Agriculture, Animal Industries and Fisheries	One of the primary mandates of this Ministry is to formulate, review and implement national policies, plans, strategies, regulations and standards and enforce laws relating to agriculture. Any carbon pricing mechanism that related to carbon pricing of emissions from this sector would require the support of this Ministry.

3.6 Financing and Carbon Pricing

The analysis of the potential to introduce carbon pricing in Uganda is done in the context that explicit carbon pricing can, broadly speaking, be done either in the form of a tax, or in the form of a cap-and-trade scheme. Climate financing has been identified as being one of the major hurdles which prohibits the development and implementation of Carbon Pricing in the country. Following interviews with focal points within the country, the following aspects regarding climate finance and Carbon Pricing was mentioned:

- Concerns were raised with regards to the government’s revenue recycling mechanisms related to environmental taxes. One such environmental tax, is the government’s levy on old second-hand vehicles. Uganda’s newly amended Traffic and Road Safety Act²⁰⁴ seeks to outlaw the import of old cars, arguing that this will protect the environment. Vehicles older than eight years would be hit by a 50 percent environmental tax, while vehicles between five and eight years old would be subject to a tax rate of 35 percent. Industrial vehicles and goods trucks would pay lower taxes. Whilst this can be seen as a form of environmental tax, concerns were raised whether the revenues generated by the levy are being recycled to improve mitigation and adaptation measures in the country.²⁰⁵ In this regard, it was mentioned during the interview process that the development and implementation of a Green Investment Fund may be helpful to guarantee that any environmental taxes are ploughed back into environmental and climate initiatives.²⁰⁶ It was also suggested that businesses be taxed on the same basis as the old vehicle tax mentioned above for importing inefficient technologies that result in higher emissions.
- Concerns were also raised with regards to Uganda’s inability to access funds from international funding mechanisms such as the Green Climate Fund. This has also resulted in the country’s Climate Change department being underfunded.²⁰⁷ The inability of the government to access climate funds from such institutions were also linked to the fact that the Ugandan government has more critical concerns which require financing, such as addressing poverty and access to basic services. As such, climate financing is not considered a major priority for the government when considering the other challenges the country is facing.²⁰⁸

The imposition of a domestic carbon tax is not presently recommended for Uganda due to the following the country is a least developed country. Its intensity is lower than any of the countries that are currently considering the implementation of a carbon pricing system. Figure 13 shows the per capital GDP for countries in the East Africa region as compared to countries in the developing world that are designing or implementing carbon pricing systems. This shows that the Ugandan GDP, at \$1 839 per capita, is almost 3 times lower than Vietnam, at \$5 353 per capita, and almost 12 times lower than Chile at \$21 581 per capita. The implementation of a carbon tax in Uganda will have to modelled in detail. It is the opinion of the project team that a carbon tax should not be implemented, unless the modelling can show that the impact on the economy will not have a negative effect on GDP, jobs and economic growth.

²⁰⁴ See Section 14B of the Traffic and Road Safety Act 19998 (Amendment Bill 2018)

²⁰⁵ Interview: Aaron Werikhe, Uganda National Planning Authority, 8 February 2019.

²⁰⁶ Interview: Gloria Namande, UNDP Uganda, Project Manager, 14 March 2019.

²⁰⁷ Interview: Gloria Namande, UNDP Uganda, Project Manager, 14 March 2019.

²⁰⁸ Interview: Aaron Werikhe, Uganda National Planning Authority, 8 February 2019.

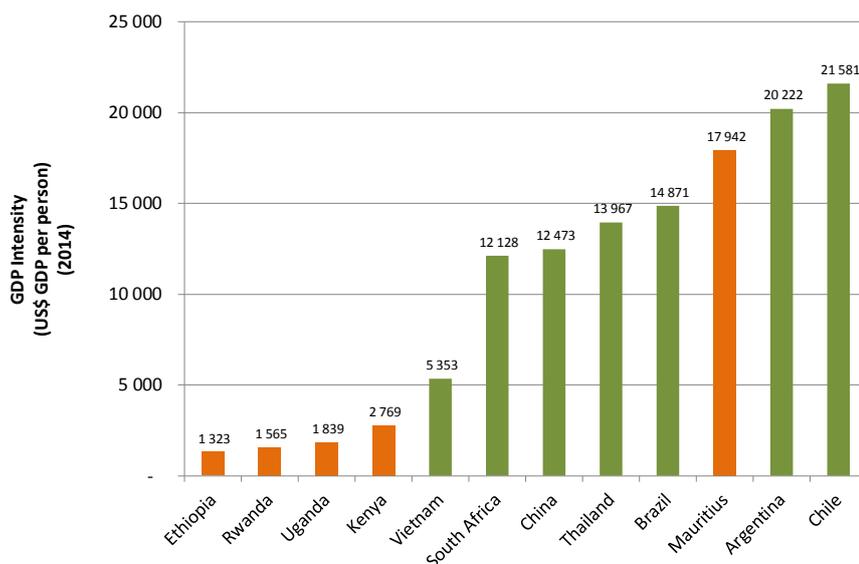


Figure 13: Per capita GDP of Uganda and other countries implementing carbon pricing schemes

3.7 Conclusion

Uganda’s participation in both the compliance and voluntary markets surpasses that of many other African nations. The country is also actively pursuing the realisation of its NDC and is seeking to promote sustainable development within the country’s sectors with immense possibilities having been identified in the renewable energy industry.

From a legal perspective the country’s Climate Change Bill does not make explicit reference to the possibility of implementing Carbon Pricing, but may be interpreted in this manner. Uganda’s National Environment Act does, however, contain provisions that could be utilised for these purposes. As mentioned above, the National Environmental Management Authority can provide for fiscal, tax and other instruments to encourage good environmental practise, including the conservation of the environment and natural resources and the prevention or abatement of pollution. Should the government be able to adapt these measures and align them with the country’s Climate Change Bill and tax legislation, the country will have a fairly sound platform to design a carbon tax scheme upon and implement such a system in the future.

During the interview process, the focal point made interesting suggestions which could assist the government to implement carbon pricing in the future. The suggestions that were made include the following:

- Innovative climate funding mechanisms must be developed and revenue generated from existing environmental levies, such as the levy on second hand vehicles that should be allocated to such a funding mechanism.²⁰⁹
- Pollution standards can be introduced in the Industrial sector. Such a standard can be a capped mechanism where the various industries are given emission thresholds.

²⁰⁹ Interview: Aaron Werikhe, Uganda National Planning Authority, 8 February 2019.

Should the industry exceed the allocated threshold, fines would be payable. This would be very similar then to a carbon tax system, but would be limited to the industrial sector. In this regard the Ugandan Investment Authority was given a mandate to establish 22 industrial and business parks throughout the country in order to create jobs and add value to locally raw materials. Given the development in the industrial sector in the country, such a mechanism would assist in institutionalising mitigation in the industrial sector.

- In order to further reduce emissions in the country, the suggestion was made to introduce more efficient transport mechanisms in the country. This includes the introduction of roads for non-motorised use as well as bus-system. This would result in commuters reducing the use of motor-vehicles which would result in a reduction of emissions.

Considering the technical and legal analyses above, it is submitted that Uganda could consider the possibility of implementing a hybrid carbon pricing mechanism combining the operation of a carbon tax with that of an emission trading scheme. The country's participation in the international carbon market has provided the country with an abundance of emission reduction activity, which is ideal to base an emissions trading scheme upon. Moreover, the country's legal framework pertaining to environmental taxation can be amended and structured in such a way as to support the introduction of carbon tax in the country. It is submitted that a hybrid carbon pricing mechanism which enables industries to offset their carbon tax liability with carbon credits traded on an emissions trading platform, would be best suited, given Uganda's climate change objectives.

Country chapter: Rwanda



4. Rwanda



Figure 14: Rwanda
(Source:
<http://www.freeworldmaps.net/africa/rwanda/location.html>)

Rwanda, known as the "land of a thousand hills" is a landlocked country of 26,338 square kilometres, geographically located in Central Africa. The settlement of environmental problems in Rwanda arising from climate change and the variability of climate necessitates the integration of social and economic dimensions in the process of analysis and evaluation for the most appropriate adaptation. Considering carbon pricing as a possible method to address the effects of climate change in the country may prove to be difficult given the country's size and circumstances. However, the possibility of implementing such a mechanism will be discussed below given Rwanda's national and legislative circumstances.

4.1 Country circumstances

Land scarcity drives environmental degradation while environmental degradation exacerbates the effects of land scarcity. With a population density of 415 persons per square kilometre, the highest density in Africa, around 83 % of Rwanda's population is rural and highly dependent on subsistence agriculture. The country has currently about 97 MW installed generating capacity- 57 MW hydro and 40 MW diesel out of which, however, only 87 MW are available.²¹⁰ High demand for wood (and charcoal) for domestic fuel, industry and construction maintains pressure on the country's limited forest resources, which are mostly plantations of exotic tree species and a diminishing area of natural forest reserve. Virtually all rural Rwandans use biomass fuels, mostly firewood as the principal energy source. Within the more established areas, Rwanda depends on hydropower for half of its electricity generation. Reliance on Rwanda's energy to drive economic growth is therefore highly threatened by climate change and without sound climate change and energy management, sectors that are heavily reliant on energy supply might experience downturns due to a lack of energy needed for production.

According to the World Resources Institute Climate Watch Tool Rwanda's GHG emissions in 2014 were primarily from activities in the agriculture sector (39.5%), followed by waste (24.7%), and energy (23.1%). Land-use change and forestry (LUCF) and industrial processes (IP) contributed 11.4% (net) and 1.4% of total emissions, respectively as outlined in **Figure 15: Rwanda emissions profile** below.²¹¹

²¹⁰ Energypedia – Rwanda Energy Situation https://energypedia.info/wiki/Rwanda_Energy_Situation (accessed on 2018-11-08).

