

# KENYA ECONOMIC UPDATE

June 2023 | Edition No. 27

Fiscal Consolidation  
**GDP Growth**  
**Softened Economic Performance**  
Diversified Power Generation Mix

**Climate Change**  
Tourism Recovery

**Carbon Markets**  
Maintaining a Low-carbon Development Path  
**Reduce Green-house Gas Emissions**  
Surging Inflation

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Surging Inflation

## Securing Growth: Opportunities for Kenya in a Decarbonizing World



# **Securing Growth: Opportunities for Kenya in a Decarbonizing World**

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# TABLE OF CONTENTS

<b>ABBREVIATIONS</b> .....	i
<b>ACKNOWLEDGEMENTS</b> .....	iii
<b>EXECUTIVE SUMMARY</b> .....	iv

## THE STATE OF KENYA'S ECONOMY

<b>1. Recent Economic Developments</b> .....	<b>2</b>
1.1. Global and regional economies seem to have avoided the anticipated recession, but growth prospects remain weak ....	2
1.2. The Kenyan economy showed signs of resilience in the face of the polycrises .....	2
1.3. Monetary policy was further tightened to anchor inflation expectations .....	6
1.4. Reserve buffers have dwindled despite strong exports performance .....	8
1.5. The government has continued consolidating to build fiscal space in FY2022/23.....	10
<b>2. Outlook and Risks</b> .....	<b>14</b>
2.1. Kenya's growth prospects are bright, subject to effective implementation of critical reforms.....	14
2.2. The economy faces multiple downside risks .....	15

## SPECIAL FOCUS

3.1. Kenya can respond to the growing energy demand for industry and services with 100 percent clean energy generation	19
3.2. Lowering the carbon footprint of logistics in Kenya's value chains could contribute to productivity gains .....	22
3.3. Rising energy demand in the transport sector and trade deficit .....	23
3.4. Shifting to greener and reliable urban mobility solutions can contribute to increased labor productivity and improved air quality .....	27
3.5. Augmenting engagement in carbon markets can mobilize climate financing while generating socio-economic benefits ...	28

## LIST OF FIGURES

Figure 1: Private consumption was compressed in 2022 .....	3
Figure 2: The contribution of net export to growth was marginally positive.....	3
Figure 3: Services continue to lead the rebound.....	4
Figure 4: Inflation eased in April but stands above the CBK's target .....	6
Figure 5: Food remained the dominant contributor to overall inflation [contributions to overall inflation rate].....	6
Figure 6: Real lending rates remain low .....	7
Figure 7: Private sector credit growth picked up since H2-2021 [y/y change; percent].....	7
Figure 8: Remittances declined recently as the difference between official and open exchange rates widened .....	8
Figure 9: The number of tourists continue to grow as the sector continues to recover .....	8
Figure 10: Reserve drawdown has lowered import coverage below the statutory minimum .....	9
Figure 11: The Kenya shilling continues its depreciation against major currencies .....	9
Figure 12: The government has maintained the pace of fiscal consolidation in FY2022/23.....	10
Figure 13: Slow uptake of infrastructural projects in the supplementary budget has reduced spending pressures.....	10
Figure 14: Interest payments have risen in the last five years.....	11
Figure 16: Most SSA countries have started fiscal consolidation following pressures from the pandemic.....	11
Figure 15: Overall public debt remains sustainable, however, risks persist.....	11
Figure 17: Exchange rate depreciation has contributed to change in debt stock.....	11
Figure 18: Kenya's Eurobond yields have been rising as international financial markets remain tight.....	12

Figure 19: The yield curve has shifted upwards in the context of recent inflationary pressures.....	12
Figure 20: Total GHG emissions using data from Kenya NIR .....	18
Figure 21: Value added per worker by sector by year.....	19
Figure 22: Evolution of Kenya's installed capacity and generation mix.....	20
Figure 23: GoK LCPDP new generation capacity (MW) under reference scenario.....	20
Figure 24: GoK LCPDP cumulative generation capacity (MW) under reference scenario.....	21
Figure 25: Cumulative upfront investment and fuel costs, discounted (2022-2050).....	21
Figure 26: System costs (US\$ billion) in 2050.....	22
Figure 27: Results from the LPI survey question on demand for environmentally sustainable shipping options .....	22
Figure 28: Comparing emissions by mode of transportation (gCO <sub>2</sub> /tonne-km).....	23
Figure 29: Challenges in aggregation, storage and transport (2020) .....	27

#### LIST OF BOXES

Box 1: Kenyan labor statistics by quarter, 2019 to 20224 .....	5
Box 2: Status of pending bills in Kenya .....	13

#### LIST OF TABLES

Table 1: Balance of payments, 2021–22 .....	9
Table 2: Kenya - Fiscal operations (percent of GDP) .....	12
Table 3: Kenya's medium term growth projections (percent unless otherwise indicated).....	16

<b>References</b> .....	33
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<b>Annex Tables</b> .....	35
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# ABBREVIATIONS

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ACA	Airport Carbon Accreditation
ACMI	Africa Carbon Markets Initiative
ASALs	Arid and semi-arid lands
ASEAN	The Association of Southeast Asian Nations
ASI+R	Avoid-Shift-Improve and Resilience
BAU	Business-as-usual Forecast
BEB	Battery Electric Bus
BEV	Battery Electric Vehicle
BPS	Basis Points
BRT	Bus Rapid Transit
CAPEX	Capital Expenditure
CBAM	Carbon Border Adjustment Mechanisms
CBK	Central Bank of Kenya
CCDR	Country Climate and Development Report
CDM	Clean Development Mechanism
CEM	Country Economic Memorandum
CO2	Carbon dioxide
COP26	26 <sup>th</sup> Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
COVID-19	Coronavirus Disease of 2019
CPI	Consumer Price Index
CPS	Cyber-Physical System
CVRS	Computerized Vehicle Routing System
DLP	Digital Logistics Platform
EAPP	Eastern Africa Power Pool
EC	European Commission
EU	European Union
EV	Electric Vehicle
FDI	Foreign Direct Investment
FiT	Feed-in-Tariff
FLR	Forest Landscape Restoration
FX	Foreign Exchange
FY	Financial Year
GBFS	Goods and Non-Factor Services
GDP	Gross Domestic Product
GHG	Green-House Gases
GLEC	Global Logistics Emissions Council
GoK	Government of Kenya
H1	First Half
H2	Second Half
ICDs	Inland Container Depots
ICT	Information and Communications Technology
IGES	Institute of Global Environmental Strategies
IMF	International Monetary Fund
IoT	Internet of Things



IPP	Independent Power Producers
CAA	Kenya Airports Authority
KenGen	Kenya Electricity Generating Company PLC
KEU	Kenya Economic Update
KFS	Kenya Forestry Service
KNBS	Kenya National Bureau of Statistics
KSh	Kenyan Shilling
KTDA	Kenya Tea Development Agency
kWh	Kilowatt hours
LCOE	Levelized Cost of Electricity
LCPDP	Least Cost Power Development Plan
LFP	Labor Force Participation
LPI	Logistics Performance Index
LULLL	Land Use, Land-Use Change and Forestry
MGR	Meter Gauge Railway
MoEP	Ministry of Energy and Petroleum
MRV	Measurement, Reporting, and Verification
MTCO <sub>2e</sub>	Metric Tons of Carbon Dioxide Equivalent
MW	Megawatt
MWT	Megawatt Thermal
NCCAP	National Climate Change Action Plan
NDC	Nationally Determined Contribution
NEET	Not in Education, Employment or Training
NIR	National Inventory Report
NO <sub>x</sub>	Nitrogen oxides
NPLs	Non-Performing Loans
NUTP	National Urban Transport Policy
PFM	Public Financial Management
PM <sub>10</sub>	Particulate matter
PPA	Power Purchase Agreement
PV	Photovoltaic
Q2	Second Quarter
SAPP	South African Power Pool
SGR	Standard Gauge Railway
SO <sub>x</sub>	Sulphur oxides
SSA	Sub-Saharan Africa
tCO <sub>2e</sub>	Tonnes of carbon dioxide equivalent
US	United States
US\$	United States Dollar
VAT	Value-added tax
VKT	Vehicle Kilometer Travelled
WHO	World Health Organization
y/y	Year-on-Year
YLD	Yield





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The Kenya Economic Update (KEU) is a World Bank report series produced twice a year that assesses recent economic and social developments and prospects in Kenya, and places these in a longer-term and global context. Through special topics, the KEU also examines selected policy issues and medium-term development challenges in Kenya. It is intended for a wide audience, including policymakers, business leaders, financial market participants, and the community of analysts and professionals engaged in Kenya's changing economy.

The production of the KEU is led by the Macroeconomics, Trade and Investment (MTI) Global Practice team for Kenya. Part 1 (Recent Economic Developments and Outlook) was produced by Naomi Mathenge, Tasneem Alam Ghauri, Angélique Umutesi, Stanley Mutinda and Aghassi Mkrtchyan (all MTI) with inputs from Alastair Haynes (EAEPV) and Precious Zikhali (EAEPV) and logistical support from Anne Khatimba. Part 2 (Special Topic on Opportunities for Kenya in a Decarbonizing World) was produced by Diji Chandrasekharan Behr (Lead Environmental Economist, SAEE2), Noreen Beg (Lead Environmental Specialist, SAEE2), Aisha Abdulaziz (Energy Specialist, IAEE1), Akiko Kishiue (Senior Urban Transport Specialist, IAET1), Cordula Rastogi (Senior Economist, ETIRI), Raimund Alexander Viktor Malischek (Energy Specialist, IEEGK), Sandhya Srinivasan (Senior Climate Change Specialist, SCCFE), Zubair K.M. Sadeque (Senior Energy Specialist, IAEE1).

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## EXECUTIVE SUMMARY

**Kenya's economic performance softened in 2022, steering towards country's long-term growth rate.** Real GDP expanded by 4.8 percent in 2022, a deceleration compared with the strong rebound from the Covid-19 crisis at 7.5 percent annual growth in 2021 but broadly aligned with growth rates of Kenya's potential GDP as well as of the pre-pandemic decade. The adverse weather shock of the last two years has been a major drag on economic growth, with growth in real GDP excluding agriculture standing at 6.3 percent in 2022. Besides, the impacts of tightening of domestic macroeconomic policies and challenging global financial conditions significantly hurt domestic economic activity, especially in the latter half of the year.

**Not only was the economy's growth momentum affected by the multiple challenges experienced in the year, but the cost of living rose on account of surging inflation.** In response, The Central Bank of Kenya (CBK) has been tightening monetary policy to curb inflation and currency depreciation. The CBK has raised the policy rate by a cumulative 250 basis points since May 2022 to 9.5 percent. The Monetary Policy Committee announced its latest increase on March 29, 2023, when it decided to further raise the policy rate by 75 basis points to keep the inflation expectations anchored and bring them within the CBK's target band. The real policy rate has now turned positive, indicating that monetary policy has been appropriately tightened under current macroeconomic conditions.

**The current account deficit narrowed reflecting growing export receipts against a sharp slowdown in imports due to depreciation of the shilling and foreign exchange liquidity constraints.** Remittances, which have been increasing since 2020 appear to have paused from H2 2022, with the inflows registering a contraction of 1.6 percent y/y in the first quarter of 2023. Despite the improved terms of trade and the continued recovery in tourism that boosted export revenue, financial inflows reduced, partly due to limited capital flows to emerging markets more broadly. Reserve buffers dwindled to 3.7 months of import cover, falling below the CBK's statutory requirements to maintain at least 4 months of import cover

**The government's measures to contain expenditure and raise revenue resulted in lower fiscal deficit and a slowdown in debt accumulation.** Kenya, like most sub-

Saharan African (SSA) countries, has started to consolidate after pressures due to COVID-19 related expenditures. Following the supplementary budget of January 2023, the revised fiscal deficit for FY2022/23 is estimated at 5.7 percent of GDP, lower than 6.2 percent budgeted earlier. A narrowing fiscal deficit has reduced financing needs, helped reduce the primary deficit, and slow debt accumulation.

**Revenue collection remained stable in the first nine months of FY2022/23, albeit below target.** Total revenue and grants grew by 10.6 percent in nominal terms in the first nine months of FY2022/23, lower than 21.9 percent in the previous year as the economy was recovering from the COVID-19 pandemic. There has been broad-based growth across major revenue categories with income tax and VAT accounting for 77.4 percent of total tax revenue, albeit performing below target. Moderate growth in revenue reflected subdued performance in economic activities during July-December 2022, and sluggish growth in employment and household consumption. Indeed, private consumption (that accounted for roughly 62 percent of output growth in 2021) slowed markedly in 2022 as soaring domestic prices and a fall in agriculture output hurt disposable incomes. The government projects a fiscal deficit of 5.7 percent in FY2022/23 with commitments to contain spending pressures.

**Looking ahead, Kenya's medium-term growth remains bright as the economy recovers from the polycrisis.** Real GDP is anticipated to rise to 5.0 percent in 2023 and 5.2 percent on average in 2024-25. This near-term growth forecast is above Kenya's estimated potential GDP growth rate of 4.9 percent and the pre-pandemic average (2010-2019) of 5.0 percent. Real per capita incomes are expected to grow, increasing from 2.8 percent in 2022 to 3.1 percent in the medium term and poverty is expected to resume its pre-pandemic downward trend. The strong GDP growth in the medium term is underpinned by easing in the cost-of-living pressures and robust private investment. Even so, the economic outlook assumes a slowdown in public investment reflecting ongoing fiscal consolidation, higher electricity tariffs that are expected to keep energy prices elevated and increase the cost of production for small businesses, as well as tight monetary policy that is expected to moderate inflationary pressures.



**The outlook is not without risks and downside risks remain substantial that could lead to lower growth in the medium term in the event they materialize.** On the domestic side, another season of below-average rains would further prolong the drought, inflationary pressures, and food insecurity. Growth could be lower than anticipated due to economic disruptions from political demonstrations that could constrain activities of the contact-intensive services including education, hotels and accommodation, and transport. Furthermore, a rise in political tensions could lead to unexpected fiscal expansion (due to failure to achieve the projected fiscal consolidation), aggravating debt vulnerabilities and crowding out private investments. On the external front, risks include a weaker global demand that could hurt Kenya through lower net exports and lower foreign investment and tighter monetary policy by major central banks that could lead to increased capital outflows and shilling depreciation.

**While climate change is a recognized threat to Kenya's economy, global efforts to reduce green-house gas (GHG) emissions could present opportunities for the country.** Kenya contributes less than 1 percent of global GHG emissions annually. The country has also been growing with a relatively low-carbon intensity. Continuing on a low-carbon growth path could help the country seize opportunities created by the global efforts, especially among high-emitting countries, to decarbonize. Global efforts to lower GHG emissions and countries' actions to meet NDC commitments are resulting in reconfiguration of global supply chains, expanding opportunities "green" goods, and generating a growing appetite for carbon credits that can be transferred internationally and used towards meeting climate commitments or other compliance uses. Climate-positive investments and policies can contribute to growth, reduce operating costs, increase revenue for the

private sector, create green jobs, and generate social co-benefits, while also helping improve Kenya's trade balance and foreign exchange stability and lowering the country's exposure to fuel price shocks and supply chain disruptions.

**Maintaining a low-carbon development path could contribute to Kenya's efforts to accelerate growth if aligned with boosting productivity and supporting inclusivity.** While the most rapid way to boost productivity is to increase value added in the industry and services sectors, Kenya's largest goods exports are low in complexity (as they are mostly agriculture and minerals) while the services sector drives export dynamism. The country has only added 15 new products since 2005 but their volume has been too small to contribute to substantial income growth. In this context, efforts to maintain a low-carbon growth path should help boost the competitiveness of existing export commodities, create formal jobs, improve productivity, and generate valuable social co-benefits. This would require promoting expansion of sectors that are already low-carbon or supporting growing sectors to lower their carbon intensity. It would also mean meeting increased power demand with renewables, accelerating transitions in the transport sector (such as modal shifts) to efficiency and reduce use of fossil fuels, and supporting restoration of natural landscapes to lower land-based emissions. Efforts to maintain a low carbon development pathway could also leverage carbon markets, mobilizing financing for climate action.

**Kenya has already achieved, to date, remarkable success in developing a well-diversified power generation mix, with about 90 percent of electricity being generated from clean sources.** As a result, energy (excluding transport) is expected to make up 7 percent Kenya's GHG emissions in 2020. This presents Kenya with a unique opportunity to stay on a low-carbon growth path while meeting its electricity needs entirely from green energy sources. It would also enable the country to meet its commitment made in the COP26 World Leaders' Summit in Glasgow in November 2021 to achieve 100 percent renewable energy supply by 2030. The Government recently updated the Least Cost Power Development Plan (LCPDP) with realistic demand projections and with a greater focus on a green path for generation expansion. The feed-in-tariff (FIT) policy, adopted in 2008 to promote non-geothermal renewables has been restructured to exclude solar and wind and include only small technologies with no significant capacity addition potential (biomass, biogas, small hydro) and a competitive auction framework has been adopted for development of solar and wind in the future.



**Lowering the carbon footprint of transport and logistics operations while reducing trade and transport costs can enhance the competitiveness of both domestic and export-oriented industries.** Decarbonizing transport and developing sustainable supply chain management and logistics is crucial for Kenya's pursuit of low-carbon growth, and alignment with its development priorities as well as those of emerging/advanced economies. Such a system, characterized by a low carbon footprint and reduced trade costs, is expected to enhance trade and commerce by meeting the increasing demand from destination markets for environmentally compliant products. Globally, freight transportation and logistics contribute 8-10 percent of GHG emissions, similar to Kenya where GHG emissions from the sector account for 11 percent. On the global front, warehouses, terminals, and gateways generally constitute approximately 15-20 percent of those emissions, and,



while detailed data is not available, Kenya's transport and logistics intensity points to a similar share. Furthermore, green logistics and sustainable supply chain management practices at origin and destination countries are gaining ground, especially by advanced economies in Europe but are also gaining ground in emerging economies (India, Turkey, ASEAN), as suggested by the recently published LPI survey 2023 (April 2023). As more companies are setting standards for their suppliers and contractors, Kenya will need to increase transparency about the logistics footprint of its trade.

**Carbon markets under the Paris Agreement could potentially provide substantial revenues for Kenya, particularly if prices are reflective of the opportunity cost of additional mitigation action.** Kenya has the opportunity to generate carbon credits from a range of sectors, ranging from land-based sectors to energy and others. Capitalizing on the carbon markets will require the government to finalize the formulation of a robust legal framework to provide the necessary legal basis for carbon markets and to operationalize the legislation. The legal framework should be in line with the NDC targets, and present clearly the potential for carbon markets and processes to be followed, the necessary inter-ministerial coordination, and linkages between compliance and voluntary markets. Aligned with this should be the country's Article 6 strategy, pricing strategy and infrastructure strategy that includes monitoring, registry, and reporting. Revenues from carbon markets will also be an important part of a broader climate finance strategy that includes dedicated climate funds, public and private financing.

# The State of Kenya's Economy



# 1. Recent Economic Developments

## 1.1. Global and regional economies seem to have avoided the anticipated recession, but growth prospects remain weak

### Global growth is expected to decelerate sharply in 2023.

World economic growth slowed in 2022 to 2.9 percent as surging inflation, energy and value chain disruptions, and marked monetary tightening weighed on economic activity. While inflationary pressures eased toward the end of the year especially on account of normalizing commodity prices, inflation remains high globally, exceeding central bank targets in nearly all inflation-targeting countries. Swift implementation of monetary tightening, while helping to soften inflationary pressures, has contributed to a significant deterioration of global financial conditions. The collapse of Credit Suisse and two regional banks in the United States has revealed heightened vulnerabilities in the global financial system, lowering investor confidence and posing additional risks to the United States and the euro area economies. Several emerging markets and developing economies have witnessed widespread capital outflows and rising sovereign borrowing costs, with countries with lower credit ratings experiencing a much more severe deterioration in financial conditions. Reflecting ongoing monetary policy tightening and worsening financial conditions, global growth is projected to bottom out in 2023 at 1.7 percent before rising moderately to 2.7 percent in 2024.<sup>1</sup>

### Global commodity prices are expected to moderate in 2023 and remain mostly stable in 2024.

Commodity prices declined 14 percent in the first quarter of 2023, standing roughly 30 percent below their historic peak in June 2022. Nonetheless, prices of all major commodity groups and about four-fifths of individual commodities remain above their 2015-19 average levels. The Brent oil price fell 35 percent from its peak in June 2022, but remains well above its pre-pandemic average. Oil prices are expected to average US\$84 per barrel in 2023, mostly reflecting weaker growth prospects in advanced economies. Agricultural commodity prices decreased in much of 2022 from their peaks in early 2022, helped by improved supply conditions. Global food prices are expected to continue to fall in 2023. Still, these prices are expected to stay above pre-pandemic levels, with the inflation-adjusted food price index at its

second-highest level since 1975. The prices of coffee and tea declined throughout 2022. Despite the declining global prices of agricultural commodities, domestic food price inflation across the world stays at historic high levels due to the slow price transmission from global to local prices and the stronger US dollar.

### Economic growth in sub-Saharan Africa continues to weaken.

Economic activity in sub-Saharan Africa is estimated to have slowed to 3.6 percent in 2022 from 4.1 percent in 2021.<sup>2</sup> However, this is 0.3 percentage point higher than the October 2022 forecast, supported by high commodity prices and buoyant domestic demand. Despite multifaceted challenges, the economies of the East Africa Community showed resilient performances. Ethiopia and Uganda maintained strong growth recovery, with real GDP growth estimated at about 6 percent for FY23 and projected to increase to above 6 percent in FY24. Tanzania's economy expanded by 4.6 percent in 2022, up from 4.3 percent in 2021, and is projected to increase by 5.1 percent in 2023. Sluggishness of the global economy with high inflation rates and challenging global and domestic financial conditions continue to weigh on the region's economic activity, with sub-Saharan African growth for 2023 projected to further decelerate to 3.1 percent, 0.4 percentage points lower than at the time of the last Kenya Economic Update.

## 1.2. The Kenyan economy showed signs of resilience in the face of the polycrisis

**Multiple challenges loomed over the economy's growth momentum and raised cost of living.** Inflation surged to multi-year highs in 2022 in the wake of rising world food and fuel prices caused by global supply chain disruption and the Russian invasion of Ukraine. On top of that, the adverse weather shock experienced by the East African countries in the form of the worst drought in four decades not only aggravated the inflationary pressures but also subjected millions of people to severe food insecurity and loss of livelihoods. The shilling remained under pressure throughout 2022 as major central banks set on a tightening cycle and Kenya's official foreign exchange reserves started to deplete in the context of high external financing needs amid difficulty of access to international capital markets.

<sup>1</sup> World Bank. January 2023. 'Global Economic Prospects.'

<sup>2</sup> World Bank. April 2023. 'Africa's Pulse.'

Fiscal outcomes remained under stress as avenues of external borrowing were restricted and fiscal space shrank as the government resorted to limiting the passthrough of international food and energy prices on domestic inflation.

**Kenya's economic performance softened in 2022, steering towards the country's long-term growth rate.**

Real GDP expanded by 4.8 percent in 2022, a deceleration from the strong rebound from the Covid-19 crisis at 7.5 percent annual growth in 2021 but broadly aligned with growth rates of Kenya's potential GDP as well as of the pre-pandemic decade average. The climate shock of the last two years has been a major drag on economic growth, with growth in real GDP excluding agriculture standing at 6.3 percent in 2022. Besides, the impacts of tightening of domestic macroeconomic policies and challenging global financial conditions significantly hurt domestic economic activity, especially in the latter half of the year.

