



**THE REPUBLIC OF KENYA
THE NATIONAL TREASURY AND ECONOMIC PLANNING**

**DRAFT NATIONAL GREEN FISCAL INCENTIVES POLICY
FRAMEWORK**

12/2022

EXECUTIVE SUMMARY

This policy document is organized into five chapters, with the first chapter providing the policy background. The second chapter outlines the policy goals and guiding principles while chapter three provides a situational analysis of green fiscal reforms across key sectors in Kenya and internationally. Chapter four outlines green fiscal policy interventions for each sector based on international experience and the current Kenyan context described in chapter three. The fifth chapter concludes with an overview of the governance structures to implement the policy.

The Green Fiscal Incentives Policy Framework seeks to steer Kenya's economy onto a desired low-carbon climate-resilient green development pathway through a variety of fiscal and economic mechanisms. Green fiscal reforms can help shift consumption patterns, generate additional revenue, drive private investment in projects and programs that adopt climate-friendly production mechanisms. The policy sets out how the government Ministries, Departments and Agencies can enhance mobilization of climate Finance from all sources: private, public, multi-lateral agencies, bilateral, philanthropic, etc. to finance Kenya's updated NDC and NCCAPs.

The report considers green fiscal reforms as mechanisms that have been used by governments to correct environmental externalities, support national climate change goals, and promote clean energy investments. The mechanisms range from tax policies, subsidies and expenditure programs, and regulatory instruments with fiscal components all of which have revenue implications. As such: **government taxes** can be used to stimulate a shift in production, consumption and investment in low-carbon climate-resilient and environmentally sustainable practices; **concessional loans, guarantees and interest rate subsidies** can be effective tools in overcoming investment barriers and leveraging private sector green investments; and **government spending** can directly target the delivery of environmental outcomes that the private sector might otherwise ignore.

Recognizing the threats posed by climate change and other environmental challenges, the world is now taking more rapid action. Investors are rapidly shifting from dirty to clean assets, and key technologies needed for environmental sustainability are experiencing rapid cost reductions.

The world's largest emitter, China, in 2020 pledged to reduce CO₂ emissions to net zero by 2060. Further progress is soon expected from the US. The United Nations Call for Action on Adaptation and Resilience spelled an urgent need for enhanced resilience and also recently adopted a landmark framework that considers the contribution of nature when measuring economic prosperity and human wellbeing.

In accordance with the updated NDCs that build on national policies, plans and legal frameworks, it is essential for Kenya to play a full and active part in this global transition to a low-carbon-climate resilience development path. A development path characterized by continued

low emissions, enhanced climate resilience and environmental sustainability will provide Kenya with a wide range of benefits including: stronger growth, greener investment and higher innovation; enhanced natural capital; avoidance of transition risks; enhanced resilience to climate and other shocks; meet international obligations, among others.

The goal of this policy is to identify and prioritize the implementation of a coherent suite of green fiscal actions that will allow Kenya to exploit the opportunities of accelerating the transition to a low-emissions development pathway while enhancing climate resilience and ensuring environmental sustainability. In doing this, the policy will:

- i. Direct government planning, budgeting and spending/procurement toward green production and consumption.
- ii. Provide a framework for fiscal incentives to attract private sector investment into a low-carbon emission, climate-resilient and environmentally sustainable economy.
- iii. Provide a framework for generating additional revenue streams for the government.

The policy sets out a series of green fiscal policy actions of particular interest to the government of Kenya. The key sectors identified in the policy have the greatest potential to green Kenya's economy and are in line with the National Climate Change Action Plan (NCCAP). These sectors include agriculture, food and nutrition security, water and sanitation, blue economy, disaster risk financing, health and sanitation, forestry, human settlement and infrastructure, energy, transport, manufacturing and waste management. The policy also identifies some key cross-cutting policy actions that would have an important impact in support of Kenya's green development agenda.

The National Treasury will lead and facilitate the implementation of this policy, working with partners to develop required laws and regulations. Capacity development for relevant stakeholders, including county governments, will be a critical element of implementation. A continuous programme for monitoring and evaluation will be developed; and the policy shall be reviewed within five years to assess its effectiveness and relevance.

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CHAPTER 1: INTRODUCTION

1.1 The need for action

Recognizing the threats posed by climate change and other environmental challenges, the world is now taking more rapid action. Building on the momentum created by the Paris Agreement (PA) and agreement on the Global Goals (the Sustainable Development Goals, SDGs), and recognizing the urgent need to Build Back Better from the coronavirus disease 2019 (COVID-2019) crisis, countries around the world are committing to combat climate change and environmental risks. In the last year, the world's largest emitter, China, has pledged to reduce CO₂ emissions to net zero by 2060. Further progress is soon expected from the US. The urgent need for enhanced resilience is reflected in the United Nations Call for Action on Adaptation and Resilience. Investors are rapidly shifting from dirty to clean assets, and key technologies needed for environmental sustainability are experiencing rapid cost reductions. The United Nations recently adopted a landmark framework that considers the contribution of nature when measuring economic prosperity and human wellbeing.¹

In accordance with the updated NDCs that build on national policies, plans and legal frameworks, it is essential for Kenya to play a full and active part in this global transition to a low-carbon-climate resilience development path. A development path characterized by continued low emissions, enhanced climate resilience and environmental sustainability will provide Kenya with a wide range of benefits:

Stronger growth, greener investment and higher innovation. UNEP's 2014 Kenya Green Economy Assessment Report shows that pursuing a green economy scenario will result in faster economic growth.² By 2030, gross domestic product (GDP) could be 12% higher by taking a green growth pathway compared with continuing a business-as-usual (BAU) scenario. This reflects the high positive spillovers from climate-related innovation, the savings and yield increases provided by a focus on resource productivity, and the ever-lower costs of many key low-carbon and climate-resilient technologies. Kenya has abundant renewable energy resources, a thriving green finance sector and an enviable reputation as a climate action leader globally. All these advantages can be exploited in a green growth pathway. There are also benefits from low-carbon, climate resilient growth that enhance human wellbeing but which are not fully reflected in GDP statistics, including lower air pollution and better health, reduced congestion, and the opportunity to live in a more attractive environment.

¹ The System of Environmental-Economic Accounting- Ecosystem Accounting (SEEA EA)

² UNEP (2014), Green Economy Assessment Report: Kenya. Available:

https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/KenyaGEassessment_UNEP.pdf

Enhanced natural capital. An estimated 42% of Kenya’s GDP is derived from natural resource sectors, such as agriculture, mining, forestry, fishing and tourism, while 42% of the total employment comes from small-scale agriculture and pastoralism. A strong focus on preserving and enhancing the natural capital that these activities depend upon can ensure they provide sustainable, flourishing livelihoods for both current and future generations. The recent Dasgupta Review provides a salutary reminder that all human activity is ultimately reliant on strong and healthy ecosystems and natural capital.³

Enhanced resilience to climate and other shocks. At present, Kenya is in the top 20% of countries that are most vulnerable to climate change. It poses a major threat to Kenya’s socio-economic wellbeing and the attainment of the Vision 2030 and its third Medium Term Plan (MTPIII 2018–2022), the Big Four Agenda, the National Climate Change Action Plan (NCCAP 2018–2022) among others.⁴ A specific focus is needed to recognize, reduce and adapt to these risks. In so doing, the country designed a comprehensive program referred to as Financing Locally Led Climate Action Program (G-FLLoCA) which is aimed at building resilience to climate related risks, vulnerability and shocks. Other interventions are also being developed to address other shocks (such as infectious diseases or cybersecurity) that threaten Kenya’s development.

Transition risks. As noted above, the world is moving toward a low-emissions pathway. A failure by Kenya to move in line with (and potentially help lead) this transition could instead result in Kenya being sidelined by international partners as trade and capital flows increasingly take account of climate considerations. Most carbon-intensive industries and fossil fuel exporters are already worrying about how to respond to this existential threat. A 20th-century growth model will not serve Kenya well in a 21st-century world.

International obligations. Under the Paris Agreement, countries have agreed to limit the increase in the global average temperature to ‘well below 2°C above pre-industrial levels’, and to pursue efforts to ‘limit the temperature increase to 1.5°C above pre-industrial levels’. Kenya’s contribution to this goal is formally reflected in its recently updated Nationally Determined Contribution (NDC), which enhanced its ambition by setting a goal to reduce its emissions by 32% relative to BAU by 2030, and included, for the first time, a commitment that some of this action would no longer be conditional on the provision of support by the international community. Partners will be watching to ensure that Kenya delivers on these commitments.

³ Partha Dasgupta (2021), *The Economics of Biodiversity: The Dasgupta Review*. United Kingdom HM Treasury. Available: <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

⁴ ‘Big Four’ refers to the name given to the four pillars of the economy (manufacturing, food security and nutrition, universal healthcare, and housing) that the President of Kenya planned to support in order to deliver on promises made to citizens during his second term (2017–2022). Subsequently, the four sectors were prioritized in Kenya’s Medium Term Plan III.

1.2 New green fiscal policies to build on a strong foundation

Kenya has also made significant progress in moving toward a green development pathway. Sustainable natural resource utilization is embedded in the Constitution. Mainstreaming the green economy was included in the government's Second Medium Term Plan (2013–2017) and integration of SDGs was included in the Third Medium Term Plan (2018–2022). Under the Climate Change Act 2016, the government is required to develop five-year NCCAPs to guide the mainstreaming of adaptation and mitigation actions into the sector functions of the national and county governments. The latest NCCAP, covering the period 2018–2022, identifies a series of actions for government and other stakeholders, with a particular focus on adaptation. The National Policy on Climate Finance (2018), provided a clear direction on mechanism for enhanced mobilization of climate finance from all sources: private, public, multi-lateral Agencies, bilateral, philanthropic, etc. to finance Kenya's updated NDC and NCCAPs. The policy recommended the development of green fiscal incentive policy to catalyze the private to finance transition to a low-carbon-climate resilient-green development path.

A range of further specific policies provide for green growth and sustainable natural resource management including the Environmental Management and Coordination Act 1999 (amended in 2015) and the Sustainable Waste Management Policy and Bill.

However, the government has identified that more needs to be done to realize the benefits of transitioning to a low-emissions development pathway, while enhancing climate resilience and environmental sustainability. In particular, it recognizes the need for new and additional green fiscal policies – i.e., to use policies relating to the way in which it raises and spends financial resources to steer the economy onto the desired green pathway. There are several reasons why these policies are powerful and important:

- **Taxes and subsidies can influence the costs, prices and profits in a wide range of markets.** They can be used to stimulate a shift in production, consumption and investment in low-carbon, climate-resilient and environmentally sustainable practices. Such instruments are often the most cost-effective way to deliver environmental outcomes and can uncover innovative solutions to environmental challenges that would otherwise be ignored.
- **Some fiscal instruments – such as concessional loans, guarantees and interest rate subsidies – can be effective tools in overcoming investment barriers and leveraging private sector green investments.** These instruments have consistently leveraged private capital that is many multiples of the committed public spending. This has been achieved across multiple country contexts and economic sectors.
- **In other cases, government spending can directly target the delivery of environmental outcomes that the private sector might otherwise ignore.** Some (largely adaptation) solutions – for example, disaster risk reduction and management

activities, or the restoration of degraded lands – may never attract sufficient private spending. Direct government spending may be the quickest and easiest way to achieve the desired outcomes.

- **The way in which the government raises capital (including through green bonds, etc.) can signal to stakeholders the importance that the government attaches to delivering particular outcomes.**

Green fiscal reforms have been applied successfully around the world, from economy-wide solutions like *carbon taxes* in South Africa and *Ecological Fiscal Transfers (EFTs)* in India and Brazil, to narrower and more direct measures like government investment in afforestation and land protection seen in Ethiopia and the African Union’s Great Green Wall. This experience clearly demonstrates that *Green Fiscal Reform* in Kenya can enhance private sector financing of climate actions, spur green innovation and technology development, improve fiscal consolidation, correct market failures, and help identify smarter ways for government taxation and spending.

CHAPTER 2: POLICY GOALS AND GUIDING PRINCIPLES

The goal of this policy paper is to **identify and prioritize the implementation of a coherent suite of green fiscal actions that will allow Kenya to exploit the opportunities of accelerating the transition to a low-emissions development pathway while enhancing climate resilience and ensuring environmental sustainability.**

In doing this, the policy will:

- iv. Direct government planning, budgeting and spending/procurement toward green production and consumption
- v. Provide a framework for fiscal incentives to attract private sector investment into a low-carbon emission, climate-resilient and environmentally sustainable economy
- vi. Provide a framework for generating additional revenue streams for the government.

In seeking to achieve this goal, there are nine principles that have informed the development of the policy to date and will guide the implementation of the specific actions this policy paper identifies:

Predictability: The policy will provide greater certainty in government policy to encourage higher private sector investment in green growth. Sunset clauses for phasing out incentive schemes will be developed to provide certainty for the investors.

Cost-effectiveness: The policy promotes cost-effectiveness. The focus should be on fiscal policies that have been seen to be cost-effective. Specific interventions will be analyzed to ensure value for money.

Polluter-pays: The policy will provide ways of allocating the costs of pollution prevention and control to polluters to encourage the rational use of scarce environmental resources by evoking the Polluter Pays Principle (PPP).

Monitoring, evaluation and learning: The policy and its individual actions will have their impacts closely monitored and periodically evaluated so that lessons can be drawn that will enhance their effectiveness over time, responding to an evolving market context.

Coherence: The individual actions developed under this policy will be additional. There will be a focus on both ensuring that all policies are aligned to achieve the same objective, and on avoiding unnecessary policy duplication or overlap.

Consultative: The policy and its individual actions are developed in a consultative manner, drawing on the full range of expertise within Kenya and internationally, allowing those who will be both positively and negatively affected by potential changes to express their perspective and to have an opportunity to suggest improvements.

Inclusiveness: The policy and its actions will promote the participation of private investors and communities, including small-, medium- and large-scale enterprises. This will, in turn, support the government's employment and wealth-creation initiatives.

Transparency and accountability: Spending on green fiscal policies and any revenues raised will be managed in line with the provisions of the Constitution of Kenya and the Public Finance Management Act (2012) on sound public expenditures management.

Equity: The policy and its individual actions will promote reallocation and redistribution of resources while taking cognizance of the needs of the most vulnerable sectors and members of society.

CHAPTER 3: SITUATIONAL ANALYSIS

Kenya has already created a strong foundation for low-carbon, climate-resilient growth through a range of fundamental documents and legislation. This starts with the country's Constitution which, under Article 42, guarantees every Kenyan the right to a clean and healthy environment and encourages participatory resource management and equitable benefits. This is reinforced by the revised Environmental Management and Coordination Act (2012), which includes a provision (under Section 57) for fiscal incentives, disincentives or fees to induce or promote the proper management of the environment and natural resources or the prevention or abatement of environmental degradation. Similarly, the Climate Change Act 2016 provides a regulatory framework for an enhanced response to climate change, allowing for mechanisms and measures to achieve low-carbon climate development, and for connected purposes. A range of strategies, policies, and action plans are detailed in subsequent government documents including the National Climate Change Framework Policy (2016), the National Policy on Climate Finance (2018), the NCCAP (2018–2022), and the Green Economy Strategy and Implementation Plan (2016–2030). They highlight the need for a fiscal incentives policy to accelerate transition to a green and circular economy through increased financing from the alternative source from the private sector.