²¹¹ Climate Watch <https://www.climatewatchdata.org/countries/RWA> (accessed on 2019-02-27)

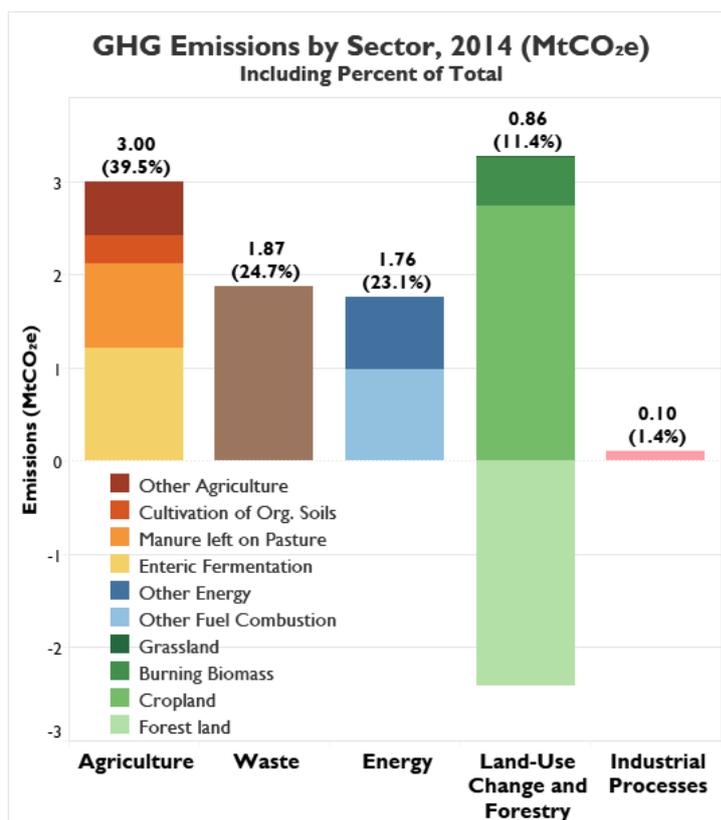


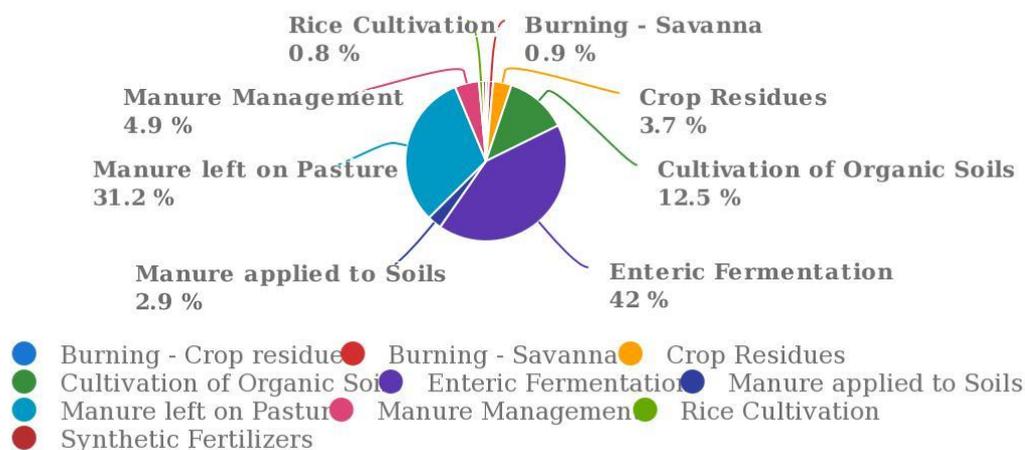
Figure 15: Rwanda emissions profile²¹²

Emissions from agriculture doubled (105%) from 1990-2014, due to increased emissions from enteric fermentation from livestock (42%) and manure left on pasture (31.2%) as outlined in **Figure 16: Rwanda Agricultural emissions** below. During the same period, Food and Agriculture Organization (FAO) data showed growth in the number of ruminant livestock, with populations of cattle, goats, and sheep increasing by around 99%, 135%, and 62%, respectively.

²¹² USAID Rwanda Emissions Profile.

Emissions by sector (CO₂ equivalent)

Average 1990 - 2016



Source: FAOSTAT (Feb 27, 2019)

Figure 16: Rwanda Agricultural emissions²¹³

Natural rain forests constitute the highest proportion of the Rwandan forest cover (33%), followed by Eucalyptus plantations (26%) and degraded natural forests (15.7%). Most rain forests are protected whereas the degraded forests are regularly used for various domestic purposes. Forest lands that have not been degraded since 2000 are mainly located in Nyungwe, Birunga and Akagera National Park. The development of agroforestry methods is therefore critical in Rwanda, as its forests are being diminished by its people in their efforts to fulfil their basic needs. Renewable energy resources and efficient land-use practices will therefore not only be beneficial for the people of Rwanda, but will also provide a platform for the development and implementation of carbon pricing.

Extreme weather events in Rwanda have increased in frequency and magnitude which, in some parts of the country, have led to significant losses of human lives. The National Adaptation Programmes of Action and the baseline report for climate change vulnerability index²¹⁴ indicated that the Eastern and Southern Provinces of Rwanda are more vulnerable to drought risks while the Northern and Western Provinces are more vulnerable to intensive precipitation, floods and erosion. Generally, the expected adverse impacts of climate change in Rwanda include high degradation of arable land (due to erosion), desertification trend, lower lake levels and degradation of forests.

The potential to develop a carbon pricing mechanism in Rwanda is supported by the country's 2018 Doing-Business score (part of the Distance to Frontier measure). Rwanda is ranked at 41st out of 190 with a percentage of 73.40%, which is substantially higher than Kenya, Ethiopia, and Uganda. Rwanda's ease of acquiring electricity is however quite low at 119th with a score of 60.69%.

²¹³ Food and Agriculture Organisation of the United Nations – Rwanda <http://www.fao.org/faostat/en/#country/184> (accessed on 2019-02-27)

²¹⁴ Republic of Rwanda, *baseline Climate Change Vulnerability Index for Rwanda, May 2015* http://www.rema.gov.rw/fileadmin/templates/Documents/rema_doc/publications/Baseline%20climate%20change%20vulnerability%20index%20for%20Rwanda.pdf p ii (accessed on 2018-10-24)

Developments in the renewable energy sector would improve the access to electricity score which would provide Rwandans with sustainable energy resources. Renewable energy projects are however unlikely to drive a domestic carbon pricing mechanism due to the minimal demand for local credits combined with the country's relatively low grid emission factor which would reduce the profitability of registering renewable energy projects with an appropriate standard.

4.2 Analysis of supply and demand potential

While the current number of registered carbon projects is relatively low, Rwanda has potential to generate carbon credits which would enable the implementation of carbon pricing in the country. Rwanda is currently host to four standalone projects and 13 PoAs, eight of which are multinational PoAs. One standalone project and three CPAs have completed issuances, of just under 400 thousand CERs, most of which (97%) were generated by cook stove projects²¹⁵. No project activities or PoAs were listed as requesting registration at the time of writing. Rwanda currently has no registered VCS project or projects undergoing VCS validation or registration, nor does the country have any ongoing, REDD/REDD+ projects²¹⁶.

Rwanda has significant geothermal potential of approximately 700MW of power.²¹⁷ This would exceed domestic electricity demand by 2020 if implemented. Moreover, geothermal is a domestic resource and has relatively small land use impact making it ideal for a small nation such as Rwanda. Geothermal projects entail the use of known technology and could produce electricity at four times less the cost of diesel generated electricity currently in use in Rwanda. Geothermal could replace oil-fuelled power plants which currently supply 38 MW of electricity in the country. The oil-fuelled power plants result in high GHG emissions and are vulnerable to oil price spikes. In contrast, geothermal power has near zero emissions, making it eligible for carbon credits. Rwanda's reliance on hydropower is therefore one of the constraints associated with the development of carbon credit projects based on renewable energy applications because hydropower grids have relatively low grid emission factors (compared to coal-based grids) which makes it difficult to benefit from CDM opportunities.

Rwanda does not have the land available to expand its forests and plantations, yet the majority of the population depends on wood for cooking and will continue to do so until electricity is available and affordable for all. In order to address this aspect, Rwanda's Green Growth and Climate Resilience Strategy aims to develop the agroforestry sector.²¹⁸ Agroforestry will provide wood for fuel and social protection²¹⁹ while avoiding deforestation and land degradation due to erosion. Different tree species will be used in agroforestry to provide construction materials as well as livestock fodder and food (fruit and nuts) which improve food security. Agroforestry has multiple

²¹⁵CDM Database for PAs and PoAs (accessed on 2018-10-26)

²¹⁶ID-RECCO: <http://www.reddprojectsdatabase.org/view/projects.php?id=646&name=Rwanda&type=project> (accessed 2018-11-06)

²¹⁷ Grantham Research Institute on Climate Change and the Environment *Climate Change Legislation in Rwanda – An Excerpt from the 2015 Global Climate Legislation Study, A review of Climate Change Legislation in 99 Countries*, p 9.

²¹⁸Republic of Rwanda *Green Growth and Climate Resilience National Strategy for Climate Change and Low Carbon Development* Kigali October 2011p v.

²¹⁹ Social protection typically consists of policies and programmes designed to reduce poverty and vulnerability.

additional benefits, namely reduced soil erosion and increased resilience to heavy rains through improved slope stability; water management and nutrient recycling which improve agricultural production; and carbon sequestration. Rwanda intends to develop the agroforestry sector as per the latest best practices and research, such as those developed by the World Agroforestry Centre. The afforestation and reforestation practices associated with agroforestry will assist in the development of carbon credit projects related to these practices, in both the compliance as well as the voluntary markets. These projects can be registered as REDD+ projects.

The Rwandan government also aims to promote more efficient and clean-burning cook stoves to reduce dependencies on wood for cooking and heating. Formalisation of the charcoal supply chain will present opportunities to reduce biomass demand and will also offset negative environmental and health impacts. Carbon credits associated with cook stoves have immense potential in Rwanda through both voluntary and compliance markets with credits likely exceeding the purchasing price of the cook stoves.²²⁰

Opportunities for the development of carbon credit projects in Rwanda are yet to be realised. The amount of carbon credits available to be traded in the country is also likely to increase in future as Rwanda's NDC makes no mention of surrendering carbon credits as ITMOs. In addition, Rwanda is not obliged to contribute to the ICAO's CORSIA, as its share of international aviation activity in RTK is 0.02% and consequently below the 0.5 % participation threshold. The Rwandan government has not yet indicated whether the country will voluntarily participate in CORSIA from 2021. Non-participation, combined with increased carbon activity within the country, would provide a greater volume of carbon credits to facilitate the operations of a domestic carbon pricing mechanism in the form of an emissions trading scheme. It is also worth noting that although Rwanda has not formally submitted its intention to implement NAMAs, the government has conducted a sectoral analysis in order to identify NAMA opportunities.²²¹ As NAMAs are expected to have a long term outlook (e.g. 15-20 years), the Green Growth and Climate Resilience Strategy is used as the basis to recognise relevant sectors where mitigation actions will result in positive impact and have the highest likelihood to succeed.

While the potential for supply of carbon credits in Rwanda is established, the demand for domestic carbon credits is likely to be minimal, considering that Rwanda's historical and current GHG emissions remain very low meaning that there is therefore little need to incentivise industry reduce or offset emissions.

4.3 Work done to implement carbon pricing

²²⁰Republic of Rwanda *Green Growth and Climate Resilience National Strategy for Climate Change and Low Carbon Development* Kigali October 2011 78.

²²¹ Rwanda Sectoral Analysis Assessment of Sectoral Opportunities for the Development of Nationally Appropriate Mitigation Actions (NAMAs) in Rwanda https://www.rema.gov.rw/fileadmin/templates/Documents/rema_doc/CC%20depart/Rwanda%20NAMA%20Sectoral%20Analysis_%20Final.pdf

As an LDC, Rwanda has priority status for adaptation and is not required to take action to reduce its GHG emissions. However, Rwanda has emerged at the forefront with like-minded countries to push for action in the international climate negotiations.

Rwanda is actively improving its investment climate by improving start-up and operating conditions for business and industry, addressing water and energy requirements, and establishing a Special Economic Zone in Kigali and provincial industrial parks in urban areas to attract foreign investment. The greening of industry is supported by the Rwanda Resource Efficient and Cleaner Production Centre, a proposed Climate Innovation Centre and the National Industrial Policy. Support of the private sector is needed to reduce industry emissions and build a local renewable energy sector. As part of Rwanda's efforts to transform industry, Rwanda's Green Growth and Climate Resilience National Strategy for Climate Change and Low Carbon makes provision for building carbon trading capacity within the private sector to harness innovative funding opportunities provided by CDM and voluntary carbon markets.²²²

The Rwandan government also acknowledged the possibility of carbon trading in its Second National Communication under the UNFCCC. The document highlights the need to raise awareness for policy makers and clarify the procedure for access to carbon credits, especially via the REDD+ mechanism given the country's agriculture, land use, land use change and forestry opportunities. The Second National Communication also acknowledges the possible generation of carbon credits by means of introducing new industrial technologies, especially within the cement sector. No mention is made of carbon trading in the Third National Communication submitted on 19 November 2018.