**The cost of living pressures and difficult financial conditions dampened major drivers of demand.**

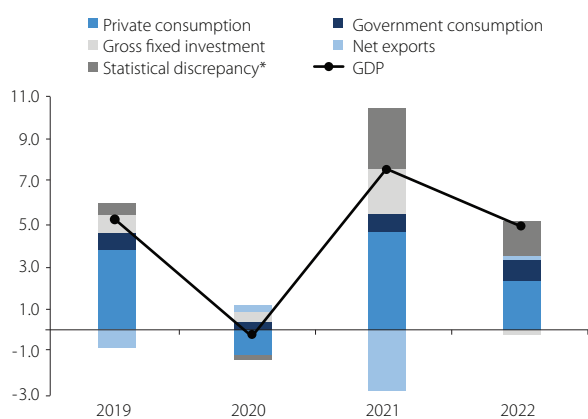
Private consumption—the usual driver of domestic demand in Kenya, accounting for roughly 62 percent of output growth in 2021—slowed markedly in 2022 as soaring domestic prices and a fall in agriculture output hurt real disposable incomes (Figure 1). Higher remittance inflows cushioned the drop in disposable incomes, likely averting a stronger hit on private consumption and economic growth. The deceleration in private consumption was only partially offset by a higher contribution from government consumption, led by increased subsidies to mitigate the impact of higher fuel and food prices. Investment is estimated to have contracted in 2022 in line with 11 percent y/y decline in

development spending in 2022 on fiscal consolidation measures. A falling shilling amid foreign exchange liquidity shortages and worsening global financial conditions weakened investment climate, with capital goods imports increasing by just 1.2 percent in 2022 compared to growth of 20.4 percent in 2021. The contribution of net exports to domestic demand turned slightly positive on account of significant import deceleration (Figure 2).

**The revival in tourism and financial services drove Kenya's real GDP growth in 2022.**

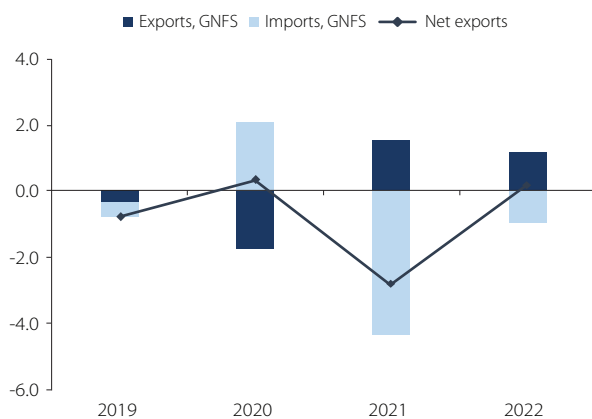
Services increased by 7.0 percent y/y in 2022, contributing about 80 percent of the increase in total GDP (Figure 3). While this sound services growth was broad-based, the main drivers were financial intermediation and tourism. Financial services increased by 12.8 percent y/y in 2022 due to strong private sector credit growth and lending to the government. Tourism staged a forceful recovery, reflected in a sharp rise in hotels and restaurants and transport subsectors. With pandemic-related domestic and global mobility and travel restrictions fully lifted, the number of international visitor arrivals increased from 871.3 thousand in 2021 to 1,541.0 thousand in 2022 leading to significant improvement in hotel bed occupancy, number of international conferences, and number of visitors to museums, national parks and historical sites. Nonetheless, labor market statistics show that wage employment in hotel and food services remains below pre-pandemic levels (see Box 1). Other major contributors to growth included wholesale and retail trade, real estate (supported by sustained expansion of the construction industry), and information and communication (driven by increases in wireless internet and fiber-to-home subscriptions).

**Figure 1: Private consumption was compressed in 2022**



Source: KNBS

**Figure 2: The contribution of net export to growth was marginally positive**

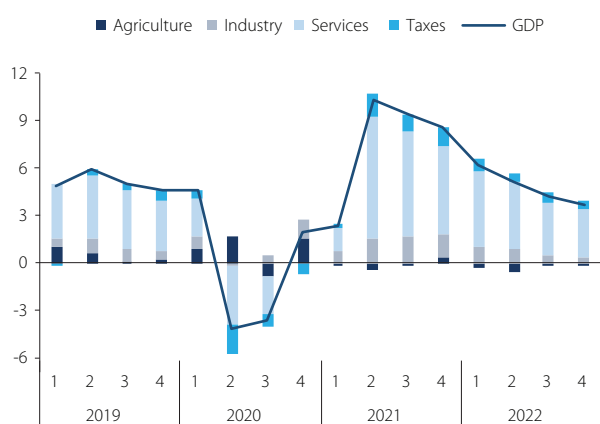


Source: KNBS



**The industrial sector sustained expansion despite economic headwinds.** Industry endured several domestic and external challenges— including lower agricultural produce, policy tightening, rising cost of living pressures, a weakening currency and a slowing global economy— to expand by 3.9 percent y/y in 2022 compared to 7.5 percent y/y in 2021. Manufacturing, which accounts for nearly half of the industrial sector output, recorded deceleration in 2022 as the setbacks in crops and livestock output adversely impacted the grains mill, dairy, and animal and vegetable oils industry. However, manufacturing growth was supported by substantial increases in basic metals, motor vehicles, non-metallic minerals and chemical groups. Real value added of the construction sub-sector increased by 4.1 percent y/y in 2022 despite reduced development spending and rising cost of construction in the wake of increases in borrowing and input prices. The expansion in construction activity was led by ongoing work on building and maintaining road infrastructure, notably the Nairobi Eastern Bypass and Makupa Causeway Bridge, and sustained investment in housing helped by the government's affordable housing program.

**Figure 3: Services continue to lead the rebound**  
(contributions to real GDP y/y growth, percentage points)



Source: KNBS

**The most severe drought in four decades dealt a blow to agriculture in 2022.** Kenya's agriculture sector contracted by 1.6 percent y/y in 2022 following prolonged dry weather conditions in most parts of the country and sharp

increase in input prices. The price index of agricultural inputs increased by 39.2 percent in 2022, driven by higher prices of fertilizer, fuel and power, manufactured feed, and seeds. The poor agriculture performance largely reflected declines in the output of crops (by 2 percent y/y) and livestock (by 1.7 percent y/y) subsectors. Production of key food and cash crops, including maize, beans, tea and potatoes decreased in 2022; however, coffee and sugarcane recorded increased production. Water and pasture shortages due to the long drought led to deterioration in livestock health and deaths of thousands of animals. As a result, milk production decreased by 5.9 percent y/y in 2022. Furthermore, slaughtering of livestock increased significantly as the pastoralists resorted to selling their animals as a mitigation strategy to avoid losses even as this represented a permanent loss of their livelihood. A recent assessment indicated that the drought has left 4.4 million people food insecure in Kenya compared to 2.1 million in September 2021.<sup>3</sup>

**While climate change is a threat to Kenya's growth profile, global efforts to address climate change, especially reducing GHG emissions, also offer positive opportunities for the Kenyan economy.** Output is negatively affected by adverse weather conditions caused by climate change resulting in losses in production, income and employment and increased operational costs. Kenya's economy is estimated to suffer socio-economic losses of 3-5 percent of gross domestic product annually from the impacts of climate change, underscoring the importance of investing in greater resilience to these impacts and identifying opportunities to reduce vulnerability. As a minor emitter of GHGs, Kenya can, however, be part of the solution to climate change. More specifically, by continuing on its path of low carbon emission, Kenya could take advantage of the emerging opportunities associated with global decarbonization efforts. Part 2 of this KEU therefore looks at the opportunities for Kenya in a decarbonizing world.

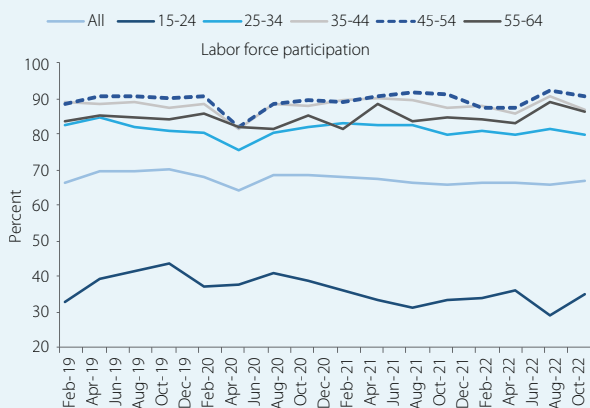
<sup>3</sup> UNICEF. March 2023. Humanitarian Situation Report No. 3. [https://www.unicef.org/media/138376/file/Kenya-Humanitarian\\_SitRep-March-2023.pdf](https://www.unicef.org/media/138376/file/Kenya-Humanitarian_SitRep-March-2023.pdf)



**Box 1: Kenyan labor statistics by quarter, 2019 to 2022<sup>4</sup>**

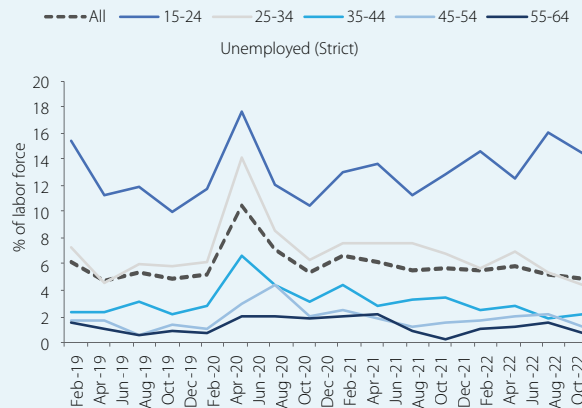
The labor force participation (LFP) rate fell during the pandemic years and has not yet fully recovered. The onset of the COVID-19 pandemic reduced the LFP rate by 5.3 percentage points in Q2 2020 relative to Q2 2019. Though the LFP quickly recovered the following quarter, it remained below the pre-pandemic levels. In 2022, the LFP stayed at around 66 percent slightly below the pre-pandemic level of 69 percent in 2019. As expected, the LFP is substantially lower among the 15-24 age group since individuals in this age group are likely to still be in education (Figure B1.1).

**Figure B1.1: Labor force participation rates<sup>5</sup>**



Source: Authors' calculation based on the KNBS quarterly labor reports

**Figure B1.2: Unemployment (Strict Definition)<sup>6</sup>**

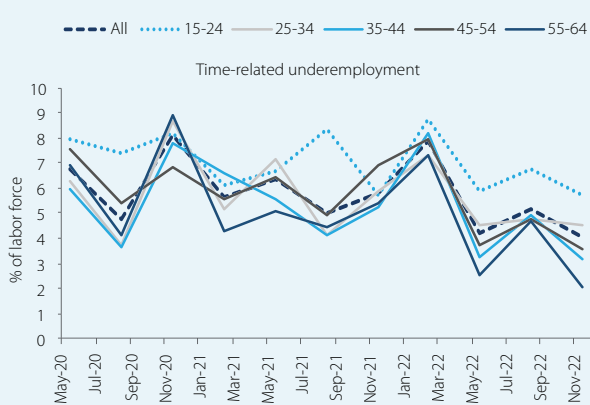


Source: Kenya National Bureau of Statistics and World Bank staff calculations

Unemployment surged during the pandemic, while time-related underemployment has fluctuated between 2020 and 2022. Lockdowns and other COVID-19 related restrictions led to a spike in unemployment in 2020, with the largest increases among individuals below 35. The unemployment rate has been on a downwards trend since 2021 for all ages, except for those between 15 and 24 who after an initial recovery have experienced a gradual upwards trend (Figure B1.2). Time-related underemployment peaked in the last quarter of 2020 and declined thereafter before rising sharply again during the first quarter of 2022. However, it has declined over the rest of 2022. There are smaller differences in underemployment across age, however, in the last quarter of 2022 the underemployment rate was three times larger for those between 15 and 24 compared to the 55-64 age group (Figure B1.3).

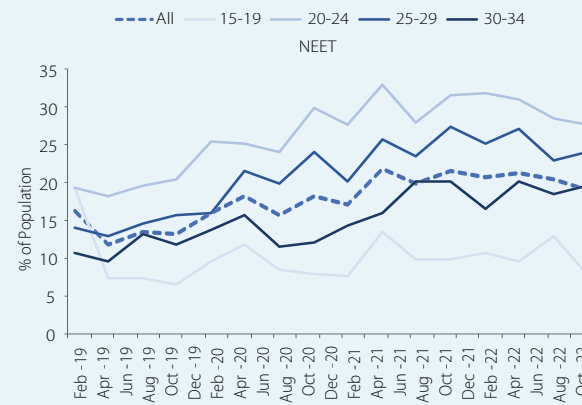
The share of youth Not in Education, Employment or Training (NEET) has been trending upwards since 2019, with the highest rates for those between 20 and 24. However, the percentage of NEET among youth has decreased from 21.5 percent in Q4 2021 to 19.0 percent in Q4 2022. This improvement reflects declines in the percentage of NEET across all age groups of the young population during 2022. Within youth, the rate of NEETs is the highest for the age group 20 –24 years, likely indicating insufficient employment opportunities for fresh entrants to the labor market matching their skills and qualifications. (Figure B1. 4)

**Figure B1.3: Time-related underemployment<sup>7</sup>**



Source: Authors' calculation based on the KNBS quarterly labor reports

**Figure B1.4: NEET<sup>8</sup>**



Source: Authors' calculation based on the KNBS quarterly labor reports

<sup>4</sup> The labor force statistics presented in this box are based on the quarterly labor reports produced by KNBS based on the Kenya Continuous Household 2019, 2020, 2021, and 2022 surveys. The reports can be found here: <https://www.knbs.or.ke/publications/>

<sup>5</sup> The LFP rate is defined as the number of people who are either working or actively seeking work as a share of the working age population (15-64).

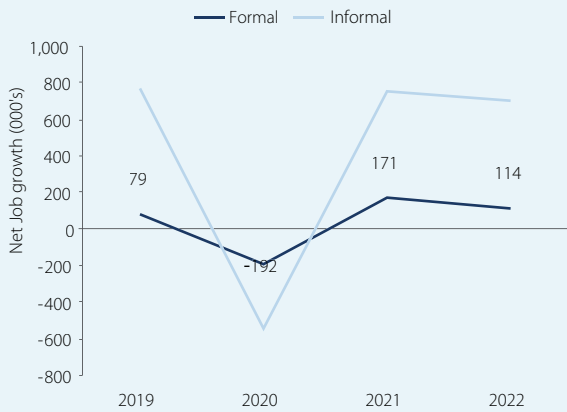
<sup>6</sup> The strict unemployment rate is calculated as the percentage of the labor force which do not have a job, actively looked for work in the past work weeks and are available to start work.

<sup>7</sup> Time-related underemployment considers individuals in employment who are willing and available to increase their working time and worked fewer hours than 28 hours in a week.

<sup>8</sup> NEET is defined as individuals who are not in employment, education, or training.

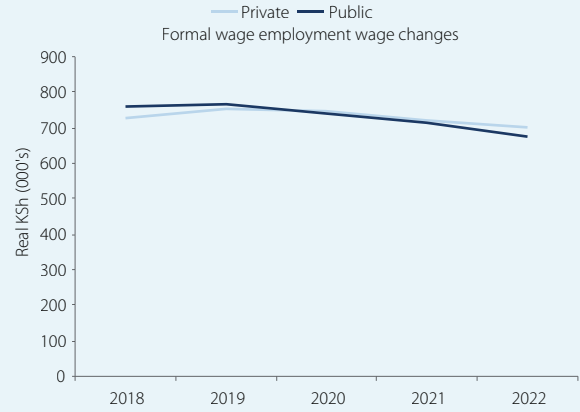
**Box 1: Kenyan labor statistics by quarter, 2019 to 2022 (contd.)**

**Figure B1.5: Net job growth, 2019 to 2022**



Source: Authors' calculation based on the Kenya Economic Survey 2023

**Figure B1.6: Average formal wage employment earnings**



Source: Authors' calculation based on the Kenya Economic Survey 2023

**Recent evidence highlights limited job creation and a decline in real earnings.** In 2022, the informal sector accounted for 83 percent of total employment adding 702.9 thousand new jobs (about 86 percent of total new jobs) during the year although lower than 753.8 thousand jobs created in 2021. Formal wage employment only grew by 155.7 thousand jobs between 2018 and 2022, with just under two-thirds coming from the public sector. Education, manufacturing, and hotel and food services accounted for half of the job creation in the private sector wage employment during 2022, reflecting continued recovery from the impacts of COVID-19 pandemic. Notably, wage employment in education, trade, transport, and hotel and food services are still below the pre-pandemic levels. Further, real average earnings among formal wage employment have been on a downward trend post-2019, with a 12 and 6 percent decline in average earnings between 2019 and 2022 for formal public and private wage employment, respectively.

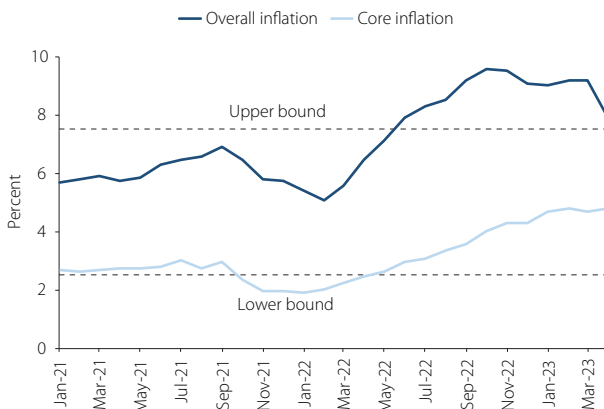
**1.3. Monetary policy was further tightened to anchor inflation expectations**

**Inflation has moderated but underlying pressures persist.**

Helped by improved vegetables supplies and easing of world prices of edible oils, headline inflation fell to 7.9 percent in April 2023 after hovering above 9.0 percent since September 2022. Still, headline inflation stands above the 7.5 percent upper ceiling of CBK's inflation target band. The persistently high inflation during the past several months was driven by the supply shocks to food and fuel prices from the Russian invasion of Ukraine and the long regional

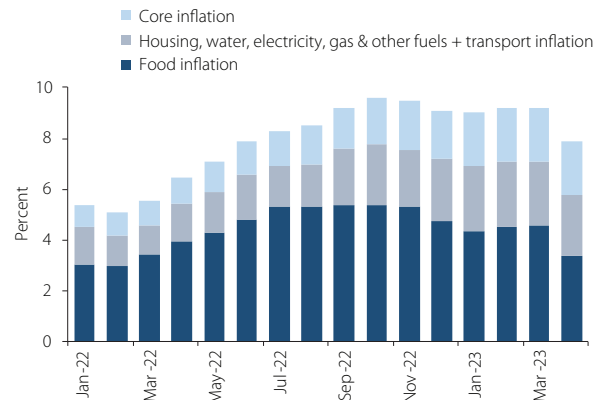
drought that saw Kenya's agriculture output contract by 1.6 percent in 2022. (Figure 4). Nonetheless, food inflation remains elevated at 10.1 percent in April 2023 while core inflation (which excludes food and energy prices) rose to 4.8 percent in April 2023, double the rate recorded a year ago, reflecting passthrough of higher international oil prices, shilling depreciation, and second-round effects of supply shocks. Food, comprising of one-third in the basket of the consumer price index (CPI), has been the main contributor to overall inflation (Figure 5).

**Figure 4: Inflation eased in April but stands above the CBK's target**



Source: KNBS

**Figure 5: Food remained the dominant contributor to overall inflation [contributions to overall inflation rate]**



Source: KNBS

**The government is taking measures to enhance food supplies in an effort to alleviate food insecurity and reduce prices.** The government has allowed registered traders and millers to import 0.9 million tonnes of white maize and 0.6 million tonnes of rice duty-free between February 2023 and August 2023 to address shortages of staple food in the country and lower prices. This was expanded in March 2023 to include raw materials for animal feeds including yellow maize, soybeans, assorted protein concentrates and feed additives. The government is also providing subsidized fertilizer to farmers in 12 counties that produce most of the maize and other staple foods.

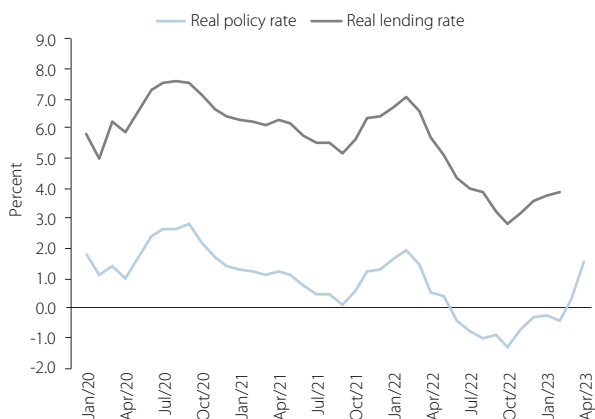
**The Central Bank of Kenya (CBK) has been tightening monetary policy to curb inflation and currency depreciation.** The CBK has raised the policy rate by a cumulative 250 basis points since May 2022 to 9.5 percent. The Monetary Policy Committee announced its latest increase on March 29, 2023, when it decided to further raise the policy rate by 75 basis points to keep the inflation expectations anchored and bring them within the CBK's target band.<sup>9</sup> The real policy rate has now turned positive, indicating that monetary policy has been appropriately tightened under current macroeconomic conditions.

**Credit to the private sector remained strong.** Private credit growth has been rising in double digits since March 2022, reaching 11.7 percent in the year to February 2023, supported by continued momentum from the post-COVID economic recovery and low real lending rates despite CBK's monetary tightening (Figure 6, Figure 7). The surge in private sector credit growth in 2022 was driven by a sharp

increase in credit offtake by private sector businesses<sup>10</sup>, likely reflecting higher input prices (thus raising borrowing needs) as well as improved production. Economic sectors contributing the most to private sector businesses credit growth included manufacturing (3.1 percentage points) followed by trade (2.7 percentage points) and transport and communication (1.9 percentage points). Growth in lending to households peaked at 10.7 percent y/y in March 2022 and stood at a robust 9.7 percent in February 2023. The government launched its flagship financial inclusion fund (Hustler Fund) project in December 2022 to improve financial inclusion. The Fund targets to provide low-interest loans through digital platforms to SMEs, women and youth for personal and business needs. The Fund has so far disbursed KSh 24 billion among 19 million beneficiaries out of whom over 6 million are repeat borrowers.

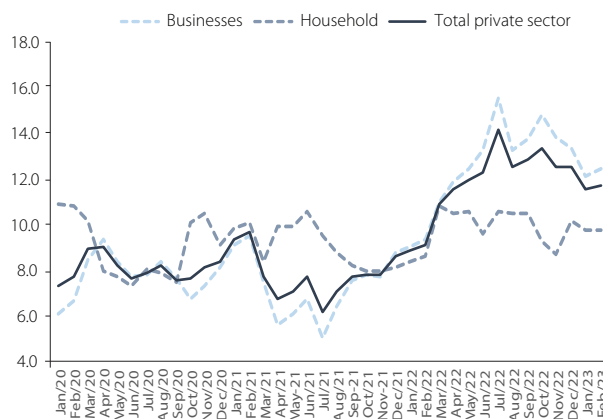
**Capital and liquidity buffers appear adequate.** The banking sector's capital adequacy and liquidity ratios stood at 19.0 percent and 50.8 percent respectively in December 2022, exceeding the CBK's minimum regulatory requirements of 14.5 percent and 20.0 percent respectively. However, this represented a downward slide in capital adequacy ratio from 19.6 percent recorded in December 2021. Banks' asset quality improved in H2 2022, with non-performing loans to gross loans reducing from 14.7 percent in June 2022 to 13.3 percent in December 2022. However, the non-performing loans ratio is still high and has reverted to a deterioration in 2023, rising to 14.0 percent in February 2023. Increases in NPLs were noted in the trade, personal and household, manufacturing and building and construction sectors. Banks have continued to make

**Figure 6: Real lending rates remain low**



Source: Central Bank of Kenya

**Figure 7: Private sector credit growth picked up since H2-2021**  
[y/y change; percent]



Source: Central Bank of Kenya

<sup>9</sup> CBK's Market Perception Survey conducted in March 2023 indicated most participants expected inflation to remain above 9.0 percent over the next two months and stay around the upper ceiling of the target range over the next 12 months.