A critical document reflecting Kenya's domestic ambition in the international arena is its updated NDC. This was recently submitted to the United Nations Framework Convention on Climate Change (UNFCCC), and specifies both mitigation and adaptation actions. It confirms Kenya's ambition to transition to a low-carbon society and reduce its greenhouse gas (GHG) emissions far beyond the 32% by 2030 (with milestone targets at 2025) relative to the BAU scenario of 143 MtCO₂eq outlined in the updated NDC. Emission reductions are to be undertaken based on equity and in the context of sustainable development and efforts to eradicate poverty, which are critical development priorities for many developing countries including Kenya.

There have been a range of important fiscal developments and initiatives across many of Kenya's key economic sectors, which are detailed below. In each section, there is a brief discussion of the key challenges and opportunities that Kenya faces in that sector, a summary of the current fiscal policies that are encouraging green economic growth, as well as a summary of relevant international experience. A separate annex provides more detail on the international experience.

The 11 sectors considered in this section are:

- Disaster risk management

- Water and the blue economy
- Health and sanitation
- Food, agriculture and nutrition security
- Forests, wildlife and tourism
- Human settlements and infrastructure
- Electricity
- Clean cooking
- Manufacturing
- Transport
- Waste management

3.1 Disaster risk management

Situational context

Disasters significantly impact lives, livelihoods and economies across the globe and impede progress toward sustainable development. Disaster risk associated with natural hazards, including extreme climate events continue to attain elevated levels often leading to, for example, to a loss of life and property from floods and landslides, the destruction of infrastructure by floods, and a loss of life and livelihoods because of drought.

Kenya is particularly vulnerable to diverse disasters, some of these have had a significant negative impact on GDP as outlined in Table 1 with the trend for droughts showing increasing frequency since 2011. Widespread environmental degradation together with the emergence of new pests and diseases as well as the resurgence of others all contribute to further expansion of the disaster risk dimensions. All these push factors represent likely consequences of climate change.

Table 1: Damages and losses from selected climate-related shocks as recorded by different sources

Year	Event	Damages and losses US\$ billion	Annual GDP (%)
1997–1998	El Niño floods	0.8–1.2	2.9–4.4
1999–2002	Drought	2.5	4.8
2005–2006	Drought	0.45	1.0
2008	Drought	1.4	3.9
2009	Drought	4.1	11.1
2010	Drought	2.8	7.0
2011	Drought	3.7	8.8

Source: Government of Kenya, 2012

Current fiscal and other policies

The government has made significant strides in strengthening disaster risk management systems in the country. The Disaster Risk Financing Strategy outlines the various disaster risk financing instruments that are available for responding to the vagaries of drought, floods and other disasters. These disaster risk financing instruments include the Kenya Livestock Insurance Program (KLIP), Kenya Agriculture and Crop Insurance Management Program (KAIRMP), Hunger Safety Net Program (HSNP), Contingencies Fund, County-Level Emergency Funds, and the Development Policy Credit with a Catastrophe Deferred Draw Down Option (Cat DDO).

The government has also made significant investments in the development of drought-tolerant crop varieties and livestock breeds through the Ministry of Agriculture, Livestock, Fisheries and Cooperatives. Some public investments have been targeted at building flood control infrastructure such as that constructed in Bundalangi, water storage and harvesting infrastructure of varied scales, such as Thuake Dam, to improve access to water for domestic and livelihood uses.

International experience

Kenya's experience largely matches the international experience, which has emphasized the role of national disaster funds, and developing plans for using those resources, with roles and responsibilities between different actors clearly stated and understood. Mexico's disaster fund, FONDEN, is often stated as a good practice example.⁵

Other approaches suggested by international experience include:

Purchase of insurance. Insurance products are increasingly available to preserve ecosystems in the event of natural disasters. For example, in 2019, the state government of Quintana Roo, Mexico, developed and financed a parametric insurance product to help maintain coral reefs and beaches along 160 km of its coastline. The state is currently developing a mechanism to extend the coverage to include mangrove protection as well.

Catastrophe bonds (CAT bonds). This security raises capital for a government in the same way as a normal government bond, but if an event protected by the bond occurs, the obligation to pay interest and repay the principal is either deferred or completely forgiven. In this way, the government pays interest on the principal in exchange for the possibility of claiming a payout from the bond in the case of a disaster. Mexico was the first country to issue CAT bonds and it has since become commonplace among countries vulnerable to natural disasters. Most recently,

⁵ Clarke, Daniel Jonathan; Dercon, Stefan (2016) Dull disasters? How planning ahead will make a difference (English). Washington, D.C. World Bank Group.
<http://documents.worldbank.org/curated/en/962821468836117709/Dull-disasters-How-planning-ahead-will-make-a-difference>

the Philippines issued a CAT bond with US\$150 million in tropical cyclone disaster insurance protection.⁶

Green Bonds: These are a means to raise capital for green projects that address the risks posed by exposure to climate change, environmental degradation and associated social impacts. Green bonds have proven to be one financial instrument that is already enabling billions of dollars to flow into sustainable infrastructure globally, mobilizing both private sector and public sector capital towards sustainable and climate resilient infrastructure. The development of a strong Green Bond market enables business, government and investors to tap into the opportunities associated with the green economy, and make the urgent and strategic shift to climate adaptation and resilience.

Carbon trade and incentives for reducing greenhouse gas emissions: Carbon trade provides opportunity and impetus for gainful establishment and maintenance of carbon sinks. To promote efforts to cut down carbon emissions, concessionary incentives reward adoption of technologies and processes that limit greenhouse gas emissions and reduce carbon-miles. Developing and nurturing strategic mechanisms that offer opportunity for carbon trade and incentives for reducing the carbon emissions will translate to sustainable socioeconomic gains.

Supportive policy framework should provide

Disaster early warning systems:

Preparedness and risk mitigation actions:

Coordination mechanisms and structures:

3.2 Water and the blue economy

Situational context

Kenya faces serious challenges regarding its current and future water resources and water service provision. According to the Kenya Water Services Strategy, these challenges include deterioration of existing facilities such as harvesting and storage facilities, and increased service demand due to population growth, particularly in many rural areas and the very rapidly growing settlements of the urban poor. Further to this, the Kenya Water Master Plan points out that climate change will continue to affect water resources, including disruptions in rainfall patterns leading to frequent flooding and droughts in the country. Additionally, water resources are distributed unevenly in the country in terms of timing and geography therefore, usable water resources are considered limited and lower than the total amount of available water resources in Kenya.

Nevertheless, the blue economy offers huge potential. New sustainable ocean industries, such as sustainable fisheries, aquaculture and marine renewable energy, present opportunities to generate

⁶ Evans, S, Philippines Gov requests cat bond loss calculation for typhoon Goni. 6 November 2020, Available: <https://www.artemis.bm/news/philippines-gov-requests-cat-bond-loss-calculation-for-typhoon-goni/>

new sources of employment and growth, diversify the economy, build climate resilience, reduce dependency on fossil energy, and enhance food security.

However, the blue economy will need to be sustainably managed. Population growth and the resultant demand for seafood has led to uncontrolled and unsustainable fishing. A recent study found that 38% of the coral reefs surveyed in the region had fish stocks below sustainable levels.⁷

Current fiscal and other policies

Kenya has already taken some action to address water resource and quality issues. For example, the 2006 Environmental Management and Co-Ordination (Water Quality) regulations prohibit discharge of effluent into the environment that is in breach of the established standards. The National Environment Management Authority (NEMA) regulates discharge of all effluent into the environment and issues effluent discharge licenses for a fee.

Similarly, Part IV of the Fisheries Act (2012) requires registration and licensing for both local and foreign vessels for fishing in the Kenya fishery waters for a fee. It also imposes fines and penalties for fishing without a license or in contravention of conditions imposed by a license under the Act. This aims to ensure sustainable fishing practices to preserve the blue economy ecosystem, although, as noted above, challenges remain.

International experience

The international experience provides insights into potential fiscal policy options across a range of dimensions in the water and blue economy sector.

- To promote efficient potable water provision, some countries have adopted a type of feebate system where richer, higher-use households are charged a higher rate to offset subsidies for poorer, subsistence-use households. This is the case in Colombia where, for example, the price of water depends on how the neighborhood ranks on a national six-tier socioeconomic system. Households on the lowest tier receive a 70% subsidy, whereas those in the top tier pay a 165% surcharge.⁸

A range of countries use fees and taxes to protect their freshwater supplies from pollution by taxing industrial water pollutants. The Colombian government, for example, charges all polluters a fee per unit of biological oxygen demand (BOD) and total suspended solids (TSS), with regional enforcement agencies entitled to retain any pollution fee revenues. According to Colombia's environment ministry, nationwide BOD discharges from point

⁷ McClanahan, T. R. (2019). Coral reef fish communities, diversity, and their fisheries and biodiversity status in East Africa. *Marine Ecology Progress Series*, 632, 175-191. doi:10.3354/meps13153

⁸ <https://www.acueducto.com.co/> (in Spanish)

sources covered fell by 27%, and TSS discharges fell by 45% in the first six years of the program.⁹

- Payments for hydrological service schemes encourage the private sector to take account of the full, societal value of water resources. For example, the Payments for Hydrological Services program (PESH), introduced by Mexico in 2003, aimed to conserve forests to improve water quality and quantity for downstream communities, as well as maintain rural incomes and reduce poverty. Between 2003 and 2009, approximately 2.27 million hectares of land, around 1.6% of Mexico's forests, were included in the program. Analysis of PESH's impacts found that it increased land cover management activities by around 50% and community social capital by 8-9% (Alix-Garcia et al., 2018).¹⁰

For fisheries, quota systems have been used to build sustainable stocks. In Namibia, the government has been setting total allowable catches (TACs) since 1992. The value of the fish industry has been steadily increasing year-on-year – from US\$331 million in 2006 to US\$595 million in 2012 (13% compound annual growth rate).¹¹

Iceland takes this approach one stage further by allowing quotas to be traded between fishermen. This mechanism has the dual benefit of securing the future of the industry by making it more efficient and profitable and, from a just transition perspective, providing compensation through quota sales for those who exit. The system was successful, with the annual quota rental values in the Icelandic fisheries increasing almost twenty-fold between 1984 and 1999. While both the Icelandic and Namibian quota systems are budget-neutral, the auctioning of allowances could provide a source of government revenue.

- Some countries have raised capital explicitly to support the blue economy. For example, the Seychelles' 2018 blue bond issuance was a world first for a sovereign government and raised the island nation US\$15 million to advance its blue economy.¹² Proceeds went toward supporting marine protection areas, enhanced governance of fisheries, and investments that facilitated value-added in downstream industries.

⁹ Olmstead, S and Zheng, J Policy Instruments for Water Pollution Control in Developing Countries, December 2019. Review of Environmental Economics and Policy. Available:

https://sites.utexas.edu/olmstead/files/2019/12/Olmstead_Zheng_20191217.pdf

¹⁰ Alix-Garcia, J.L. Sims, K., Orozco-Olvera, V.H. Costica, L., Jorge, D.F.M., Monroy, S.R., (2018) Payments for environmental services supported social capital while increasing land management, Proceedings of the National Academy of Sciences, 115 (27) 7016-7021; DOI: 10.1073/pnas.1720873115

¹¹ Chiripanhura, Blessing and Teweldemedhin, Mogos. 2016. An Analysis of the Fishing Industry in Namibia: The Structure, Performance, Challenges, and Prospects for Growth and Diversification. AGRODEP Working Paper 0021. Washington, D.C.: International Food Policy Research Institute (IFPRI).

<http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/130791>

¹² World Economic Forum, Blue bonds: What they are, and how they can help the oceans. 6th June 2019. Available: <https://www.weforum.org/agenda/2019/06/world-oceans-day-blue-bonds-can-help-guarantee-the-oceans-wealth/>

3.3 Health and sanitation

3.3.1 Health

Health status is a critical dimension of human well-being. It is especially critical for children as childhood health determines not just educational attainment, but also adulthood health and productivity (KIPPRA, 2020).¹³ Access to health is a basic social economic right of every Kenyan. Article 43 (1)(a) of the Constitution states that " Every person has the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care". However, health is also a devolved function where provision of the services is the responsibility of the counties.

The World Health Organization (WHO, 2016)¹⁴ shows that health system activities exert significant impacts and pressures on the environment by generating hazardous and conventional wastewater and greenhouse gas emissions and through their high consumption of resources such as water and energy. Some of the key impacts are:

- Health care waste: Health care system is one of the highest-waste-generating sectors. It is estimated that between 75% and 90% of waste produced from the health care system is comparable to domestic waste in terms of its composition and environmental implications. Increased use of disposable instruments and prepacked materials has led to increased waste generation. Clinical waste generation is also increasing among private households. Landfill is the least expensive means of disposal but poses high environmental and health risks. Incineration is a cheaper alternative of health care waste disposal but resulting ash has been found to contain high levels of heavy metals.
- Wastewater: Water pollution can directly emanate from the health care facilities, the activities of patients, the healthcare supply-chain and from inadequate health care waste disposal. Frequent pollutants include pharmaceutical products, microorganisms, heavy metals, cleaning products and chemicals such as organic halogens or free chlorine.
- Greenhouse gas emissions: Greenhouse gases arise from embedded emissions in procured goods, direct energy use in healthcare facilities and patient and staff travel.
- Toxic chemicals: The healthcare industry is a major consumer of chemicals, some of which can have serious health and environmental impacts including mercury, polyvinyl chloride, flame retardants, phthalates, and volatile organic chemicals.
- Resource consumption - water and energy: Even though direct water use by health systems is minor compared to other sectors, indirect (embedded water consumption) is significant. For example, disposable cotton is derived from cotton crop which is highly water intensive.

¹³ KIPPRA (2020). Creating an Enabling Environment for Inclusive Growth In Kenya. Kenya Economic Report. <https://kippra.or.ke/wp-content/uploads/2021/02/Kenya-Economic-Report-2020.pdf>

¹⁴ WHO (2016). Towards Environmentally Sustainable Health Systems in Europe, a Review of the Evidence. <https://apps.who.int/iris/bitstream/handle/10665/340377/WHO-EURO-2017-2242-41997-57725-eng.pdf?sequence=3>

Current fiscal policies

There are no known fiscal incentive measures in Kenya meant to green the healthcare system. Nonetheless, they can be indirectly linked to sanitation (Section 3.3.2).

3.3.2. Sanitation

Situational context

Sanitation is a necessity that contributes to better human health, dignity, and quality of life. The economic and social benefits of sanitation interventions create more time for productive pursuits, higher productivity, better performance at school and work, lower medical costs. Closer access leads to a better living environment, dignity, safety, convenience, comfort, and status. However, in Kenya basic sanitation services are not accessible to most of the population. The result is that the poor are deprived of decent and dignified lifestyles leading to deterioration of health, wellbeing, and the human environment.