During the sectoral analysis to identify NAMA opportunities in the country, the government recognised the need to review and adjust its taxation system in order to create an enabling framework to implement NAMAs. The need to review the taxation system was recognised under the analysis of the LULUCF NAMA scenarios. The review and adjustment of the tax system is one aspect of an improved framework for implementing NAMAs. Other aspects include:

- Improved system of extension services and Farmer Field Schools, private sector workshops
- Detailed inventory of forestry resources and biomass densities
- Detailed inventory of soil, slope, irrigation conditions
- Improved governance and MRV (Measurement, Reporting and Verification)
- Review and adjustment of regulations

All of the above mentioned aspects would also assist in the development and implementation of a Carbon Pricing mechanism in the future.

²²²Other initiatives to transform industry in Rwanda as mentioned in the Green Growth and Climate Resilience National Strategy for Climate Change and Low Carbon Development Strategy include: Scaling up resource efficiency to reduce energy and water demand, thus reducing emissions and promoting resilience; Employing efficient and zero waste technologies, practices and design in Special Economic Zone and provincial industrial parks; Establishing Climate Innovation Centres to support investment in industries producing green technologies and those adopting green technology – see p 24.

Rwanda maintains strong policies on environmental pollution and consequently attention has also turned to vehicle gas emissions. Related to the implementation of the carbon tax, the government of Rwanda committed to reduce the number of imported old cars emitting toxic gases by increasing taxes on them and to set up a centre to calculate air emissions in Rwanda.²²³ The decision to implement this mechanism was taken in line with the country’s commitments to the East African Community Depreciation schedule.

Expansion of access to electricity has been very successful in Rwanda, quadrupling from just 9% in 2009 to 42% in March 2018. The government is targeting universal access by 2024 – with 52% of the population to be connected to the grid and 48% to use off-grid solutions.²²⁴ While the government is committed to continue this progress, the significant fiscal challenges associated with the electricity sector have been an impediment. Even with tariffs that are among the highest in the region, the revenues of the Rwanda Energy Group (the utility) have consistently fallen below costs, requiring government subsidy payments from the budget to fill the gap. This drain on public finances was set to balloon to about 4.5% of GDP by 2020/21, which would put pressure on the government’s capacity to maintain critical investments in health, education and social protection.

Reforming electricity subsidies is a complex challenge in Rwanda, a landlocked country with limited energy resources and a small industrial base. Expensive and historically unreliable electricity services have been detrimental to the growth of businesses and unaffordable for a large section of the population. Any adjustment to tariffs in such a context must be preceded by improving the efficiency of the power sector. It must also go in parallel with safeguarding the competitiveness of the domestic private sector and ensuring affordability of electricity for low income households. Should the government be able to continue its efforts in electricity subsidy reform, financial resources can be made available to aid in research and development which would enable the introduction of carbon pricing in the future.

With respect to the development of a Monitoring, Reporting and Verification framework, Rwanda is yet to develop such a mechanism. There have however been references to the development of MRV systems in national documents and policies. For instance, the Operational Manual of FONERWA provides clear guidance on MRV mechanisms, and the monitoring of individual projects and overall performance.²²⁵

Type of monitoring	Title of Reports	Measure of Progress Towards	Frequency	Submitted to	Prepared by
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²²³ Republic of Rwanda, Ministry of Environment Third National Communication under the United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/resource/nc3_Republic_of_Rwanda.pdf

²²⁴ Energy Subsidy Reform Facility (ESRF) Rwanda (January 2019) <http://documents.worldbank.org/curated/en/538521548274317451/pdf/133963-BRI-PUBLIC-23-1-2019-12-26-0-CountryBriefRwanda.pdf> (accessed on 2019-02-27)

²²⁵ Operational Manual Government of Rwanda Environment and Climate Change Fund (FONERWA) Design Project (December 2015) <http://www.fonerwa.org/sites/default/files/FONERWA%20OPERATIONAL%20MANUAL%20DECEMBER%202015.pdf> (accessed on 2019-02-27)

Action Plan Monitoring Process	Monitoring Reports	Project Action Plans	Quarterly	FTC/FMC	Fund Management team
Annual Review	Joint review Reports	Project towards delivery of FONERWA	Annual	FMC and all other key stakeholders	FTC and FMC
Fund Performance Evaluation	Evaluation Report	Progress towards the achievement of FONERWA outcomes and contribution towards FONERWA impact	Every Three years (first evaluation will, however, take place at the end of DfID two year support.	FMC/.FTC and all other key stakeholders	Independent externals / Fund Management team

Figure 17: FONERWA's MRV procedures

The principles set out in **Figure 17: FONERWA's MRV procedures** above, it is clear that there has been consideration in terms of developing a MRV structure from the Rwandan government. Efforts would however need to be increased in order to implement explicit forms of Carbon Pricing in the future.

4.4 Nationally determined contributions

Rwanda has been committed to addressing the challenge of climate change since 1998 when it ratified the UNFCCC and later the Kyoto Protocol in 2003. Rwanda submitted its first National Communication to the UNFCCC in 2005, its National Adaptation Programmes of Action in 2006, its Second National Communication in 2012 and its Third National Communication on 19 November 2018. Pursuant to its commitments under the Paris Agreement, Rwanda submitted its first National Contribution to the UNFCCC on 6 October 2016.

Rwanda has set up different bodies and institutional arrangements to coordinate and monitor the implementation of adaptation and mitigation actions in the different sectors. These bodies are the Green Economy Technical Coordinating Committee and the National Fund for Climate change and Environment (the latter being a national green fund to mobilize additional internal and external climate funds). In addition, the Ministry of Environment has been accredited as an implementing entity for the Adaptation Fund and GCF (Green Climate Fund), while the Rwandan Environment Management Authority has been nominated as national designated authority for the GCF. These institutions are based on a sector wide approach and work closely with development partners, civil society, academia and the private sector.

In comparison with other nations' NDCs, Rwanda's NDC is to fairly extensive. The NDC sectors include:

- **Agriculture:** The Rwandan government aims to reduce GHG emissions associated with the agricultural sector by implementing the following actions:
 - Mainstreaming agroecology techniques using spatial plant stacking as in agroforestry, kitchen gardens, nutrient recycling, and water conservation to maximise sustainable food production;
 - Utilising resource recovery and reuse through organic waste composting and wastewater irrigation;
 - Using fertiliser enriched compost;
 - Mainstreaming sustainable pest management techniques to control plant parasites and pathogens;
 - Soil conservation and land husbandry;
 - Irrigation and water management;
 - Add value to agricultural products through processing to meet its own market demand for food stuffs;
- **Forestry:** The Rwandan government aims to reduce GHG emissions associated with the forestry sector by implementing the following actions:
 - Promote afforestation/reforestation of designated areas through enhanced germplasm and technical practices in planting and post-planting processes; and
 - Employ Improved Forest Management for degraded forest resources.
- **Tourism:** The Rwandan government aims to maximise business tourism (the largest source of export revenues) through strategic conference management in order to maximise the distribution and volume of business travellers throughout the year. Said action will be guided by the Ecotourism, Conservation and Payment for Ecosystem Services Promotion in Protected Areas Programme.
- **Water:** Integrated Water Resources Management and Planning Programme is expected to result in improved water resources in both quality and quantity. This will increase opportunities for hydropower development thus reducing emissions from fossil fuels used for electrical power generation. The Rwandan government aims to achieve this by:
 - Establishing a national integrated water resource management framework that incorporates district and community-based catchment management;
 - Developing water resource models, improved meteorological services, water quality testing, and improved hydro-related information management; and
 - Developing a National Water Security Plan to employ water storage and rain water harvesting, water conservation practices, efficient irrigation, and other water efficient technologies.
- **Land use:** Combined actions under the government's Integrated Approach to Sustainable Land Use Planning and Management programme will result in availing more land space which might be converted to other uses such as new forest plantations, thus serving as carbon sink. Furthermore, improving spatial data by harnessing information and geographic systems and technology will result in better estimations of GHG emissions

from land use, land use change and forestry, which will consequently lead to improving planning and implementation of specific mitigation actions for the same sector.

Rwanda's contributions have tended to focus on sequestration and adaptation initiatives, as opposed to requirements for emission reductions in the country's developing industrial sector. The country's NDC has a strong focus on afforestation and reforestation given its topographical features, and as such the potential for REDD+ projects in the country is substantial.

4.5 Legal analysis

Analysis of existing climate change, environmental and developmental law and policy

- Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development (Green Growth Strategy): ²²⁶
 - Analysis:
 - The Green Growth Strategy outlines Rwanda's intentions in relation to green growth of the economy and to meet developmental goals while reducing the country's vulnerability to climate change through the implementation of a range of specified mitigation and adaptation actions.
 - Accessing climate change financing, from the usual range of international climate funds, is anticipated as the primary source of funding for the specified actions, although emphasis is also placed upon the importance of leveraging private capital and domestic funds, both as a complement to international climate financing and to decrease the country's reliance on foreign aid.
 - FONERWA ²²⁷ is named as the lead agent for leveraging funding and streamlining climate finance plans; and, FONERWA's initial capitalisation is stated as emanating from environmental taxes and grants provide by Rwanda's development partners; and, by mobilising other sources of climate finance. ²²⁸
 - The Green Growth Strategy envisages the investigation of various environmental fiscal reforms aimed at making low carbon investment more attractive. Particular examples include: taxes on environmentally damaging behaviour; tax exemptions and subsidies to make environmentally beneficial behaviour more appealing; the exemption of renewable energy

²²⁶ Republic of Rwanda *Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development*, 2011.

²²⁷ Law No. 16 of 22 May 2012, determining the Organisation, Functioning and Mission of the National Fund for Environment (FONERWA), determines the organisation, functioning and mission of FONERWA as the primary instrument to channel, distribute and monitor international and national climate finance.

²²⁸ *Ibid.*, at 30. Section 7 of this Law provides that the property used by FONERWA shall come from the following sources: State allocated budget; grants and subsidies; special grants and subsidies aiming at management of climate change and its impacts; donations and bequests; fines emanating from penalties determined by different laws aiming at environmental, water and forestry protection and laws on mining and quarry exploitation; zero point one per cent (0,1%) of a project total cost of which environmental impact assessment has been carried out minus the working capital; fees coming from proceeds from cutting wood belonging to the State, the Districts and private persons and from forestry exploitation; such fees shall be fixed by an Order of the Minister supervising FONERWA, which also shall determine modalities of their payment; property formerly owned by the National Forestry Fund; other fees determined by law.

technologies from VAT and import duties; feed-in tariffs for renewable electricity sold into the national grid by Independent Power Producers; financial and fiscal incentivisation for companies located in Kigali's Green Special Economic Zone to comply with voluntary energy efficiency and building standards;²²⁹ and, a grant-per-unit-sold scheme to incentivise private companies to invest in solar products and biogas digesters.²³⁰ In due course, it is anticipated that the Ministry of Finance (MINECOFIN) will employ more complex financing mechanisms, such as accessing concessional debt financing to increase capital for viable low carbon investments; and, that FONERWA will apply a wide-range of public financing mechanisms, including performance-based grants, loan guarantees and lines of credit.²³¹

- Among the set of actions required to implement *Programme 7: Green Industry and Private Sector Development* (of the Green Growth Strategy), is the establishment of a private sector training programme focussed on developing in-country capacity to access the international carbon market through the CDM and voluntary approaches. Such training will focus on project design, baseline calculations, carbon accounting, and monitoring, reporting and verification.²³²
- Among the set of actions required to implement *Programme 11: Ecotourism, Conservation and Payments for Ecosystem Services (PES)* (of the Green Growth Strategy), is the intention to develop an existing system of PES to support ecotourism and conservation beyond pilot schemes in Gishwati and Nyungwe forest.²³³ No detail is provided on how PES is intended to work and/or the legal and institutional framework that will be employed to implement this notion.