<sup>10</sup> Credit to private sector businesses is derived as total private sector credit less lending to households (comprising of private households and consumer durables).

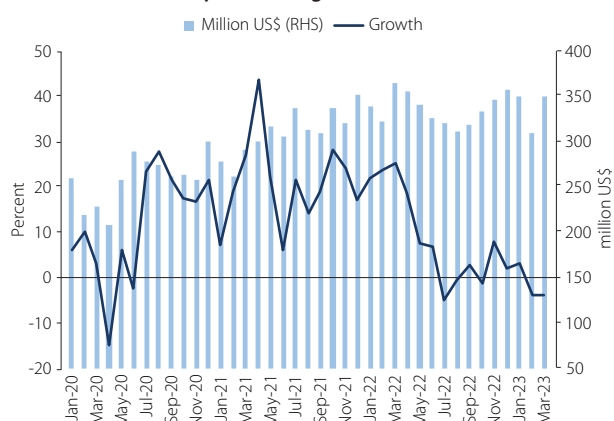
adequate provisions for the NPLs. While banks' earning and profitability metrics are strong, these face risks from an increase in bad debts and from potential revaluation losses on banks' holdings of government securities due to increases in interest rates.

#### 1.4. Reserve buffers have dwindled despite strong exports performance

The current account deficit narrowed reflecting growing export receipts against a sharp slowdown in imports due to shilling depreciation and foreign exchange liquidity constraints. The current account balance narrowed by 38.0 percent to US\$963 million in the fourth quarter of 2022 from US\$1,557 million in the fourth quarter of 2021, reflecting lower imports, strong performance of export of goods and services as well as increased remittances (Figure 8), and in part reflecting the shilling's depreciation. Remittances amounted to US\$1,047 million in the fourth quarter of 2022, reflecting a growth of 3.2 percent from US\$1,015 million recorded in the similar quarter in 2021. However, the increasing trend of remittances witnessed since 2020 appears to have paused from H2 2022, with the inflows registering a contraction of 1.6 percent y/y in the first quarter of 2023.

Improved terms of trade and the continued recovery of tourism boosted export revenue. The value of exports declined slightly by 3.2 percent in the fourth quarter of 2022 to US\$3,305 million compared with the similar quarter in 2021. Receipts from tea increased by 12.7 percent supported by higher prices attributed to lower supply due to drought amid resilient demand from traditional markets.

**Figure 8: Remittances declined recently as the difference between official and open exchange rates widened**

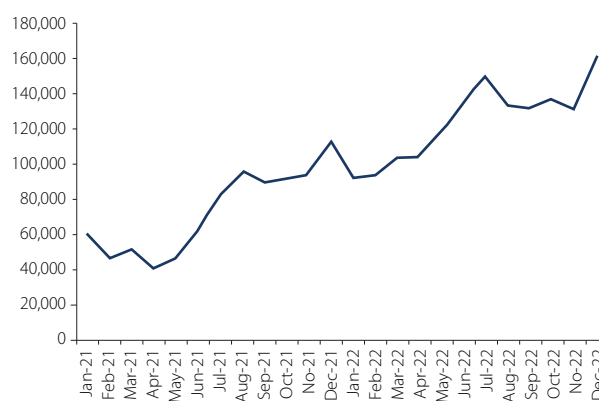


Source: Central Bank of Kenya

However, the prolonged drought reduced production of vegetables and cut flowers, leading to a decline of 17.2 percent in horticultural exports (Central Bank of Kenya, 2023). The continued recovery in tourism sector saw the number of tourists increase by 43.1 percent during in 2022 (Figure 9), with travel and transportation services receipts increasing by 16.5 percent during the same period. Despite a 13.9 percent increase in imports of oil products in the last quarter of 2022 compared with the similar quarter in 2021, growth in imports decelerated sharply by 10.5 percent to US\$6,252 in the fourth quarter of 2022 compared with US\$5,598 recorded during the same period in 2021.

Financial inflows reduced markedly, partly due to limited capital flows to emerging markets more broadly. The financial account surplus decreased by 26.3 percent to US\$868 million in the fourth quarter of 2022 from US\$1,177 million in the same period in 2021. Tightened global financial conditions limited Kenya's access to international financial market in 2022, while Kenya made substantial debt repayments that increased by 19.8 percent and 17.6 percent in FY20/21 and FY21/22 respectively.<sup>11</sup> Reserve buffers dwindled. By end-2022, official reserves had declined to US\$7,969 million, equivalent to 4.4 months of import cover, from US\$9,491 million. Reserves continued to decline in 2023 reaching US\$6,961 million, or 3.7 months of import cover in March 2023, falling below the CBK's statutory requirement to maintain at least 4 months of import cover (Figure 10). Low reserves resulted in temporary rationing of foreign exchange, further constraining imports, including of oil.<sup>12</sup> A perceived FX shortage may also partly explain weaker

**Figure 9: The number of tourists continue to grow as the sector continues to recover**



Source: Ministry of Tourism, Wildlife & Heritage

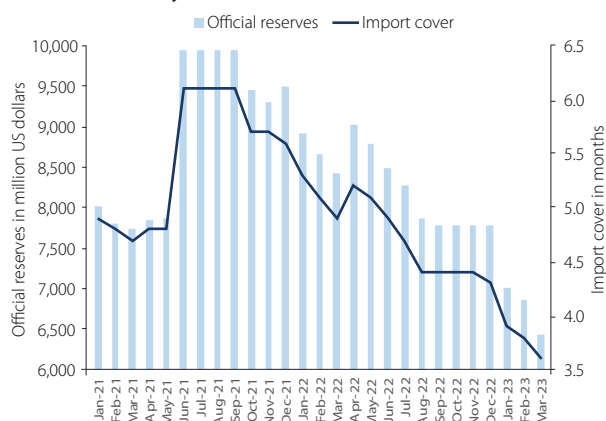
<sup>11</sup> The increase in FY20/21 is attributed to the expiration of the Debt Service Suspension Initiative.

<sup>12</sup> News reports indicate acute foreign exchange liquidity shortage has led the banks to cap daily sales of foreign exchange to a single trader or importer at US\$5,000 and even that is not guaranteed. <https://www.businessdailyafrica.com/bd/economy/central-bank-in-the-spotlight-as-lenders-run-out-of-dollars--4144074>

recorded remittances, which were increasingly channeled outside the formal banking sector as the spread between official and market exchange rates widened.<sup>13</sup> Continued

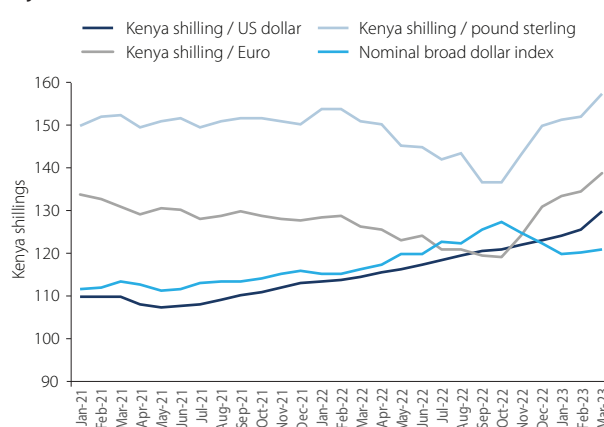
monetary tightening is helping stabilize the external accounts although import cover remains very low.

**Figure 10: Reserve drawdown has lowered import coverage below the statutory minimum**



Source: Central Bank of Kenya

**Figure 11: The Kenya shilling continues its depreciation against major currencies**



Source: Central Bank of Kenya & Federal Reserve Board

**Table 1: Balance of payments, 2021–22**

(US\$ million)	2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A. Current account balance	-1,294	-1,462	-1,714	-1,557	-1,270	-1,662	-1,579	-963
Trade balance	-2,538	-2,489	-2,837	-2,837	-2,397	-2,822	-2,661	-2,293
Exports	2,751	2,656	2,766	3,415	3,596	3,601	3,657	3,305
o/w Travel receipts	168	206	215	254	232	277	302	296
Imports	5,289	5,145	5,603	6,252	5,993	6,423	6,318	5,598
o/w Oil	715	778	920	1,061	1,137	1,568	1,655	1,209
Income	1,244	1,026	1,122	1,280	1,127	1,159	1,082	1,330
o/w Remittances	848	941	979	1,015	1,024	1,028	959	1,047
B. Capital account balance	72	68	35	19	72	69	6	29
C. Financial account balance	983	3,113	1,654	1,177	1,004	2,319	43	868
Direct investment, net	87	387	160	202	74	159	165	164
Portfolio investment, net	135	825	229	330	181	239	2	175
Financial derivatives, net	1	13	10	14	10	5	9	33
Other investment, net	1	1,739	1,812	336	1,101	2,393	21	847
D. Net errors and omissions	474	-3,385	296	733	1,253	-818	2,478	340
E. Overall balance	235	-1,666	271	372	1,059	-92	948	274
F. Reserves and related items	-235	1,666	-271	-372	-1,059	92	-948	-274
Reserve assets	-563	2,217	-330	-197	-1,059	21	-712	145
Credit and loans from the IMF	-16	664	-6	205	0	-39	236	-28
Exceptional financing	-312	-113	-52	-30	0	0	0	0
Gross reserves	12,850	14,741	14,089	14,199	12,590	12,581	11,337	11,343
Imports cover (36 months import)	4.7	6.1	5.9	5.6	4.9	4.9	4.4	4.3
Memo:								
Quarterly GDP at current prices	26,995	28,279	26,995	28,078	29,206	28,618	26,870	-

Source: Central Bank of Kenya

<sup>13</sup> For instance, the average cost of sending up to GBP120 from UK to Kenya increased to 4.7 percent of the amount remitted in the fourth quarter of 2022 from 3.8 percent in the second quarter of 2022. Source: World Bank, Remittance Prices Worldwide.

### 1.5. The government has continued consolidating to build fiscal space in FY2022/23

The government has maintained the pace of fiscal consolidation in FY2022/23. Stable growth in revenue, rationalization of non-priority spending, and unwinding of fuel and maize subsidies have created fiscal space and enabled the government to safeguard social spending. The fiscal deficit for FY2022/23 is estimated at 5.7 percent of GDP, lower than 6.2 percent budgeted earlier, and 6.3 percent during FY2021/22 (Figure 12). Modest fiscal deficits and associated low primary deficit have supported low accumulation of public debt amid exchange rate depreciation. However, persistent pending bills and subsidies continue to undermine the ongoing fiscal consolidation.

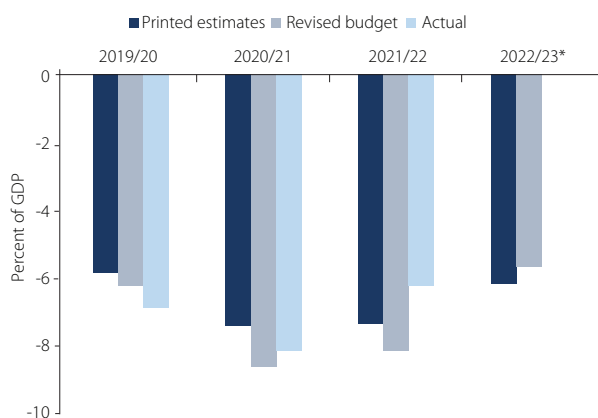
**Revenue collection remained stable in the first nine months of FY2022/23, albeit below target.** Total revenue and grants grew by 10.6 percent in nominal terms in the first nine months of FY2022/23, lower than 21.9 percent in the previous year as the economy was recovering from the COVID-19 pandemic. There has been broad-based growth across major revenue categories (Table 2). Income tax and VAT accounted for 77.4 percent of total tax revenue, albeit performing below target. Moderate growth in revenue reflected subdued performance in economic activities during July-December 2022, and sluggish growth in employment and household consumption. During the first half of FY2022/23, some tax policy and administration measures in the Finance Act 2022 were implemented to support revenue performance.<sup>14</sup> These measures include among others increase of excise duty (beers, cigarettes,

juice, among others), reclassification from exempt to taxable and application of 16 percent VAT on services exports and importation of goods and services in the construction of hospitals, and provision of six months limit period for claiming VAT on inputs.

**To support fiscal consolidation, the government has committed to contain spending pressures.** Much of the adjustment fell on development spending (Figure 13), re-directing resources from inactive investment projects to focus on completing existing projects, reduced funds for foreign financed projects, while slowing down or freezing of new projects.<sup>15</sup> For the first nine months of FY2022/23, development expenditure of 2.2 percent of GDP is lower than the target of 2.9 percent, and 2.8 percent of GDP compared to same period in FY2021/22. In addition, the government cut on inefficient subsidies<sup>16</sup> in FY2022/23. This was, however, not enough to keep recurrent expenditures within the target of 11.2 percent of GDP, reaching 11.5 percent in the first half of FY2022/23. The difficulty in reducing recurrent spending, in part reflects structural rigidities from higher debt servicing payments; interest payments rose to about 32.7 percent of tax revenues in FY2021/22 from 22.2 percent in FY2016/17, of which domestic interest payments accounted for about 75 percent on average in the last five years (Figure 14).

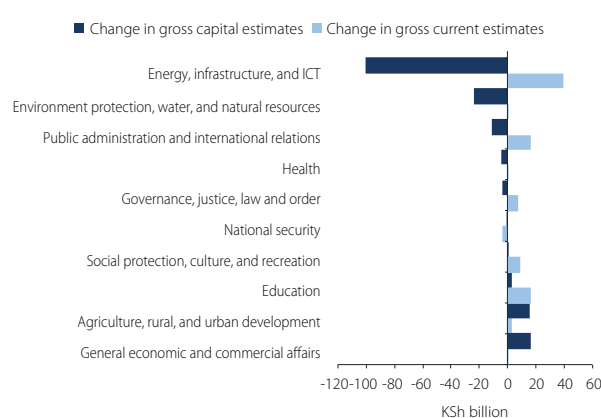
**Unwinding consumption subsidies has created some space, but the remaining subsidies and pending bills undermine achieving fiscal targets.** The government removed fuel and maize subsidies in the beginning of FY2022/23 but retained fertilizer subsidies to reduce the cost of production. Subsidies for FY2022/23 are budgeted

Figure 12: The government has maintained the pace of fiscal consolidation in FY2022/23



Source: World Bank Staff calculations based on National Treasury data

Figure 13: Slow uptake of infrastructural projects in the supplementary budget has reduced spending pressures



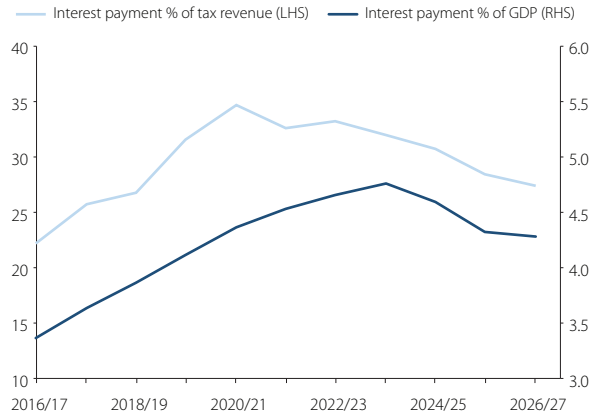
Source: World Bank Staff calculations based on National Treasury data

<sup>14</sup> Finance Act 2022.

<sup>15</sup> The National Treasury. 2023. BPS released in February 2023.

<sup>16</sup> World Bank. 2022. Kenya Economic Update, Edition 26.

**Figure 14: Interest payments have risen in the last five years**

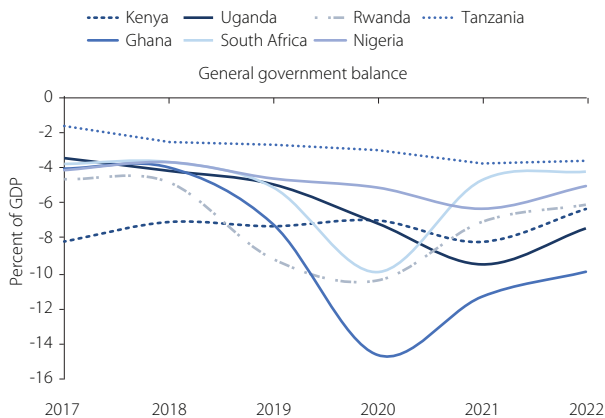


Source: World Bank Staff calculations based on National Treasury data

at KSh 22.2 billion (0.2 percent of GDP) lower than KSh 80.7 billion (0.6 percent of GDP) in FY2021/22. However, in the first nine months of FY2022/23 expenditure on subsidies reached KSh 43.4 billion (0.3 percent of GDP) above the yearly target, which could continue to erode revenue gains. The pending bills have reduced as the new government prioritized reviving businesses, but they remain elevated (Box B1.1) both at the central government and county government levels. At the end of March 2023, pending bills for the central government reached KSh 537.2 billion (3.7 percent of GDP), while at county level, pending bills were KSh 159.9 billion (1.1 percent of GDP) at the end of December 2022.

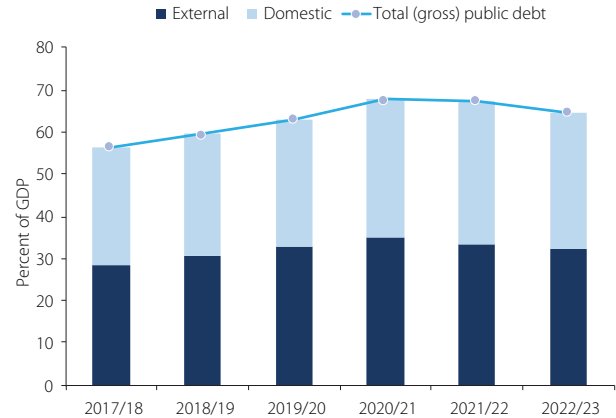
**The government's measures to contain expenditure and raise revenue resulted in lower fiscal deficit and a slowdown in debt accumulation.** Kenya, like most SSA countries, has started to consolidate after expenditure pressures due to COVID-19 (Figure 16). Following the supplementary budget of January 2023 (Figure 13),

**Figure 16: Most SSA countries have started fiscal consolidation following pressures from the pandemic**



Source: National Treasury and World Bank staff calculations  
Note: Kenya data on fiscal year basis, other countries on calendar year basis

**Figure 15: Overall public debt remains sustainable, however, risks persist**

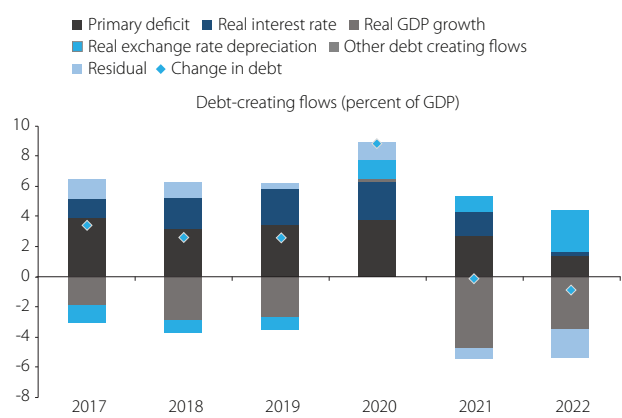


Source: World Bank Staff calculations based on National Treasury data

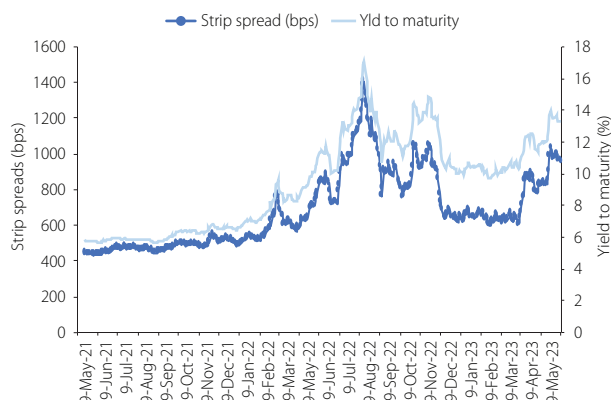
the revised fiscal deficit for FY2022/23 is estimated at 5.7 percent of GDP, lower than 6.2 percent budgeted earlier. A narrowing fiscal deficit has reduced financing needs, helped reduce the primary deficit, and slow debt accumulation; with the stock of public debt increasing by 11.8 percent in the first nine months of FY2022/23, compared to a 14.5 percent expansion in the same period in FY 2021/22. However, the exchange rate depreciation has contributed to debt accumulation in the last three years (Figure 17). Total debt is estimated to reduce by 2.6 percentage points to 64.8 percent of GDP by June 2023.