Kenya, under Sustainable Development Goal 6, has committed itself to achieve by 2030 universal and equitable access to safe and affordable water for all; access to adequate and equitable sanitation and hygiene for all and an end to open defecation, paying special attention to the needs of women and girls and those in vulnerable situations. Progress on drinking water, sanitation and hygiene is also critical for the achievement of other targets, including reducing poverty and achieving universal access to basic services (1.1 and 1.2); ending all forms of malnutrition (2.2); ending preventable child deaths, combating neglected tropical diseases and waterborne diseases, and achieving universal health coverage (3.2, 3.3, 3.8 and 3.9); providing safe and inclusive learning environment.

Kenya has a vision of achieving 100% access to basic sanitation services by 2030. This is particularly ambitious for rural areas where the coverage to basic level services stands at 31% (KESP Policy 2016-2030).¹⁵ Progress requires participation from the communities to ensure open defecation is eliminated. Additionally, access to sanitation services is significantly lower in poorer communities and among vulnerable groups.

The Constitution of Kenya (2010) under Article 42 gives every person a right to a clean and healthy environment, which includes sanitation. The Constitution also devolved sanitation services to County Governments and subsequently the Government has enacted, the Water Act (2016), bringing the water and sanitation sector in line with the constitution, the Ministry of Health has adopted an Environmental Sanitation Policy and Framework (KESP 2016 – 2030), and the Ministry of Water and Sanitation is currently developing a new policy.³

¹⁵ Government of Kenya (2016). Kenya Environmental and Sanitation Policy 2016 – 2030. Ministry of Health.

According to KESP (2016 – 2030), one of the reasons why sanitation remains a low investment priority is institutional fragmentation, with different elements of the sanitation supply chain being the responsibility of different players. This fragmentation has led to lack of proper coordination of sanitation services and hindered a holistic approach to sanitation financing. The development of a sanitation and hygiene investment plan has been a pending priority within Kenya’s Country Priority Action Plan on Sanitation, but progress is constrained by a lack of specific capacity in the sector. Thus, despite financial support and donor interest for sanitation in Kenya, sustainable financing remains a key bottleneck to accelerated progress.

Current fiscal and other policies

The Ministry of Water & Sanitation and Irrigation is currently focusing on resource mobilization, innovative financing mechanisms and investment planning to achieve universal access by 2030. Some of the initiatives in place towards this mission include pro-poor initiatives by the ministry aimed at ensuring the progressive realization of the human right to safe drinking water and sanitation for all, in a non-discriminatory manner. Other initiatives by both national and county governments that will enhance access to safe drinking water include: (i) Allocation of more resources by both National and County governments to expand water infrastructure; (ii) Community sensitization programs on water treatment; and (iii) Investing in water harvesting technologies (KEPI 2020).

International experience

Improving sanitation can be particularly reliant on government spending but there are examples of very strong progress being made when fiscal policy is used to align incentives. Peru’s Incentives Program for the Improvement of Municipal Management (MIP) provides an example. MIP makes direct transfers to local governments, on condition of the achievement of set ecological goals, which are monitored twice a year. Between 2015 and 2019, 15,901 rural water and sanitation operators were registered, 31,917 water systems were built, 2,500 rural water systems were rehabilitated, and 1,997 chlorinated systems were installed.

3.4 Agriculture, food and nutrition security

Situational context

Approximately 25% of Kenya’s population is food-insecure.¹⁶ This is due to low and falling productivity of agricultural land, reliance on rain-fed agriculture, low levels of mechanization and high post-harvest losses. The prevalence of climate change impacts such as droughts and floods have compounded the food insecurity problem and such events are projected to intensify in the coming years. Subsequently, the number of people who will be rendered food-insecure is

¹⁶ Food and Agricultural Organization (FAO), United Nations Economic Commission for Africa (ECA) and African Union Commission (AUC) (2020). Africa Regional Overview of Food Security and Nutrition 2019. ISBN 978-92-5-132051-8, Food and Agricultural Organization (FAO).

bound to increase (National Food and Nutrition Security Policy Implementation Framework, 2017).¹⁷

At the same time, the agriculture sector is the leading source of emissions in the country, accounting for 40% of the national total of 93.7 MtCO₂e in 2015.¹⁸ Much of this is driven by dairy cattle: Kenya has an estimated 4.3 million dairy cattle producing 3.4 billion litres of milk per year. The dairy cattle sector is responsible for about 12.3 MtCO₂eq. In addition, the use of synthetic and organic fertilizers adds nitrogen to soils, increasing natural emissions of nitrous oxide. Other agricultural soil management practices such as irrigation, tillage, fallowing of land, also affect the flow of gases to and from the soil, since soils are both a source and a sink for GHGs.

Agriculture is the leading source of emissions (about 40% of the total national emissions). This is mostly due to livestock enteric fermentation, manure left on pasture and agricultural soils, and fertilizer application. Adoption of Climate Smart Agriculture (CSA) will reduce emissions.

Current fiscal and other policies

The government's 2009–2020 Agricultural Sector Development Strategy has multiple objectives. These include establishing a central authority for recording animals and regulating breeding programs, enhancing animal feeding and nutrition practices, strengthening livestock extension services, and improving livestock disease and pest control. The Climate Smart Agriculture (CSA) Framework Program 2015–2030 targets a reduction in agricultural GHG emissions by increasing livestock productivity alongside the adoption of improved adaptive technologies which minimize carbon emissions and enhance soil carbon sequestration. It also aims to develop a national carbon accounting and measurement, reporting and verification system, and promote efficiency in dairy and livestock manure management and in paddy rice management, for example.

Furthermore, food and nutritional security is one of the key pillars of the Big Four Agenda. Consequently, several projects are under implementation including the construction of several dams for water conservation, flood prevention and to support irrigation; the Galana Kulalu food security model farm; a fertilizer subsidy program to lower the cost of farming; and, as noted above, the introduction of KLIP.

In terms of legislation, the VAT Act of 2013 and the 2012 Income Tax Act lay the groundwork for policy in this area. The VAT Act provides value-added tax (VAT) exemptions for all unprocessed agricultural products and agricultural pest-control products (and inputs for their production), as well as a duty exemption for agricultural machinery (and inputs for their

¹⁷ Ministry of Agriculture, Livestock and Fisheries (2017). National Food and Nutrition Security Policy Implementation Framework. <http://extwprlegs1.fao.org/docs/pdf/ken170761.pdf>

¹⁸ Government of Kenya (2015), Kenya Second National Communication to the United Nations Framework Convention on Climate Change. National Environment Management Authority (NEMA)

production), fertilizer, storage facilities and seeds. In combination, these exemptions vastly reduce the costs of agriculture and contribute to incentivizing increased production and enhanced food security. The Income Tax Act's provision for a 50% capital deduction for investment in farm works will have a similar effect.

However, not all incentives and programs currently implemented by the government are climate-smart or geared toward promotion of a green sustainable economy. For example, pesticides can contaminate soil, water and other vegetation – therefore, incentives that promote their use may be inconsistent with promoting the green economy. Similarly, the use of chemical fertilizers can have negative effects on the environment, for instance the emission of methane, nitrous oxide and ammonia into the atmosphere. This policy takes into cognizance these challenges and attempts to balance the interventions towards achieving NDC targets while addressing food security.

International experience

Internationally, there are many examples of fiscal policies that provide subsidies to farmers to engage in more sustainable practices, with the funding for these subsidies met through a re-allocation of existing agricultural subsidies. Examples include Brazil and the UK, whose experience points to ***the importance of robust monitoring to ensure impact***. Direct subsidies and tax exemptions have also been shown to be important levers in encouraging sustainable farming. For example, in India, following the removal of these trade barriers at the beginning of 2017, the value of organic agricultural exports grew by 70% and 41% in 2017 and 2018, respectively, after four years of stagnation.¹⁹

There are also examples of command-and-control expansionary green fiscal policies in this sector. South Africa launched the ***Working for Water (WfW)*** program which resulted in over 350,000 hectares of newly cleared farmland, improved water quality and security, the development of secondary industries based on cleared land, and the employment of 24,000 previously unemployed people from marginalized groups.

In terms of nutrition, international experience illustrates ***the role of fruit and vegetable subsidies or tax reductions***. For example, Fiji and Tonga have removed import tariffs on fruit and vegetables, while the UK and US have provided targeted subsidies for vulnerable groups (Thow et al., 2018).²⁰ However, there are no current examples of such consumption subsidies being tied to the sustainability of the associated production practices.

¹⁹ FiBL Statistics (2020), Available: <https://statistics.fibl.org/>

²⁰ Thow, A. M., Downs, S. M., Mayes, C., Trevena, H., Waqanivalu, T., & Cawley, J. (2018) Fiscal policy to improve diets and prevent noncommunicable diseases: from recommendations to action. Bulletin of the World Health Organization, 96(3), 201–210. <https://doi.org/10.2471/BLT.17.195982>

Finally, international experience also points to the opportunities for raising capital by governments to support green activity in this sector. For example, in 2018, the Mexican Trust Fund for Agricultural Development launched *a green bond worth roughly US\$135 million to support ventures in four categories: protected agriculture, efficient use of water, energy efficiency, and renewable energy.*²¹ The funds from this bond have allowed sustainable farmers to scale up their production while *propagating practices like reforestation, water capture, soil retention and the installation of solar panels and pumps.*

3.5 Forests, wildlife and tourism

Situational context

Forests provide a wide range of ecosystem goods and services that support the growth of Kenya's economy, including an estimated 50,000 direct jobs and another 300,000 jobs

indirectly.²² Montane forests regulate more than 75% of the country's renewable water resources, which is critical for the sustainable development of many sectors such as agriculture, forestry, fisheries, electricity, water, hotels and other tourist facilities, public administration, and defense.²³ They also prevent soil erosion and provide habitats for many plant and animal species. In addition, montane forests supply fuelwood that meets over 75% of Kenya's overall energy requirements.

'It's a matter of life and death for this country. The Kenyan forests are facing extinction and it is a man-made problem.' – Wangari Maathai, Nobel Laureate

The deforestation and degradation of these ecosystems remove a critical carbon sink from Kenya and cause significant problems. Deforestation has been mainly driven by clearance for agriculture that is linked to rural poverty and rapid population growth, unsustainable utilization of forest products (including timber harvesting, charcoal production, and grazing in forests), and past governance and institutional failures in the forest sector (NCCAP 2018–2022).²⁴

Wildlife and Tourism

The tourism sector is a highly climate sensitive sector. Climate change affects tourism destinations, their competitiveness and sustainability. Hence tourism demand is affected directly, through interference of choice of destination and period of trip, or indirectly by affecting the

²¹ Inter-American Development Bank. Available: <https://www.iadb.org/en/improvinglives/financial-innovation-revived-one-poorest-areas-mexico>

²² Kenya Forest Service (2015). Strategic Plan 2014-2017. Nairobi: KFS.

²³ Kenya Forest Service (KFS) (2013). Report on national forest resource mapping and capacity development for the republic of Kenya. Forest Preservation Programme, Report No. KEF09/11494/01. Kenya Forest Service, Nairobi.

²⁴ Government of Kenya (2018). National Climate Change Action Plan (Kenya): 2018-2022. Nairobi: Ministry of Environment and Forestry.

quality of experience, adverse perception after some extreme event and insecurity about the destination.

Coastal rainforests, marine ecosystems, wildlife and Mt. Kenya's glaciers make Kenya one of the top tourist destinations in the world and in the continent. In 2019, Kenya received 2.05 million international tourists and in 2019 the tourism industry contributed approximately 8.8% to GDP down from 14% in 2012.

Humans and wildlife face new challenges of survival due to climate change. More frequent and intense drought, storms, heat waves, rising sea levels melting glaciers and warming oceans can directly harm animals. This poses a threat to wildlife tourism and its contribution to GDP, as well as sustainability of our biodiversity.

Current fiscal and other policies

Sustainable and productive land management and preserving land resources are enshrined in Chapter 5 of the Constitution of Kenya. The Constitution stipulates that the state should work to achieve tree cover of at least 10% of total land area. This goal was enshrined in NCCAP 2018–2022, and the Kenya Forest Service has subsequently developed a plan to reach 10% tree cover by 2022, up from 7.4% in 2018. To achieve this, Kenya needs to plant 1.8 billion seedlings by 2022, and rehabilitate 4 million acres of heavily degraded forest land at an estimate cost of USD 200 million.

International experience

Internationally, a common fiscal approach to countering deforestation is direct government spending on the planting of trees. Ethiopia has been a prominent example in this regard, claiming to have planted 350 million trees in a single day in 2019 as part of the National Green Development Program.²⁵ This is part of a plan to plant 20 billion seedlings by 2024, which is expected to cost the Ethiopian government over US\$ 117 million (Getachew, 2020).²⁶

Spending directly on afforestation can be effective if planting and growing trees are conducted correctly. However, providing offsetting opportunities for companies covered by a carbon tax or emissions trading system (ETSs) would support positive ecological activity without creating a drain on fiscal resources. There are international precedents for this approach. As of July 2020,

²⁵ World Economic Forum, The African country that inspired more and more countries to plant billions of trees. 11th June 2020. Available: <https://www.weforum.org/agenda/2020/06/ethiopia-trees-forests-deforestation-worldwide-climate-change/>

²⁶ Getachew, S. (2020). Ethiopia will plant 5 billion trees this year to tackle climate change, but it comes at a steep price. Retrieved from: <https://qz.com/africa/1866532/ethiopia-to-plant-5-billion-trees-in-2020-to-beat-climate-change/>

GHG emitters in South Africa can fund afforestation and reforestation projects as a means of offsetting their carbon tax obligations (SA National Treasury, 2020).²⁷

An expansionary measure which has become increasingly widespread is that of *payments for ecosystem services (PES)*. Under this approach, the government pays landowners in exchange for their adherence to pre-agreed sustainable practices on their land. In Ecuador, the Socio Bosque program pays individual landowners and local communities who agree to conserve their ecosystems through *voluntary conservation agreements (VoCA)* that are monitored on a regular basis for compliance. For the first 50 hectares of the conservation area, the incentive is US\$37 per hectare per year; from 51 to 100 hectares, the incentive is reduced to US\$25 per hectare, and thereafter decreases further for additional hectares.²⁸ Similar schemes have been developed in Costa Rica and Uganda.

In other federal countries, *ecological fiscal transfers (EFTs)* have been used to tie federal payments to states/provinces, etc. according to performance on conservation metrics like forest cover. *In 2015, India established the world's largest system of EFTs when its 14th Finance Commission added forest cover to the formula that determines the amount of tax revenue the union government distributes annually to each state. The government distributed 7.5% of the divisible central tax revenue that is devolved to states according to the proportion of states' areas of 'very dense' or 'moderately dense' forest cover* (Busch et al., 2020).²⁹ Initial challenges with the scheme's implementation have led to clarification and raising the share of revenue tied to forest cover to 10%. Other national and sub-national jurisdictions have also adopted EFTs.