○ Discussion:

- It is submitted that the abovementioned financial and fiscal initiatives, including environmentally-related taxes, tax breaks and PES, suggests that the Rwandese financial system is suitable to implement such measures; and, consequently, that there is a sufficiently developed institutional and administrative framework that might be adapted to the implementation of additional processes, e.g., a Carbon Pricing mechanism in the form of a carbon tax and/or some other, perhaps more appropriate (given Rwanda's relatively limited sources of industrial GHG emissions), scheme.
- It should be noted, however, that the Green Growth Strategy's reference to utilisation of the carbon market focusses on traditional, project-based activities supported by international donor funding; and, in-country Carbon Pricing is not mentioned as a means to support economic green growth. Taken together, this is likely to imply that development of in-country Carbon Pricing is not a priority for the mitigation component of

²²⁹ *Ibid.*, at 32.

²³⁰ *Ibid.*, at 66.

²³¹ *Ibid.*, at 30.

²³² *Ibid.*, at 68.

²³³ *Ibid.*, at 70.

consumer choice, value and service and Government financial support will only be used to address affordability gaps and market failures):

- Government finance will be used where it is required to enable the private sector to operate or to bridge affordability issues for the lowest earning households of the population.
 - The private sector which is expected to play a lead role in implementation and to provide the commercial equity and debt to support their investments in the sector, while finance will be targeted at ensuring consumers have the most appropriate, cost effective technology for their needs.
 - The project is intended to be financially sustainable as follows:²³⁶
 - Whilst these programmes will initially require funding from Government and its development partners, they are expected to catalyse a sustainable private-sector-led market for off-grid energy provision.
 - Once these companies have proven the market’s viability, they will be able to take on a greater share of the investment risk.
 - This will allow for more limited Government interventions going forward, alleviating the fiscal burden.
 - Public and Private sources of finance are expected to support the investments necessary to achieve the goals of this strategy.
- Discussion:
 - The Strategy demonstrates government’s awareness of the need to incentivise the electricity generation space, and that it has command of a suite of measures to achieve this objective.
 - It would be possible to weave elements of Carbon Pricing into the broader Strategy, e.g., in a similar way to how carbon credit benefit is mentioned in the REFIT Regulations, discussed below, and to adapt the financing aspects of the Strategy as a platform to implement Carbon Pricing.
- Regulations No. 001/Energy/Rura/2012 of 09/02/2012 on Rwanda Renewable Energy Feed In Tariff (FIT):
 - Analysis:
 - The FIT is applicable to the construction and operation of hydropower and mini-hydropower plants, in Rwanda, that produce a minimum of 50 kW and a maximum of 10 MW.
 - Article 3 lists the objectives of the Regulations, as follows, to: create an enabling environment for renewable electricity power generation in

²³⁶ Some of the sources of publicly available finance include: the Scaling up Renewable Energy Program (SREP), from the Climate Investment Funds which approved a total of up to USD \$50 Million that will be used in developing private sector-led off-grid and mini-grid markets in Rwanda.

Rwanda; establish a guaranteed price for electricity generated from renewable for a fixed period of time that provides a stable income stream and an adequate return on investment; create a dynamic mechanism that reflects market and economic developments; provide access to the grid and an obligation to purchase power generated; and, establish an equal playing field with conventional electricity generation; create a critical mass of renewable energy investment and support the establishment of a self-sustaining market.

- Article 21 deals with taxation issues, providing that all projects receiving a FIT shall be subjected to the applicable laws on taxes unless otherwise agreed in the Concession Agreements.²³⁷ The implication of Article 21 is that a preferential taxation regime can be negotiated by relevant projects, in addition to the benefit of receiving the FIT.
- Article 16: provides for “Carbon Credit benefit”: FITs are calculated at cost plus return before any “carbon credit benefits” – all of which benefits shall be deemed as belonging to the Government, provided that the Government, at its sole discretion, may choose to split the proceeds at some pre-negotiated proportion, if it deems such partitioning would incentivize a particularly well positioned Independent Power Producer with experience in this Carbon Credit market to collect such credits. There is no indication of preference for a particular species of carbon credit and no further detail is provided on the commercial and operational aspects of a project that may give rise to carbon credits. It is presumed that these issues may be dealt with in the Power Purchase Agreement.

○ Discussion:

- It is submitted that the REFIT Regulations, particularly their reference to carbon credit benefit, indicates government awareness of carbon value and offers a platform, albeit limited to hydropower (for the moment) that might be utilised to demonstrate how carbon value can be used to bring potentially marginal projects into financial viability.

Analysis of the NDC

The NDC notes that, while adaptation is the priority for the national climate change response, Rwanda has established mitigation targets in different sectors through its Green Growth Strategy and mainstreamed green economy in its EDPRS.²³⁸ Rwanda’s participation in the international carbon market and other emission reduction mechanisms, will constitute government’s sale of Carbon Units to contribute towards achieving its Green Growth Strategy;²³⁹ and, Rwanda supports the development of effective accounting rules under the UNFCCC to guarantee the

²³⁷ “Concession Agreement” means an agreement between a developer and the Government providing for the rights and obligations of the two sides with reference to a concession granted by the Government to the developer to develop and operate a Plant.

²³⁸ Rwanda’s NDC, at 22 and 23.

²³⁹ *Ibid.*, at 24.

environmental integrity of market mechanisms.²⁴⁰ The NDC anticipates that the country's mitigation contribution (to 2030) will comprise project-based emissions reductions resulting from deviation from Business-As-Usual emissions for the year 2030 based on policies and actions, conditional on the availability of international support for finance, technology and capacity-building.²⁴¹ Favoured Carbon Unit-related project-based approaches to mitigation are indicated as including the CDM, NAMAs and REDD+;²⁴² and, while FONERWA's role as a national green fund established to mobilise internal and external climate funds (as part of a description of national climate change institutional arrangements),²⁴³ there is no mention of any intention to develop any form of national Carbon Pricing.

Analysis of tax and financial management legislation

- The Rwandan financial and taxation system is sophisticated and replete with examples of existing measures that might be adapted as platforms to implement Carbon Pricing mechanisms. These include examples excise taxation, financial incentivisation to achieve certain objectives and customs exemptions on the import of desirable goods. – the following is
- Excise tax is imposed on the manufacture or importation of certain commodities, including: Premium (excluding benzene) fuel at RWF 183/litre, and gas oil at 150/litre oil; Vehicles with an engine capacity of above 2500cc: 15%; Vehicles with an engine capacity of between 1500cc and 2500cc: 10%; Vehicles with an engine capacity of less than 1500cc: 5%.²⁴⁴
- There are tax incentives in the form of lower Corporate Investment Taxation (CIT), for registered investors, in respect *inter alia* of the following (subject to certain conditions):²⁴⁵
 - A seven-year tax holiday for investments in energy projects producing at least 25 MW (excluding investors having an engineering procurement contract executed on behalf of the government of Rwanda), provided that the investment is at least 50 million United States dollars (USD) with the investor contributing at least 30% of this investment in the form of equity in these sectors.
 - A preferential CIT rate of 15% for registered investors undertaking a range of actions, including energy generation, transmission, and distribution; building of low-cost housing; and, any another priority economic sector as may be determined by an Order of the Minister of Finance.
 - Exemption from capital gains tax.
 - Prompt settlement of VAT refunds.
- Customs exemptions include:
 - Certain items are entitled to exemptions, e.g., solar equipment, and energy saving bulbs.
 - Enterprises established in Free Trade Zones are exempt from customs duty on machinery and inputs for exported products.
 - All imported goods, except those listed as exempt, are also subject to the 1.5% Industrial Development Levy (IDL) and the 0.2% African Union Levy, implying

²⁴⁰ *Ibid.*

²⁴¹ *Ibid.*, at 13.

²⁴² Rwanda's NDC, at 24.

²⁴³ *Ibid.*

²⁴⁴ <http://taxsummaries.pwc.com/ID/Rwanda-Corporate-Other-taxes>

²⁴⁵ <http://taxsummaries.pwc.com/ID/Rwanda-Corporate-Tax-credits-and-incentives>

that exempt goods have a further advantage over non-exempt goods; while all imported goods (regardless of whether they are exempt) are subject to a 0.2% Quality Inspection Fee.

- The amount of the levies is calculated on the customs value of the imported goods, subject to any exemptions.²⁴⁶

High level constitutional analysis²⁴⁷

Article 164 of the Rwandan Constitution provides that any tax may only be imposed in terms of a law. The Constitution does not regulate the procedure of such laws or its content, however it is clear that any form of carbon taxation would need to be in terms of a law of Parliament. If however the form of carbon pricing is in the form of a fee or charge, it may be imposed by executive order. National laws are not prescriptive on which Ministry may level a charge or fee. For example the Law Determining the Organisation, Functioning and Mission of the National Fund for Environment (FONERWA).²⁴⁸ The funds of FONERWA are located from various sources including administrative fines and penalties as well as “fees” for forestry exploitation by virtue of an order determined by the Minister supervising FONERWA. Again there is no requirement for the Minister to consult with other Ministries or obtain approval prior to doing so.

Identification of the location(s) of administrative responsibility²⁴⁹

Agency	Mandate relevant to Carbon Pricing
Ministry of Environment	The mandate of the Ministry is the conservation, protection and development of the environment. This includes the development of climate change policies, strategies and programs and related laws. It also includes the mobilisation of resources for mitigation and adaptation. It is the Ministry with primary responsibility for climate change in the country.
Ministry of Finance and Economic Planning	This Ministry is responsible for the country’s tax and related benefit system, macro-economic policy development and budgeting. It houses the National Treasury.
Rwandan Revenue Authority	The Rwandan Revenue Authority is responsible for tax administration including the administration and collection of customs and domestic

²⁴⁶ <http://taxsummaries.pwc.com/ID/Rwanda-Corporate-Other-taxes>

²⁴⁷ High level constitutional analysis of the extent to which a line function government department’s exercise of a statutory power is subject to legal/approval processes other than as provided for in the empowering statute - such as in event that the department’s exercise of the power impinges upon the competence of another government department. An example of this situation would be when an environmental department is empowered to impose an environmental levy which has fiscal/taxation implications that normally fall into the purview of a national financial department.

²⁴⁸ Law No 16 of 2012, of 25 June 2012.

²⁴⁹ Identification of the location(s) of administrative responsibility, across government, for issues that may have consequences for Carbon Pricing, the purpose of which identification would be to note potential overlaps in such responsibility - without analysis of the origins, implications and consequences of such responsibility.

	taxes. It would likely play an administrative role in any direct carbon pricing mechanism.
Ministry of Infrastructure	The Ministry is responsible for a number of sectors including transport, energy, water and sanitation and housing. It is directed to develop and maintain power generation facilities, and programmes relating to improving access to affordable energy. Any carbon pricing mechanism would strategically require the support or cooperation of this Ministry.
Ministry of Trade and Industry	This Ministry is charged with ensuring the realisation of the country's objective of "private sector led" development, through accelerating economic growth and a dynamic private sector. In relation to trade, it is mandated to achieve trade promotion and regional integration. In this context it would play a role in any carbon pricing mechanism that had cross-border trade implications. The Ministry is also responsible for regulating fuel prices.
Ministry of Agriculture and Animal Resources	The primary mandate of this Ministry is to develop and manage suitable programs of transformation and modernization of agriculture and livestock. Any carbon pricing mechanism that related to carbon pricing of emissions from this sector would require the support of this Ministry.