**Overall public debt remains sustainable; however, risks persist.** With about half being external debt (estimated at 32.2 percent of GDP in FY2022/23), exposure to foreign currency risk remains high. The decline in commercial loans (suppliers' credit, commercial banks, Eurobonds) in the recent five years – from 35.2 percent of total external debt in March 2019 to 27.1 percent in March 2023 – has contributed to accumulation of relatively less costly and

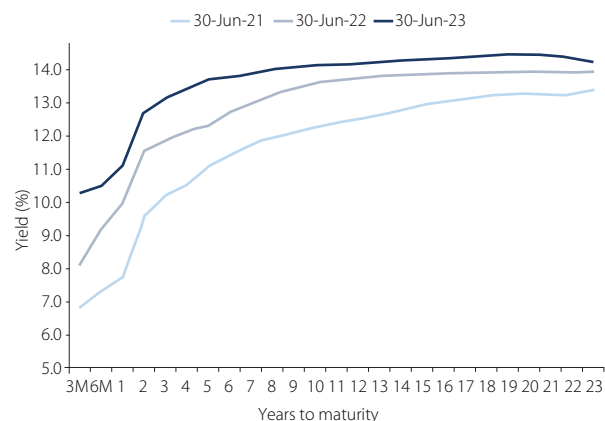
**Figure 17: Exchange rate depreciation has contributed to change in debt stock**



Source: IMF/World Bank staff calculations

**Figure 18: Kenya's Eurobond yields have been rising as international financial markets remain tight**

Source: JPMorgan

**Figure 19: The yield curve has shifted upwards in the context of recent inflationary pressures**

Source: Central Bank of Kenya

**Table 2: Kenya - Fiscal operations (percent of GDP)**

	2020/21	2021/22	2022/23		
	Actual	Preliminary	Estimate	Supplementary I	First nine months
Total revenue and grants	16.1	17.5	17.8	17.6	11.7
Tax revenue	12.6	13.9	14.4	14.0	9.3
Income tax	6.1	6.9	7.1	6.9	4.4
VAT	3.6	4.1	4.2	4.0	2.8
Import duty	1.0	0.9	1.0	1.0	0.7
Excise duty	1.9	2.0	2.1	2.0	1.4
Other revenue	3.2	3.4	3.1	3.4	2.4
Grants	0.3	0.2	0.2	0.2	0.1
Expenditure and net lending	24.2	23.8	24.0	23.4	15.2
Recurrent	15.8	16.8	16.2	16.2	11.5
Wages and salaries	4.3	4.1	3.8	3.7	2.9
Interest payments	4.4	4.5	4.9	4.7	3.2
Pensions	1.0	1.0	1.1	1.0	0.6
Development	4.9	4.2	4.8	4.2	2.2
Transfer to counties	3.5	2.8	2.9	3.0	1.5
Primary balance	-3.8	-1.8	-1.3	-1.1	0.5
Deficit including grants (cash basis)	-8.2	-6.3	-6.2	-5.7	-2.7
Discrepancy	-0.2	0.3	0.0	0.0	0.2
Financing	8.4	5.9	6.2	5.7	2.5
External	2.8	1.1	2.0	2.7	0.6
Domestic	5.5	4.8	4.2	3.0	2.0
Debt, gross	67.7	67.4	67.4	64.8	64.7
External	35.2	33.7	32.6	32.3	33.4
Domestic	32.5	33.7	34.8	32.5	31.3

Source: The National Treasury



long maturity concessional debt. However, the upcoming bullet payment of previous commercial loans (Eurobond repayment due in 2024) has created a surge in refinancing risks as the cost of borrowing in the external financial market rises (Figure 18). On the domestic debt side, treasury bonds account for a large share of domestic debt (about 82.9 percent in March 2023). In addition, short

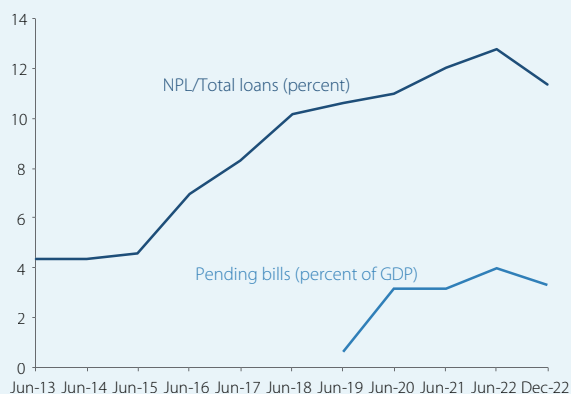
term securities have declined in favor of longer maturity securities (average years to maturity increased from 4.7 in March 2019 to 8.7 in March 2023), therefore reducing the rollover risk. However, average domestic interest rates remain higher than historical averages, in the context of tightening of monetary policy given the recent surge in inflationary pressures (Figure 19)

**Box 2: Status of pending bills in Kenya<sup>17</sup>**

**Pending bills in Kenya have increased in the last four years.** Pending bills by the national government increased from KSh 64.7 billion (0.7 percent of GDP) in 2018/19 to KSh 504.7 billion (4.0 percent of GDP) in FY2021/22. As at the end of the first half of FY2022/23, pending bill moderated to KSh 481 billion (3.3 percent of GDP). A large share of pending bills is from State corporations (about 80 percent) compared to ministries and state departments. Regarding the composition, the largest share of pending bills constitutes payments owed to contractors/projects suppliers (around 70 percent). Most pending bills are due to challenges in cash management, and non-adherence to PFM systems including delayed payments, lack of commitment controls, and unrealistic budgets. However, studies have shown that delayed payments or arrears are a result of weaknesses at various stages of expenditure cycle (IMF, 2019). In 2020, Kenya's pending bills were somewhat below SSA average for arrears (Figure B2.2), but still higher than peers (Nigeria, Uganda, and Cote d'Ivoire).

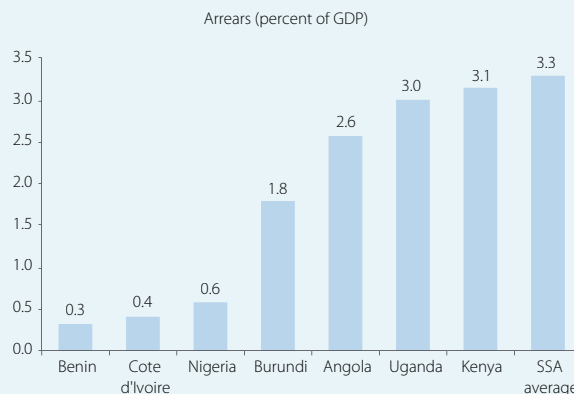
**Large and persistent arrears or pending bills adversely impact the economy.** Arrears limit flow of funds to private sector, thereby constraining business activities, increasing unemployment, and reducing growth. Arrears also are associated with increased non-performing loans, lack of trust in fiscal policy, and fiscal stress (IMF, 2019; World Bank, 2019). Pending bills in Kenya and non-performing loans have been trending in the same direction for the last two years (Figure B2.1). Persistent large pending bills undermines the credibility of reported low fiscal deficits. Furthermore, countries with a higher level of public debt and a weaker Debt Sustainability Analysis (DSA) risk rating tend to have more arrears (IMF, 2019).

**Figure B2.1: Large pending bills are associated with financial sector vulnerabilities**



Source: National Treasury, Central Bank of Kenya, and World Bank staff calculations

**Figure B2.2: Kenya's pending bills are higher than peers**



Note: Kenya (June 2020), Uganda (June 2020), Angola (March 2020), Benin (December 2020), Burundi (June 2020), Cameroon (November 2020), Cote d'Ivoire (June 2020), Nigeria (December 2020), SSA (2018). All other countries pending bills are classified as arrears except Kenya  
Source: IMF SSA Regional Outlook 2019; Government of Uganda, Ministry of finance, planning and economic development (2021); and World Bank (2021)

**The government has consistently prioritized prioritization of pending bills at the beginning of every fiscal year, however, there remains need for complete clearance once for all and adherence to PFM measures to prevent re-accumulation.** For clearance, key steps include stocktaking, verification, prioritization, and liquidation (IMF, 2014). Kenya has made a lot of progress on the first three steps, more emphasis on liquidation could consider various approaches including scheduled payments, amid government's constrained liquidity and other emerging fiscal pressures. On prevention, in addition to adherence to PFM rules, government could enhance oversight of state corporations, given that state corporations account for a large share of Kenya's pending bills, and improve cash management to avoid late payments at the end of fiscal year.

<sup>17</sup> Arrears: financial obligations that have been incurred by any level of public sector for which payments have not been made by the due date (IMF, 2014).

## 2. Outlook and Risks

### 2.1. Kenya's growth prospects are bright, subject to effective implementation of critical reforms

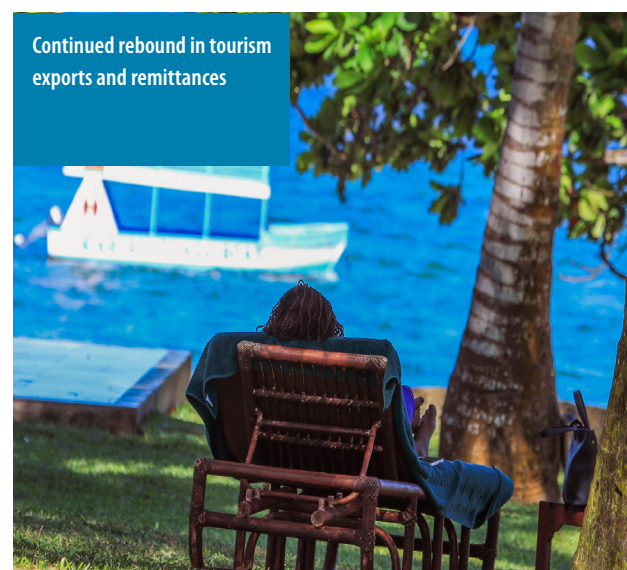
Kenya's medium-term growth remains bright as the economy recovers from the polycrisis. Real GDP is anticipated to rise to 5.0 percent in 2023 and 5.2 percent on average in 2024-25 (Table 3). This near-term growth forecast is above Kenya's estimated potential GDP growth rate of 4.9 percent<sup>18</sup> and the pre-pandemic average (2010-2019) of 5.0 percent. Real per capita incomes are expected to grow, increasing from 2.8 percent in 2022 to 3.1 percent in the medium term and poverty is expected to resume its pre-pandemic downward trend. Strong GDP growth in the medium term is underpinned by easing in the cost-of-living pressures – driven by a recovery in agriculture following improved rains and a decline in global commodity prices – and robust private investment. Even so, the economic outlook assumes a slowdown in public investment reflecting ongoing fiscal consolidation, higher electricity tariffs that are expected to keep energy prices elevated and increase the cost of production for small businesses, as well as tight monetary policy that is expected to moderate inflationary pressures.

**Strong reform effort and easing of global commodity prices are expected to boost confidence and support robust domestic demand in the near term.** A strong multi-year fiscal consolidation program is expected to lower domestic financing needs of the government, expanding available funds with the banking sector for lending to the private sector. This is also expected to contain medium-term debt vulnerabilities and improve investors' confidence, leading to robust private investment and GDP growth in the medium term. While a tight monetary policy will push up interest rates, real lending rates are expected to remain below historical levels, supporting private sector credit growth. The financial inclusion fund is also expected to net in an otherwise excluded segment of the population in the credit market opening up private sector led growth opportunities. Private consumption is expected to remain on a robust growth path, although it will be dampened in the near term by (i) ongoing tax reforms to boost revenue and sustain fiscal consolidation, (ii) tight monetary policy and inflationary pressures, and (iii) higher electricity

tariffs. Mitigating factors include projected robust growth of<sup>19</sup> remittance inflows, softening of global prices that is expected to reduce prices for food imports, and recovery in agricultural production following improved harvest.

**The government's medium-term fiscal framework targets significant fiscal consolidation.** A projected positive primary balance from FY2023/24 is expected to continue reducing the pace of debt accumulation. This fiscal consolidation will be achieved through cutback in government spending, mainly recurrent spending declining as a share of GDP by 1.4 percentage points during 2024-25. The ongoing rationalization of non-priority spending is expected to continue in the medium term, while containing rapid growth of development spending by further focusing on completion of ongoing capital projects, projects with donor counterpart funds, and projects with strategic policy interventions—including those covering the entire nation, regional integration, equity, and environment conservation. Ongoing tax policy and administration reforms are expected to increase revenue as a share of GDP by 0.4 percentage points in FY2024/25.

**The continued rebound in tourism exports and remittances, along with a stabilization of commodity prices, will maintain a low current account deficit in a range of 5.0 to 5.5 percent of GDP.** Continued robust growth of merchandise exports is expected to be



<sup>18</sup> World Bank. *Upcoming CEM*.

<sup>19</sup> World Bank. 2022. *Remittances brave global headwinds, Migration and Development Brief 37, November 2022*.

supported by exports of tea, while the projected economic rebound of regional trading partners will support exports of manufactured products. As the projected decline in global oil price continues to stabilize oil imports, projected robust domestic demand sustained by private investment, will sustain imports of raw materials, machinery and equipment for private construction, and household consumption. Capital outflows are also projected to persist as weighed down by the ongoing and lagged effect of the global monetary policy tightening. With government's commitment to stay on a fiscal consolidation path, external borrowing from government is projected to decline supported by the government's efforts to expand the tax base for additional revenue and rationalization of expenditure. The external financing needs are expected to largely be financed by equity inflows and FDI as the government woos investors by providing an environment of fiscal policy predictability<sup>20</sup>. As a result, foreign reserves coverage is projected to improve over the medium term.

**On the supply side, growth will be supported by a recovery in agriculture and resilience in services.**

Agriculture, electricity, and water supply sectors are expected to benefit from an end to the prolonged drought with moderate to heavy rains in most parts of the country during the ongoing long rains season. Contact-intensive services activities including education, hotels and accommodation, and transport are expected to strengthen as the economy continues to benefit from post-covid environment of low infections and ease of travel restrictions. Although small-scale manufacturing production will likely be hit by high electricity tariffs, food processing is expected to rebound, supported by improved availability of raw material following a recovery in agriculture and a decline in global commodity prices.

**Inflation is expected to peak in 2023.** Average consumer price inflation is estimated to rise to 7.8 percent in 2023 from 7.6 percent a year earlier, remaining above the central bank target band. The increase in prices is driven by exchange rate passthrough to domestic prices as well

as direct and second round effects of increases in fuel and electricity tariffs. However, the anticipated decline in global commodity prices and improved agricultural harvest should alleviate inflationary pressures in the second half of 2023. In addition, the government's ongoing fertilizer subsidy program is anticipated to continue containing the cost of production. Inflation is expected to decline to 5.7 percent in 2024-25, leading to a loose monetary policy in the medium term.

## 2.2. The economy faces multiple downside risks

**However, downside risks remain substantial, and Kenya's growth could be lower in the medium term in the event they materialize.** On the domestic side, below average short rains would worsen inflationary pressures and food insecurity. Growth could be lower than anticipated due to economic disruptions from political uncertainties that could constrain activities of the contact-intensive services including education, hotels and accommodation, and transport. Furthermore, political tensions could lead to unexpected fiscal expansion (due to failure to achieve the projected fiscal consolidation), aggravating debt vulnerabilities and crowding out private investments. Further increase in the policy rate by the CBK due to unanticipated shocks to commodity or financial markets would push up cost of domestic borrowing, weaken credit expansion, and thus jeopardize the projected growth trajectory.

**Weaker global demand due to geopolitical risks could hurt Kenya through lower net exports and lower foreign investment.** A larger than projected slowdown in advanced economies, including the US and Europe, could undercut ongoing recovery in tourism, merchandise exports and remittances. An unexpectedly tighter monetary policy by major central banks could lead to increased capital outflows and shilling depreciation, further fueling domestic inflation. Upside risks are mostly linked to early easing of global financing conditions and lower international fuel and food prices, which would strengthen Kenya's external balances.

<sup>20</sup> Upcoming CEM.



**Table 3: Kenya's medium term growth projections** (percent unless otherwise indicated)

	2020	2021	2022	2023 f	2024 f	2025 f
<b>Real GDP growth, at constant market prices</b>	-0.3	7.6	4.8	5.0	5.2	5.3
Private consumption	-1.5	6.2	3.1	5.3	5.2	5.4
Government consumption	3.1	6.0	7.4	3.5	3.0	2.9
Gross fixed capital investment	2.3	10.8	-1.1	7.7	9.2	9.5
Exports, goods and services	-14.9	15.3	10.7	7.4	7.8	7.6
Imports, goods and services	-9.4	22.2	4.5	7.3	7.3	8.1
<b>Real GDP growth, at constant factor prices</b>	0.4	7.1	4.6	5.0	5.2	5.3
Agriculture	4.6	-0.4	-1.6	3.8	4.2	4.2
Industry	3.3	7.5	3.9	4.9	5.1	5.3
Services	-1.8	9.6	6.7	5.4	5.6	5.6
<b>Inflation (consumer price index)</b>	5.3	6.1	7.6	7.8	5.8	5.5
<b>Current account balance (% of GDP)</b>	-4.8	-5.2	-5.1	-5.0	-5.5	-5.5
<b>Net foreign direct investment inflow (% of GDP)</b>	0.5	0.0	0.5	0.8	0.9	0.9
<b>Fiscal balance (% of GDP)/1</b>	-7.0	-8.2	-6.3	-5.7	-4.4	-3.9
<b>Revenues (% of GDP)/1</b>	17.1	16.1	17.5	17.6	18.1	18.0
<b>Debt (% of GDP)/1</b>	63.0	67.7	67.4	64.8	62.2	59.7
<b>Primary balance (% of GDP)/1</b>	-2.8	-3.8	-1.8	-1.2	0.2	0.6

Note: /1 – Fiscal year basis, 2020 corresponds to 2019/20. f denotes pojections  
Source: The National Treasury, Central Bank of Kenya & World Bank staff calculations



# SPECIAL FOCUS



### 3. Opportunities for Kenya in a Decarbonizing World<sup>21</sup>

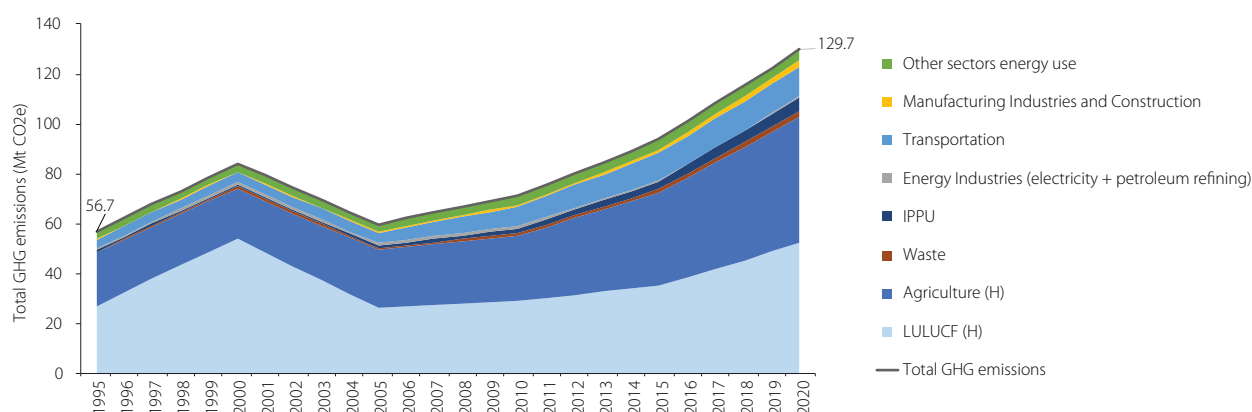
While climate change is a recognized threat to Kenya's economy, global efforts to reduce green-house gas (GHG) emissions could present opportunities for the country. Countries' efforts to lower GHG emissions and meet NDC commitments are resulting in reconfiguration of global supply chains, creating opportunities in new and "green" markets, and generating a growing appetite for carbon credits that can be transferred internationally and used towards meeting countries' NDCs or other compliance uses. If Kenya maintains a low-carbon development path as it grows, it could seize opportunities created by the global trend to decarbonize economies. In Kenya, climate-positive investments and policies can contribute to growth, reduce operating costs, increase revenue for private sector, create domestic green jobs, and generate social co-benefits, while also helping improve Kenya's trade balance and foreign exchange stability and lowering the country's exposure to fuel price shocks and supply chain disruptions.

Estimates of Kenya's carbon intensity is lower than that of many other countries in sub-Saharan Africa and has been relatively constant between 2010 and 2019. There are various explanations for this including the underdeveloped nature of Kenya's industrial sector and also the investment made by the Government of Kenya to increase the share of renewables in the country's power matrix. GHG emissions in the country, however, have been growing with agriculture as the leading source of emissions (40 percent), followed by land use and land use change and forests (33 percent), transport (11 percent), energy

(excluding transport) (7 percent), industrial processes (4 percent), waste (3 percent) and electricity (1 percent) (Figure 20). Emissions are currently not a concern for Kenya's economy (being 0.1 percent of global emissions annually).

As the European Union (EU) and the United States strengthen existing and new measures to lower carbon emission this will have consequences for exports to these countries. The introduction of policy measures like the European Union (EU) package "Fit for 55," which aims for more ambitious EU-wide climate mitigation, and the Carbon Border Adjustment Mechanisms (CBAM) are part of this trend. Currently few of Kenya's exports are subject to the CBAM.<sup>22</sup> There is the possibility of an expanded CBAM that might include all products in the EU ETS, making it important for GoK to monitor developments under these efforts. In addition, the European Commission (EC), has proposed ambitious new regulation<sup>23</sup> aiming to stop deforestation and forest degradation driven by markets in the European Union (EU), improve sustainable sourcing practices and increase transparency in value chains of global commodities. Once approved, importers will have approximately 18 months to implement the new rules. This regulation covers commodities such as cattle, cocoa, coffee, palm oil, soya, timber, rubber, and their derived products (e.g., beef, leather, chocolate, furniture, printed paper). Importers and exporters of the listed commodities in the EU will need to undertake a due diligence process that confirms their products are not

Figure 20: Total GHG emissions using data from Kenya NIR



<sup>21</sup> This material for this special focus topic draws heavily on work that was done for the Kenya Country Climate and Development Report (CCDR) (forthcoming). Further details on some of the points raised in this section will be available once the CCDR is published.

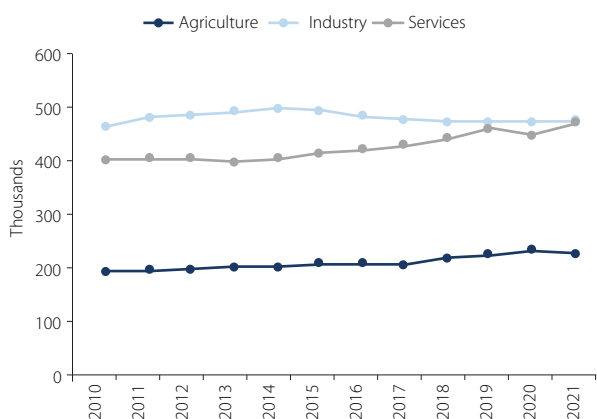
<sup>22</sup> At the time of drafting this report, CBAM covered products such as cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen.

<sup>23</sup> Complete text can be found here: [https://environment.ec.europa.eu/document/download/5f1b726e-d7c4-4c51-a75c-3f1ac41eb1f8\\_en?filename=COM\\_2021\\_706\\_1\\_EN\\_ACT\\_part1\\_v6.pdf](https://environment.ec.europa.eu/document/download/5f1b726e-d7c4-4c51-a75c-3f1ac41eb1f8_en?filename=COM_2021_706_1_EN_ACT_part1_v6.pdf)

contributing to deforestation. It is also expected that cross-border regulations and standards with a focus on logistics footprints will be implemented in the near future. The impact of these regulations will have broad consequences across international markets because of the importance of the EU as an importer.

**Maintaining a low-carbon development path does not have to be at the expense to Kenya’s efforts to accelerate growth if the path is aligned with boosting productivity and support inclusive development.** While the most rapid way to boost productivity is to increase value added in the industry and services sectors (Figure 21), Kenya’s largest goods exports are low in complexity (as they are mostly agriculture and minerals). Export dynamism in Kenya has been driven by the services sector, including tourism and ICT. In this context, for a low-carbon pathway to contribute to growth, in the short- and medium-term, it will need to contribute to boosting the competitiveness of existing export commodities<sup>24</sup>, creating formal jobs and improving productivity, and generating valuable social co-benefits. Efforts to maintain a low carbon development pathway will need to also leverage carbon markets generating much needed financing for additional climate action.

**Figure 21: Value added per worker by sector by year**



Source: World Bank Staff calculations

**Maintaining a low-carbon growth path will require a multifaceted approach.** In this Special Issue of the Kenya Economic Update, we focus on a few key areas of intervention that can enable low-carbon growth in Kenya because of their contribution to increasing efficiency, productivity and the country’s socioeconomic mobility agenda. These areas are expanding renewable energy, greening transport and logistics operations (freight

transportation, supply chains, and urban mobility) and expanding engagement in carbon markets. Each of these are described in the subsections below.