3.6 Human settlements and infrastructure

Situational context

The country's infrastructure network is already affected by the physical impacts of climate variability and change. This will increase in the future. Roads, bridges, water pipelines and powerlines play a pivotal role in supporting the economy but are susceptible to damage from floods and other climate-related disasters. In 1997 and 1998, for example, water supply infrastructure and transport networks in Kenya were damaged by El Niño-related flooding.³⁰ Additionally, rising sea levels in the Indian Ocean have caused destruction of coastal infrastructure such as ship docking ports, a naval base in Kipini, hotels and beachfront houses, and (in combination with extreme weather events) intensified flooding in the coastal areas.

²⁷

²⁸ de Koning, F., Aguinaga, M., Bravo, M., Chiu, M., Lascano, M., Lozada, T. and Suarez, L. (2011). Bridging the gap between forest conservation and poverty alleviation: the Ecuadorian Socio Bosque program. *Environmental Science & Policy*, 14(5), 531–542.

²⁹ Busch, J et al (2020) Did India's ecological fiscal transfers incentivize state governments to increase their forestry budgets? *Environ. Res. Commun.* 2 031006

³⁰ Government of Kenya (2016). *Kenya National Adaptation Plan*. Nairobi: Ministry of Environment and Forestry.

Buildings used for housing and commerce can also have significant negative climate change and environmental impacts, despite serving a vital societal purpose. Responding to these concerns, a ‘green’ building is one that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on the climate and natural environment.³¹

Several features can make a building ‘green’, including:

- Efficient use of energy, water and other resources
- Use of renewable energy, such as solar energy
- Pollution- and waste-reduction measures, and the enabling of re-use and recycling
- Good indoor environmental air quality
- Use of materials that are non-toxic, ethical and sustainable
- Consideration of the environment in design, construction and operation
- Consideration of the quality of life of occupants in design, construction and operation
- A design that enables adaptation to a changing environment

Green buildings reduce or eliminate negative impacts, and can create positive impacts, on the climate and natural environment. However, Kenya lacks clear regulation/legislation prescribing the requirement for green buildings.

Green buildings preserve precious natural resources and improve the quality of life for residents. Their objective is to decrease the overall impact of the built environment on human health and the natural environment by efficiently using energy, water, and other resources. By doing this, green buildings protect occupant health, improve employee productivity and enhance climate resilience, while reducing waste, pollution and environmental degradation.

Current fiscal and other policies

Kenya lacks harmonized guidelines regulating the development and maintenance of green buildings. There are no clear regulations or legislation prescribing the requirement that new buildings comply with a set standard geared toward achievement of energy-efficient and environmentally friendly structures. Accordingly, construction in Kenya gives little or no consideration to green practices, the use of recycled materials, reducing carbon footprints, or developing adaptable and environmentally friendly designs.

However, considerable effort has been realized in certain initiatives such as the Building Efficiency Accelerator program. This is a public–private sector collaboration that leverages global expertise to accelerate local implementation of building efficiency policies. This program has been adopted by Nairobi, Nakuru, Kisii and Homabay Counties.

International experience

³¹ World Green Building Council. Available: <https://www.worldgbc.org/what-green-building>

Fiscal policies are often aimed at improving building sustainability. Subsidizing the costs of energy-efficient building technologies, either via direct subsidies or tax exemptions, is a common approach for both upgrading current building stocks and ensuring that new builds meet high energy efficiency standards. China, Colombia, Ghana, and Argentina all provide incentives for new builds to adopt energy-efficient technologies. For example, in Ghana, ‘green-certified’ buildings are eligible for a 30% reduction in building permit fees (Ghana Broadcasting Corporation, 2019).³² In terms of retrofits, the UK Green Deal scheme provides grants and loans for homeowners to improve energy efficiency.

The use of *sovereign green bonds* can be an effective way to finance these energy activities. Lithuania, for example, has earmarked the first tranche (€20 million) of its sovereign green bond program to provide energy efficiency upgrades to about 160 apartment buildings (IFC, 2019).³³

Given the importance of effective infrastructure to economic development and wellbeing, finance ministries also have an obvious interest in ensuring that such infrastructure is as climate-resilient as possible. The best practice role for finance ministries is in ensuring that a comprehensive and strategic approach to infrastructure development, encompassing life cycle assessments, is undertaken prior to the development of specific infrastructure assets, and that in deciding on the optimal portfolio of infrastructure assets, the changing climate in which that infrastructure will need to operate is taken into account (ADB, 2021).³⁴

3.7 Electricity

Situational context

Kenya has made great progress in generating electricity from green sources. As of 2019, the electricity installed capacity from renewable sources, including geothermal, hydro, wind, solar and co-generation, stood at 73.4%, compared to 67% in 2008 (KIPPRA, 2020).³⁵ Consequently, the percentage of electricity generated from thermal declined considerably from 33.2% in 2008 to 11.5% in 2019. Because thermal generation has been on a declining trend over time, electricity generation is currently 90% green and will be 100% green by 2030.

There is considerable scope to expand geothermal electricity in Kenya, with a proven potential of over 10,000 MW. Of this potential, only 860 MW has so far been exploited for electricity

³² <https://www.gbcghanaonline.com/general/takoradi-green-buildings-to-receive-30-reduction-in-permit-fees/2019/>

³³ IFC (2019) Green Buildings: A Finance and Policy Blueprint for Emerging Markets. Available at: https://www.ifc.org/wps/wcm/connect/a6e06449-0819-4814-8e75-903d4f564731/59988-IFC-GreenBuildings-report_FINAL_1-30-20.pdf?MOD=AJPERES&CVID=m.TZbMU

³⁴ ADB (2021) A System Wide Approach for Infrastructure Resilience. Available at: <https://www.adb.org/publications/system-wide-approach-infrastructure-resilience>

³⁵ KIPPRA (2020). Kenya Economic Report 2020: Creating a Conducive Environment for Inclusive Growth in Kenya, Nairobi, Kenya.

generation. Currently, exploitation of geothermal energy is almost wholly owned by the public, with a small proportion of plants financed through public–private partnerships or private finance only. The high costs of field development, coupled with the high risks associated with resource exploration and drilling, still pose a significant barrier to private sector financing. Siting geothermal projects carefully is also important – for example, discouraging geothermal development in areas with rich biodiversity. This would avoid new geothermal resources creating other environmental issues.

Despite the improved capacity in electricity generation in Kenya, approximately 3 million households still lack access to electricity. Installing off-grid solutions including mini-grids and solar home systems is one of the options for electrifying these non-connected households and ensuring access to sustainable energy for all. In some instances, off-grid solutions are more economical than extending the national grid. Investment in the off-grid renewables sector has grown strongly as deployment has accelerated. The total installed capacity in 2016 was approximately 25.3 MW, most of which consists of public-operated mini-grids.^[1] Despite the impressive growth, the investment gap in the off-grid sub-sector remains large. The overarching strategy for Kenya’s electricity sector, the 2018 Kenya National Electrification Strategy, focuses primarily on national grid extension. Mini-grids are included but significantly under-represented. Currently, discussions are being advanced towards investments in battery energy storage as energy storage technologies are advancing fast and are becoming cost competitive. Both public and private sources of financing have an important role to play in bridging the financing gap.

Current fiscal and other policies

There is a range of measures already in place that help support the continued expansion of the low-carbon power sector in Kenya.

VAT is zero-rated for inputs or raw materials supplied for the manufacture of solar equipment or deep cycle-sealed batteries which exclusively use or store solar power, as well as for inputs or raw materials locally purchased or imported by manufacturers of clean cook stoves. Similarly, under the East Africa Customs Management Act 2004 there is an exemption from Customs Duty on specialized solar and wind energy equipment. Specialized equipment for generation of wind and solar energy are exempted from both import duty and VAT

To support de-risking geothermal development, the government established the Geothermal Development Company to carry out surface exploration, exploratory and production drilling, and sales of steam to third parties, including independent power producers.

Several government and development partner initiatives have attempted to lower the initial electricity connectivity cost. Currently, the government is operating a ‘Last Mile Connectivity

Project’, providing support of KES 15,000 per household. This is granted as a loan on connectivity and recovered over a maximum of 36 months through the billing system.

In addition, there is an exemption of interest income from all listed bonds, notes or other similar securities used to raise funds for infrastructure, projects and assets defined under Green Bonds Standards and Guidelines (bonds, notes or securities that have a maturity of at least three years. While this exemption is general as it covers a broad range of infrastructure projects, power sector projects have been a common focus for green bond issuance.

International experience

There is a wide range of international experiences of using fiscal policy to promote low-carbon power generation.

While carbon taxes can operate across many sectors, their focus (and impacts) are often concentrated in the power sector. Several middle-income countries have implemented taxes of varying degrees of ambition over the last decade. South Africa was the first African country to introduce one in 2019 when it set a price of US\$8.35 per tonne of CO₂e (World Bank, 2020).³⁶ The tax covers 80% of GHGs and the rate will increase annually with inflation plus 2% until 2022, and annually with inflation thereafter. To allow for a period of adaptation, significant industry-specific tax-free emissions allowances ranging from 60% to 95% have been included which will result in a modest initial net carbon tax rate ranging from US\$0.40 to US\$3.16 per tonne of CO₂e.

Latin American countries have also adopted carbon taxes, with Colombia, Chile and Mexico applying taxes of US\$4, US\$5 and <US\$1–2, respectively, covering around 24%, 39% and 47% of respective national GHGs (World Bank, 2020).³⁷ These rates are lower than those of carbon taxes in richer countries, which are generally over US\$25 per tonne of CO₂e and can be as high as US\$100 per tonne of CO₂e.

Electricity excise taxes can also be a powerful tool to both discourage wastage and generate government revenue. This is especially true in cases where taxes are combined with favorable regulatory treatment of energy from renewable sources. Costa Rica taxes residential electricity use at 5% while at the same time providing exemptions of excise tax, VAT, general sales tax and a special customs tax for renewable energy sources (Green Fiscal Policy Network, 2019).³⁸

While most policies in the energy sector are revenue-generating, there can be a value in subsidizing the adoption of newer renewable energy technologies such that they can become

³⁶ World Bank (2020) State and Trends of Carbon Pricing 2020. Available at: <https://openknowledge.worldbank.org/handle/10986/33809>

³⁷ Ibid.

³⁸ https://greenfiscalspolicy.org/policy_briefs/costa-rica-country-profile/

price-competitive against their ‘brown’ alternatives, although the need for this has diminished as renewable energy technology costs have fallen. In Mexico, the government has created several fiscal policy instruments intended to facilitate the fostering of clean energy projects and provide an attractive investment climate for the private sector. The most successful of these mechanisms was the accelerated 100% depreciation in one year of investments in renewable energy on a company’s income tax (Peters, 2012).³⁹

Green bonds have been successfully employed in funding both low-carbon transport and renewable energy projects. In 2020 Chile issued over US\$3.5 billion in green bonds earmarked entirely for low-carbon transport (Whiley, 2020).⁴⁰ Egypt is one of the few African countries, and the first Arab country, to issue a green bond, and its 2020 issuance has provided US\$750 million to finance projects in transportation, renewable energy and energy efficiency (Barbuscia and Ramnarayan, 2020).⁴¹

3.8 Clean cooking

Situational context

Currently, 59% of households in Kenya use the three-stone open fire (TSOF).⁴² Although the proportion of household users of TSOF has dropped (76% of households used TSOF 20 years ago), the aggregate number has increased from 4.7 million to about 7.3 million households. In terms of primary cooking fuel, 64.7% (8.1 million) of households in Kenya still use wood as their primary cooking fuel, followed by liquefied petroleum gas (LPG) at 19% (2.4 million) and charcoal at 10% (1.3 million). Only 3% of households own an electric cooking appliance such as mixed LPG-electricity stove, electric coil stove and microwave.

Even though 93.2% of rural households rely on solid fuels for cooking, Kenya anticipates transitioning to clean cooking by 2028. This will reduce 21,560 deaths attributed to household air pollution (HAP) annually.

Exposure to harmful pollutants emitted from burning wood and charcoal is one of the largest health risk factors for mortality in Kenya, with about 21,560 deaths attributed to household air pollution (HAP) annually – more than the average number of deaths caused by road accidents.

³⁹ Peters, S. (2012). The Role of Green Fiscal Mechanisms in Developing Countries: Lessons Learned. Retrieved from: <https://publications.iadb.org/publications/english/document/The-Role-of-Green-Fiscal-Mechanisms-in-Developing-Countries-Lessons-Learned-Case-Study.pdf>

⁴⁰ Whiley, A. (2020). Chile makes 3rd sovereign green issuance: Record rates for Jan 2020 Climate Bonds certified transaction. Retrieved from: <https://www.climatebonds.net/2020/02/chile-makes-3rd-sovereign-green-issuance-record-rates-jan-2020-climate-bonds-certified>

⁴¹ Barbuscia, D. & A. Ramnarayan. (2020). Egypt becomes first Arab country to issue Green bonds with \$750 million deal. Retrieved from: <https://www.reuters.com/article/egypt-bonds-int/egypt-becomes-first-arab-country-to-issue-green-bonds-with-750-million-deal-idUSKBN26K1MJ?edition-redirect=in>

⁴² MOE, CCAK (2019). Kenya Household Cooking Sector Study: Assessment of the Supply and Demand of Cooking Solutions at the Household Level.

Kenya has committed to transition to clean cooking by 2028 by developing efficient cooking solutions as part of actions under the Sustainable Energy for All global initiative and SDG 7 (affordable and clean energy). The Kenyan updated NDC has projected an abatement potential of 7.3 MtCO_{2e} by 2030 from improved cooking solutions as a means of mitigating climate change. Further, using clean cooking solutions will support the move by the government to restore Kenya's forest cover to 10%, up from the current 7.4%.

Current fiscal and other policies

Under the Finance Act 2016, taxable goods locally purchased or imported by manufacturers or imported by manufacturers or importers of clean cooking stoves for direct and exclusive use in the assembly, manufacture or repair of clean cook stoves were made VAT-exempt. However, this was reversed under The Finance Act 2020. The 2020 Act also reintroduced the VAT on biogas, plastic bag biogas digesters and leasing of biogas producing equipment.

International experience

A number of countries have used fiscal policies to support the deployment of cleaner cooking solutions. For example, the Uganda Domestic Biogas Program supported households in accessing loans to purchase a biogas digester, as well as finance to support biogas construction companies. The program has been successful in supporting over 13,000 biogas generators.

Similarly, in India LPG gas has been subsidized to encourage the switch from biomass for at least some cooking. This has been associated with the number of households with a registered LPG connection more than doubling over the past decade. However, the India case also illustrates some of the risks associated with untargeted subsidies with the growth in the subsidy bill leading the government to launch the 'Give it Up' initiative to encourage middle- and upper-class households to voluntarily stop receiving the LPG subsidy.⁴³ Despite this, the strain on the budget has been such that provisions for the LPG cooking fuel subsidies were halved in the federal budget for the fiscal year ending March 2022 to 124.8 billion rupees (US\$1.7 billion) from 255 billion rupees a year earlier.