4.6 Financing and carbon pricing

Rwanda has yet to fully exploit climate finance opportunities that exist. The vulnerability index²⁵⁰ related to the National Adaptation Programmes of Action has been identified as a measure that can help identify new opportunities and needs for investment and financing. The index suggests that exposure and sensitivity are variably high throughout the country and adaptive capacities are low at different degrees throughout the country.²⁵¹ Though significant, the international climate funding flowing into Rwanda will not be sufficient to finance the Green Growth and Climate Resilience National Strategy. Thus, it will be crucial for the government to secure domestic sources of revenue and leverage private capital for low carbon and adaptation activities.

The Rwandan government has therefore developed a Climate Finance Toolkit as part of its Green Growth and Climate Resilience National Strategy, to enable government ministries to source and access finance for climate resilience and low carbon development activities from numerous funds. FONERWA (Rwanda's Green Fund) will be the centrepiece of Rwanda's climate financing plan, attracting and streamlining climate finance with the Strategy, and leveraging private investment for low carbon initiatives. The CDM and voluntary carbon markets offer a potential source of revenue for public and private mitigation initiatives. Potential carbon revenues for hydroelectric dams,

²⁵⁰ Republic of Rwanda, *baseline Climate Change Vulnerability Index for Rwanda, May 2015* http://www.rema.gov.rw/fileadmin/templates/Documents/rema_doc/publications/Baseline%20climate%20change%20vulnerability%20index%20for%20Rwanda.pdf p ii (accessed on 2018-10-24)

geothermal power plants, efficient cook stoves and organic waste management have been identified in Appendices section of the Finance Sector Working Paper.²⁵²

With respect to domestic sources of funds, the Green Growth Strategy envisages fiscal reforms including taxes on environmentally harmful corporate behaviour as well as subsidies and tax cuts for environmentally sustainable practices. It outlines plans for Rwanda's Development Board to adopt a green investment index to attract foreign direct investment by rating and ranking environmental practices of Rwandan corporations.²⁵³

Recent political developments in Rwanda have led to concerns regarding the country's capacities to secure continued access to aid and climate finance more specifically. The amendment of the constitution in 2015 which allowed the incumbent President Paul Kagame, to run for three more terms met with sharp criticisms from a number of donor countries, some of which have considered cutting financial flows altogether. The arrest of the Director General of the Rwanda Environment Management Authority in March 2016 also led to investment and funding insecurities²⁵⁴.

Rwanda has developed advanced capacities for accessing climate finance from a varied number of international donor organisations and bilateral partners. However, in order to implement carbon pricing in the country, Rwanda should promote greater coordination between the different ministries and agencies currently involved in mobilising climate finance. This will address issues related to institutional overlaps, duplication of projects and inter-ministerial competition for funds which are all issues negatively affect the workings of carbon pricing.

4.7 Conclusion

During the interview phase of the study, the following comments were made which may aid the in the development and implementation of carbon pricing in Rwanda in the future:

- It was recognised that the country has not yet been active in the development of an explicit carbon pricing mechanism. One of the main hurdles which face the country in this regard, is the country's lack of climate financing. The new environment and climate change policy which has not yet approved by Cabinet suggests that there is urgent need to complement public resources by harnessing additional funding from mechanisms such as Foreign Direct Investment, the Carbon market and innovative financing mechanisms like Green Bonds. It was suggested that carbon pricing can also be considered and linked to innovative financing mechanisms.²⁵⁵
- It was mentioned during the interview process that Rwanda has comprehensive climate policy and institutional framework which can support the implementation of carbon

²⁵² Finance Sector Working Paper Appendix B (June 2011) http://rema.gov.rw/climateportal/IMG/pdf/finance-swp-final_proofed-2.pdf (accessed on 2018-11-06)

²⁵³ Republic of Rwanda Green Growth and Climate Resilience National Strategy for Climate Change and Low Carbon Development Kigali October 2011 p 32.

²⁵⁴ E Bécault, M Koenig, A Marx "Getting Ready For Climate Finance: The case of Rwanda" *Belgian Development Cooperation Working Paper N° 13* September 2016 p 44.

²⁵⁵ Interview (Written Response) Herman Hakuzimana from Rwanda Environment Management Authority 26 March 2019.

pricing. However, as the concept of carbon pricing is new for the country and the effects that such a mechanism would have on the country are unknown. As such, it was suggested that, before its introduction, a feasibility study would need to be conducted in order to identify the potential impacts (positive and negative) that carbon pricing would have on the country's society and economy.²⁵⁶ It was also suggested that such a study would identify which carbon pricing mechanism would be best suited for the country.

With regards to Rwanda's participation in the carbon markets Rwanda has not yet utilised the potential of the voluntary market. Rwanda has vast potential in terms of emission reductions in both the forestry and agricultural sectors. Furthermore, Rwanda has the benefit of exploiting geothermal potential, which is a renewable energy resource not available to many other nations. The emission reduction potential in Rwanda does however need to be developed. The Green Industry and Private Sector Development (part of the Green Growth Strategy) may be able to support the development of the Rwandan Carbon market as well as the future implementation of an explicit Carbon Pricing mechanism. For Rwanda's to increase its participation in the carbon market, intense capacity building would need to take place in the country.

Over the last decade, Rwanda has put in place a foresighted policy and regulatory framework to mitigate and adapt to the negative impacts of climate change, one which draws on robust climate vulnerability assessments and adequately mainstreams climate change considerations into development planning and strategies. Climate resilient and low carbon development has become a core objective of Rwanda's national development framework. Rwanda's strategies and policies that integrate climate change concerns tend, for the most part, to focus on adaptation to climate change, an approach which is well in line with Rwanda's estimated vulnerability to the negative effects of climate change. As mentioned above, policies such as FONERWA and its Operation Manual guides the development of MRV in the country and therefore increases the country's capacity to implement and facilitate an explicit carbon pricing mechanism in the future. From a legal perspective, Rwanda's legal framework tends to make provision for the implementation of a carbon tax as opposed to an emissions trading scheme considering the financial and fiscal initiatives, including environmentally-related taxes, tax breaks and PES'.

Rwanda's energy balance shows that about 85% of its overall primary energy consumption is based on biomass (99% of all households use biomass for cooking), 11% from petroleum products (transport, electricity generation and industrial use) and 4% from hydro sources for electricity. Based upon the technical and legal analyses above, it is submitted that the most appropriate carbon pricing mechanism to be implemented in Rwanda would be a carbon tax on petroleum products used in the transport and industrial sectors, as these industries would be able to adapt to such a tax easier in comparison to a carbon tax on all fossil-fuels, which may impact on the livelihoods of the Rwandan community.

²⁵⁶ Interview (Written Response) Herman Hakuzimana from Rwanda Environment Management Authority 26 March 2019.

Country chapter: Mauritius



5. Mauritius



It has been widely recognized that small island states, such as Mauritius are highly vulnerable to climate change and the resulting rises in sea level.²⁵⁷ The adverse impacts of climate change have already been recognised in Mauritius in terms of temperature rise, decreased levels of rainfall, accentuated beach erosion and extreme weather events such as flash floods. Climatic data over the period of 1951-2014 show an average rise in temperatures of approximately 1.2 degrees Celsius and a decrease in rainfall of about 8%.²⁵⁸ It is therefore critical to implement measures to mitigate and adapt to the effects of climate change in Mauritius. The possibility of implementing carbon pricing as one such measure within the Mauritian context will be discussed below.

5.1 Country Circumstances

The Republic of Mauritius comprises a group of islands in the South West Indian Ocean, consisting of the main island of Mauritius and the outer islands of Rodrigues, Agalega, Saint Brandon, Tromelin and the Chagos Archipelago. In 2017, electricity generation went up by 3.8% from 3,042 GWh (262 ktoe) in 2016 to 3,157 GWh (272 ktoe), of which 79% (2,496 GWh or 215 ktoe) was generated from non-renewable sources and 21% (661 GWh or 57 ktoe) from renewable sources. The Independent Power Producers produced around 60% of the total electricity generated and the Central Electricity Board produced the remaining 40%.²⁵⁹

GHG emissions in Mauritius went up by about 3% from 2016 to 2017.²⁶⁰ Gross emissions increased from 5,403 to 5,572 thousand tonnes of CO₂ equivalent. Net emissions, after absorption by forest and land use practices, increased from 5,040 to 5,207 thousand tonnes CO₂ equivalent. In 2017, the energy sector accounted for the largest share of emissions (76%) followed by the waste sector (20%) and the Agricultural and industrial process sectors at 2.4% and 08% respectively as outlined in **Error! Reference source not found.** below.

²⁵⁷ UNDP Mauritius <http://www.adaptation-undp.org/explore/eastern-africa/mauritius> (accessed on 2018-11-07).

²⁵⁸ Republic of Mauritius (2016). Third National Communication: Report to the United Nations Framework Convention on Climate Change. Republic of Mauritius, p xxxvi.

²⁵⁹ Statistics, Mauritius - Energy and Water Statistics - Year 2017 http://statsmauritius.govmu.org/English/Publications/Pages/Energy_Yr17.aspx (accessed on 2018-11-09).

²⁶⁰ Statistics Mauritius *Greenhouse Gas (GHG) emission* 2017 http://statsmauritius.govmu.org/English/Publications/Pages/Env_Stats_Yr17.aspx (accessed on 2019-02-28)

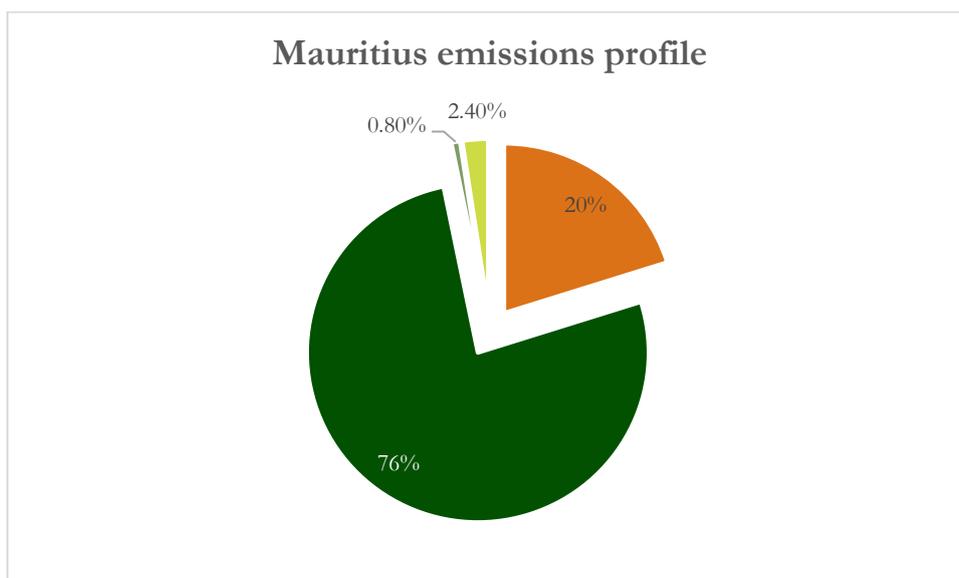


Figure 18: Mauritius emissions profile.