### 3.1. Kenya can respond to the growing energy demand for industry and services with 100 percent clean energy generation

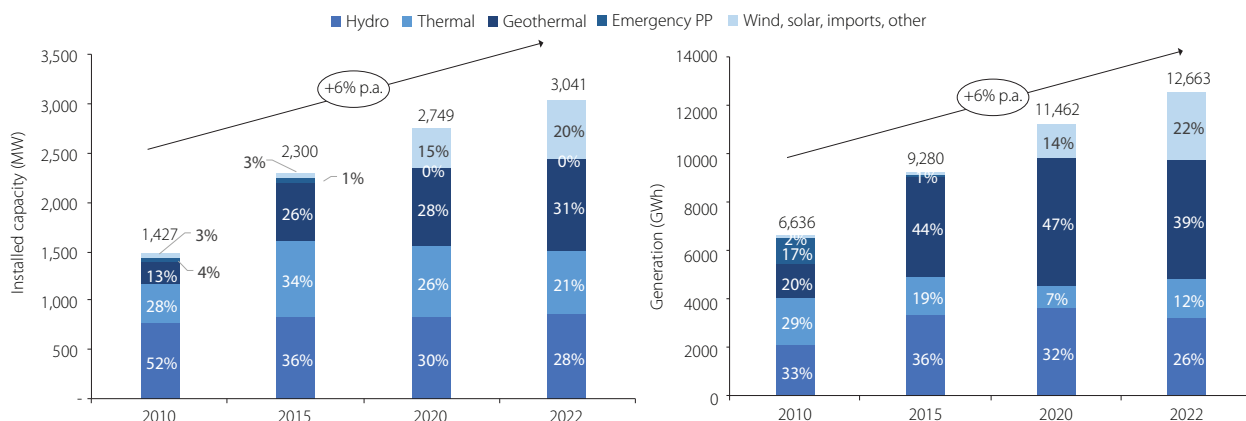
Kenya has achieved remarkable success in developing a well-diversified power generation mix, with about 90 percent of electricity being generated from clean sources with geothermal (48 percent), hydro (33 percent), and wind (12 percent). Kenya is well on its way to achieve a fully green grid by 2030. Installed power generation capacity currently stands at 3,121MW compared to peak demand of 2,128 MW. About 30 percent of installed generation capacity is owned and operated by Independent Power Producers (IPPs), which have mobilized at least US\$2.5 billion in private capital. Fossil fuel-based generation (thermal capacity) has been declining from about a third of the installed capacity (contributing to about 20 percent of generation in 2015) to about a fifth of the installed capacity and contributing only 10-12 percent of generation. On average, more than 90 percent of current power generation is from renewable energy resources.

**Development of geothermal, wind, and solar power generation has enhanced energy security and significantly reduced the weather-induced supply shortages typical in systems with a large share of hydro.** Kenya has more than quadrupled its geothermal capacity from 198MW in 2010 to 950MW today, and is seventh, globally, in terms of power generation from this renewable resource (Figure 22). To promote non-geothermal renewables, the GoK had adopted a feed-in-tariff (FIT) policy in 2008<sup>25</sup>. Kenya is now also connected to regional hydropower resources with the commissioning of the Kenya-Ethiopia Interconnector, giving impetus to regional energy trading through the Eastern Africa Power Pool (EAPP). This interconnection gives Kenya access to cheap hydropower resources in the region. As a first of its kind in Sub-Saharan Africa, this interconnection will also become the flagship of power trade in the EAPP region and provide the infrastructure to connect the EAPP to the South African Power Pool (SAPP). At current costs Kenya has a unique opportunity to meet its electricity needs almost entirely from green energy sources and at affordable costs soon.

<sup>24</sup> Tea, flowers, fruits and vegetables, meat products, and unroasted coffee were some of the main exports in 2020 making up 25 percent of total exports. Services, including tourism, is approximately 38 percent of total exports and industry represents 37 percent.

<sup>25</sup> Originally issued in March 2008, the FIT was revised in 2010 and again in 2012. While the 2012 policy offered a tariff of US\$11/kWh for wind (up to 50 MW) and US\$12/kWh for grid-connected solar (up to 40MW), the tariff for the recently negotiated Power Purchase Agreements (PPAs) were in the range of US\$7-8/kWh.

Figure 22: Evolution of Kenya's installed capacity and generation mix

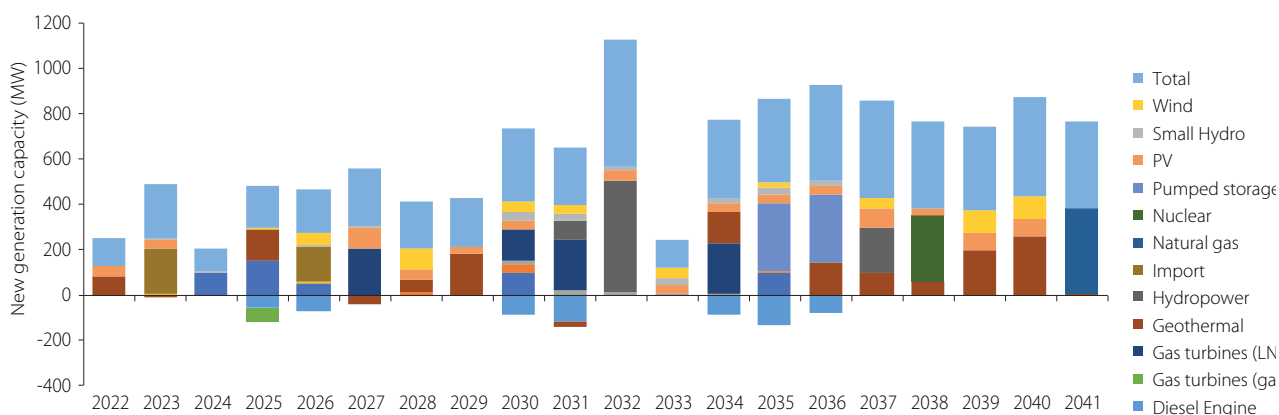


Kenya has a unique opportunity to stay on a low-carbon growth path while meeting its electricity needs entirely from green energy sources. This would also enable Kenya to meet its commitment made in the COP26 World Leaders’ Summit in Glasgow in November 2021 to achieve 100 percent renewable energy supply by 2030. The Government of Kenya (GoK) recently updated the Least Cost Power Development Plan (LCPDP) with realistic demand projections and with a greater focus on a green path for generation expansion. The FiT policy has been restructured to exclude solar and wind and include only small technologies with no significant capacity addition potential (biomass, biogas, small hydro) and a competitive auction framework has been adopted for development of solar and wind in the future.

The GoK’s LCPDP, which determines the power generation projects that will be developed, is based

on an electricity demand growth of 5.22 percent p.a. (reference case, energy purchased). The reference case stipulates maintaining greenhouse gas (GHG) emissions below 160,000 tons per year, mostly from diesel engines up to 2036, and gas turbine and natural gas between 2036 and 2041.<sup>26</sup> Under this scenario, the GOK LCPDP expects (i) diesel generation will be phased out completely by the end of the year 2036 based on the Power Purchase Agreement (PPA) term; (ii) nuclear generation will come online in the year 2038; and (iii) natural gas will come online in the year 2041 (Figure 23). Total effective capacity is expected to increase from 2,919MW in 2021 to 8,870MW in 2041 (Figure 24). The average Levelized Cost of Electricity (LCOE) during the planning period is estimated at US\$ 9.22/kWh. Reduction in GHG emission is driven by adoption of geothermal, hydropower and pumped hydro storage, in the reference scenario.

Figure 23: GoK LCPDP new generation capacity (MW) under reference scenario



Source: Kenya National Bureau of Statistics and World Bank staff calculations

<sup>26</sup> The latest update of the LCPDP for the period 2022 to 2041 is based on four scenarios relative to the current peak demand of 2,036MW – low, reference, vision, and vision 2 - each with planning generation based on a specific assumption of average growth in electricity demand over the implementation period. The low scenario anticipates electricity sales to grow at 4.99% per annum (p.a), while the reference and vision scenarios show annual growth at 5.67% and 8.24% p.a respectively. Under the vision scenario where the flagship development projects materialize, demand is expected to grow to 57,489GWh by 2041. Lastly, the vision 2 scenario forecasts electricity demand growth at 8.72% p.a.



An extended LCPDP, performed for the Kenya CCDR, reveals that it is possible for Kenya’s electricity sector to become 100 percent green by the year 2030, with all fossil fuel-powered plants retired by the year 2029.<sup>27</sup>

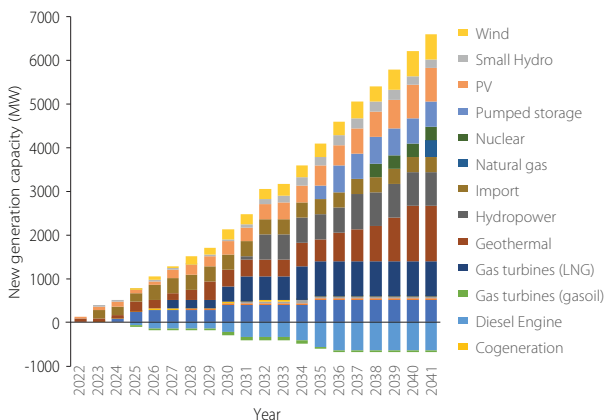
The extended LCPDP was developed by reviewing the Government of Kenya’s Least Cost Power Development Plan for the period 2022 to 2041 (GOK LCPDP), developing a LCPDP beyond to cover the time horizon 2022 to 2050. The extended LCPDP considers four scenarios. The NP and NZ2030 scenarios build on the low demand trajectories from the GOK LCPDP. The Vision2030 scenarios build on the vision demand from the GOK LCPDP, based on average electricity demand growth of 8percent per year between 2022 and 2041, and average 5percent per year thereafter. Different emissions trajectories were considered. NZ2030 and Vision2030 achieve a 100 percent decarbonized grid by 2030. The NP scenario and the Vision2030 (No Emission Constraint) impose no emission constraints. The low demand scenario is the trajectory most closely aligned with assumptions and GDP projections used for the upcoming Kenya CCDR (BAU trajectory). The Extended LCPDP shows consistently across scenarios that (i) new capacity, consists mainly of geothermal in the near and medium term and, from the mid-2030s, mostly of solar, wind and battery storage, along with hydro; (ii) there is also a progressive increase in utilization of import capacity; (iii) fossil plants are progressively retired until 2029; (iv) renewables contribute more than 95 percent to the generation mix in 2050. The preliminary outputs of the extended LCPDP are a departure from the GOK LCPDP which expects to generate

electricity using diesel generators up to the mid-2030s, and natural gas up to the year 2041. The extended LCPDP brings forward transition from diesel by 5 years and delays the inclusion of natural gas beyond the year 2041.

**Investment requirements for deep decarbonization significantly depend on the underlying electricity demand growth projection.** Achieving a green grid by 2030 comes at almost no additional cost to the power system under low demand projections. Cumulative upfront investment costs to achieve a 100 percent green grid by 2030 under a vision demand more than double compared to a scenario with no emissions constraint. Lower fossil fuel costs however almost fully offset higher investment costs.

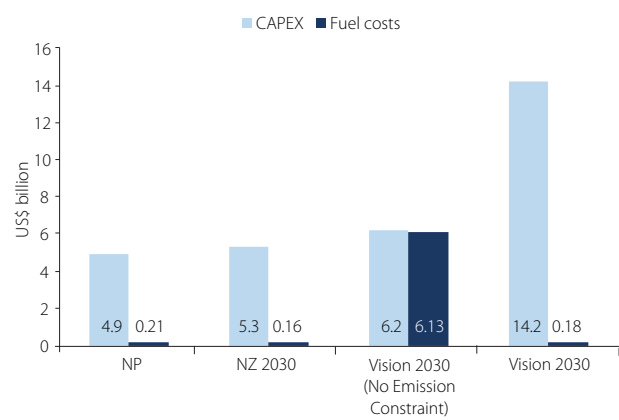
**The share of capital expenditures in system costs increases in all decarbonization scenarios, while the share of fuel costs decreases as variable renewable energy sources and batteries dominate the capacity and generation mix (Figure 25 and Figure 26).** Average generation costs decrease in all scenarios over time. The extended LCPDP therefore establishes that 100 percent clean energy generation is potentially attainable for Kenya, in the near-term horizon of 2030. The LCPDP and the extended LCPDP both envision expansion of geothermal generation, with the former considering 1,995MW of geothermal capacity under its list of candidate projects and the latter scaling up solar photovoltaic (PV) generation alongside geothermal.

**Figure 24: GoK LCPDP cumulative generation capacity (MW) under reference scenario**



Source: Kenya National Bureau of Statistics and World Bank staff calculations

**Figure 25: Cumulative upfront investment and fuel costs, discounted (2022-2050)**

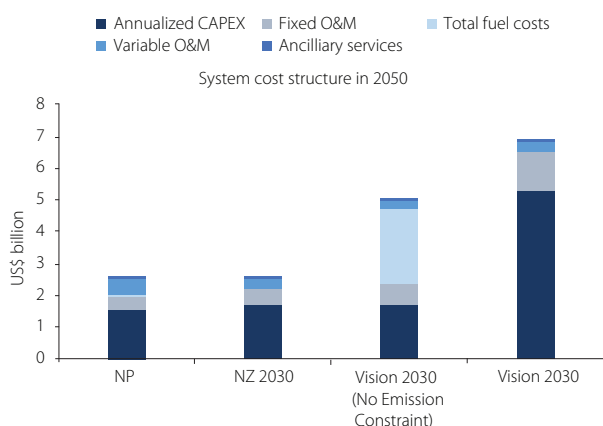


Source: Kenya National Bureau of Statistics and World Bank staff calculations

<sup>27</sup> EPM was used to model an economic least-cost power system plan to meet projected demand. Existing and planned power plants are based on the LCPDP 2022 - 2041 Sector Report, the Least Cost Power Development Plan 2021 – 2030, One Year Power Development Plan 2021 – 2022 and Development of a Power Generation and Transmission Master Plan, Kenya 2016. The analysis also confirmed that the list of power plants was in line with the list of plants being dispatched by checking the individual status of each existing plant.



Figure 26: System Costs (US\$ billion) in 2050



Source: Kenya National Bureau of Statistics and World Bank staff calculations

### 3.2. Lowering the carbon footprint of logistics in Kenya’s value chains could contribute to productivity gains

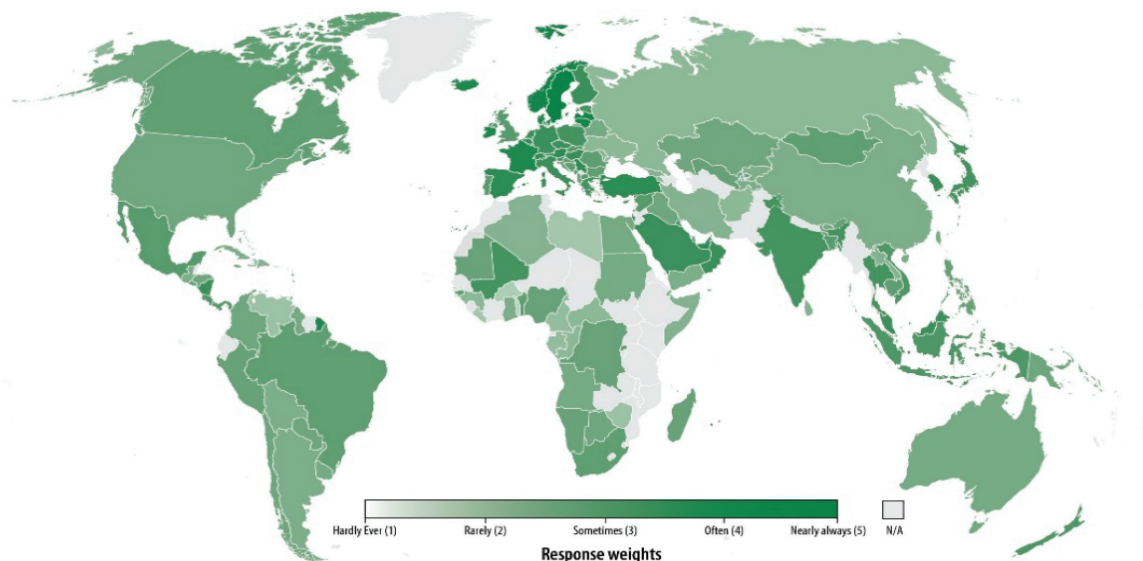
Lowering the carbon footprint of transport and logistics operations can reduce trade and transport costs while enhancing the competitiveness of both domestic and export-oriented industries. Decarbonizing transport and developing sustainable supply chain management and logistics is crucial if Kenya is to maintain low-carbon growth. Such decarbonization, however, can be aligned with the country’s development priorities as well as those of emerging/advanced economies. Such a system, characterized by a low carbon footprint and reduced trade costs, is expected to enhance trade and commerce by meeting the increasing demand from destination markets for environmentally compliant products.

Globally, freight transportation and logistics contribute 8-10 percent of GHG emissions, out of which approximately 15-20 percent are contributed by warehouses, terminals, and gateways. Kenya’s situation is comparable with GHG emissions from the sector accounting for 11 percent. At the same time, green logistics and sustainable supply chain management practices are gaining ground, largely driven by advanced economies in Europe, but also emerging economies (India, Turkey, ASEAN), as suggested by the recently published LPI survey 2023 (April 2023). As more companies are setting standards for their suppliers and contractors, Kenya will need to increase transparency about the logistics footprint of its trade.

In Kenya, where over 80 percent of traffic and 76 percent of freight relies on trucks and motor vehicles, the heavy dependence on road transport and fossil fuel-powered vehicles for domestic and international freight movements has negative environmental consequences, including air pollutants and GHG emissions. In 2019, the total domestic transport sector emissions, excluding waterborne navigation, reached 12.343 MtCO<sub>2e</sub>, representing a significant increase from 2010. The road subsector accounted for 98 percent of sector emissions (12.09 MtCO<sub>2e</sub>), while rail and aviation subsectors contributed 1 percent (0.062 MtCO<sub>2e</sub>) and 2 percent (0.188 MtCO<sub>2e</sub>) respectively. Projections indicate that road transport emissions are expected to increase by 380 percent between 2015 and 2050, with heavy goods vehicles

Figure 27: Results from the LPI survey question on demand for environmentally sustainable shipping options

How often do shippers ask for environmentally friendly options (e.g. in view of emission levels, choices of routes, vehicle, schedules, etc.) when shipping to...



IBRD 47157 | APRIL 2023

playing a major role. Although passenger cars account for the majority of mileage driven, trucks contribute the most to emissions. Accelerating the transition to low-carbon transportation is crucial for addressing these challenges in the sector.

### 3.3. Rising energy demand in the transport sector and trade deficit

The rise in GDP per capita in Kenya has led to increased energy demand in the transport sector, mainly from fossil fuels, resulting in higher GHG emissions. Freight and passenger movements are the primary consumer of petroleum fuel in Kenya, accounting for a significant portion of emissions. The transport sector's fuel consumption has been rapidly growing and is projected to continue increasing without intervention. Road transport consumes about 85 percent of petroleum fuel, while the aviation sector accounts for approximately 15 percent. The introduction of freight rail services has also led to an increase in fuel consumption in the rail sector.

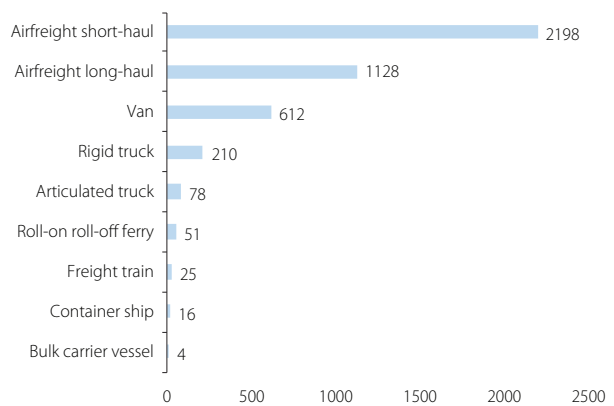
Addressing the energy demand and reducing fossil fuel consumption in Kenya can help tackle both the country's trade deficit and environmental concerns. Petroleum products, which are major imports for transportation, industry, and residential energy, contribute to the trade imbalance. In 2021 alone, Kenya spent US\$3 billion on importing 6.4 million tonnes of petroleum fuels. The transport sector, especially road transport, presents opportunities to reduce imported fuel consumption through energy efficiency measures and fuel substitution, considering that internal combustion engines play a significant role in energy consumption in this sector.

#### 3.3.1 Reducing the energy intensity of vehicles and operations would benefit the economy and comply with Kenya's climate commitments

Sustainable supply chain management and logistics practices play a crucial role in helping Kenya fulfill its climate commitments, while also driving productivity gains and enhancing competitiveness in the global market. Shifting from one mode of transport to another, for example from trucks to rail, can help reduce emissions.<sup>28</sup> This comes however with a tradeoff. Lower emission modes are usually slower, less reliable, and require multimodal transfers, which could affect the reliability and timeliness of the supply chain. The Kenyan government has started initiatives with the aim to decarbonize freight

transportation. In its National Climate Change Action Plan (NCCAP), various low-carbon measures and actions are outlined, including improving the efficiency of heavy-duty vehicles, shifting containerized freight from road to rail, electrifying the Mombasa-Nairobi Standard Gauge Railway (SGR), adopting low-carbon technologies in aviation and maritime sectors, implementing the Bus Rapid Transit system in the Nairobi metropolitan area and conducting pilot projects on electric vehicles (the latter two are discussed below).

**Figure 28: Comparing emissions by mode of transportation**  
(gCO<sub>2</sub>/tonne-km)



Source: Alan McKinnon, 2018

To remain competitive in existing value chains and foster future comparative advantages, the government has yet to embrace further actions and create incentives to change supply chain strategies and management by economic operators (such as manufacturers, wholesalers, and third-fourth party logistics providers). Several initiatives, of great importance to Kenya are emerging worldwide to promote sustainable supply chain management and logistics. Leading the way in this effort are large international firms, which are adopting sustainable practices and at the same time, setting standards for their suppliers and contractors. For example, to maximize the benefits of environmental sustainability and at the same time increase efficiency in supply chain strategies and management, the government of Kenya needs to develop a holistic program of incentives and finance. In anticipation of emerging trends, this could include promoting green logistics regulations and standards, and implementing digital solutions for efficiency gains that enable modal shift. Shifting to more efficient modes of freight transportation requires new practices for inventory and tracking to account for slower speeds, and reliability. Another step in this direction is the calculation and reporting of emissions.

<sup>28</sup> Emissions, measured in tons per km, differ by a factor greater than 500, from air freight to large containerized maritime shipping

An increasing number of companies are adopting the Global Logistics Emissions Council (GLEC)<sup>29</sup> framework methodology, for example in order to increase transparency regarding the climate impacts of their logistics operations.

### 3.3.2 Replacing fossil fuels with alternative, sustainable energy sources can lower emissions from transport

Fully eliminating GHG emissions from transport and logistics in Kenya, as elsewhere would require large scale conversions to green fuels. The Kenyan Government is taking steps to develop a renewable fuels strategy aimed at achieving full elimination of GHG emissions from transport and logistics. The strategy focuses on road transportation and the aviation sector, with key elements including regulations for minimum biofuels content, programs supporting farmer participation, production incentives, support for ethanol from the sugar industry, and initiatives for next-generation technologies. While biofuels have been blended with petroleum for some time, it is important to explore the viability and development of other alternative fuels (such as natural gas and hydrogen) and technologies (like batteries and fuel cells) in the context of Kenya. The Ministry of Energy and Petroleum has also established a Green Hydrogen Working Group and conducted a baseline study on the potential for green hydrogen in Kenya, which includes application in urban transport and port logistics. Factors such as technical readiness, infrastructure readiness, economic viability, and environmental impacts need to be carefully studied to determine further development in this area.