3.9 Manufacturing

Situational context

Industry and manufacturing are among the most important sectors in Kenya's economy, contributing around 7.5% of GDP according to the Economic Survey 2020.⁴⁴ Under the Big Four

⁴³ <https://www.givitup.in/about.html>

⁴⁴ Kenya National Bureau of Statistics (2020) Economic Survey 2020. Available: <https://s3-eu-west-1.amazonaws.com/s3.sourceafrica.net/documents/119905/KNBS-Economic-Survey-2020.pdf>

Agenda, the government aims to increase the manufacturing sector's contribution to GDP to 15% by 2022.⁴⁵

The manufacturing sector contributes to climate change as it produces GHG emissions from the use of fossil fuels and other industrial processes. The sector was responsible for about 7% of Kenya's total emissions in 2015.⁴⁶ Energy conservation is key to the reduction of GHG emissions, as well as providing other benefits such as lower costs for consumers.

Examining the concept more broadly, in 2009, the United Nations Industrial Organization (UNIDO) coined the term 'Green Industry', with 'economies striving for a more sustainable pathway of growth, by undertaking green public investments and implementing public policy initiatives that encourage environmentally responsible private investments'. Greening industries involves taking care of materials, energy, water, waste and emissions.⁴⁷ This requires investment in technologies that enhance process efficiency in terms of optimizing raw materials, and energy and water use, while also reducing waste and emissions.

Kenya's industry sector relies heavily on a traditional linear model in which resources are extracted, processed, distributed, consumed, and eventually disposed of. The life cycle or circular economy concept instead advocates a circulation of resources within the economic system. Rather than disposing of waste it is reintroduced as a resource into the processing stage, thereby closing the circle.

Current fiscal and other policies

In 2006, the Ministry of Energy and Kenyan Association of Manufacturers (KAM) established the Centre for Energy Efficiency and Conservation (CEEC), which runs energy efficiency and conservation programs designed to help companies identify energy wastage, determine saving potential, and make recommendations on measures to be implemented.⁴⁸ Some of the key products offered by CEEC include energy audits, specialized training, and the Energy Management Award.

In addition, there is increased emphasis on promoting the reduction, re-use, recycling, recovery and repair of waste consistent with the sustainable waste management agenda. The Finance Act, 2019 introduced a reduced corporation tax for companies operating plastic-recycling plants for the first five years from the date of commencing operations. It also exempts from VAT all services offered to plastic-recycling plants and the supply of machinery and equipment used in

⁴⁵ Government of Kenya (2019). Third Medium Term Plan III. The National Treasury and Planning general press release.

⁴⁶ Government of Kenya (2015). Kenya Second National Communication to the United Nations Framework Convention on Climate Change. National Environment Management Authority (NEMA)

⁴⁷ <https://www.unido.org/our-focus-cross-cutting-services-green-industry/green-industry-initiative>.

⁴⁸ <https://kam.co.ke/energy-services/>

the construction of these plants, and removes the provision for charging excise duty on plastic shopping bags. However, the Finance Act 2020 shifted plant, machinery and equipment used in the construction of plastic-recycling plants from tax exemption to the standard VAT rate (14%).

Kenya imposed an export levy of 20% on scrap metal through the Miscellaneous Fees and Levies Act 2016, with the aim of helping local steel producers source raw materials.

International experience

Most countries that have introduced carbon pricing (as discussed in section 3.7) ensure that the coverage of the scheme includes emissions associated with industry and heavy manufacturing.

Beyond this, international experience tends to relate to providing tax reductions for environmentally sustainable activities. For example, VAT (or equivalent) exemptions to support green manufacturing outcomes have been particularly popular and successful in middle-income countries. In 2003, 11 Brazilian states and the Federal District agreed to grant a 60% ICMS (similar to VAT) exemption for businesses that deployed used polyethylene terephthalate (PET) bottles as input for adhesives in the plastics and packaging industry. The exemption made the use of used PET bottles 10–20% cheaper than previously (Denny et al., 2013).⁴⁹ The programme led both to recycled PET bottles making up 63% of the plastics and packaging industry's PET input, and demonstrated the profitability of recycling policies. Denny et al. (2013) estimate that just one large factory's participation in the programme saved its municipality US\$362,000 in landfill fees over five years.

Similarly, in the South African city of eThekweni, businesses are given a tax rebate of US\$0.07/kWh for energy savings they accrue (SA Green Building Council, 2019).⁵⁰ To claim the deduction, businesses must be able to show the energy savings over 12 consecutive months, when compared to the previous 12 months of baseline measurement. The program has been of particular interest to industry where, in some instances, customers save up to 30% on their energy bill in addition to the rebate.

3.10 Transport

Situational context

An efficient transport system and network is key in spurring national and regional integration, and promoting trade and economic development. Kenya's modes of transport include: road, rail, maritime and inland water, pipeline, aviation, and non-motorized and intermediate means of

⁴⁹ Denny, D. M. T., A. F. P. Pedro, K. C. Mekhitarian, E. M. Silva, K. Fiorini, I. Libardi, A. Onohara & Medici, F. (2013). Estímulos Fiscais para a Economia Verde. Retrieved from: http://www.advancesincleanerproduction.net/fourth/files/sessoes/5A/7/denny_et_al_work.pdf

⁵⁰ South Africa Green Building Council. (2019). Incentives to build green in South Africa. Retrieved from: <https://gbcsa.org.za/incentives-to-build-green-in-south-africa/>

transport. Kenya's transportation is critical for economic growth. However, as discussed in section 3.6, its transport infrastructure is also increasingly exposed to the challenges of weather variability and climate change.

According to the Kenya Economic Survey (2020) (Government of Kenya, 2020), the transport and storage sector grew by 7.8% in 2019 compared to 8.5 % in 2018. However, the sector is heavily reliant on fossil fuels, especially road, rail and maritime and inland water transport. According to Kenya's 2017 Emission Baseline Projections Report, the transport sector is the fourth largest GHG emitter after agriculture, electricity generation, and land-use change and forestry (LULUCF) (Government of Kenya, 2017).⁵¹ A lack of efficient road and rail public mass transit systems means that private transport is most prevalent, which is the main driver of transportation GHG emission growth.

Current fiscal and other policies

Under the Excise Duty Act 2015, there is a graduated system of import duty for vehicles of different cylinder capacity. Fully electric-powered motor vehicles face only a 10% duty charge, rising for vehicles with internal combustion engines to 35% for imported vehicles of more than 2500cc engine capacity.

However, there are some transport sector measures in place that are not consistent with the objectives of the green economy such as the 50% capital expenditure deduction on the year of first use of a petroleum or gas storage facility. Such an externality can be corrected through the introduction of carbon taxes.

International experience

Transport fuel taxes are already very common in many countries. However, given that the carbon intensity of diesel is roughly 13% higher per liter than that of petrol, a more environmentally aligned tax system involves taxing diesel at the same rate as or higher than petrol is needed. South Africa is a rare example of a nation which taxes the two fuels at close to parity, at US\$0.38 and US\$0.37 per liter of petrol and diesel, respectively (SA Revenue Service, 2020a).⁵²

As well as altering the consumer price of fuels, fiscal policies can influence the price of vehicles. In Mauritius, for example, a vehicle feebate means that those purchasing vehicles with a fuel economy above 150 gCO₂/km are taxed, whereas those purchasing vehicles below the threshold

⁵¹ Suswatch Kenya, (2017) Emissions Baseline Projections Report. Available: https://www.inforse.org/africa/pdfs/PIPA_Kenya_Baseline_Report_May_8_2017.pdf

⁵² South African Revenue Service. (2020b). Taxation in South Africa. Retrieved from: <https://www.sars.gov.za/AllDocs/OpsDocs/Guides/LAPD-Gen-G01%20-%20Taxation%20in%20South%20Africa.pdf>

are granted a rebate (UNEP, 2017).⁵³ Mauritius has also waived a 50% import duty on electric and hybrid cars, as well as the registration fee. These incentives have led to the importation of more fuel-economy vehicles, with the number of hybrid cars being imported doubling each year between 2010 and 2013. The average fuel economy of the national fleet improved from 186 gCO₂/km in 2005 to 169 gCO₂/km in 2013.

3.11 Waste management

Situational context

The waste sector contributes to climate change, accounting for about 3% of total national GHG emissions in 2015.⁵⁴ This is a very small contribution in comparison to sectors such as agriculture, forestry, and energy. Waste management creates additional benefits, however, such as the need for adequate waste treatment avoids polluted air, water, and soil that cause significant health and environmental problems. A growing population and industrialization mean that pressure on waste services will grow in future decades.

The waste sector is also a significant source of black carbon through open burning of uncollected or illegally dumped waste, and transport of waste by outdated heavy-duty vehicles. In addition, uncontrolled leachate contaminates groundwater and some of these contaminants are carcinogens. Waste in the environment harbors pathogens and increases the incidence of vector-borne diseases. It is therefore not only an important climate challenge, but also affects every aspect of life for millions of people in the country and around the world.

Moreover, waste management being largely devolved, most counties lack adequate infrastructure, governance mechanisms and dedicated funding for effective and sustainable waste management. Many have not set aside land for building waste management infrastructure. Initiatives to date have also not fully tackled the fundamental problems of waste minimization and re-use as core elements of the circular economy: waste collection, waste separation at source and recycling, compost production from organic waste, and final disposal of non-recyclable waste in secure engineered facilities.

Current fiscal and other policies

The government of Kenya's main guiding approach to waste management is the 'zero waste principle', as set out in the National Solid Waste Management Strategy which aims to protect human health and the environment. Recycling, composting, waste minimization, and industrial symbiosis are important elements of the Strategy.

⁵³ UNEP. (2017). Global Trends toward More Fuel Economy Vehicles. Retrieved from: http://airqualityandmobility.org/PCFV/PDF/Namibia_GlobalTrends.pdf

⁵⁴ Government of Kenya (2015). Second National Communication to the UNFCCC.

Kenya is in the process of developing a sustainable waste management policy that aims to transition the waste sector in every county away from low collection rates, illegal dumping and unregulated dumpsites toward affordable waste collection, recycling and composting, and secure final disposal in engineered landfills for the remaining fraction of the waste stream. The policy also aims to increase the value of waste along the waste management value chain by deploying industrial processing activities that create new products or sources of energy through re-using, recycling, or composting waste.

Waste management in Kenya is guided by “zero waste principle”. This will not only require waste minimization but also recovery, reuse and recycling.

The Kenya National Environmental Policy 2013 proposes the use of ‘fiscal incentives to encourage waste minimization, recovery, reuse and recycling (the 3Rs)’. Similarly, the Kenya Waste Management Nationally Appropriate Mitigation Action (Action (NAMA)) 2017 underlines the importance of promoting ‘the use of economic incentives to manage waste’.

A national ban on single-use plastic carrier bags has been successfully implemented, significantly reducing plastic bag waste, roadside litter, and the volume of plastic transported to Kenya’s dumpsites.

International experience

Other countries around the world use fiscal policies to support more sustainable waste management practices. For example, Bangladeshi authorities have focused on improving the rate of waste recycling with a package of fiscal incentives including:

- Tax holidays for five–ten years for all waste treatment and recycling plants
- Reduced import or excise duties on relevant waste management equipment
- Use of its Climate Change Trust Fund to promote public awareness of the 3Rs⁵⁵

These incentives are applied only to formally registered waste treatment and recycling enterprises. Concurrently, the government has tried to encourage composting of organic waste by introducing a sales tax exemption on sales of compost and tax breaks for composting companies, although the efficacy of this has been offset by continued subsidies for chemical fertilizers.

3.12 Cross-cutting issues

Green investment

The banking sector in Kenya is an important source of investment finance for green projects. In 2018, for example, it provided KES 27 billion in climate finance. Financing includes lending to

⁵⁵ <https://www.uncrd.or.jp/content/documents/7530Combined-Front%20page+report-Bangladesh.pdf>

renewable energy projects, providing credit lines for energy efficiency (like solar installation for lighting and water heating) and wastewater management in the hospitality industry, and financing tree planting projects.⁵⁶

Foreign Direct Investment (FDI). Kenya is one of the largest recipients of FDI in Africa, totaling US\$1.3 billion in 2019.⁵⁷ The largest share of FDI was directed to ICT, health and the extractive sector (oil exploration and production). However, about a third was directed to climate-related investments, mainly renewable energy.⁵⁸

Capital markets. To date, Kenyan pension funds and other domestic institutional investors have been hesitant to invest in green products originating in Kenya. However, Kenyan green financial products such as the first corporate green bond have attracted interest from foreign institutional investors. This suggests that there is significant potential to engage the interest of domestic institutional investors and make Nairobi a hub for green capital markets in the region. As a source of long-term finance, capital markets, both public and private, have an important role to play in the financing of green investment in the country.

More private sector participation in the national climate change discourse is needed. The private sector needs to be made more aware of existing green investment opportunities. There is a particular need to diversify the projects which are attracting private finance: a recent report by the National Treasury and Climate Policy Initiative showed that over 97% of private sector funds were directed to renewable energy generation projects.

Another challenge is promoting new green innovation investment. Despite the progress Kenya has made on institutionalizing research, technology and innovation – such as the National Commission for Science, Technology and Innovation (NACOSTI), the Kenya National Innovation Agency (KENIA), and the National Research Fund (NRF), the National Environmental Trust Fund (NETFUND) and the World Bank-sponsored Kenya Climate Innovation Center (KCIC) – challenges still exist. These primarily relate to the fragmented approach where research institutions work disjointedly among themselves and not with industry. These weak linkages contribute to a mismatch between industry needs and what the academia and research system produces. In addition, technologies take too long to move through the innovation stage as innovators lack the capacity to develop technology, enter the market and commercialize products. The current structure has not sufficiently supported Kenyan innovators, resulting in most green technologies being produced overseas and imported.

⁵⁶ CPI (2021) The Landscape of Climate Finance in Kenya. Available at: <https://www.climatepolicyinitiative.org/publication/the-landscape-of-climate-finance-in-kenya/>

⁵⁷ UNCTAD (2020). World Investment Report: International Production Beyond the Pandemic. United Nations, New York.

⁵⁸ CPI (2021) The Landscape of Climate Finance in Kenya. Available at: <https://www.climatepolicyinitiative.org/publication/the-landscape-of-climate-finance-in-kenya/>

To engage the interest of domestic institutions and attract private sector participation in green investment, the government is committed to developing a green bank referred to be referred to as Kenya Green Investment Bank (KeGIB). The bank will provide a range of funding instruments and associated incentives to support the private sector in overcoming barriers to making green investment at scale.

Exploring the introduction of a carbon tax

By 2022 and 2030, Kenya's combined GHG emissions from Forestry, Electricity generation, Energy demand, Transportation, Agriculture, Industrial Processes, and waste is projected to grow to about 100 and 143 million tons of carbon dioxide equivalent (MtCO_{2e}). In 2030, the highest amount of emissions would come from the energy sector (Electricity generation) followed closely by Transportation and Agriculture. Out of the total 143 MtCO_{2e}, the National Climate Change Action Plan (NCCAP) of 2018 projects that Kenya has the technical potential to reduce 60% of 85.8 MtCO_{2e} by 2030. The actual mitigation potential of each of the key sectors depends on a number of factors that range from policy, resources, priorities, to the practical implementation practically of the potential mitigation. To facilitate the switch to clean energy and foster the 'polluter pays principle, the government should consider implementing a carbon tax. Correct carbon pricing will send a right signal to markets and private investors which is pivotal in creating an enabling environment for private investment.