The country’s total land area is 2,040 square kilometres and the country has jurisdiction over an Exclusive Economic Zone of about 2.3 million square kilometres. According to the 2017 World Risk Report, Mauritius is ranked as the 13th country with the highest disaster risk and ranked 7th with regards to exposure to natural hazards. The country is highly vulnerable to the impacts of climate change, manifesting itself in several ways, including among others, intense cyclones, abnormal tidal surges, prolonged droughts, flash floods and increase of sea surface temperature. Mauritius faces multi-faceted environmental challenges, such as changes in rainfall patterns both temporally and spatially. Agricultural production may decline in the medium and longer term due to increased rainfall variability. Furthermore, the ecosystem and natural habitat of fish and other marine species are being rapidly eroded due to adverse impacts of climate change, with some coral reefs under the threat of extinction, and natural assets, such as beaches, which are vital to the tourism industry may deteriorate, posing threat to some \$50 million in value from the sector by 2050.²⁶¹

Out of all the countries covered in the study, Mauritius has the best Ease of Doing Business Score with 79.58% and is currently ranked 20th out of the 190 countries. The Mauritian tax laws have also made it an attractive jurisdiction to starting a business and the country was ranked 21st out of 190 countries worldwide in this regard.²⁶²

5.2 Analysis of supply and demand potential

Four standalone projects and one multinational PoA have been registered in Mauritius under the CDM. There are no projects or PoAs currently requesting validation of registration with the CDM.

²⁶¹ Nationally Determined Contribution for the Republic of Mauritius (28 September 2015) p 1.

²⁶² The World Bank – Doing Business Measuring Business Regulations – Mauritius <http://www.doingbusiness.org/en/data/exploreconomies/mauritius> (accessed on 2018-10-31).

Three of the four standalone projects have completed issuance, with a total just under 364 thousand CERs issued. Most (93%) of the issued credits arise from a single landfill gas project.²⁶³

There is only one Mauritian project registered under the Verified Carbon Standard (VCS) (a solar photovoltaic project which is also registered under the CDM), which has issued nearly 63 thousand Verified Carbon Units (VCUs).²⁶⁴ There are no Mauritian projects listed in the VCS pipeline and neither are the REDD/REDD+ projects registered in Mauritius.²⁶⁵

Mauritius has a relatively small supply of carbon credits which could be used for domestic purposes considering the country's NDC goal to reduce emissions by 30% by 2030. The country currently depends on fossil fuels for 66.3% of its total installed electricity capacity²⁶⁶ and share of fossil fuels has increased in the last few years. Programmes for increasing efficiency and expanding renewable energy are thus not keeping pace with increasing electricity demand and economic growth. With tourism being a life source of the country's economy, emission reductions are to a great extent focussed on energy efficiency projects within the tourism industry. To date, Mauritius has not submitted any form of intention to participate in the Nationally Appropriate Mitigation Actions (NAMA) mechanism, nor do they have any projects registered with the UNFCCC in this regard. It is however important to take note that Mauritius has received financial assistance of US\$1.6 million for the implementation of a UNEP project supported by Green Environment Facility for a capacity building on NAMAs over a period of four years.²⁶⁷ As such, the first steps to participate in NAMAs has been taken.

The achievement of Mauritius' NDC goal could assist in facilitating a carbon pricing mechanism in the country which would create a demand for carbon credits. The absence of a reference to ITMOs in Mauritius' NDC implies that domestic carbon credits could remain within the country to meet such local demands.

Furthermore, Mauritius has a Revenue Tonne Kilometre (RTK) share of international aviation emissions of 0.12% representing a total of 845.4 million tonnes of emissions.²⁶⁸ Considering this figure, Mauritius is not obliged to contribute to the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) of the **International Civil Aviation Organization (ICAO)**, as its share of international aviation activity in RTK is below the 0.5% participation threshold. Mauritius has not given any indication that the country will voluntarily participate in CORSA and as such the emission reductions generated in the country will not be surrendered to this external

²⁶³ CDM Database for PAs and PoAs (accessed on 2018-10-26)

²⁶⁴ VCS listing: https://www.vcsprojectdatabase.org/#/project_details/1483 (accessed 2018-11-07)

²⁶⁵ ID-RECCO: <http://www.reddprojectsdatabase.org/view/countries.php> (accessed 2018-11-06)

²⁶⁶ The World Fact Book – Mauritius <https://www.cia.gov/library/publications/the-world-factbook/geos/mp.html> (accessed on 2018-11-06).

²⁶⁷ Republic of Mauritius “Workshop on mitigation actions for a low Carbon Development Strategy” <http://www.govmu.org/English/News/Pages/Workshop-on-mitigation-actions-for-a-low-Carbon-Development-Strategy.aspx> (accessed on 2019-02-28); also see “Nationally Appropriate Mitigation Actions for Low Carbon Island Development Strategy for Mauritius” <https://www.thegef.org/project/nationally-appropriate-mitigation-actions-low-carbon-island-development-strategy-mauritius> (accessed on 2019-02-28).

²⁶⁸ International Civil Aviation Organization, 2017 International Total (Scheduled and Non-Scheduled) RTK https://www.icao.int/sustainability/Documents/RTK%20ranking/International%20Total%20RTK%20Rankings_2017_SIDS_LDC_LLDC.PDF (accessed on 2018-11-01).

mechanism. This will enable the country to utilise all emission reductions generated within its borders to meet the demands of a domestic carbon pricing mechanism.

5.3 Work done to implement carbon pricing

Amongst the project countries covered in this study, it can be argued that Mauritius is at the forefront of implementing explicit Carbon Pricing mechanisms in the form of environmental taxes and levies. For example, Mauritius introduced a form of carbon taxation; motor fuel taxes are substantial; the government is considering reforms to vehicle ownership taxes that would better promote environmental objectives; Mauritius has substantially reduced use of plastic shopping bags through tax policy; and, following similar schemes in Singapore, London, and Stockholm, policymakers are considering plans to reduce traffic congestion in the capital Port Louis through road pricing.²⁶⁹

In fiscal year 2016/2017, petroleum excise taxes raised Rs (rupee) 3,656 million. Vehicle excise taxes (excluding registration fees and road taxes) raised Rs 3,116 million.²⁷⁰ In total revenue from environmental taxes in Mauritius in 2016 accounted for 2.55% as a share of GDP, which represents 12.99% of total tax revenue for the same year.²⁷¹ Considering this, it is clear that taxation mechanisms related to environmental preservation has developed significantly in the country.

Mauritius has put in place a plan address climate change in its National Climate Change Adaptation policy Framework for the Republic of Mauritius.²⁷² To date, Mauritius has invested significant resources in both adaptation and mitigation measures, despite its limited means. In addition, Mauritius is proposing to enact a Climate Change Act with a view to implementing policies, strategies and plans to further mitigate the effects of climate change and promote adaptation measures.

Although there has been no clear indication that the government is planning to develop and implement a Carbon Pricing mechanism, the country's current tax regulations have the potential to be reformed in order to accommodate the introduction of a carbon tax system. The closest comparison to that of a carbon tax is the country's Maurice Ile Durable (MID) levy which can be seen as a form of Carbon Pricing and revenue recycling in order to reduce emissions in the country. The MID is a tax on fossil fuels established in July 2008 to finance clean energy projects such as subsidies for compact fluorescent lamps and solar water heaters. These taxes are essentially passed forward into the price of fuels. Although its main motivation is to raise money, the MID is actually very close in design to the ideal tax for mitigating CO₂e emissions. The government's goal is to translate the vision into a concrete policy MID, a 10-year strategy and an action plan based on five main themes: energy, environment, employment, education and equality. The final report will

²⁶⁹ Ian W H Parry "Reforming the Tax System to Promote Environmental Objectives: An application on Mauritius" IMF Working Paper <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Reforming-the-Tax-System-to-Promote-Environmental-Objectives-An-Application-to-Mauritius-24888> (accessed on 2019-02-28)

²⁷⁰ Mauritius Revenue Authority Annual Report (2016-2017). <http://www.mra.mu/download/MRAAnnualReport2016-2017.pdf> (accessed on 2019-02-28)

²⁷¹ OECD Environmental Taxation <https://www1.compareyourcountry.org/environmental-taxes> (accessed on 2019-02-28).

²⁷² See <http://www.greengrowthknowledge.org/national-documents/national-climate-change-adaptation-policy-framework-republic-mauritius>

address four key areas: the development of a long-term strategy for the next ten years, the development of an action plan listing specific projects with cost estimates, review of legislative frameworks and development indicators to measure the implementation of the recommendations.²⁷³ A legal discussion of the MID is included in the legal analysis below.

A recent green economy assessment compiled by the United Nations Environment Programme highlighted that fiscal tools such as taxation, pollution charges, public expenditure on infrastructure and market mechanisms are powerful instruments that may assist Mauritius' transition to a green economy.²⁷⁴ Across the different sectors analysed, the main opportunities for intervention in Mauritius were:

- i. Investments in infrastructure to support a green economy transition such as through improved public transport systems, renewable energy or smart grids;
- ii. Sustainable Public Procurement with the government leading by example by purchasing more environmentally-friendly products;
- iii. Environmental Fiscal Reform to create the fiscal space to support environmental protection and conservation; and
- iv. Tariffs and trade policy for sustainably produced goods.

All of the above-mentioned opportunities will enable the implementation of carbon pricing in the country, especially given the current tax structures that are in place. In keeping with the existing tax structures, the government is also encouraging households and businesses to produce electricity using renewable energy technologies through Feed-in-Tariffs and tax breaks. The Feed-in-Tariff programme provides a tariff to wind, hydropower and solar photovoltaic installations under 50kw. To further support renewable energy, there is no Value Added Tax (VAT) on photovoltaic panels. There is also an exemption in the land conversion tax for abandoned agricultural land being converted to renewable energy production. This offers significant incentive for project developers to implement emission reduction projects in the country and to consequently generate carbon credits.

With regards to the development of a MRV system, Mauritius has yet to design and implement such a system. There has however been work done that would facilitate the design of such a system in the future. This includes the NAMA project extends over four years and is expected to be completed in 2021.²⁷⁵ The project will allow Mauritius to comply with the obligations under the Paris Agreement which requires the setting up of an Enhanced Transparency Framework for domestic Monitoring, Reporting and Verification (MRV) system to track and report on mitigation actions to meet the Nationally Determined Contributions. The work includes workshops which will *inter alia* include discussion for setting up a MRV system for the energy sector, being the country's largest source of emissions. The ultimate aim is the elaboration of a Mitigation Strategy and Action Plan for Mauritius in line with the Government Programme.

²⁷³ "Maurice Ile Durable: National Policy Finalized Soon" (12 September 2012) <https://business.mega.mu/2012/09/19/maurice-ile-durable-national-policy-finalized-soon/> (accessed on 2019-02-28)

²⁷⁴ United Nation Environment Programme *Green Economy Assessment – Mauritius* (2015) p 2.

²⁷⁵ Mauritius: Greenhouse - Towards Elaboration of a Mitigation Strategy and Action Plan <https://allafrica.com/stories/201805090933.html> (9 May 2018)

5.4 Nationally determined contributions

The Republic of Mauritius needs international technical and financial support to enable it to abate its greenhouse gas emissions by 30%, by the year 2030, relative to the business as usual scenario of 7 MT CO₂e.

Mauritius will promote and implement the following mitigation activities: smart use of marine resources; expansion in solar, wind and biomass energy production and other renewable energy sources; sustainable consumption and production in all sectors of the economy; gradual shift towards the use of cleaner energy technologies, such as LNG, among others; modernisation of the national electricity grid through the use of smart technologies, which is a prerequisite to accelerate the uptake of renewable energy; efficient use of energy through the deployment of appropriate technologies in all sectors of the economy and awareness raising on energy conservation; sustainable transportation, including promotion of energy efficient mass transportation systems based on hybrid technologies and cleaner energy sources; climate smart agriculture including bio-farming; sustainable and integrated waste management, including waste to energy; sustained tree planting programme within the context of the cleaner, greener and safer initiative; and leapfrog to low global warming potential refrigerants.