**Fiscal and economic measures play a crucial role in driving changes in the transport sector.** Kenya is considering proposals to modify transport fuel tax rates, especially in combination with carbon taxes, to encourage fuel-use comparisons with the growth of vehicle miles traveled. Carbon pricing mechanisms offer additional incentives to reduce GHG emissions. Kenya is voluntarily participating in the carbon offsetting and reduction scheme for international aviation (CORSIA) during its pilot phase (20121-2023). Recognizing the significance of aviation for passenger and especially freight movements, the Kenya Civil Aviation Authority has developed an Action Plan to reduce CO2 emissions in the sector (2022-2028). However, it is important to carefully consider the impact of fiscal measures on consumption and across income

groups, implementing gradual programs to offset the effects on low-income households and avoid economic shocks. Various alternative options for reducing fossil fuel consumption are also explored.

### 3.3.3 Increasing the energy efficiency of vehicles and logistics operations can reduce transport emissions

To address Kenya's road transport emissions, measures targeting engine energy efficiency and other factors can have a significant impact, particularly in freight transport. Kenya's National Energy Efficiency and Conservation Strategy includes the implementation of fuel economy standards and labeling for vehicles, focusing on average fuel consumption per mile and CO2 emissions. However, these targets currently apply only to light commercial vehicles, which contribute to 11 percent of total CO2 emissions in the sector. Similar to other middle- and high-income countries, Kenya could establish national standards to limit fuel consumption in new heavy-duty vehicles with diesel and gasoline engines, considering its reliance on imported used vehicles. Additionally, fuel efficiency standards could be set during truck licensing, accompanied by a voluntary program to retire and replace the least fuel-efficient vehicles. Furthermore, the impact of the quality of the road infrastructure is to be considered given its impact on average fuel consumption per distance traveled. For instance, a well-maintained paved road can result in 2-5 percent lower fuel consumption compared to a road in poor condition, and the difference can be as high as 10-20 percent when comparing a gravel road to a sealed, high-quality road.



<sup>29</sup> The GLEC, accredited by the Greenhouse Gas Protocol Framework and led by Smart Freight Centre, is a group of companies, associations and programs, and backed by leading experts and other stakeholders. Its members include well-known companies such as DHL, SNCF, Maersk, TNT, Hapag-Lloyd, & Kuehne + Nagel. Since its inception in 2014, GLEC developed a universal method for calculating logistics emissions across road, rail, air, sea, inland waterways and transshipment centers. The "GLEC Framework for Logistics Emissions Methodologies" combines existing methods into one framework and filled an existing gap.

In Kenya, various initiatives are also being implemented to improve energy efficiency in terminals and logistics facilities, including the aviation sector.<sup>30</sup> The Kenya Airports Authority (KAA) is undertaking several projects such as installing a solar plant and using solar-powered equipment at airports. Additionally, KAA has developed sustainable concessionaire policies to encourage the use of low/zero emission vehicles and equipment. Several airports have also achieved accreditation under the Airport Carbon Accreditation (ACA) Program<sup>31</sup>.

To enhance efficiency in logistics operations, Kenya has the option to mandate complementary measures for logistics service providers, such as optimizing tire superstructures, improving road conditions, and promoting eco-driving practices. In line with the first green freight strategy in Africa developed by the Northern Corridor Transit and Transport Coordination Authority, an eco-driver training program has been launched, alongside other initiatives. These programs have demonstrated the ability to reduce truck fuel consumption by 5-10 percent, particularly when accompanied by driver rewards and bonus schemes that reinforce sustainable behaviors beyond the training period. Studies by Wang and Boggio-Marzet (2018) and AECOM (2016) have highlighted the positive impact of such initiatives. The potential for GHG emissions reduction through eco-driving training is particularly significant in low- and middle-income countries due to more challenging traffic conditions and the prevalence of older truck fleets without onboard driver assistance devices.

### 3.3.4 Logistics optimization through digital platforms can contribute to cleaner transport

Technological advancements and efficient multi-modal planning play a crucial role in achieving cleaner transport and logistics systems. The implementation of Smart Logistics concepts can optimize resource consumption, enhance efficiency, and contribute to sustainability and climate protection. It is important for the Kenyan government to support the development and integration of key technologies such as CPS, IoT, artificial intelligence, 5G networks, and distributed ledger technology. Additionally, measures should be taken to regulate the use of digital platforms in the passenger segment (GIZ, 2020), which includes ride-hailing and combined passenger transportation and delivery services.

The potential of Digital Logistics Platforms (DLPs) has gained significant recognition, particularly in road transport and freight forwarding aimed at increasing load factor through consolidation and reducing empty trips. Not only start-ups but also major logistics service providers, competitors, and customers have established their own platforms. These platforms facilitate the buying and selling of vehicle capacity, capacity sharing, and computerized vehicle routing (CVRS) and scheduling using digital tools. Advanced systems can optimize fuel consumption and reduce CO2 emissions, even if it doesn't necessarily minimize vehicle or ton-kilometers. In Kenya, several logistics companies have emerged, operating similar to public transport models but dealing with large cargo and facing complex logistical challenges. By utilizing DLPs, these companies improve capacity utilization, avoid waste transport, and reduce GHG emissions.

### 3.3.4 Shifting freight to lower carbon transport modes can contribute to Kenya's comparative advantage

Kenya aims to transition its freight logistics while maintaining a low-carbon comparative advantage, as low-carbon logistics are more efficient and competitive. The completion of the Standard Gauge Railway (SGR) and revitalization of other rail lines contribute to this goal. Shifting freight transportation to railways could save over 20,200 MtCO2 emissions for each one million tonnes of freight. Currently, only a small percentage of imports and exports are transported by rail, indicating room for intermodal growth. The SGR connects the port of Mombasa with inland container depots, facilitating the movement of millions of tonnes of freight. However, feeder lines to export and industrial zones are lacking, requiring trucks for last-mile delivery. Transitioning more freight to the SGR would significantly reduce CO2 emissions compared to road transport.

Electrifying the Standard Gauge Railway (SGR) instead of using diesel trains, could reduce emissions in the subsector by approximately half. Complete electrification of the SGR is estimated to result in annual emissions savings of over 53,000 MtCO2e, with the majority of the savings coming from the freight rail sector.<sup>32</sup> However, the impact of these emissions is expected to be significantly lower compared to the long-term emissions savings. With a traffic volume of nearly 6 million tonnes in 2021, the SGR is becoming economically viable for investment in

<sup>30</sup> [https://www.icao.int/environmental-protection/Documents/ActionPlan/22.09.2022\\_Final%20Aviation%20Environmental%20Action%20Plan%202022-2028\\_signed.pdf](https://www.icao.int/environmental-protection/Documents/ActionPlan/22.09.2022_Final%20Aviation%20Environmental%20Action%20Plan%202022-2028_signed.pdf)

<sup>31</sup> <https://www.airportcarbonaccreditation.org/participants/africa.html>

<sup>32</sup> It's important to note that these estimations do not include emissions from the necessary infrastructure for electrification or emissions during the construction process.

electrification, aligning with the further development of the railway sector. The electrification of the SGR, as outlined in the NCCAP, should be subject to further study.

**Opening access to rail infrastructure, including the SGR and MGR, to encourage private sector investment and increase the efficiency of rail operations would require pricing and access terms to be developed and de-risked.**

Challenges in the dominance of trucking over rail transport include high double handling costs, unpredictable service levels, and inadequate infrastructure linkages. While rail freight may gain modal share in the future, trucking is expected to remain the primary mode of freight transport, especially for first and last-mile delivery due to limited rail accessibility and maritime frequency. Given the current limitations of battery technology, electrifying long-haul heavy-duty trucks poses challenges, and alternative technologies like hydrogen are still in development. Therefore, it is crucial to prioritize policies that decarbonize and improve the efficiency of trucking operations. Complementary measures such as cargo consolidation, equipment sharing and standardization, digitalization of transport corridors, and seamless intermodal truck-rail transitions for containerized freight can enhance the efficiency of trucking and logistics operations.

### 3.3.5 Change in supply chain strategy and management and other measures at trade gateways can further improve sustainability

There are significant opportunities to improve environmental sustainability further by optimizing

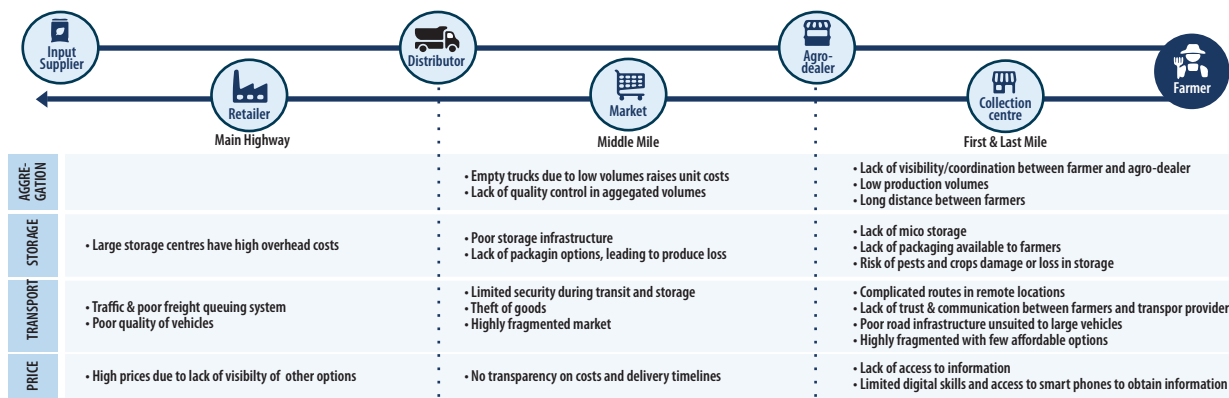
the supply chain network, including developing footprint models and revisiting the location of production, warehouses, and distribution centers as well as transportation routes/modes. This may involve establishing private sector-led Inland Container Depots (ICDs) or dry ports along transportation routes, facilitating connections between industries with bulk transport needs and specialized terminals. While centralized facilities can reduce the carbon intensity of warehousing operations, the additional GHG emissions from transporting goods over longer distances to and from fewer locations can offset these gains. Therefore, the economically optimal supply chain arrangement may not always be the one with the minimum GHG emissions.

To ensure optimal supply chain arrangements, it is important to carefully study the aggregation, distribution, transport, storage, and trade-related processes of key export products from both an economic and environmental perspective. Kenya's economic geography, concentrated export/import basket, and highly concentrated freight flow along the Northern Corridor make it well-suited for such assessments. However, the logistics infrastructure and services offered by railways and ports in Kenya seem to be largely geared towards imports rather than exports. Challenges exist in the efficient, timely, and cost-effective export of goods by sea, with Mombasa Port and the SGR being highlighted as potential obstacles. The port experiences delay for container ships, and perishable goods are not given priority treatment.

It is important to carefully study the aggregation, distribution, transport, storage, and trade-related processes of key export products from both an economic and environmental perspective.



Figure 29: Challenges in aggregation, storage and transport (2020)



Source: MercyCorps, 2020.

### 3.4. Shifting to greener and reliable urban mobility solutions can contribute to increased labor productivity and improved air quality

Adopting a Avoid-Shift-Improve and Resilience (ASI+R) approach to urban transport will guide a low-carbon footprint and economic development in emerging and expanding cities in Kenya. Rapid urbanization accompanied by urban sprawl has made urban access an overwhelming challenge in urban areas of Kenya: (a) Traffic congestions in the Nairobi Metropolitan Area alone costs the economy about US\$1 billion a year<sup>33</sup> - a 2020 study revealed that about 40 and 60 percent of men and women respectively in Nairobi travel longer than 60 minutes during peak hours.<sup>34</sup> This travel time is explained by the modes of transport used and the insufficient public transport system and traffic management which lead to severe traffic congestion; (b) Kenya’s annual cost of road traffic accidents, in which most victims are pedestrians in urban areas, is equivalent to about US\$3 million;<sup>35</sup> and (c) approximately 19,000 people die each year in Kenya due to air pollution, of which vehicle emissions are the main source of pollution in urban areas.<sup>36</sup> The AIS+R approach can involve (i) developing a comprehensive enabling national urban transport policy (NUTP) framework, (ii) establishing green and reliable public transport system, (iii) integrating transport and land use planning, and (iv) creating safe and secured walking and cycling environment in urban areas. This will have a strong positive impact on GHG reductions with reduced energy consumption, improved accessibility

to opportunities and services, and creating the Kenyan cities more livable.

Low-carbon urban mobility solutions should prioritize developing an integrated and reliable multi-modal public transport system with adequate non-motorized transport facilities (such as sidewalks, bike lanes) for first/last mile connectivity, and shifting from a car-centric to people-centric approach. The government is prioritizing the upgrading and improvement of commuter rail in Nairobi Metropolitan area. An improved public transit system by 2030<sup>37</sup> with the modal shift to greener and higher capacity public transportation modes<sup>38</sup> would mean an emission reduction of 78.1 thousand tonnes of carbon dioxide equivalent (tCO2e) for 2030 and approximately 224.1 thousand tCO2e for 2040 in Nairobi Metropolitan Area. In addition, as Kenya is seeing rapid motorization growth of about 10 percent annual growth rate over the last decade, the establishment of reliable public transportation in major urban centers with improved technology and more stringent standards will contribute to (a) reducing traffic congestion and air pollution, (b) improving road safety, and (c) developing sustainable motorization management system in Kenya.

Adopting e-mobility in conjunction with the development of mass rapid transit system will be a game changer for Kenya. Coupled with bus route rationalization, e-mobility would enable the achievement of higher vehicle kilometer travelled (VKT) which would

<sup>33</sup> <https://www.bloomberg.com/news/articles/2019-09-24/traffic-jams-in-kenya-s-capital-bleed-1-billion-from-economy#xj4y7vzkg>

<sup>34</sup> A.Kishiu, K.Dominguez Gonzalez, E. St. John. 2020. Gender in Urban Transport in Nairobi, Kenya.

<sup>35</sup> National Transport and Safety Authority Road Safety Status Report 2015.

<sup>36</sup> The World Health Organization (WHO) estimates.

<sup>37</sup> With the modal share of public transport being about 43.4 percent

<sup>38</sup> including 9 percent shift from Matatus to Mass Rapid Transit, including Commuter rail and Bus Rapid Transit (BRT) by 2030 and 14 percent shift from Matatus to Commuter rail and BRT by 2040

result in additional fuel saving, reducing traffic congestion and air pollution. While the share of buses is anticipated to be about one percent in EV stock in 2030, adopting EV in public transport could reduce 1.22 million tCO<sub>2e</sub> (22 percent). Meanwhile the Ministry of Roads and Transport is working on the standards of charging facilities, there is also the need to establish the demand profile, the charging tariff design, and the battery end-of-life management regulations applicable for battery electric buses (BEBs) and other battery electric vehicles (BEV) types to advance the transition to e-mobility.

### 3.5. Augmenting engagement in carbon markets can mobilize climate financing while generating socio-economic benefits

In Kenya several sectors could generate credits for carbon markets, including forestry, blue economy, agriculture, buildings, energy, and transport. Carbon credits can be sold in compliance markets under Article 6 of the Paris Agreement, when they receive authorization from the government committing to undertake a “corresponding adjustment”<sup>39</sup> or voluntary markets. At COP27, Kenya announced its commitment to scaling voluntary carbon markets. The private sector has also shown interest in participating in voluntary carbon markets. Carbon credits without government authorization can be sold to corporate buyers in voluntary carbon markets. Voluntary carbon markets have grown rapidly in recent years, quadrupling in value between 2020 and 2021 to \$2 billion. While global macro-fiscal uncertainties have impacted prices over the past year, volumes have remained strong. At present, prices in voluntary carbon markets range between \$1 – 5 per tCO<sub>2e</sub>. Kenya is one of the African countries expected to benefit from the new Africa Carbon Markets Initiative (ACMI), which aims to support the rapid growth of carbon credit generation and associated jobs in Africa. ACMI also plans to secure advance market commitments for high-integrity African carbon credits from major carbon credit buyers and financiers to mobilize revenues at scale from carbon markets. However, Africa does not have a local ecosystem for supporting carbon credit generation (and currently has to rely on expertise from other regions), raising questions regarding how to verify the quality and integrity of credits, and how to ensure equitable distribution of revenue.

**Bilateral carbon trades under the Paris Agreement could potentially provide substantial revenues for Kenya, particularly if prices are reflective of the opportunity cost of additional mitigation action.** Studies suggest that carbon markets under Article 6 could grow to as much as \$300 billion a year by 2030.<sup>40</sup> However, these are likely to require time for operationalization, as countries establish the necessary domestic systems and institutional processes to participate in such markets. Through a recent amendment to the Climate Change Act, Kenya has outlined a framework for decision-making related to participation in carbon markets. Steps to finalize and approve the framework and operationalize it will be imperative to benefit from the opportunities in the compliance market.

#### 3.5.1 Enabling carbon credits of high quality could favorably position Kenya in carbon markets

Capitalizing on carbon markets will require the Government of Kenya to finalize the formulation of a robust legal framework to provide the necessary legal basis for carbon markets and to operationalize the legislation. The legal framework should be in line with the NDC targets, and present clearly the potential for carbon markets and processes to be followed, the necessary inter-ministerial coordination, and linkages between compliance and voluntary markets. Aligned with this should be the country's Article 6 strategy, pricing strategy and infrastructure strategy that includes monitoring, registry, and reporting. The Article 6 strategy should help Kenya determine under what conditions it would be beneficial to participate in Article 6, how to participate, and the operational issues. Underpinning Kenya's Article 6 strategy should be a clear understanding of the cost of meeting its NDC target to avoid overselling. In parallel, to benefit from the potential in carbon markets, Kenya will need to ensure the environmental integrity of its carbon credits. This will require development of the necessary infrastructure for measurement, reporting, and verification (MRV) systems and registry infrastructure. The MRV provides evidence that an activity has actually avoided or removed harmful GHG emissions so that actions can be converted into credits with monetary value. A robust MRV system would help ensure high environmental integrity and support meeting international standards.

<sup>39</sup> A “corresponding adjustment” is an accounting mechanism that ensures that a credit transferred internationally is not used by the selling country to demonstrate achievement of its own NDC.

<sup>40</sup> IETA (2021). *The Potential Role of Article 6 Compatible Carbon Revenues in Reaching Net-Zero*. [https://www.ieta.org/resources/Resources/Net-Zero/Final\\_Net-zero\\_A6\\_working\\_paper.pdf](https://www.ieta.org/resources/Resources/Net-Zero/Final_Net-zero_A6_working_paper.pdf)





### 3.5.2 The forest sector has been the primary source of carbon credits and can continue to be an important source of credits in both voluntary and compliance markets

Forests and land use are estimated to have generated more than half of the carbon credits Kenya issued since 2005 on the voluntary carbon markets and are expected to continue to be an important source of credits going forward. Kenya could continue to generate carbon credits from forests and land use considering its potential to restore 5.2M ha through forest landscape restoration (FLR). This could attract buyers if the quality and environmental integrity of the credits can be demonstrated. FLR includes enriching natural forests, planting new forests (afforestation), intensive agroforestry systems, establishing woodlots and commercial bamboo plantations, and planting trees along roadsides and in silvo-pastoral systems, all of which can contribute to carbon sequestration. The GoK’s ambition of planting an additional 10.58M ha with trees by 2032, requires, in addition to FLR of 5.2M ha, expansion of intercropping, farm forestry, and integration of trees in rangelands. Depending on evidence that can be generated on the integrity of the carbon sequestration associated with these activities, intercropping of trees with agricultural crops could contribute to carbon sequestration through above ground biomass and below ground biomass (soil biomass). For example, carbon stock in a traditional maize system was estimated at 0.03tons/ha while under intensive agroforestry it is estimated at 0.8 tons/ha. Similarly, shifting from a poorly managed to well managed Eucalyptus woodlots could mean a three-fold increase in the annual increment of the stands resulting in an associated increase in above ground carbon.

Measures to curb deforestation and forest degradation, to achieve FLR, are also economically justified by the co-benefits they can generate. Successful landscape restoration will require addressing the main drivers of deforestation and forest degradation, such as illegal encroachment of forest lands for agricultural expansion for both subsistence agriculture and commercial farming,<sup>41</sup> wood extraction (including for fuelwood) and livestock grazing. Secure tenure will also be important for generating carbon credits from afforestation as the investment is long-term in nature. Ongoing efforts to transition households from wood and charcoal cooking to improve cookstoves could (at the current rate of transition) reduce degradation of approximately 1.7M ha of forests from fuelwood extraction. The resulting reduced reliance on fuelwood reduces indoor air pollution and is associated with lower morbidity and mortality. Addressing drivers of deforestation could reduce loss of wildlife which are central for Kenya’s tourism sector (Said et al 2016 as cited by Damania, 2019).

### 3.5.3 Expansion of renewable energy can generate carbon credits

Existing opportunities with renewable energy are expected to attract private sector companies that serve climate conscious consumer segments or have large carbon reduction target, including with export value chains. Kenya has significant experience with carbon markets under the Kyoto Protocol, with the largest portfolio of Clean Development Mechanism (CDM) activities in East Africa, including Kenya Electricity Generating Company PLC (KenGen), a state-owned company responsible for electricity generation. During 2018-19, the World Bank provided technical assistance to



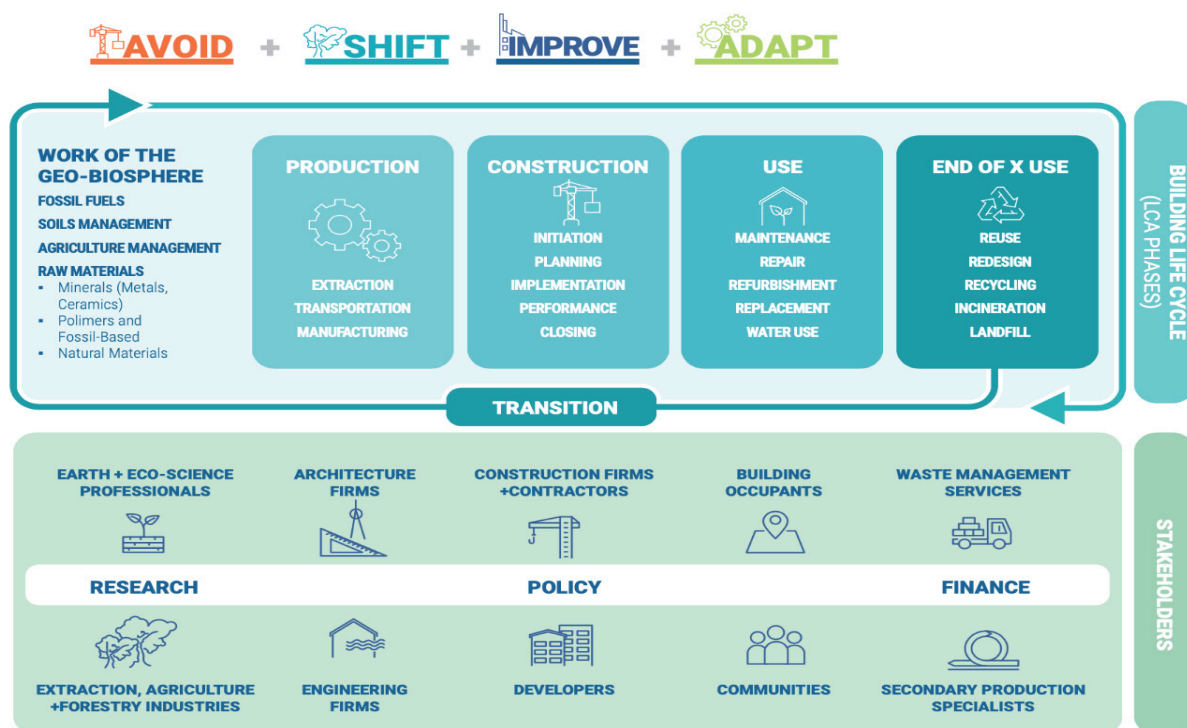
<sup>41</sup> Confirmed in discussions with MoEF and KFS in July 2022.

pilot the generation of emission reduction credits from KenGen’s geothermal projects. There are registered CDM projects by the Ministry of Energy and Petroleum (MoEP) for renewable off-grid solutions as well as by the Kenya Tea Development Agency (KTDA) for small hydro-based power generation projects. According to a technical study by the Government of Kenya, over 40 million tCO<sub>2</sub>e avoided is estimated from new wind power, solar photovoltaic, and geothermal technology capacity. Kenya aims to achieve 100 percent clean energy for all by 2030. The deployment of renewable solutions to achieve energy access could potentially generate significant emission reductions.<sup>42</sup> An assessment for the arid and semi-arid lands (ASALs) found that off-grid connections are projected to be 20 percent of connections by 2030 (based on a business-as-usual scenario as per the 2019 census). The growing carbon markets can provide much needed complementary financing for increasing investments in renewables and also facilitate an equitable and just energy transition. As with credits in other sectors, investors in renewables will need support to generate high quality, high integrity carbon credits to receive a high price.