International experience

More than 40 governments globally have implemented a form of carbon pricing, whether it be through direct taxation on fossil fuel producers or cap-and-trade programs⁵⁹. European Countries have been the frontrunners in implementing CO₂ taxes that are now implemented throughout the world. The first CO₂ taxes were implemented at the beginning of the 1990s in the Nordic and other European countries. Particularly, Sweden, France, and Canada have made the greatest efforts to introduce carbon taxes and provide an interesting, albeit successful, contrast in their experiences over the past decade. From the 1990s through 2020, all three countries recorded a clear decoupling of CO₂. Additionally, from 2005 to date, the total primary energy and CO₂ emission for the three countries have decreased by 10% and 15% respectively.

On the regional front, South Africa recently introduced carbon taxes to achieve national CO₂ emissions reductions targets set for 2025. While South Africa's tax rate of R46/tCO_{2e} is considered extremely low under global standards, the government considers the move a good

⁵⁹ A government regulatory program designed to limit, or [cap](#), the total level of emissions of certain chemicals, particularly carbon dioxide, as a result of industrial activity.

starting point and projects to increase the scope of taxable emissions going forward. Ethiopia has equally shown considerable interest in pursuing carbon taxes to help meet ambitious GHG mitigation commitments in its NDCs. However, the country is yet to concretize the ambition through a legislative framework.

CHAPTER 4: GREEN FISCAL POLICY ACTIONS

This chapter sets out a series of green fiscal policy actions of particular interest to the government of Kenya. In the coming months and years, the government will look to develop specific recommendations in these different areas, building on the international experience and current Kenyan context described in Chapter 3, while recognizing the goals, objectives and principles described in Chapter 2.

The actions described in this chapter are split into two sections. The first sets out the areas of focus for each of the individual sectors described in Chapter 3, while the second describes some key cross-cutting policy actions that can have an important impact in supporting Kenya's green development agenda in many different sectors.

4.1 Sector-specific fiscal actions

Specific green fiscal policies are required for specific sectors.

This section outlines policy actions in the 11 sectors identified in Chapter 3.

4.1.1 Disaster risk management

The national and county government will pursue the following actions to reduce the devastating impact of climate-related disasters in Kenya.

Flood control measures. To address the problem of perennial floods and related risks, the government will put in place measures to increase funding and strategically preventative resilience measures for flood control projects such as dikes, dams, catchment and riparian reserves.

Promote crop and livestock insurance. To cushion farmers from loss of crops and livestock, the government, in collaboration with insurance providers, will put in place measures to scale-up climate-oriented insurance programs. This will include a consideration of whether to provide additional subsidies to reduce the cost of insurance for farmers without discouraging appropriate risk-reduction behavior. It will also include options for the design of innovative weather based insurance products. The government will also consider options for increasing awareness, education and training around the role and value of crop and livestock insurance, especially in the provision of agricultural extension services at the county level.

Disaster risk financing. To ensure that it has sufficient funds to respond to inevitable disasters, the government will promote the use of innovative disaster risk-financing instruments like catastrophe (CAT) bonds, risk pools and contingency bonds as well as sovereign and subnational

level disaster management funds. This will be complemented by the Kenya Sovereign Green Bond Framework, which provides a clear set of protocols for identifying the responsibilities of different stakeholders in relation to the use of such financing in the event of a disaster.

Climate information services. To enhance climate information services, the national and county governments will increase funding for meteorological services and Early Warning Systems (EWS) and climate information systems including dissemination of weather information, and provision of tax incentives for early warning equipment.

Compensation fund for climate impacts. To cushion the vulnerable and marginalized communities from the extreme weather and climate-related events, the government will increase funding for resilience building programs such as hunger safety net program (HSNP) and other resilience cash transfer programs. People living in flood, landslide and drought prone areas are one way of compensating the vulnerable in society and those who face extreme climate events.

4.1.2 Water and the blue economy

To both reduce the risks that climate change poses to the country's water resources and to exploit its huge blue economy potential, the national and county governments will undertake the following actions.

Enhance water harvesting and storage. To address water shortages, the national and county governments will implement fiscal measures to enhance affordability of equipment used for water harvesting and storage including roof catchment, water storage tanks, ensure strict quality controls on water storage tanks, construction of underground tanks, dikes and gabions in flood-prone areas. Further, the government will encourage water harvesting by making it mandatory for public buildings and encouraging households and commercial buildings to adopt the same

Promote water use efficiency. To ensure sustainable use of the available water resources, the national and county governments will institute fiscal measures for innovations and equipment that promote the efficient use of water. The governments will also explore the current system of water charging, with the intention of developing a set of water tariffs that provide the right incentives for water efficiency and preservation while also recognizing the needs of Kenya's vulnerable population.

Elimination of invasive species. To sustainably eliminate the threat of invasive species such as water hyacinth the national and county governments will support research technology and innovations in the management of these invasive species.

Promote sustainable fishing and restoration of coastal ecosystems. To address the challenge caused by uncontrolled and unsustainable fishing, the government will impose tax measures on

large-scale fishing companies and trawlers. Additionally, the government will introduce fishing quotas to establish quantitative upper limits for fishing catches with quota rights either being non-tradable or tradable. In addition, along the, the government will put in place fiscal measures for restoration of shallow coastal water ecosystems, such as mangroves, tidal marshes and sea grass beds to. Second, the government will promote sustainable fishing along the Kenyan coast by. Quotas would establish quantitative upper limits for fishing catches with quota rights either being non-tradable (as is the case in Namibia) or tradable (as is the case in Iceland). Quota policies would be budget-neutral if distributed for free, or a source of government revenue if auctioned. Similar measure will be instituted on the fresh water lakes such as Victoria, Naivasha, L. Baringo, L. Turkana, L. Nakuru among others.

Restore degraded deltas and wetlands. Wetlands are essential life-support systems and play a vital role in controlling water cycles. However, a growing population, together with the need for increased agricultural production, has led to substantial pressure on the deltas and wetlands. In view of this the government will develop fiscal instruments such as PES to promote private sector participation in the restoration of degraded deltas and wetlands.

Protect riparian land in arid and semi-arid areas

In order to build sand storage dams for livestock and small-scale cultivation, the government will provide an enabling environment through incentives towards these adaptation programs.

Provide green shore power as a viable alternative to contribute to emissions reductions at Kenya's seaports.

In order to promote investment in cold ironing as an alternative marine power to cover the energy demands of ships calling at the ports, the government will consider providing incentives to investors in green shore power supply

Provision of appropriate reception facilities for the control of emissions from ships

To control GHG emissions from the anticipated increase in the number of vessels coming to Kenya due to the expansion of the Port of Mombasa and the construction of the Lamu Port, the government will promote the establishment of vessel reception facilities that will ensure ozone depleting substances and vessel equipment containing such are handled and disposed appropriately.

4.1.3 Health and sanitation

Recognizing the threats that climate change and other environmental risks are posing to the health of Kenyans the government will undertake the following actions.

Combat increased incidence of malaria. Climate change has resulted in an increase in the number of cases of malaria. The national and county governments will provide funding for research and innovation to control mosquitoes in an environmentally friendly manner, to help combat the increased malaria incidence.

Discourage improper handling of hazardous waste. Hazardous waste poses a threat to both human health and the environment when handled improperly.⁶⁰ The national government, working with county governments, will put in place and/or implement more financially punitive measures for improper handling of hazardous materials such as mercury and lead.

Promote energy efficiency in health facilities. Energy is a prerequisite to quality healthcare, given that most life-saving medical equipment requires power to operate. Having energy-efficient medical equipment will help improve access and availability of quality and affordable healthcare. The government will provide tax exemptions for the importation of energy-efficient medical equipment and health facility grant scheme under the Payment for Results Public Private Partnership to support installation of renewable energy standalone mini off-grid systems in health facilities in remote areas to facilitate such access.

Promote use of organic pesticides. The excessive use of inorganic/harmful pesticides poses a threat to human health and the environment, especially with prolonged use and exposure. In addition, using such pesticides contributes to an increase in acute respiratory infections from the resulting air pollution. Promoting the use of environmentally friendly bio-degradable pesticides will help reduce the effects of inorganic/harmful pesticides. The national and county governments will therefore provide fiscal incentives to promote production and use of organic pesticides such as pyrethrum based (pyrethrin). For example, tax exemptions/subsidies and public preferential procurement of organic pesticides.

Support surveillance of climate-related health risks. The effects of climate change will lead to increased emergence and re-emergence of disease outbreaks such as Malaria, Rift Valley Fever and the East Coast Fever. In response, the national and county governments will provide financial support by allocating funds to the surveillance of climate-related health risks.

4.1.4 Agriculture, Food, and Nutrition Security

The agriculture sector is both exceptionally sensitive to climate change, which in turn threatens the food security of Kenya's vulnerable population, and a significant source of GHG emissions. It is also a source of, and is exposed to, a range of further environmental risks. The government will therefore explore a range of fiscal policy response measures, as follows:

⁶⁰ Hazardous substances or waste are defined as substances or waste that pose a threat or cause harm to the environment and/or human health.

Water-saving irrigation systems and strategies. Overreliance on rain-fed agriculture and outdated non-water-saving irrigation technologies hampers adaptability to climate change for farmers. The Government will support innovations in the development of water harvesting and irrigation infrastructure including drip irrigation systems and strategies like deficit irrigation⁶¹ and partial root zone drying⁶² are technologies with potential for saving water which will be beneficial compared with the sprinkler irrigation system currently used by farmers. The government will therefore provide incentives to promote technologies for water-efficient irrigation systems

Reduction of post-harvest losses:

A lack of adequate storage of agricultural produce and poor post-harvest practices translate into low commodity prices, poor access to credit, and an inefficient agricultural value chain for small-scale farmers in Kenya. The result is to exacerbate food insecurity and increase the hunger risks posed by climate change.



To reduce post-harvest losses, the government will promote agro-processing and provide incentives that are aimed at increasing adoption of post-harvest storage technologies and equipment such cooling plants, on-farm storage technologies such as hermetic bags.

Green technology in crop production. The full potential of arable land productivity in Kenya has not yet been realized. Moreover, it is rare across Kenya to apply and utilize green technologies and strategies to promote sustainable productivity, even though these measures would improve food security. The government will incentivize the use of green technology and applying sustainable strategies in agricultural production as important to boosting land productivity. In particular, the policy will promote the use of *integrated crop management technology, organic farming and the use of low carbon emission equipment for cultivation*.⁶³

Livestock production. The government will explore opportunities and fiscal incentives to promote the adoption of improved adaptive and resilience technologies to increase livestock

⁶¹ Deficit irrigation is an optimization strategy in which irrigation is applied during the drought-sensitive growth stages of a crop. Outside these periods, irrigation is limited or even unnecessary if rainfall provides a minimum supply of water.

⁶² Casa, R. and Rouphael, Y. (2014). Effects of partial root-zone drying irrigation on yield, fruit quality, and water-use efficiency in processing tomato. *The Journal of Horticultural Science and Biotechnology*, 89(4), 389-396.

⁶³ Deere & Company. (2017). Incentivizing sustainability in Agriculture. Press release. Retrieved 18th February 2021 from <https://digital.hbs.edu/platform-rctom/submission/a-deere-world-incentivizing-sustainability-in-agriculture/>

production and productivity by 2030. Additionally, the PES, discussed in section 4.25, will also have a strong impact on the land-use decisions and practices of farmers across the country.

Cooperative development for sustainable agriculture. Kenya faces ever growing fluctuations in climate and food prices which directly affect households' food acquisition and allocation. This raises food safety concerns. Additionally, population growth puts increasing pressure on land that is available for cultivation, thus exacerbating food insecurity in the country. In particular, population pressure has led to arable land fragmentation which translates into inefficient allocation of resources (labor and capital) leading to increased cost of production, and unsustainable farming.⁶⁴ To support advancements including land consolidation and mechanization and, hence, promote large-scale crop production, this policy will incentivize cooperative development and prudential management through provision of performance based cooperative grants and concessional loans.

Degraded land rehabilitation

The government will also explore and introduce the opportunities for government programs to protect and rehabilitate degraded lands such as degraded landscape restoration deal scheme (DELARES), so that they can be used for sustainable agriculture. A similar program in South Africa was designed to tackle the proliferation of invasive alien plants, which crowd out native species, overwhelm ecosystems, impede agriculture, and exacerbate drought. Since its introduction, the program has led to the clearing of such plants from over 3 million hectares of land, improved water quality and security, and the employment of over 300,000 people.

4.1.5 Forestry, wildlife and tourism

Forestry, wildlife and tourism is another sector which is at the forefront of both Kenya's mitigation and adaptation efforts. The proposed fiscal actions for the forestry sector include the following:

Incentivize tree growing and management. The government will promote tree growing, management and protection of gazetted forests to increase forest cover to 10%. This would also restore and conserve water towers. The government recommends planting on both public and private land. Options include: a *tree-growing guarantee scheme (T2GS)*, permitting the cost of seed preparation, certification, nursery registration and tree planting on public land to be an allowable expense for the purpose of tax computation; awarding tradable carbon credits for companies that invest in tree planting; creating incentives for commercial plantations which can

⁶⁴ Giertz, A., Caballero, J., Galperin, D., Makoka, D., Olson, J., and German, G. (2015). Kenya Agricultural Sector Risk Assessment.

be used as a sustainable source of raw materials in the future; awards and recognitions by government for firms that participate in tree planting; concessionary loans to support business operations for those that invest in tree planting; and government grants to growers. On the private land, the law requires that at least 10% of the land to be under tree cover. Diversified trees grown and managed on more than 10% of an individual land will be verified and compensated based on graduated scheme/scale i.e., the higher the percentage the higher the amount of carbon credit to be earned to a maximum of 50% of the owned land

Reduce pressure on forests. The government will promote investments in the use of alternative sources of fuel such as bioenergy and clean cooking solutions for households, institutions, schools, and commercial enterprises. (These options are discussed further in section 4.2.8).

Ecological fiscal transfers (EFTs). The National Treasury and the Ministry of Environment and Forestry will work with the CRA to come up with an EFT parameter in the revenue sharing formula for allocating more resources to strengthen the capacity of the counties in preserving environmental and ecological functions. This EFT approach has been used in India and a range of other countries to provide sub-national administrations with a stronger incentive to preserve and/or restore forests.

Payment for ecosystem services (PES). The Ministry responsible for environment and ecosystem matters in collaboration with relevant sector ministries will fast track the development of PES schemes to incentivize scaling up of conservation and restoration programs. In developing PES proposals, the government will ensure that the schemes are designed to benefit the poorest households. The proceeds of carbon pricing will be used to fund these schemes. This has been demonstrably successful in scaling up ecosystem conservation and restoration schemes in developing countries, especially in Latin America.