An interesting element of Mauritius' NDC is the fact that the country does not plan to reduce emissions through afforestation activities, as is the case with the other countries covered by this study.

Where many other countries in the study have actively participated in carbon markets, Mauritius is yet to fully exploit the potential of the carbon markets to help realise their NDCs. The country's NDC also makes no reference to its participation in carbon markets nor does it make any reference to the use of carbon pricing mechanisms. In order to increase Mauritius' participation in the carbon markets, with the potential of consequently accessing climate finance and realising its NDC objectives, it is important that policymakers in the country participate in public forums such as the World Bank's Carbon Pricing Leadership Coalition as well as the UNFCCC Nairobi Framework dialogues.

Furthermore, the country's NDC aims to exploit the potential of renewable energy. Given the current environmental taxes that have been put in place in the country, such as the MID, revenue recycling from environmental taxes plays a significant role in the realisation of the NDC objectives, especially if such funds are aimed at reform in the energy industry. Furthermore, increasing the taxes within the energy industry will aid financing new emissions reduction projects, which in turn may increase the country's participation in the international carbon markets.

5.5 Legal Analysis

Analysis of existing climate change, environmental and developmental law and policy

- General discussion:²⁷⁶
 - The National Environment Policy (NEP, 2007) marked a broadening of the approach to environmental governance - which prior to the NEP's publication had relied primarily on command-and-control options – to include a range of policy tools, including: Financial Support Programmes (innovative financing mechanisms to support cleaner investment and environmental management, including use of the CDM for infrastructure development); and, Market-based or Economic Instruments (providing incentives to drive behaviour change).²⁷⁷ The NEP is sufficiently forward-thinking (given its date) also to include government's investigation of carbon offset programmes to mitigate tourism emissions.²⁷⁸
 - The Energy Strategy highlights that (as abovementioned) the MID Fund was created in July 2008, pursuant to the Finance and Audit Act (analysed below) and under the auspices of the Ministry of Renewable Energy and Public Utilities. The MID raised Rs 1.3 billion, for the 2008-2009 financial year, derived from a levy of Rs 0.15 cents on all petroleum products (fuel oil, gasoline, diesel and kerosene), liquefied petroleum gas and coal.²⁷⁹ In 2011 the MID levy was doubled to Rs 0.30 per kilogramme for coal, Rs 0.30 per kilogramme for LPG, and Rs 0.30 per litre for other petroleum products.²⁸⁰ Revenue raised has been variously applied, e.g., to subsidising the sale of Compact Fluorescent Lamps to domestic consumers and financing the replacement of street lights in rural and urban roads.²⁸¹ Parry has described the MID Fund as being “very close in design to the ideal tax for mitigation CO₂ emissions” (although this conclusion is unsupported); and, is of the view that redefining the MID as a carbon tax would make Mauritian climate change policy more transparent and facilitate comparison with GHG emissions pricing policies in other countries.²⁸² Parry's notion would be to convert the MID into an explicit carbon tax by setting a tax on each of the fossil fuels to which the MID applies that equals the fuel's CO₂ coefficient (the CO₂ produced by combusting a unit of the fuel) times the CO₂ price.²⁸³ The MID, which is very close to the notion of a carbon tax is, *de facto*, the instrument used for raising revenues which drive environmental activities, including mitigation activities.²⁸⁴
 - Given the MID's success, promoting sustainable development in line with the MID concept is among the key medium- to long term objectives of the Energy Strategy, while formulation of the Energy Strategy has considered *inter alia* the need for economic reform and carbon financing within the CDM and voluntary

²⁷⁶ It is useful to include a general discussion on Mauritian climate change, environmental and development law and policy because various instruments bear direct, but limited relevance for this report without being specifically elaborated in the respective instrument.

²⁷⁷ Ministry of the Environment & NDU *The National Environment Policy*, 2007, at 17.

²⁷⁸ *Ibid.*, at 27.

²⁷⁹ Ministry of Renewable Energy and Public Utilities *Republic of Mauritius Long-Term Energy Strategy 2009-2025*, October 2009, at 18.

²⁸⁰ Parry, *supra.*, at 10.

²⁸¹ Energy Strategy, *supra.*, at 19.

²⁸² Parry, *supra.*, at 11 and 12.

²⁸³ *Ibid.*, at 11.

²⁸⁴ Revenues from the Petroleum Product Excise Duty, which was increased by 10 per cent in the 2011 budget to Rs 10.8 (US\$ 0.36) per liter for gasoline and Rs 3.3 (US\$ 0.11) per litre for diesel; and, further increased to 15 cents per litre on all petroleum products, and per kilo of coal and LPG, are added to the MID Fund to help finance green economy projects, see: <http://www.greenfiscalfiscalpolicy.org/countries/mauritius-country-profile/>.

market.²⁸⁵ Among the Energy Strategy’s conceptual underpinnings is that of sustainable energy finance, incentivisation and taxation intended to prompt a shift towards energy efficiency, the introduction of which would require a paradigm shift away from traditional supply-side measures to encompass a fiscal framework that promotes demand-side interventions, e.g., efficient energy use.²⁸⁶ The Energy Strategy specifically identifies the CDM as a (carbon) financial mechanism; and, in addressing environmental subsidies as a further financial mechanism indicates that (for the purposes of the Energy Strategy), the term “subsidy” refers to any government financial support, including incentives, grants, breaks, benefits, special tariffs and allocations.

- The Environment Protection Act, 2002 (EPA):²⁸⁷
 - Analysis:
 - The EPA is Mauritius’s overarching environmental statute, providing for a comprehensive range of measures promotion conversation and sustainable development. The EPA establishes a National Environmental Fund as a Special Fund (Fund) for the purposes of the Finance and Audit Act, the objects of which include: carrying out programmes to prevent and reduce pollution; and promoting, supporting and encouraging activities relating to environment protection and management.²⁸⁸ The sources of the Fund’s revenue include any money lawfully accruing to the Fund; and, the Minister of the Environment may, with the approval of the Board established to administer the Fund, make such regulations as he thinks fit for the purposes of the Fund.²⁸⁹
 - Discussion:
 - The MID is a Special Fund under the Finance and Audit Act. Please refer to the discussion of the MID which appears in this legal analysis. The MID is an example of such a Special Fund that might be utilised to implement a Carbon Pricing mechanism in the form of a carbon tax.
- The Energy Efficiency Act No. 3 of 2011 (EEA):²⁹⁰
 - Analysis:
 - The EEA establishes the Energy Efficiency Management Office (Office), the objects of which are to: promote energy efficiency usage and national awareness of energy efficiency as a means to reduce carbon emissions and protect the environment.²⁹¹ The functions of the Office are those necessary or expedient to attain its objectives, including: formulating and recommending innovative financing schemes for energy efficiency

²⁸⁵ *Ibid.*, at 21.

²⁸⁶ *Ibid.*, at 41.

²⁸⁷ Act No. 19 of 2002.

²⁸⁸ *Ibid.*, section 59(1) and (2) read with section 60(b) and (g).

²⁸⁹ *Ibid.*, section 64.

²⁹⁰ The Energy Efficiency Act No. 3 of 2011 *Legal Supplement to the Government Gazette of Mauritius No. 39 of 30 April 2011*.

²⁹¹ *Ibid.*, section 4 and 5(a) and (b).

projects; and, encouraging and assisting “project developers in applying for carbon credits for energy efficiency projects using the Clean Development Mechanism”.²⁹² The Energy Minister is empowered to make regulations, as he sees fit, for the purposes of the EEA and for any matter related to energy efficiency.²⁹³

○ Discussion:

- It is submitted that the abovementioned provisions of the EEA are sufficiently broad to permit the implementation of Carbon Pricing in Mauritius as a means to support energy efficiency uptake. For example, the Office might formulate an innovative financial scheme for energy efficiency based on an in-country price for Carbon Units (in this case CERs) generated by CDM energy efficiency projects, which scheme the Minister could implement via regulations made in terms of the EEA.

● The Mauritius Renewable Energy Agency Act (REAA):²⁹⁴

○ Analysis:

- The REAA establishes the Mauritius Renewable Energy Agency (Agency) to promote the uptake to renewable energy, empowered *inter alia* to devise incentive mechanisms, including subsidisation mechanisms based on principles of competitiveness and specific technologies.²⁹⁵ The Agency is permitted to raise funds,²⁹⁶ and is required to set up a General Fund (Fund) through which the Agency will receive and disburse monies,²⁹⁷ the revenue for which is to be derived from a range of sources specified in the REAA, and any other source approved by the Minister (to whom responsibility for energy has been assigned).²⁹⁸ The Minister is empowered to make such regulations as he thinks fit for the purposes of the REAA, including the levying of fees and charges.²⁹⁹

○ Discussion:

- It is submitted that the abovementioned provisions of the REAA, read with the Energy Strategy, are sufficiently broad to permit the implementation of Carbon Pricing in Mauritius as a means to support renewable energy uptake.

²⁹² *Ibid.*, section 6(g) and (j).

²⁹³ *Ibid.*, section 23(1) and (2)(c).

²⁹⁴ The Mauritius Renewable Energy Agency Act, No. 11 of 2015 *Legal Supplement to the Government Gazette of Mauritius No. 100 of 3 October 2015*.

²⁹⁵ *Ibid.*, section 3(1), 4 and 5(h). Note that the REAA does not define the terms “incentive” or “subsidisation” but, in relation to the latter, refer to the abovementioned discussion of the Energy Strategy in which the point is made that, for the purposes of the Energy Strategy, the term “subsidy” refers to any government financial support, including incentives, grants, breaks, benefits, special tariffs and allocations. In this light it is submitted that the terms “incentive” or “subsidisation”, as they appear in the REAA, must be broadly interpreted to include the suite of mechanisms listed in the Energy Strategy.

²⁹⁶ *Ibid.*, section 6(e).

²⁹⁷ *Ibid.*, section 13(1).

²⁹⁸ *Ibid.*, section 13(2).

²⁹⁹ *Ibid.*, section 20(1) read with section 20(2)(d).

Analysis of the NDC

- The NDC does not mention, and provides no guidance on, the implementation of in-country Carbon Pricing in Mauritius.