### 3.5.4 Opportunities to convert efforts to lower the carbon footprint of Kenya’s construction industry into carbon credits should be further explored

The poor urban planning that has underpinned rapid urbanization in Kenya has led to the acute lack of infrastructure and a relatively large percentage of Kenya’s population residing in urban slums.<sup>43</sup> Kenya currently has an affordable housing deficit exceeding 2 million units and is expected to reach 3 million units by 2025.<sup>44</sup> GoK’s goal to close the affordable housing gap and improve urban infrastructure means a significant expansion of construction activities, and with it expanded production of cement.

Lowering the GHG emissions of the construction sector could be targeted at the cement industry or adopt a whole-life carbon mitigation effort that lowers emissions over the course of the building’s life cycle.<sup>45</sup> The cement sector is a significant consumer of thermal energy and could substitute at least 30 percent of its demand with economically viable alternative fuels such as municipal waste, agricultural waste and sewage sludge, all of which



<sup>42</sup> Emission reductions generated are likely to be higher for off-grid solutions since Kenya’s grid already has a significant proportion of renewable electricity from geothermal and hydropower.

<sup>43</sup> Kenya RISE study

<sup>44</sup> Kenya Needs 2 Million More Low-income, <https://www.worldbank.org/en/country/kenya/publication/kenya-needs-2-million-more-low-income-homes-building-they-would-boost-its-economic-growth>, Date published: 13 April 2017 (Accessed 31 March 2023)

<sup>45</sup> United Nations Framework Convention on Climate Change, [https://unfccc.int/sites/default/files/resource/HS\\_ActionTable\\_2.1.pdf](https://unfccc.int/sites/default/files/resource/HS_ActionTable_2.1.pdf) published 2021, (Accessed 18<sup>th</sup> April 2023)

would reduce the CO<sub>2</sub> emissions due to reduced use of coal.<sup>46</sup> A 2017 study estimated this could mean a saving up to 10 percent, or approximately US\$7-8 million/year, in total fuel costs. A more complete approach would require a transition to future low-carbon buildings that are based on designs that use multi-beneficiary material approaches and incorporate a whole building cycle and system-thinking methodology. Using a scenario in which Kenya, by 2050, puts in place 6.23 million new housing units that houses approximately 24.2 million people, the building and construction impact of achieving this output from 2023 to 2050 could result in cumulative emissions of approximately 412.01 million tCO<sub>2</sub>e. The GHG emissions could be reduced to 219.23 million tCO<sub>2</sub>e if adjustments were made to include close to 100 percent renewable energy, zero-emissions cement production, greater use of existing fiber sources, use of tested alternatives to steel, adopting plastic replacement technologies, using solar water heating, photovoltaics for electricity generation, energy efficient lighting and appliances, and reducing on-site and pre-site waste from 30 percent to 50 percent.

**Further exploring the role of carbon markets in the construction sector by mapping the emission reduction generating activities and the methodological approaches for estimating their mitigation potential could help inform a strategy for effectively leveraging carbon markets.** There is room to explore the potential for carbon credits to contribute to financing specific elements of the shift to a whole-life carbon mitigation approach. In addition to generating carbon credits, greening of the

construction sector would result in other development co-benefits, such as air quality benefits while helping meet the government's target on affordable housing contributing directly and indirectly to socioeconomic mobility and productivity.

### 3.5.5 E-mobility sector, while nascent, is generating evidence of its potential to reduce emissions and its potential to generate carbon credits should be further examined

**The transition to electric vehicles<sup>47</sup> could also assist with maintaining a low-carbon development pathway.** E-vehicles could result in reductions of 5.13 million tCO<sub>2</sub>e emissions and 27 thousand tonnes in emission of local pollutants (NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>), and reduced fuel consumption of 161 million liter of gas and 37 million liters of diesel by 2030. Under the vehicle kilometer travelled (VKT) assumption in Nairobi City, an additional 362.2 thousand tCO<sub>2</sub>e of emission and 3.8 thousand tonnes of local pollutants emission (NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>) could be reduced by 2030. The supporting actions described earlier in the subsection on greener and reliable urban mobility solutions will be instrumental to facilitate this transition. Furthermore, GoK should facilitate innovative business models in the e-mobility space in order to enhance the contribution of this sector to reducing GHG emissions. An illustrative example is BasiGo, which is pioneering a customized battery leasing model to make up-front costs of electric buses affordable. To date, this pilot has contributed to buses covering 245,000 km while avoiding emissions of 112 tCO<sub>2</sub> and transporting approximately 291,000 passengers.

The GHG emissions could be reduced to 219.23 million tCO<sub>2</sub>e if adjustments were made to include close to 100 percent renewable energy



<sup>46</sup> IFC. 2017. *Use of Alternative Fuels in the Cement Sector in Kenya: Opportunities, Challenges and Solutions*. Washington DC: World Bank Group (with financing from KGGTF)

<sup>47</sup> 30 percent of private and passenger vehicles in new registration and 70 percent of 2wheeler and 3 wheelers in new registration will be electric vehicle

**Further work on methodologies would be required to harness the potential of carbon markets for Kenya's transport actions.** The generation of carbon credits from the transport sector, derived mostly from modal shifts, in previous efforts has resulted in low volumes of emission reductions due to difficulties in the application of monitoring, reporting, and verification (MRV) approaches.

### **3.5.6 By sustaining a low-carbon development path Kenya could benefit from global decarbonization efforts while advancing on the country's inclusive growth agenda**

Kenya could further strengthen its leadership position on climate change by maintaining a low-carbon growth pathway, in line with its NDC commitments, and becoming part of the solution to global decarbonization efforts. Kenya contributes less than 0.1 percent of GHG emissions annually<sup>48</sup>, and has the opportunity to choose a future growth path that is carbon intensive or one that sustains low-carbon growth. In two enabling sectors – transport and energy – maintaining a low-carbon orientation is justified based on efficiency, benefits of reduced reliance on imported fossil fuels, domestic job creation, socioeconomic co-benefits, and distribution of costs over the next decades. Price shocks and supply chain disruptions caused by recent global events (the pandemic and war on Ukraine), and the increased attention to climate change in export markets such as the EU, reinforce

the compelling case for continuing on a low carbon pathway. Staying on a low-carbon growth path will require prioritizing among possible investments in key sectors (e.g., investments in modal shifts in the transport sector) and incentivizing reduced fossil fuel usage.<sup>49</sup> Under current fiscal realities, sustaining a low-carbon pathway and meeting growth objectives will require mobilizing private sector, and climate financing.

Carbon markets are one source of non-debt financing for climate action that Kenya could tap by producing high quality carbon credits. Several sectors in Kenya, including land use/forestry, energy, transport, and potentially construction, could both generate carbon credits that have environmental integrity and contribute to the country's development agenda. Complementing revenues from carbon markets with the mobilization, over time, of other sources of climate finance (e.g., dedicated climate funds, innovative financing instruments, such as sustainability linked bonds) that are part of a broader climate finance strategy will be necessary to decouple growth from carbon intensity. Nevertheless, there is strong rationale for GoK to opt for a low-carbon development path that leverages the global decarbonization agenda and accesses carbon finance while delivering on its commitments for inclusive growth.

<sup>48</sup> USAID. (2021). *Kenya Climate Change Country Profile*, (link).

<sup>49</sup> Additional information on possible investment priorities and opportunities for financing a low-carbon development path will be available in the materials associated with the forthcoming Kenya CCDD.



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## **ANNEX TABLES**

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**Table A1: Selected economic indicators, 2018-2025**

	2019	2020	2021	2022	2023	2024	2025
	Act.	Act.	Est.	Proj.	Proj.	Proj.	Proj.
<b>Output and prices</b>	<b>(Annual percentage change, unless otherwise indicated)</b>						
Real GDP	5.1	-0.3	7.6	4.8	5.0	5.2	5.3
Agriculture	2.7	4.6	-0.4	-1.6	3.8	4.2	4.2
Industry	4.0	3.3	7.5	3.9	4.9	5.1	5.3
Services	6.7	-1.8	9.5	6.7	5.4	5.6	5.6
Private consumption	5.0	-1.5	6.2	3.1	5.3	5.2	5.4
Government consumption	5.6	3.0	5.7	7.4	3.5	3.0	2.9
Gross fixed capital investment	4.5	2.3	10.8	-1.1	7.7	9.2	9.5
Exports, goods and services	-3.2	-14.9	15.3	10.7	7.4	7.8	7.6
Imports, good and services	1.8	-9.4	22.2	4.5	7.3	7.3	8.1
GDP deflator	4.3	5.1	4.5	5.4	6.5	5.8	5.7
CPI (period average)	5.2	5.3	6.1	7.6	7.8	5.8	5.5
<b>Money and credit</b>	<b>(Annual percentage change, unless otherwise indicated)</b>						
Broad money (M3)	5.6	13.2	6.1	7.1	..	..	..
Credit to non-government sector	7.1	8.5	8.5	12.5	..	..	..
Policy rate (CBR)	8.5	7.0	7.0	8.8	..	..	..
NPLs (percent of total loans)	10.0	12.2	11.1	11.4	..	..	..
<b>Central government (fiscal year i.e 2019 = 2019/20)</b>	<b>(Percent of GDP, unless otherwise indicated)</b>						
Total revenue & grants	17.1	16.1	17.5	17.6	18.1	18.0	18.2
Tax revenues	13.0	12.6	13.9	14.0	14.9	14.9	15.2
Non-tax revenues	3.9	3.3	3.4	3.4	2.9	2.9	2.7
Grants	0.2	0.3	0.2	0.2	0.3	0.3	0.3
Expenditure	24.2	24.4	23.8	23.4	22.5	22.0	21.8
Current	15.5	15.9	16.8	16.2	15.1	14.7	14.3
Capital	5.6	4.9	4.2	4.2	4.7	5.0	5.3
Primary balance	-2.8	-3.8	-1.8	-1.1	0.3	0.7	0.7
Overall balance including grants	-7.0	-8.2	-6.3	-5.7	-4.4	-3.9	-3.6
Financing	7.4	8.4	5.9	5.7	4.4	3.9	3.6
Net domestic borrowing	4.2	5.5	4.8	3.0	3.2	3.4	3.0
Foreign financing	3.2	2.8	1.1	2.7	1.2	0.5	0.6
<b>Public debt stock (fiscal year i.e 2019 = 2019/20)</b>	<b>(Percent of GDP, unless otherwise indicated)</b>						
Public gross nominal debt	63.0	67.7	67.4	64.8	62.2	59.7	56.7
External debt	33.1	35.2	33.7	32.3	30.0	27.4	25.0
Domestic debt	29.9	32.5	33.7	32.5	32.2	32.2	31.7
<b>Memo:</b>							
GDP at current market prices (KES billion)	10,238	10,715	12,028	13,368	14,917	16,607	18,472

Source: World Bank, National Treasury, Central Bank of Kenya, Kenya National Bureau of Statistics  
 † denotes projections





**Table A2: GDP growth rates for Kenya and EAC (2018-2022)**

	2018	2019	2020	2021	2022
Kenya	5.6	5.1	-0.3	7.6	4.8
Uganda	6.3	6.4	3.0	3.4	4.7
Tanzania	5.5	5.8	2.0	4.3	4.6
Rwanda	8.6	9.5	-3.4	10.9	8.1
Burundi	1.6	1.8	0.3	3.1	1.8
Congo (DR)	5.8	4.4	1.7	6.2	8.6
South Sudan	-3.5	3.2	9.5	-5.1	-2.3

Source: World Bank

**Table A3: Kenya annual GDP (2010-2021)**

Years	GDP, current prices	GDP, 2016 constant prices	GDP/capita, current prices	GDP growth
	KSh Millions	KSh Millions	US\$	Percent
2010	3,598,000	5,794,000	930	8.1
2011	4,163,000	6,090,000	1,010	5.1
2012	4,767,000	6,368,000	1,060	4.6
2013	5,311,000	6,610,000	1,130	3.8
2014	6,004,000	6,942,000	1,260	5.0
2015	6,884,318	7,287,024	1,330	5.0
2016	7,594,064	7,594,064	1,500	4.2
2017	8,483,396	7,883,816	1,550	3.8
2018	9,340,307	8,330,891	1,730	5.6
2019	10,237,727	8,756,946	1,890	5.1
2020	10,715,070	8,733,060	1,900	(0.3)
2021	12,027,662	9,395,942	2,080	7.6
2022	13,368,340	9,851,329	2,170	4.8

Source: Kenya National Bureau of Statistics and World Development Indicators



**Table A4: Contribution by sub-sectors (percentage points)**

Year	Quarterly	Industry by sub sector contribution				Industries	Services by subsector contribution						Services		
		Agriculture	Mining and quarrying	Manufacturing	Electricity and water supply		Construction	Accommodation and restaurant	Transport and storage	Real estate	Information and communication	Education	Financial and insurance	Other	Services
2019	Q1	1.0	0.0	0.2	0.1	0.3	0.6	0.4	0.2	0.7	0.2	0.5	0.4	0.8	3.7
	Q2	0.7	0.1	0.4	0.0	0.4	0.9	0.5	0.1	0.9	0.2	0.7	0.5	0.9	4.2
	Q3	0.2	0.0	0.2	0.0	0.4	0.8	0.5	0.1	0.5	0.2	0.8	0.5	1.0	3.9
	Q4	0.2	0.1	0.1	0.0	0.4	0.5	0.4	0.2	0.5	0.2	0.4	0.5	0.7	3.6
2020	Q1	1.0	0.1	0.1	0.0	0.5	0.8	0.4	-0.1	0.2	0.2	0.5	0.2	0.8	2.2
	Q2	1.7	0.0	-0.4	-0.1	0.4	-0.1	-0.3	-0.6	-1.7	0.1	0.3	0.3	-1.0	-3.8
	Q3	-0.8	0.0	-0.2	0.0	0.6	0.5	-0.4	-0.7	-1.1	0.1	0.3	0.5	-0.6	-2.6
	Q4	1.5	0.1	0.4	0.1	0.7	1.2	0.2	-0.7	-0.7	0.2	0.8	0.6	-0.1	-0.1
2021	Q1	-0.1	0.1	0.2	0.1	0.3	0.7	0.7	-0.3	-0.8	0.2	0.7	0.4	1.0	1.7
	Q2	-0.4	0.1	0.9	0.2	0.4	1.6	0.8	0.3	1.6	0.3	1.0	0.5	2.6	7.8
	Q3	-0.1	0.2	0.9	0.2	0.4	1.7	0.6	0.6	1.4	0.0	0.9	0.3	2.4	6.9
	Q4	0.4	0.4	0.6	0.1	0.4	1.4	0.6	0.7	0.7	0.2	1.1	0.2	1.9	5.8
2022	Q1	-0.3	0.3	0.3	0.1	0.3	1.0	0.4	0.3	0.7	0.3	1.3	0.3	1.1	4.8
	Q2	-0.5	0.2	0.3	0.1	0.3	0.9	0.3	0.3	0.7	0.3	1.3	0.2	0.9	4.3
	Q3	-0.2	0.0	0.2	0.2	0.2	0.5	0.3	0.2	0.5	0.4	0.8	0.2	0.8	3.4
	Q4	-0.2	0.0	0.2	0.1	0.1	0.4	0.2	0.2	0.3	0.3	0.9	0.3	0.7	3.0

Source: World Bank, based on data from Kenya National Bureau of Statistics

Note: Other = Wholesale and retail trade + Public administration + Professional, administration and support services + Education + Health + Other services + FISIM

**Table A5: National fiscal position**

<b>Actual (percent of GDP)</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22*</b>
Revenue and grants	17.4	17.7	17.1	16.0	17.5
Total revenue	17.1	17.5	16.9	15.7	17.3
Tax revenue	15.3	15.4	14.8	13.7	15.1
Income tax	7.2	7.0	6.7	6.1	6.9
VAT	4.0	4.2	3.6	3.6	4.1
Import duty	1.1	1.1	0.9	1.0	0.9
Excise duty	1.9	2.0	1.8	1.9	2.0
Other revenues	1.2	1.0	1.8	1.2	1.2
Railway levy					
Appropriation in aid	1.8	2.1	2.1	2.0	2.2
Grants	0.3	0.2	0.2	0.3	0.2
<b>Expenditure and net lending</b>	24.1	25.0	24.2	24.2	23.8
Recurrent	15.1	15.7	15.5	15.8	16.8
Wages and salaries	4.4	4.3	4.2	4.3	4.1
Interest payments	3.6	3.9	4.1	4.4	4.5
Other recurrent	7.1	7.5	7.2	7.1	8.2
Development and net lending	5.3	5.6	5.6	4.9	4.2
County allocation	3.7	3.7	3.1	3.5	2.8
Parliamentary service	0.3	0.3	0.3	0.3	0.3
Judicial service	0.1	0.1	0.1	0.1	0.1
Equalization of funds	0.0	0.1	0.0	0.0	0.0
<b>Fiscal balance</b>					
Deficit including grants (cash basis)	<b>-7.0</b>	<b>-7.3</b>	<b>-7.0</b>	<b>-8.2</b>	<b>-6.2</b>
<b>Financing</b>	7.1	7.4	7.4	8.4	5.9
Foreign financing	3.1	3.1	4.2	5.5	4.8
Domestic financing	4.0	4.3	3.2	2.8	1.1
Total public debt (gross)	56.5	59.6	63.0	67.7	67.4
External debt	28.7	31.0	33.1	35.2	33.8
Domestic debt	27.8	28.6	29.9	32.5	33.7
Memo:					
GDP (Fiscal year current market prices, Ksh bn)	8,922	9,746	10,621	11,370	12,736

Source: National Treasury  
Note: \*indicate Preliminary results



**Table A6: 12-months cumulative balance of payments**

BPM6 Concept (US\$ million)

	2018	2019	2020	2021	2022
A. Current Account, n.i.e.	(5,048)	(5,541)	(4,619)	(6,027)	(5,480)
Merchandise A/C	(10,201)	(10,679)	(8,430)	(11,439)	(11,760)
Goods: exports f.o.b.	6,088	5,872	6,062	6,730	7,464
Goods: imports f.o.b.	16,289	16,551	14,492	18,169	19,224
Oil	3,386	3,310	2,185	3,480	5,568
Services	1,596	1,767	355	740	1,588
Services: credit	5,477	5,621	3,732	4,859	6,695
Services: debit	3,881	3,854	3,377	4,120	5,107
Income	3,557	3,371	3,456	4,673	4,693
B. Capital Account, n.i.e.	263	208	131	195	176
C. Financial Account, n.i.e.	(6,547)	(6,233)	(2,950)	(7,058)	(4,019)
Direct investment: net	(1,463)	(1,132)	(499)	4	(562)
Portfolio investment: net	(627)	(1,312)	1,279	(135)	705
Financial derivatives: net	11	(5)	(73)	(35)	(56)
Other investment: net	(4,457)	(3,789)	(3,730)	(6,927)	(4,161)
D. Net Errors and Omissions	(720)	154	38	(416)	(938)
E. Overall Balance	(1,030)	(1,059)	1,427	(845)	2,167
F. Reserves and Related Items	1,030	1,059	(1,427)	845	(2,167)
Reserve assets	885	905	(819)	1,185	(1,550)
Credit and loans from the IMF	(145)	(154)	608	847	617
Exceptional financing	-	-	-	(507)	
Gross Reserves (US\$ million)	11,516	12,851	12,992	14,199	12,085
Official	8,231	9,116	8,297	9,491	7,969
Commercial Banks	3,286	3,735	4,695	4,708	4,115
Imports cover (36 months import)	5.3	5.5	5.1	5.6	4.4
Memo:					
<b>Annual GDP at Current prices (US\$ million)</b>	<b>92,203</b>	<b>100,380</b>	<b>100,748</b>	<b>110,264</b>	<b>113,122</b>

Source: Central Bank of Kenya



**Table A7: Inflation**

Year	Month	Overall Inflation	Food Inflation	Energy Inflation	Core Inflation
2020	January	5.8	14.9	4.7	2.2
	February	6.4	9.6	5.5	2.3
	March	5.5	11.9	4.5	1.9
	April	5.6	11.6	4.9	2.0
	May	5.3	10.6	5.0	1.8
	June	4.6	8.2	5.4	1.6
	July	4.4	6.6	6.1	2.0
	August	4.4	5.4	7.6	2.1
	September	4.2	5.2	7.6	1.9
	October	4.8	5.8	8.2	2.5
	November	5.3	6.1	7.8	2.9
	December	5.6	7.2	8.1	2.9
2021	January	5.7	7.4	8.7	2.7
	February	5.8	6.9	10.1	2.7
	March	5.9	6.7	11.1	2.7
	April	5.8	6.4	10.5	2.7
	May	5.9	7.0	10.0	2.8
	June	6.3	8.5	9.5	2.8
	July	6.4	8.8	8.2	3.0
	August	6.6	10.7	6.5	2.7
	September	6.9	10.6	7.6	2.9
	October	6.5	10.6	7.0	2.4
	November	5.8	9.9	7.2	2.0
	December	5.7	9.1	7.2	1.9
2022	January	5.4	8.9	6.0	1.9
	February	5.1	8.7	4.7	2.0
	March	5.6	9.9	4.3	2.2
	April	6.5	12.2	6.2	2.4
	May	7.1	12.4	6.2	2.6
	June	7.9	13.8	7.0	3.0
	July	8.3	15.3	6.3	3.1
	August	8.5	15.3	6.6	3.4
	September	9.2	15.5	8.8	3.6
	October	9.6	15.8	9.4	4.0
	November	9.5	15.4	8.9	4.3
	December	9.1	13.8	9.6	4.3
2023	January	9.0	12.8	10.2	4.7
	February	9.2	13.3	10.3	4.8
	March	9.2	13.4	10.1	4.7
	April	7.9	10.1	9.7	4.8