Integrate afforestation and reforestation into carbon tax design. As part of the design proposals for a carbon tax scheme (discussed in section 4.1.2 above), the government will consider opportunities for companies to reduce their tax liability by purchasing offsets from forestry projects. This has the potential to extend a carbon price signal through more sectors of an economy and can help leverage the existing forestry project management capacity in the country. As discussed in the previous section, a range of other jurisdictions have integrated these opportunities within their carbon pricing schemes.

More support for ecotourism and wildlife. The government will review fiscal options for enhancing ecotourism in Kenya.

4.1.6 Human settlements and infrastructure

The approach that Kenya takes to designing, constructing and using its buildings and infrastructure can make a substantial difference to its resilience to climate hazards and further support Kenya's NDCs ambitions. The fiscal policy and other measures that the government will pursue to ensure that these infrastructure and buildings support low-carbon, climate-resilient development are as follows.

Enhance the climate resilience of roads. Kenya's road network is vulnerable to climate change impacts such as floods due to structural imbalance between the natural ecosystem and the built-in infrastructure considerations. To climate proof the road network, the National Treasury will include climate-resilience criteria within Public Investment Management (PIM) Guidelines for funding infrastructure projects and enhance the incorporation of the concept of 'roads for water' in the design and construction of roads (see box below). The government will also provide incentives that support the adoption of bioengineering⁶⁵ for road infrastructure through the private and public sector (county and national) collaboration.

The Green Roads for Water Initiative aims to transform the way roads are built and maintained all over the world by incorporating water management and re-greening in the design and construction of roads. The aim is to improve livelihoods and resilience of communities living around roads, and reduce the negative impacts such as erosion, flooding, sedimentation, and dust while improving the climate resilience of road infrastructure itself and reducing water-related road damage.

Integrate the circular economy into infrastructure development

The use of recycled materials in Kenya's infrastructure remains low yet these materials present significant social economic benefits and opportunity to enhance sustainability and resilience of infrastructure.. To realize the sustainable development benefits, the government will provide fiscal incentives in the use of recycled materials in infrastructure development.

Support the circular economy in construction. To encourage the use of recycled materials within the construction sector (see the example below of Australian state of Victoria), the government will provide incentives for building materials locally manufactured using more than 40% recycled content in their production. The government will also provide incentives to encourage the establishment of facilities for the collection for resale and re-use of construction waste and materials. The government will also impose fees or levies on contractors to fund construction waste disposal that does not meet prescribed procedures of re-use and re-sale.

⁶⁵ A subset of green infrastructure that uses vegetation to serve an engineering function. The most common uses of bioengineering include soil surface protection against erosion, soil stabilization, and improved drainage functions.

Support green building development. The government will provide incentives to developers that meet the requirements for green buildings specifications/codes. These include the design, production, importation and sale of alternative green building and construction technologies and materials. This will also include solar passive architecture to improve aeration and lighting in buildings (Energy Management Regulation, 2012). In addition, the government will incentivize research and development, for innovative technologies on green buildings and sustainable.



Lessons learned from the Victoria government
The government of Victoria is working to optimize the use of recycled and re-used materials in the construction and maintenance of infrastructure assets. Roads made of glass bottles and crushed bricks will soon be business as usual. It will see optimized use of recycled aggregates, glass, plastic, timber, steel, ballast, crushed brick, crumb rubber, reclaimed asphalt pavement and organics, instead of virgin materials

Supporting Adoption of Water and Energy Efficient Infrastructure- The government will incentivize construction of water and energy efficient buildings. In addition, all the design of new public buildings will integrate water and energy efficient measures in their construction and functioning.

4.1.7 Electricity

To promote green electricity generation and increase consumer connectivity the government will:

Phase-out fossil-fuel-based thermal electricity. The government will provide fiscal incentives needed to lower the cost of renewable energy relative to fossil fuel intensive energy sources. This will therefore accelerate the development of green energy alternatives and technologies to allow the integration of all variable renewable energy power. (National Energy Policy, 2018).⁶⁶

Accelerate geothermal development. The government will provide targeted incentives for private investment in geothermal electricity generation and other productive uses. The fiscal incentives envisage concessional funding and public support for early-stage investments in geothermal resource assessments, which will enable private investment where geothermal is most promising.

⁶⁶ Government of Kenya (2018). National Energy Policy. Ministry of Energy.
https://kplc.co.ke/img/full/BL4PdOqKtxFT_National%20Energy%20Policy%20October%20%202018.pdf

Expand off-grid electricity solutions. The government will incentivize off-grid renewable energy options to enable access in areas far from the national grid. Tax exemptions and credits will be considered.

Incentives for electricity connection. The government will provide consumer-level incentives to enable more households and MSMEs afford electricity connectivity through enhancing initiative such as the last mile connectivity.

4.1.8 Clean cooking

A range of incentives are desired to unlock and accelerate the transition to modern and clean cooking. The options that will be considered include:

Incentives for clean cooking fuels and technologies. The government will introduce incentives to encourage the production, access and use of clean cooking fuels and technologies. This will include targeted incentives across the clean cooking supply and demand value chains in a manner that ensures a just transition where no-one is left behind. The intervention measures will aim to enhance affordability, availability, safety, efficiency while reducing exposure to household air pollution. Examples of appropriate innovative approaches include “pay-as-you-go” or “pay-as-you-consume” models, and other innovative models such as the “Mwananchi gas” programme and smart metering for LPG. It will also support efficient biomass conversion technologies and provide incentives to reduce upfront costs of bioethanol, briquettes, pellets and biogas cooking appliances.

Enabling Markets for clean cooking services: To ensure a sustainable and inclusive market system for clean cooking solutions, there is need to develop standards, establish stove testing infrastructure across the country to support voluntary labelling and certification system and regulations to incentivize local production of cooking products and curb the proliferation of counterfeit imported products.

Investment in R&D of renewable energy: The Government will consider increasing investment in Research, Development and innovation on renewable energy as a means to close inherent information gaps and embrace informed policy and decision making.

4.1.9 Manufacturing

The policy seeks to incentivize greening of industries and investments in manufacturing and production of green products to reduce the emissions intensity of the manufacturing sector. Incentives will be provided to manufacturers to undertake the product *Life Cycle Assessment*

(LCA) Impact Report to access green financing. In addition, the following fiscal incentives will be considered:

Promote efficient management of production systems. The government will provide fiscal incentives to the private sector for innovative production, acquisition and use of efficient machinery to optimize the use of energy, materials and reduce waste.

Develop eco-labelling schemes. An eco-label identifies products or services that meets prescribed environmental criteria. The government will prioritize procurement of products and services that are eco-labeled.

4.1.10 Transport

The Kenya government aims to use fiscal policy to promote sustainable transportation, both public and private. The following are fiscal incentives to green the transportation sector.

Promote mass rapid transit: The government will develop a national transitional plan to e-mobility as well as other green transport systems. This will include shifting public expenditure in the transport sector toward sustainable mass rapid transport infrastructure. This will contribute to reducing emissions from the sector as well as reducing congestion and inefficiency in the public transport system. This will be complemented with efforts to ensure that it is well-understood by the lead implementors and the general public.

Incentives for electric vehicles. The government will provide incentives for import, manufacture and assembly of electric and hybrid motor vehicles, electric motorcycles and their spare parts. This will be necessary to support the transition toward low-emission and clean transport systems. Options include tax incentives for electric vehicles, and the operationalization of a feebate system. The Government will shift to procurement of electric vehicles over the medium term.

Expansion of e-mobility infrastructure. The government will provide incentives to develop and expand infrastructure that supports e-mobility and non-motorized transport.

Congestion charging. The government will explore development of a congestion charging scheme in the cities, , as a source of revenue for greening the sector.

Development of alternative transport fuels. Incentivize production of alternative transport fuel sources such as bio fuels (biogas, bioethanol, bioLPG, biodiesel) and green hydrogen.

4.1.11 Waste management

The government's actions in greening waste management value chain will be consistent with the National Solid Waste Management frameworks. The government will provide the following fiscal actions:

Development of Material Recovery Facilities (MRF). Provide incentives for waste recovery facilities, circular economy, incentivize sanitary landfills and disincentivize dumpsites

Incentives for private sector engagement in waste management. The government will provide incentives to promote private sector involvement in the waste management sector, including tax incentives, removal of investment barriers, creation of a conducive investment climate, and incentivize access to finance.

Encouraging circular business models. The government is keen in providing a range of incentives to promote circular business models. These include incentivizing adoption of EPR regulations, encourage recycling, offering preferential use of recovered materials over virgin materials, and promote the procurement and use of recycled goods. Support innovative waste to energy technologies

4.2 Enhanced green financial intermediation actions:

4.2.1 Green investment bank

The government will develop a green investment bank **that will provide a range of funding instruments and associated incentives to support the public and private sector in overcoming barriers to making green investments at scale.** The institution will particularly focus on addressing the perception and/or reality that the capital costs and risks of green investments are too high, and the returns too low. It would provide a range of financial instruments which could potentially include *credit guarantees, risk-reduction facilities, debt and equity*. It could also offer support and expertise to financing recipients and provide incentives to develop innovative financial instruments such as green bonds, blue bonds, resilience bonds and transactions using carbon credits.

The government will consult closely on the institutional design of a green investment bank. Considerations include which sectors it might focus on, the extent to which it might provide concessional versus market-priced capital, the products it might provide, and its appropriate institutional home and governance arrangements. The government currently expects that the new institution will be given a clear mandate to support climate change mitigation and adaptation and green growth, but it will be important to ensure coherence with existing and planned funding institutions in Kenya.

The government recognizes the importance of developing robust governance and accountability mechanisms, and appropriate staffing structures, if the institution is to be successful in gaining the confidence of the private sector and leveraging significant new capital flows. Throughout, we will look to build on the growing international experience of green investment banks observed across the world, and the critical factors supporting their success.

There is a range of other complementary fiscal actions that the government intends to explore to promote green investments.

- To direct investment to products and projects that have positive environmental impact, the government will set up the Green Investment Register (GIR). The GIR will be a database of green investments (building from a recent report, *The landscape of Climate Finance in Kenya on the road to Implementing Kenya’s updated NDC, 2021*⁶⁷), comprising national priority projects in the green sector, flagship green projects and green public–private partnerships. Establishing this database, and the information management system enabling investors to access it and intensive resources mobilization, could potentially be early activities taken forward by KeGIB.
- The government will promote green public procurement at national and county government level by developing guidelines to include environmental parameters in procurement.
- The government will reform and increase financial support of research and development in the innovation and production of green technologies. Public funds that support green research, such as NRF, NETFUND, and the National Climate Change Fund (NCCF), will be capitalized and expanded to support innovation and local production/assembly of green technologies, ensuring complementarity between these initiatives and KeGIB. Particular attention will be paid to research on and development of battery energy storage, energy optimization technologies, grid infrastructure, light electric train, electric vehicles, tree growing and management, water harvesting schemes, small to medium irrigation systems, green buildings, payment for ecosystem, credit guarantees based on investors nature capital potential, demonstration projects and field trials, and the expansion of charging infrastructure.
- The government will work with industry leaders to identify green innovation and technology needs and review the research policies and strategies in order to align them with prioritized green research gaps and needs. The objective is to link companies and research institutions and deepen existing linkages and cooperation on projects.
- The government will implement regulatory ‘sandboxes’ for innovators to cushion them during the early development phase. Such sandboxes can allow green technology firms to

⁶⁷ CPI (2021) *The Landscape of Climate Finance in Kenya*. Available at: <https://www.climatepolicyinitiative.org/publication/the-landscape-of-climate-finance-in-kenya/>

test innovative products, services or business models in a live market environment, while ensuring that suitable protections are in place.

- The government will develop and provide financial and technical support to green innovation and incubation hubs for innovators and nascent green technologies.
- The government will establish and finance Green Special Economic Zone in all the 47 counties through KeGIB.

4.2.2 Carbon tax

Recognizing the ability of carbon taxes to both cost efficiently reduce GHG emissions and also to provide a revenue stream that can be used to meet broader government objectives, the government will explore the viability and design of a carbon tax in Kenya.

CHAPTER 5: IMPLEMENTATION, GOVERNANCE AND INSTITUTIONAL ARRANGEMENTS

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS						
Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
Cross-cutting	Green investment bank	<ul style="list-style-type: none"> Design, develop and institute a green investment bank Develop credit guarantee instruments and schemes to enhance access to finance by green investments Develop financing mechanisms/instruments to support access to concessional credit lines for green investments Consult on priority sectors for green investments Develop a green register and information system of prioritized national green investments portfolio (legibility list) 	<ul style="list-style-type: none"> Amount (KES) mobilized and lent via green investment bank GHG reductions attributable to green investment bank investments Percentage increase in green investments Number of resilient infrastructures Number of beneficiaries accessing the investment Capitalization levels 	<ul style="list-style-type: none"> NT MOTI MOEF 		
	Carbon tax	<ul style="list-style-type: none"> Design and legislate for carbon tax in government budget Decide carbon tax rate, coverage, and how to allocate revenues raised and competitiveness provisions Complete institutional architecture for monitoring and compliance 	<ul style="list-style-type: none"> Revenues raised through carbon tax GHG reductions achieved through carbon tax 	<ul style="list-style-type: none"> NT MOEF 		

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS

Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
Disaster Risk Management	Water and flood control measures	<ul style="list-style-type: none"> • Fund flood control projects in relevant counties 	<ul style="list-style-type: none"> • Number of flood control projects implemented 	<ul style="list-style-type: none"> • WWDA 		
	Promote of crop and livestock insurance	<ul style="list-style-type: none"> • Develop insurance products to augment existing crop and livestock insurance 	<ul style="list-style-type: none"> • Number of insurance products available to farmers • Adoption rate of insurance by farmers 	<ul style="list-style-type: none"> • IRA • NT • NDMA 		
	Disaster risk financing	<ul style="list-style-type: none"> • Include financing instruments in relevant guidelines for companies operating in relevant sectors 	<ul style="list-style-type: none"> • Disaster risk financing instruments available to Kenyan businesses 	<ul style="list-style-type: none"> • NT • DPs • Private sector 		
	Climate information services	<ul style="list-style-type: none"> • Allocate additional funding for climate information services 	<ul style="list-style-type: none"> • National coverage for EWS and other systems 	<ul style="list-style-type: none"> • MET • MEF 		
	Compensation fund for climate impacts	<ul style="list-style-type: none"> • Establish a compensation fund to provide funding to victims of climate impacts 	<ul style="list-style-type: none"> • Budget allocated to fund • Percentage of vulnerable people with access to medical, livestock and weather-based index insurance • Percentage of vulnerable beneficiaries covered 	<ul style="list-style-type: none"> • NDMA • Counties 	FY 22/23	
	Support community-based weather monitoring for indigenous people	<ul style="list-style-type: none"> • Provide meteorological information services at the county level • Conduct farmer training on the use of meteorological information to plan their farming activities 	<ul style="list-style-type: none"> • Number of established meteorological monitoring systems • Number of farmers trained 	<ul style="list-style-type: none"> • MOALFC • MET 	FY 22/23	