Analysis of tax and financial management legislation

- Tax incentives and exemptions – analysis and discussion:³⁰⁰
 - Companies established on or after 1 July 2017 that are involved in innovation-driven activities for IP assets, developed in Mauritius, enjoy an income tax exemption for a period of eight tax years, from the year in which the innovation-driven activities commenced. Similar tax exemptions have been introduced for income derived from the manufacture of pharmaceutical products, medical devices, and high-tech products by companies incorporated after 8 June 2017 (available for eight years from the tax year in which the company starts operation).
 - Income derived from the exploitation and use of deep ocean water for air conditioning installations, facilities, and services will be exempted for eight tax years; and, a company incurring expenditure on deep ocean water air conditioning may deduct from its gross income twice the amount of the expenditure incurred in that tax year (permitted for five consecutive tax years, starting from the year in which the expenditure is incurred).
 - There is a tax exemption for interest derived by individuals and companies from debentures or bonds issued by a company to finance renewable energy projects, providing that such issuance must be approved by the Director General of the Mauritian Revenue Authority.
 - A company incurring expenditure in a tax year for the acquisition and establishment of a water desalination plant may deduct from its gross income twice the amount of the expenditure incurred, in the relevant tax year.
 - There is an annual depreciation allowance of 50% of the costs of acquiring green technology equipment.
 - It is submitted that the above incentives and exemptions indicate that the Mauritian financial system is familiar with the notion incentivising a desired outcome by crafting appropriate financial and taxation measures aimed to facilitating the actions of individuals and companies seeking to procure the desired outcome. These examples also offer existing mechanisms that might be adapted as platforms for the implementation of Carbon Pricing.
- Excise on motor vehicles: a system of excise duties is imposed upon the import of motor vehicles, based engine size and, thus, taking into account their carbon emissions. Depending on the size of the engine, either a carbon levy or a carbon rebate is granted, with a cap on carbon emissions, commencing in December 2012, of 158 grams per kilometre.³⁰¹

³⁰⁰ <http://taxsummaries.pwc.com/ID/Mauritius-Corporate-Tax-credits-and-incentives>

³⁰¹ <https://motors.mega.mu/news/new-legislation-trouble-around-carbon-tax-20110725.html>

- The Finance and Audit Act (FAA) and MID Fund Regulations, 2008 (Regulations):³⁰²
 - Analysis:
 - The FAA provides that the Consolidated Fund established by section 103 of the Constitution shall consist of certain monies; and, that the Minister (to whom responsibility for the subject of finance has been assigned) may authorise the issue of an advance from the Consolidated Fund to a Special Fund.³⁰³ A Special Fund is defined to mean a fund specified in the Schedule to the FAA. Special Funds are created, rather curiously, by a section providing that no proposal for creation of a new Special Fund shall be made save in exceptional circumstances and with the prior approval of the Minister,³⁰⁴ who is also empowered to make such regulations as he thinks fit for the purposes of the Act, which regulations may provide for the administration of a Special Fund. The MID Fund is listed in the Schedule to the FAA as a Special Fund.

- The Economic Development Board Act, 2017 (EDBA):³⁰⁵
 - Analysis:
 - The EDBA is a relatively new statute that provides for the establishment of the Economic Development Board (Board), the objects of which include promoting Mauritius as an attractive investment centre with powers *inter alia* to: provide strategic and policy advice to government on economic policy formulation; improve the business environment and undertake such other activities as may be necessary to promote Mauritius as an attractive base for investment; and, identify opportunities in new economic sectors and engage with international partners to develop strategic alliances to create the appropriate ecosystem for these sectors.³⁰⁶ The Board is also empowered to do such things as are incidental or conducive to the attainment of any of its objects under the EDBA, while the Prime Minister may make such regulations as he thinks fit for the purposes of the EDBA.
 - Discussion:
 - It is submitted that the abovementioned provisions of the EDBA are sufficiently broad to permit the implementation of Carbon Pricing in Mauritius as a means to support the objects of the Board.
 - For example, the Board might advise government that Carbon Pricing is a necessary element of economic policy required to improve the business environment and promote Mauritius as an attractive base for investment. The Board might then engage internationally on aspects of a Carbon

³⁰² Act No. 2/741 of 12 June 1982, as amended.

³⁰³ *Ibid.*, section 3(1) read with section 6(1)(a).

³⁰⁴ *Ibid.*, section 9(1).

³⁰⁵ The Economic Development Board Act, No. 11 of 2017 *Legal Supplement to the Government Gazette of Mauritius No. 71 of 27 July 2017*.

³⁰⁶ *Ibid.*, sections 3(1), 4(b) and 5(1)(a)(g) and (h), read together.

Pricing mechanism; and, the Prime Minister might make regulations implementing the mechanism.

- Given the newness of the EDDBA, however, the potential to use the EDDBA in this manner would need to be further tested as it is unlikely that the EDDBA's full operational consequences have been adequately explored. For clarity, it might be that the intention behind the EDDBA does not encompass the abovementioned ideas, including for the reason that there are other legal mechanisms that might be employed to implement Carbon Pricing in Mauritius.

High level constitutional analysis³⁰⁷

The Mauritian Constitution is not express on the need for taxes to be in the form of an Act of Parliament, however it does provide that all money raised for the purposes of Government must be paid into a Consolidated Fund (unless a law authorises its payment into a specialised fund).³⁰⁸ Similarly it requires any Bill for taxation made by Parliament, to only be made upon recommendation of a Minister.³⁰⁹ The various statutes empowering the executive to make orders of a fiscal nature all, however, all delimit this power to the power to impose fees and charges and it is presumably the practice (or mandated elsewhere) for all taxation matters to be in the form of an Act of Parliament. For example, only “fees and charges” may be levied by the Minister under the Mauritius Renewable Energy Agency Act. Ordinarily such fees and charges would be associated with a service provided or the use of a public good. Again, it would need to be creatively argued that the pollution of the atmosphere as a public good warranted the levying of a charge for its “use” in order to levy such a fee or charge that is akin to carbon pricing. As noted above, the Energy Efficiency Act No. 3 of 2011 (EEA) empowers the Minister to make regulations, as he sees fit, for the purposes of the EEA and for any matter related to energy efficiency. We have posited that this could entail regulations which create an innovative financial scheme for energy efficiency based on an in-country price for Carbon Units (in this case CERs) generated by CDM energy efficiency projects. Such a scheme could not take the form of a carbon tax, however, it could operate in the form of a fiscal incentive. Again, there is no requirement for the Minister to obtain consent when developing such Regulations or when determining fees or charges.

Identification of the location(s) of administrative responsibility³¹⁰

³⁰⁷ High level constitutional analysis of the extent to which a line function government department's Exercise of a statutory power is subject to legal/approval processes other than as provided for in the empowering statute - such as in event that the department's exercise of the power impinges upon the competence of another government department. An example of this situation would be when an environmental department is empowered to impose an environmental levy which has fiscal/taxation implications that normally fall into the purvey of a national financial department.

³⁰⁸ Article 103 of the Mauritian Constitution

³⁰⁹ Article 54 of the Mauritian Constitution.

³¹⁰ Identification of the location(s) of administrative responsibility, across government, for issues that may have consequences for Carbon Pricing, the purpose of which identification would be to note potential overlaps in such responsibility - without analysis of the origins, implications and consequences of such responsibility.

Agency	Mandate relevant to Carbon Pricing
Ministry of Environment and Sustainable Development.	One of the Ministry’s objectives is to “incorporate climate change adaptation and mitigation measures to ensure sustainable development initiatives”. It is responsible for the Department of Environment which houses the Climate Change Division, responsible for the development, coordination and implementation of climate change adaptation and mitigation policies, programmes and initiatives. This is the lead Department responsible for climate change within the country.
Ministry of Finance and Economic Development and National Treasury	The Ministry is responsible for formulating and implementing macroeconomic fiscal policies across the country. It is also responsible for allocating funds and mobilising revenue. The Treasury operates under the aegis of the Ministry of Finance.
Mauritius Revenue Authority	The Revenue Authority is responsible for tax administration and collection and would be responsible for the administrative elements of any future direct carbon pricing mechanism.
Ministry of Industry, Commerce and Consumer Protection	The State Trading Corporation of Mauritius was established as a quasi-autonomous institution under this Ministry, and is the trading arm of government. It is responsible for regulating fuel prices, including the retail price of petroleum products.
Ministry of Energy and Public Utilities	This Ministry is mandated to formulate policies, strategies and laws in the energy, water and wastewater sectors. Any carbon pricing mechanism would strategically require the support or cooperation of this Ministry.
Ministry of Foreign Affairs, Regional Integration and International Trade	This Ministry’s mandate includes, <i>inter alia</i> , the fostering of economic growth through trade expansion and regional integration. It’s role would be relevant in any carbon pricing mechanism which had an impact on trade.
Ministry of Agro Industry and Food Security	This Ministry is responsible for operators in the agricultural sector, and is mandate to develop the commercial and professional agro-business sector. Any carbon pricing mechanism that related to carbon pricing of emissions from this sector would require the support of this Ministry.

5.6 Financing and Carbon Pricing

The Republic of Mauritius states in its NDC that it will require international support in its efforts to transition towards a low-carbon development path through greater utilisation of renewable sources of energy (biomass, solar and wind). The implementation of the NDC of the Republic of Mauritius will require over USD 1.5 billion for mitigation measures and about USD 4 billion for adaptation measures across all the sectors up to 2030 in the form of finance, investment, technology development and transfer, and capacity-building to fully realize its intended contribution. In this regard, Mauritius has been able to secure funding to the amount of USD 191 million through the Green Climate Fund and the United Nations Development Programme.

There are possibilities to utilise the operation of carbon tax to provide funding for additional green investments. In this regard, the government can shift existing resources into green public investments and leverage the income generated through the carbon tax for the provision of green public goods. They can also use innovative fixed-income investment products, such as green bonds. Many of the economic and fiscal policy instruments mentioned earlier could serve as a key source of domestic financing for the green economic transition which aim to reduce fossil fuel imports and accelerate the nation's shift to a low-carbon economy over a period of 20 years.³¹¹ The country sees the agreement as a key step in achieving the country's NDC whilst sustaining continued economic growth.

5.7 Conclusion

As stated above, Mauritius is an energy intensive country in comparison with the rest of the countries covered in this study. Excise taxes on petroleum products and on motor vehicles are the two largest sources of revenue raised from taxes in Mauritius that might be rationalized on environmental grounds.

It has also been mentioned above that Mauritius has various environmental taxes which has generated substantial revenue for the country. One such example is Mauritius's MID. Although its main motivation is to raise money through the MID Fund, the MID is actually very close in design to the ideal tax for mitigating CO₂ emissions. Converting the MID into an explicit carbon tax would involve setting a tax on each fuel equal to its CO₂ coefficient (i.e., the CO₂ produced by combusting a unit of the fuel) times the CO₂ price. Using the MID levy as a basis to design a carbon tax would make climate policy in Mauritius more transparent, facilitate comparison with emissions pricing policies in other countries, and provide a valuable example for others to follow.

In order to design the necessary carbon tax law and policy, the government of Mauritius should review the existing environmental tax landscape and identify areas where taxes or charges can be introduced or raised to create the fiscal space to support environmental protection and conservation. In 2015, environmentally related taxes and charges provided revenue of about 2.6 per cent of the GDP, while environmentally relevant subsidies represented 0.6 per cent of GDP.³¹²

³¹¹ United Nations Development Programme, "Mauritius accelerates towards a low-carbon economy, launches US\$ 191 million project" (10 November 2017) <http://www.undp.org/content/undp/en/home/news-centre/news/2017/mauritius-accelerates-towards-a-low-carbon-economy-.html> (accessed on 2018-11-07).

³¹² PAGE (2015), Green Economy Assessment Mauritius, p 36.

From a macroeconomic perspective, shifting taxes from labour to the use of natural resources can be expected to promote more job creation while encouraging investment in resource efficiency.

Mauritius also has a relatively small supply of carbon credits and its emission reduction potential is relatively lower than that of the other countries covered in the study which would make the implementation of a cap-and-trade scheme difficult in comparison with other countries. Related to this, the country's current policy framework, as well as its NDC aims to implement more renewable energy capacity and increase energy efficiency within its various sectors. The potential to generate carbon credits from cheaper emission reduction projects such as the distribution of efficient cook stoves and afforestation/ reforestation projects is limited in comparison with the other countries covered in the study.

In conclusion, the country's current tax designs can provide a platform to develop and implement an explicit carbon tax mechanism. Such a mechanism can be aimed to reduce emission in the energy sector and may also incentivise the increased uptake of emission reduction projects in the country.