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS						
Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
Water and the Blue Economy	Enhance water harvesting, storage and flood mitigation	<ul style="list-style-type: none"> Implement fiscal measures to reduce acquisition/installation cost of equipment used for water harvesting, storage and flood-mitigation infrastructure 	<ul style="list-style-type: none"> Amount of new equipment sold to farmers and agricultural companies 	<ul style="list-style-type: none"> NWWSA MOWSI NT 		
	Promote water efficiency	<ul style="list-style-type: none"> Institute fiscal measures for innovations and equipment that promote efficient use of water 	<ul style="list-style-type: none"> Sales of water-use efficient equipment 	<ul style="list-style-type: none"> MOWSI MOTI 		
	Elimination of invasive species	<ul style="list-style-type: none"> Develop fiscal policies to encourage research and innovations on the utilization of invasive species (such as hyacinth and mathenge weed) as raw materials 	<ul style="list-style-type: none"> Amount of grants commissioned for relevant research 	<ul style="list-style-type: none"> MEF, MOTI KIRDI 		
	Promote sustainable fishing and restoration of coastal ecosystems	<ul style="list-style-type: none"> Impose tax measures on large-scale fishing companies and trawlers to promote sustainable fishing Implement appropriate fiscal policies for the restoration of shallow coastal water ecosystems, such as mangroves, tidal marshes and sea grass beds 	<ul style="list-style-type: none"> Fish stock levels Mangrove, tidal marsh and sea grass area and carbon sequestration 	<ul style="list-style-type: none"> State Dept for Fisheries KFS NT 		
	Restoration of degraded wetlands	<ul style="list-style-type: none"> Develop fiscal instruments to encourage private sector participation in the restoration of degraded wetlands 	<ul style="list-style-type: none"> Number of private companies engaged in wetlands restoration 	<ul style="list-style-type: none"> MEF NEMA MOWSI 		

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS						
Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
Health and Sanitation	Combat increased incidence of Malaria	<ul style="list-style-type: none"> Research grants availed for bio-control of mosquitoes 	<ul style="list-style-type: none"> Research reports identifying methods and techniques for bio-control of mosquitoes 	<ul style="list-style-type: none"> MOH KEMRI 	21/22–26/27	TBD
	Discourage improper handling of hazardous waste	<ul style="list-style-type: none"> Promote proper methods of waste disposal Impose higher financial penalties for improper disposal of hazardous waste 	<ul style="list-style-type: none"> Increase in number of institutions adopting proper waste management Increased collections per defaulter for improper handling of hazardous materials 	<ul style="list-style-type: none"> NEMA MEF KEBS 	21/22–26/27	TBD
	Promote energy efficiency in health facilities	<ul style="list-style-type: none"> Tax exemption for importation of energy-efficient medical equipment 	<ul style="list-style-type: none"> Amount of imported energy-efficient medical equipment 	<ul style="list-style-type: none"> NEMA, MOH KEBS 	21/22–26/27	TBD
	Promote use of plant-based pesticides	<ul style="list-style-type: none"> Grants for research organic pesticides Incentives for production of organic pesticides 	<ul style="list-style-type: none"> Increased local production of organic pesticides and reduced production of inorganic pesticides Growing annual proportion of market share using organic pesticides and reduced proportion using inorganic pesticides 	<ul style="list-style-type: none"> KEBS PBK MOALFC 	21/22–26/27	TBD
	Support surveillance of climate-related health risks	<ul style="list-style-type: none"> Increased allocation for surveillance infrastructure capacity 	<ul style="list-style-type: none"> Studies completed documenting results of surveillance of climate-related health risks Public investments in surveillance infrastructure 	<ul style="list-style-type: none"> MOH KEMRI 	21/22–26/27	TBD

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS						
Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
Food, Agriculture and Nutrition security	Water-saving irrigation systems and strategies	<ul style="list-style-type: none"> Conduct county extension training for farmers on drip irrigation systems and strategies including deficit irrigation and partial root drying 	<ul style="list-style-type: none"> Number of county governments that adopt the agricultural training under their extension activities 	<ul style="list-style-type: none"> MOWSI 	FY 2022/2023	TBD
	Green technology in crop production	<ul style="list-style-type: none"> Incentivize the use of green technology in agricultural production – electric trucks, integrated crop management technology, organic farming 	<ul style="list-style-type: none"> Number of county governments that adopt the agricultural training under their extension activities Sales of electric tractors 	<ul style="list-style-type: none"> NT MOALFC 	FY 2022/2024	TBD
	Cooperative development for sustainable agriculture	<ul style="list-style-type: none"> Incentivize cooperative development that supports strategies including land consolidation and mechanization and, hence, promotes large-scale crop production and value addition 	<ul style="list-style-type: none"> Number of farmers trained in sustainable agriculture Acres of land consolidated under cooperatives 	<ul style="list-style-type: none"> NT MOALFC 	FY 2022/2024	TBD
	Land rehabilitation	<ul style="list-style-type: none"> Explore government programs to protect and rehabilitate degraded lands 	<ul style="list-style-type: none"> Acres of land rehabilitated 	<ul style="list-style-type: none"> MOEF, MOALFC 		
	Livestock production	<ul style="list-style-type: none"> Explore policies and fiscal incentives to promote adaptive technologies 	<ul style="list-style-type: none"> Agricultural productivity (production per acre of pasture) 	<ul style="list-style-type: none"> MOALFC 		
Forests, Wildlife and Tourism	Promote tree planting	<ul style="list-style-type: none"> Consider options for promoting tree planting on public and private lands, to reach 10% of land covered by forest 	<ul style="list-style-type: none"> Forest cover percentage of total land 	<ul style="list-style-type: none"> MOEF 		
	Reduce pressure on forests	<ul style="list-style-type: none"> Promote investments in sustainable bioenergy and clean 	<ul style="list-style-type: none"> Market share of bioenergy as cooking and heating 	<ul style="list-style-type: none"> MOEF 		

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS						
Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
		cooking fuels	fuel			
	Ecological fiscal transfers	<ul style="list-style-type: none"> Explore EFTs as part of funding strategy for county governments 	<ul style="list-style-type: none"> Change in deforestation rate by county 	<ul style="list-style-type: none"> MOEF NT 		
	Payment for ecosystem services	<ul style="list-style-type: none"> Investigate development of PES program for Kenya 	<ul style="list-style-type: none"> Percentage of forested land restored or under formal protection 	<ul style="list-style-type: none"> MOEF NT 		
	Integrate afforestation and reforestation into carbon tax design	<ul style="list-style-type: none"> Evaluate inclusion of afforestation or reforestation projects in national carbon tax (see above) 	<ul style="list-style-type: none"> GHGs reduced through carbon offset projects used to meet carbon tax liability 	<ul style="list-style-type: none"> MOEF NT 		
	Further support ecotourism	<ul style="list-style-type: none"> Review ecotourism policies for new incentives to further promote ecotourism 	<ul style="list-style-type: none"> Tourists surveyed as visiting Kenya for ecotourism 	<ul style="list-style-type: none"> MTW 		
Human Settlements and Infrastructure	Enhance the climate resilience of roads	<ul style="list-style-type: none"> Amend the roads design to include ‘roads for water’ concept Sensitization of road contractors to new construction approaches 	<ul style="list-style-type: none"> Amended roads design to include for ‘roads for water’ concept Percentage of road contractors adopting resilient construction and maintenance methods 	<ul style="list-style-type: none"> NT State Departments for Infrastructure 	FY 2022/2023	TBD
	Integrate the circular economy into infrastructure development	<ul style="list-style-type: none"> Provide tax incentives for building materials locally manufactured using more than 50% recycled content in their production 	<ul style="list-style-type: none"> Use of recycled content in new building construction 	<ul style="list-style-type: none"> NT State Departments for Infrastructure 	FY 2022/2023	TBD
	Support the circular economy in construction	<ul style="list-style-type: none"> Inclusion of climate-resilience criteria in Public Investment guidelines for funding infrastructure projects 	<ul style="list-style-type: none"> Climate-resilience criteria established in the Public Investment guidelines and rate of adoption by infrastructure developers 	<ul style="list-style-type: none"> NT and implementing agencies 	FY 2021/2022	0

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS

Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
	Support green building development	<ul style="list-style-type: none"> • Provide incentives to meet green buildings specifications and code • Develop tax incentives to facilitate solar passive structures • Fiscal incentives to encourage setting construction waste/ materials re-use facilities • Incentives for importation/ local manufacture and sale of water-saving devices 	<ul style="list-style-type: none"> • Budgetary allocation toward green building incentives • Percentage of new building developments consistent with green specifications and code 	<ul style="list-style-type: none"> • NT • KRA • East African Community 		
Electricity	Phase out fossil-based thermal energy.	<ul style="list-style-type: none"> • Ministry of Energy to identify thermal power plants that require phase-out • Negotiate with independent power providers for a mutual plan for phase-out • Accelerate development of green power generation options • Accelerate the process of hybridization of the existing isolated power stations with solar/wind 	<ul style="list-style-type: none"> • Number of power plants with agreed timelines for phase-out 	<ul style="list-style-type: none"> • MOE • MOITE • NT • County governments 		

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS

Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
	Support geothermal development	<ul style="list-style-type: none"> • Provide concessional funding or public support to pre-investment geothermal resource assessments 	<ul style="list-style-type: none"> • Funds mobilized/ allocated for geothermal developments 	<ul style="list-style-type: none"> • MOE • MOITE • NT 		
	Expand off-grid electricity solutions	<ul style="list-style-type: none"> • Consider tax exemptions and credits for off-grid renewable energy installations 	<ul style="list-style-type: none"> • Off-grid renewable energy installed and connected capacity 	<ul style="list-style-type: none"> • MOE • MOITE • NT 		
	Incentives for electricity connection	<ul style="list-style-type: none"> • Design consumer-level incentives that promote electricity connectivity 	<ul style="list-style-type: none"> • Number of households connected to electricity grid 	<ul style="list-style-type: none"> • MOE • NT 		
Clean Cooking	Incentives for clean cooking fuels and technologies	<ul style="list-style-type: none"> • Consider tax exemptions or waivers for companies producing clean cooking technologies 	<ul style="list-style-type: none"> • Clean cooking technologies as a percentage of household cooking fuel use 	<ul style="list-style-type: none"> • NT 		
	Enhance public awareness	<ul style="list-style-type: none"> • Build consumer awareness campaign about benefits of clean cooking technologies 	<ul style="list-style-type: none"> • Consumer adoption of clean cooking technologies 	<ul style="list-style-type: none"> • MOE 		
	Harness innovative financial models	<ul style="list-style-type: none"> • Design pay-as-you-go or pay-as-you-consume models for clean cooking appliances 	<ul style="list-style-type: none"> • Sales of clean cooking appliances using innovative financing 	<ul style="list-style-type: none"> • NT • MOE 		
Manufacturing	Promote efficient management production systems	<ul style="list-style-type: none"> • Promote private sector use of energy-efficient machinery 	<ul style="list-style-type: none"> • Adoption of energy-efficient machinery models 	<ul style="list-style-type: none"> • MOITE 		
	Develop eco-labelling schemes	<ul style="list-style-type: none"> • Develop green standards and eco-labelling for products and services 	<ul style="list-style-type: none"> • Green standards developed and implemented 	<ul style="list-style-type: none"> • KEBS 		

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS						
Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
Transport	Promote electric mass transit	<ul style="list-style-type: none"> Shift public expenditure toward electric mass transit 	<ul style="list-style-type: none"> Government investment in electric public transportation 	<ul style="list-style-type: none"> MOT 		
	Incentives for electric vehicles	<ul style="list-style-type: none"> Provide incentives for the import, manufacture and assembly of electric and hybrid motor vehicles, motorcycles and their spare parts 	<ul style="list-style-type: none"> Electric vehicle sales Manufacturing capacity within electric vehicle supply chain 	<ul style="list-style-type: none"> MOT NT 		
	Support for charging infrastructure	<ul style="list-style-type: none"> Offer incentives for electric vehicle and e-mobility infrastructure 	<ul style="list-style-type: none"> Number of electric vehicle chargers installed 	<ul style="list-style-type: none"> MOT NT 		
	Congestion charging	<ul style="list-style-type: none"> Explore congestion charging in major cities 	<ul style="list-style-type: none"> Congestion charging schemes adopted Changes in traffic following implementation of congestion charge 	<ul style="list-style-type: none"> NT City governments 		
	Transport fuel taxation	<ul style="list-style-type: none"> Consider changes in transport fuel tax rate, particularly in combination with carbon tax 	<ul style="list-style-type: none"> Fuel-use changes compared to growth in vehicle miles traveled 	<ul style="list-style-type: none"> NT MOT 		
Waste management	Develop a comprehensive financing strategy	<ul style="list-style-type: none"> Establish a waste management fund mechanism to incentivize sustainable approaches as part of a broader finance strategy 	<ul style="list-style-type: none"> Funds distributed to sustainable waste management companies 	<ul style="list-style-type: none"> MOEF NT 		
	Incentives for private sector engagement in waste management	<ul style="list-style-type: none"> Explore incentives to encourage private sector firms into waste management sector 	<ul style="list-style-type: none"> Number of private firms operating in waste management and meeting sustainability criteria 	<ul style="list-style-type: none"> MOEF NT 		
	Effluent fee charges	<ul style="list-style-type: none"> Consider effluent fees to promote greener waste management 	<ul style="list-style-type: none"> Revenue raised through effluent charges 	<ul style="list-style-type: none"> MOEF NT 		
	Encouraging circular	<ul style="list-style-type: none"> Explore circular business 	<ul style="list-style-type: none"> Rate of recycling among 	<ul style="list-style-type: none"> MOEF 		

GREEN FISCAL ACTIONS TO REDUCE EMISSIONS

Policy Area/Sector	Policy (Fiscal) Action	Policy (Fiscal) Activities	Key Performance Indicator	Lead Actors (see table legend)	Time Frame	Cost
	business models	model incentives	Kenyan households and businesses	<ul style="list-style-type: none"> • NT 		

Table Legend

DP	Development partner
IRA	Insurance Regulatory Authority
KEBS	Kenya Bureau of Standards
KEMRI	Kenya Medical Research Institute
KFS	Kenya Fisheries Service
KIRDI	Kenya Industrial Research and Development Institute
KRA	Kenya Revenue Authority
MET	Kenya Meteorological Department
MOALFC	Ministry of Agriculture, Livestock, Fisheries and Cooperatives
MOE	Ministry of Energy
MOEF	Ministry of Environment and Forestry
MOH	Ministry of Health
MOITE	Ministry of Industrialization, Trade and Enterprise
MOT	Ministry of Transport
MOTI	Ministry of Trade and Industry
MOWSI	Ministry of Water, Sanitation and Irrigation
MTW	Ministry of Tourism and Wildlife
NDMA	National Drought Management Authority
NEMA	National Environment Management Authority
NT	National Treasury
NWHSA	National Water Harvesting and Storage Authority
PBK	Pyrethrum Board of Kenya
WWDA	Water Works Development Agency