Source: World Bank, based on data from Kenya National Bureau of Statistics



**Table A8: Credit to private sector growth (%)**

Year	Month	Total Private sector annual growth rates	Agriculture	Manufacturing	Trade	Building and construction	Transport and communication	Finance and insurance	Real estate	Mining and quarrying	Private house-holds	Consumer durables	Business services	Other activities
2020	January	7.3	-4.8	12.7	6.0	4.0	9.9	-1.1	3.5	-9.4	5.6	21.4	1.5	24.4
	February	7.7	0.2	10.4	9.5	-0.5	7.4	1.9	3.4	-14.6	5.9	20.6	2.4	33.4
	March	8.9	1.4	15.3	9.4	9.5	7.1	6.6	2.2	3.9	3.4	24.1	3.3	36.8
	April	9.0	2.8	20.1	10.3	7.7	9.1	3.1	4.8	11.0	2.2	19.6	1.2	14.3
	May	8.2	2.6	18.2	8.0	5.7	5.7	8.4	4.4	5.8	3.2	16.7	2.7	16.9
	June	7.6	2.2	11.1	9.4	4.6	14.9	3.2	4.9	10.0	3.2	15.2	5.3	-3.7
	July	7.8	1.1	10.0	9.1	5.5	20.7	3.5	5.0	11.3	4.9	13.8	3.2	-6.7
	August	8.2	0.9	13.1	8.1	5.2	19.0	4.6	6.8	12.0	4.7	13.7	3.4	-7.6
	September	7.6	1.7	12.6	6.6	4.1	20.6	-3.3	6.6	8.2	3.1	15.6	4.1	-5.8
	October	7.6	17.0	7.8	2.5	8.2	21.1	-2.2	7.6	-14.2	6.9	15.7	5.9	-10.4
	November	8.1	19.3	10.0	4.0	7.4	17.5	0.2	9.1	-15.4	5.8	18.8	2.7	-14.5
	December	8.4	15.3	12.0	3.8	3.4	13.6	7.1	8.7	-12.9	3.9	18.1	4.0	14.0
2021	January	9.3	15.6	12.6	5.5	2.5	14.4	14.0	8.8	-6.1	4.7	18.7	6.5	5.8
	February	9.6	13.4	15.8	3.9	5.2	19.0	9.0	8.8	21.6	4.2	20.3	5.0	3.8
	March	7.7	12.3	10.7	2.1	2.9	17.4	7.5	7.7	-3.6	2.9	17.6	5.7	5.2
	April	6.7	10.0	4.0	0.9	3.4	13.3	7.6	5.8	-8.8	4.5	19.3	7.2	24.3
	May	7.1	4.3	1.5	3.8	4.5	16.3	6.7	5.7	-18.1	3.1	22.0	6.9	39.8
	June	7.7	3.7	8.1	1.9	2.0	11.8	11.5	4.0	-13.0	3.2	23.4	5.2	65.2
	July	6.1	2.8	9.4	1.3	0.4	0.2	8.9	3.2	-22.1	2.4	21.7	4.9	58.0
	August	7.0	1.4	9.3	2.7	1.7	11.8	7.7	2.8	-23.1	2.0	20.1	5.8	56.0
	September	7.7	3.3	9.8	4.7	0.5	10.9	11.7	2.9	-8.4	2.6	17.6	7.6	59.5
	October	7.8	2.7	10.9	5.5	-0.5	9.6	8.9	2.4	6.2	2.7	16.5	8.2	64.1
	November	7.7	1.3	11.5	6.1	2.8	8.3	7.1	1.1	8.3	3.3	15.3	10.8	55.2
	December	8.6	0.5	13.1	8.5	1.9	14.3	5.8	0.6	42.9	3.7	15.0	9.5	38.9
2022	January	8.8	1.3	9.7	9.6	2.9	20.7	3.5	0.5	24.9	4.3	14.6	8.4	46.8
	February	9.1	3.0	7.6	8.9	7.9	24.1	3.6	0.7	-10.7	5.0	14.0	11.6	49.7
	March	10.9	7.7	9.9	10.4	6.4	25.0	3.6	0.5	-4.9	7.5	15.6	14.7	60.5
	April	11.5	6.4	12.0	10.7	8.2	28.9	5.8	0.8	28.3	6.7	16.1	12.2	53.6
	May	11.9	11.6	15.5	9.1	9.0	26.5	5.3	0.8	47.9	7.5	15.1	11.3	57.5
	June	12.3	12.5	15.2	11.6	13.9	22.2	6.5	0.5	28.5	6.1	14.7	15.2	57.2
	July	14.2	10.8	16.1	15.2	14.1	27.0	2.8	1.7	78.6	7.6	14.8	16.9	69.8
	August	12.5	19.2	15.2	13.3	11.5	13.5	1.2	1.0	97.2	7.8	14.3	16.1	60.8
	September	12.9	17.0	14.2	16.4	12.5	21.6	0.2	0.1	57.4	7.8	14.4	12.5	53.8
	October	13.3	21.7	17.5	15.3	8.0	22.8	5.4	1.6	53.5	5.9	14.0	13.2	49.8
	November	12.5	20.3	14.9	14.3	6.0	21.8	4.4	2.8	58.3	6.0	12.6	14.5	44.8
	December	12.5	22.3	13.8	11.4	8.2	23.5	7.6	3.2	31.3	8.2	12.9	13.7	41.8
2023	January	11.5	20.7	13.8	11.1	5.8	16.6	6.7	3.3	54.2	7.8	12.5	13.7	33.3
February	11.7	18.0	15.2	11.8	3.0	16.5	21.1	2.9	97.7	7.8	12.4	13.5	15.3	

Source: Central Bank of Kenya

**Table A9: Mobile payments**

Year	Month	Number of agents	Number of customers (Millions)	Number of transactions (Millions)	Value of transactions (Billions)
2020	January	231,292	59.2	150.2	371.9
	February	235,543	58.7	148.5	350.5
	March	240,261	58.7	150.7	364.5
	April	242,275	59.4	125.0	308.0
	May	243,115	60.2	135.9	357.4
	June	237,637	61.7	143.1	392.2
	July	234,747	62.1	157.8	451.0
	August	252,703	62.8	163.2	473.5
	September	263,200	64.0	163.3	483.2
	October	273,531	65.3	174.1	528.9
	November	275,960	65.8	170.0	526.8
	December	282,929	66.0	181.4	605.7
2021	January	287,410	66.6	173.9	590.4
	February	294,111	67.2	164.2	568.0
	March	293,403	65.9	182.3	537.8
	April	294,706	67.1	173.4	502.2
	May	298,883	67.8	180.8	536.7
	June	301,457	67.8	175.8	532.6
	July	303,718	68.5	184.0	588.0
	August	304,822	68.1	184.5	586.5
	September	305,831	67.7	180.9	585.4
	October	295,105	66.9	190.1	618.1
	November	299,053	67.2	186.0	601.0
	December	298,272	68.0	189.8	622.1
2022	January	299,860	68.3	181.9	585.8
	February	301,108	67.9	171.4	568.7
	March	302,837	68.6	195.8	664.3
	April	295,237	68.7	188.2	663.5
	May	305,830	70.0	193.0	692.6
	June	304,693	70.3	186.2	665.1
	July	309,856	71.6	194.8	722.5
	August	310,450	70.1	184.8	677.4
	September	308,799	71.67	189.7	674.47
	October	311,957	73.22	196.93	646.5
	November	315,240	73.22	190.46	639.84
	December	317,983	73.12	207.01	708.06

Source: Central Bank of Kenya



**Table A10: Exchange rate**

Year	Month	USD	UK Pound	Euro
2020	January	101.1	132.2	112.3
	February	100.8	130.8	109.9
	March	103.7	128.5	114.7
	April	106.4	131.9	115.6
	May	106.7	131.3	116.1
	June	106.4	133.4	119.8
	July	107.3	135.3	122.5
	August	108.1	141.9	127.8
	September	108.4	140.9	128.0
	October	108.6	140.9	127.9
	November	109.2	144.1	129.1
	December	110.6	148.4	134.3
2021	January	109.8	149.7	133.8
	February	109.7	151.8	132.6
	March	109.7	152.2	130.9
	April	107.9	149.3	129.1
	May	107.4	151.1	130.4
	June	107.8	151.4	130.1
	July	108.1	149.4	127.9
	August	109.2	150.9	128.6
	September	110.2	151.5	129.8
	October	110.9	151.6	128.6
	November	111.9	151.0	127.9
	December	112.9	150.2	127.6
2022	January	113.4	153.6	128.4
	February	113.7	153.7	128.8
	March	114.3	151.0	126.2
	April	115.4	150.1	125.5
	May	116.3	145.1	123.0
	June	117.3	144.8	124.1
	July	118.3	141.8	120.7
	August	119.4	143.5	121.0
	September	120.4	136.7	119.3
	October	121.0	136.6	119.0
	November	121.9	143.0	124.2
	December	122.9	149.8	130.8
2023	January	123.9	151.3	133.4
	February	125.4	151.9	134.5
	March	129.7	157.4	138.8

Source: Central Bank of Kenya





**Table A11: Nairobi securities exchange**  
(NSE 20 Share Index, Jan 1966=100, End - month)

Year	Month	NSE 20 share index
2020	January	2,600
	February	2,337
	March	1,966
	April	1,958
	May	1,938
	June	1,942
	July	1,804
	August	1,795
	September	1,852
	October	1,784
	November	1,760
	December	1,868
2021	January	1,882
	February	1,916
	March	1,846
	April	1,867
	May	1,872
	June	1,928
	July	1,974
	August	2,021
	September	2,031
	October	1,961
	November	1,871
	December	1,903
2022	January	1,889
	February	1,887
	March	1,847
	April	1,801
	May	1,682
	June	1,613
	July	1,701
	August	1,751
	September	1,717.68
	October	1,677.76
	November	1,637.55
	December	1,676.1
2023	January	1,657.32
	February	1,646.56
	March	1,622.05

Source: Central Bank of Kenya



**Table A12: Central bank rate and Treasury bills**

Year	Month	Central Bank Rate	91-Treasury Bill	182-Treasury Bill	364-Treasury Bill
2020	January	8.3	7.2	8.2	9.8
	February	8.3	7.3	8.2	9.9
	March	7.3	7.3	8.1	9.2
	April	7.0	7.2	8.1	9.1
	May	7.0	7.3	8.2	9.2
	June	7.0	7.1	7.9	8.9
	July	7.0	6.2	6.7	7.6
	August	7.0	6.2	6.6	7.5
	September	7.0	6.3	6.7	7.6
	October	7.0	6.5	6.9	7.8
	November	7.0	6.7	7.1	8.0
	December	7.0	6.9	7.4	8.3
2021	January	7.0	6.9	7.5	8.4
	February	7.0	6.9	7.6	8.8
	March	7.0	7.0	7.8	9.1
	April	7.0	7.1	7.9	9.4
	May	7.0	7.2	8.0	9.4
	June	7.0	7.0	7.6	8.4
	July	7.0	6.6	7.1	7.5
	August	7.0	6.6	7.1	7.4
	September	7.0	6.8	7.3	7.8
	October	7.0	7.0	7.4	8.1
	November	7.0	7.1	7.7	8.7
	December	7.0	7.3	7.9	9.1
2022	January	7.0	7.3	8.1	9.5
	February	7.0	7.3	8.1	9.7
	March	7.0	7.3	8.1	9.8
	April	7.0	7.4	8.3	9.7
	May	7.5	7.7	8.7	9.9
	June	7.5	7.9	9.1	10.0
	July	7.5	8.2	9.3	10.0
	August	7.5	8.6	9.4	9.9
	September	8.3	8.9	9.6	9.9
	October	8.3	9.1	9.7	9.9
	November	8.8	9.2	9.7	10.2
	December	8.8	9.4	9.8	10.3
2023	January	8.8	9.4	9.9	10.4
	February	8.8	9.6	10.1	10.6
	March	9.5	9.8		

Source: Central Bank of Kenya



**Table A13: Interest rates**

Year	Month	Short-term			Long-term			
		Interbank	91-Treasury Bill	Central Bank Rate	Average deposit rate	Savings	Overall weighted lending rate	Interest Rate Spread
2020	January	4.4	7.2	8.3	7.1	4.3	12.3	5.2
	February	4.3	7.3	8.3	7.1	4.2	12.2	5.1
	March	4.4	7.3	7.3	7.1	4.2	12.1	5.0
	April	5.1	7.2	7.0	7.0	4.2	11.9	4.9
	May	3.9	7.3	7.0	7.0	4.2	11.9	5.0
	June	3.3	7.1	7.0	6.9	4.2	11.9	5.0
	July	2.1	6.2	7.0	6.8	4.1	11.9	5.2
	August	2.6	6.2	7.0	6.6	4.1	12.0	5.3
	September	2.9	6.3	7.0	6.4	3.8	11.8	5.3
	October	2.7	6.5	7.0	6.3	3.4	12.0	5.7
	November	3.3	6.7	7.0	6.3	3.4	12.0	5.7
	December	5.3	6.9	7.0	6.3	2.7	12.0	5.7
2021	January	5.1	6.9	7.0	6.3	2.7	12.0	5.7
	February	4.5	6.9	7.0	6.5	3.4	12.0	5.6
	March	5.2	7.0	7.0	6.5	3.5	12.0	5.6
	April	5.1	7.1	7.0	6.3	2.7	12.1	5.8
	May	4.6	7.1	7.0	6.3	2.5	12.1	5.8
	June	4.6	7.0	7.0	6.4	2.5	12.0	5.6
	July	4.2	6.6	7.0	6.3	2.5	12.1	5.8
	August	3.1	6.6	7.0	6.3	2.6	12.1	5.8
	September	4.7	6.8	7.0	6.3	2.6	12.1	5.8
	October	5.3	7.0	7.0	6.4	2.6	12.1	5.7
	November	5.0	7.1	7.0	6.4	2.6	12.1	5.7
	December	5.2	7.3	7.0	6.5	2.6	12.2	5.7
2022	January	4.3	7.3	7.0	6.5	2.5	12.1	5.6
	February	4.7	7.3	7.0	6.6	2.6	12.2	5.6
	March	4.8	7.3	7.0	6.5	2.5	12.2	5.7
	April	4.7	7.4	7.0	6.6	2.6	12.2	5.6
	May	4.6	7.7	7.5	6.6	2.5	12.2	5.6
	June	5.0	7.9	7.5	6.6	2.5	12.3	5.7
	July	5.5	8.2	7.5	6.7	2.9	12.3	5.6
	August	5.4	8.6	7.5	6.9	3.5	12.4	5.5
	September	4.3	8.9	8.3	6.8	3.4	12.4	5.6
	October	5.1	9.1	8.3	7.0	3.5	12.4	5.4
	November	4.6	9.2	8.8	7.1	3.5	12.6	5.5
	December	5.4	9.4	8.8	7.2	3.6	12.7	5.5
2023	January	5.9	9.4	8.8	7.5	3.6	12.8	5.3
	February	6.4	9.6	8.8				
	March	7.1	9.8	9.5				

Source: Central Bank of Kenya



**Table A14: Money aggregate** (Growth rate y-o-y)

Year	Growth rates (yoy)	Money supply, M1	Money supply, M2	Money supply, M3
2020	January	4.1	5.7	5.5
	February	7.3	8.1	7.9
	March	4.9	6.4	7.2
	April	6.2	7.5	8.6
	May	7.1	8.6	9.9
	June	7.5	9.6	9.1
	July	11.4	11.9	11.3
	August	12.7	11.4	11.0
	September	14.1	11.0	10.7
	October	17.8	11.5	11.5
	November	20.5	13.6	14.2
	December	12.8	11.9	13.2
2021	January	12.6	11.0	13.2
	February	10.6	9.9	12.4
	March	7.6	7.7	10.1
	April	7.7	7.9	9.3
	May	7.8	6.9	7.6
	June	5.1	4.6	6.4
	July	6.3	5.6	6.9
	August	10.0	8.8	10.0
	September	6.3	7.2	8.7
	October	4.9	6.6	7.3
	November	3.5	6.1	7.1
	December	7.4	5.6	6.1
2022	January	4.5	4.6	4.7
	February	5.6	4.7	4.4
	March	4.6	4.9	4.7
	April	8.6	6.3	6.9
	May	7.8	5.8	6.8
	June	7.2	5.2	7.4
	July	12.4	5.0	7.6
	August	4.9	2.6	5.1
	September	8.2	4.3	6.1
	October	4.7	2.7	5.2
	November	4.4	3.0	5.3
	December	6.4	5.3	7.1
2023	January	8.6	6.9	9.2
	February	4.9	5.5	8.8

Source: Central Bank of Kenya and World Bank



**Table A15: Coffee production and exports**

Year	Month	Production MT	Price KSh/Kg	Exports MT	Exports value KSh Million
2020	January	3,049	439	2,639	985
	February	4,410	427	3,169	1,687
	March	4,845	422	4,604	2,410
	April	2,242	295	4,396	2,590
	May	1,125	276	4,313	2,279
	June	-	502	5,414	2,956
	July	1,310	358	3,546	1,799
	August	1,209	525	3,182	1,484
	September	1,913	484	3,391	1,607
	October	1,329	527	2,732	1,322
	November	1,318	568	3,594	1,837
	December	1,667	660	2,405	1,285
2021	January	3,824	697	2,129	1,342
	February	5,325	664	3,481	2,161
	March	4,318	544	6,065	4,557
	April	2,196	436	3,337	2,307
	May			4,430	3,010
	June	502	551	3,437	2,272
	July	1,278	674	2,696	1,764
	August	1,479	684	2,504	1,658
	September	1,889	664	2,480	1,735
	October	999	671	2,432	1,674
	November	3,539	775	2,170	1,740
	December	2,816	789	2,314	1,919
2022	January	5,990	762	3,239	2,634
	February	6,271	730	4,618	3,546
	March	6,646	571	4,067	3,416
	April	1,846	519	5,749	4,468
	May	491	424	5,903	4,877
	June	304	627	4,945	3,818
	July	2,111	664	5,179	3,824
	August	4,380	637	3,213	2,482
	September	3,409	589	3,172	2,365
	October			3,224	2,412
	November			3,654	2,388
	December			2,224	1,416
2023	January			1,921	1,217
	February			3,878	2,569

Source: Kenya National Bureau of Statistics



**Table A16: Tea production and exports**

Year	Month	Production MT	Price KSh/Kg	Exports MT	Exports value KSh Million
2020	January	53,636	232	48,770	11,452
	February	49,201	214	47,570	11,022
	March	55,733	207	51,441	11,665
	April	49,656	225	57,722	13,193
	May	47,004	210	48,594	11,289
	June	46,378	198	46,399	10,293
	July	36,554	194	46,851	10,014
	August	38,525	217	47,035	10,269
	September	43,413	220	44,725	10,200
	October	48,275	215	43,656	9,937
	November	47,680	218	46,353	10,611
	December	54,412	215	46,167	10,301
2021	January	48,896.13	223	48,812	11,379
	February	43,398.65	230	50,390	11,726
	March	48,692.71	219	53,432	12,673
	April	44,299.46	207	51,899	11,576
	May	45,321.64	205	50,042	11,071
	June	43,468.95	196	43,993	9,548
	July	34,732.37	189	43,844	9,204
	August	33,635.04	230	44,421	9,874
	September	43,185.49	244	36,308	8,566
	October	48,956.89	268	40,078	10,316
	November	50,719.16	278	45,318	12,181
	December	52,526.36	296	47,922	12,725
2022	January	48,683.03	294	45,585	12,629
	February	40,825.99	311	44,093	13,303
	March	46,321.07	301	46,044	13,559
	April	41,171.30	304	43,446	12,769
	May	50,093.25	280	47,380	13,777
	June	43,268.31	286	46,795	13,693
	July	33,854.27	280	45,584	13,465
	August	35,894.58	286	42,940	12,604
	September	38,196.24	284.43	48312.32	14,167.67
	October	50,466.37	297.81	41077.4	12,252.62
	November	49,220.26	303.52	51640.54	16,035.25
	December	55,322.62	294.08	47847.99	14,892.05
2023	January			44556.08	13,519.65
	February			44328.68	13,510.62

Source: Kenya National Bureau of Statistics



**Table A17: Local electricity generation by source**

Year	Month	Hydro	Geo-thermal	Thermal	Wind	Solar	Co-generation	Total
2020	January	358	477	55	90	8	0	986
	February	342	431	54	100	7	0	934
	March	359	460	56	86	8	0	969
	April	298	412	36	88	8	0	841
	May	319	392	56	106	8	0	881
	June	334	421	62	88	7	0	913
	July	358	433	61	110	7	0	969
	August	358	424	71	119	7	0	977
	September	356	381	89	140	7	0	973
	October	373	440	80	122	8	0	1023
	November	385	397	60	148	8	0	997
	December	400	393	77	135	7	0	1,012
2021	January	330	465	75	138	7	0	1,015
	February	281	422	106	110	7	0	926
	March	305	461	63	200	8	0	1,037
	April	308	425	60	165	7	0	964
	May	369	385	116	130	8	0	1,008
	June	318	409	84	185	7	0	1,003
	July	286	463	123	153	13	0	1,037
	August	274	453	109	190	17	0	1,043
	September	262	440	107	187	18	0	1,014
	October	309	388	118	201	23	0	1,039
	November	293	378	135	196	23	0	1,025
	December	339	349	167	131	28	0	1,014
2022	January	320	311	206	156	32	0	1,026
	February	244	305	224	123	30	0	926
	March	243	410	170	202	35	0	1,061
	April	229	441	126	179	31	0	1,006
	May	284	521	80	153	33	0	1,071
	June	265	494	83	181	28	0	1,051
	July	252	521	104	208	25	0	1,111
	August	257	513	121	186	22	0	1,099
	September	244	488	118	201	26	0	1,077
	October	247	478	97	237	39	0	1,098
	November	233	494	124	177	39	0	1,067
	December	221	541	133	139	42	0	1,076
2023	January	185	525	107	203	47	0	1,067
	February	113	472	142	191	43	0	961

Source: Kenya National Bureau of Statistics



**Table A18: Soft drinks, sugar, galvanized sheets and cement production**

Year	Month	Soft drinks litres (thousands)	Sugar MT	Galvanized sheets MT	Cement MT
2020	January	52,654	53,155	23,397	530,404
	February	42,072	51,083	21,989	548,818
	March	52,109	52,699	18,527	559,424
	April	35,951	45,468	6,259	509,197
	May	34,129	46,350	18,042	511,961
	June	47,273	49,680	23,730	594,421
	July	39,833	53,155	24,493	666,341
	August	39,290	53,434	23,226	712,701
	September	52,436	54,873	20,801	707,033
	October	47,215	54,830	22,868	731,253
	November	42,916	50,227	23,268	668,507
	December	64,707	38,834	20,854	666,855
2021	January	50,153	58,044	18,631	669,530
	February	42,749	61,508	20,762	612,980
	March	53,157	66,194	21,781	721,444
	April	43,742	58,404	21,572	695,953
	May	40,266	57,796	21,165	717,669
	June	48,457	58,968	22,365	698,424
	July	33,864	57,513	20,343	876,998
	August	43,744	64,134	19,662	896,825
	September	53,383	45,347	17,479	866,344
	October	53,394	49,899	20,111	892,975
	November	56,226	60,022	25,926	807,553
	December	58,453	62,333	20,348	791,050
2022	January	43,404	64,839	21,546	855,883
	February	42,277	64,191	21,671	818,496
	March	58,367	79,448	19,616	911,250
	April	42,333	68,508	19,479	842,239
	May	41,090	63,209	23,383	752,698
	June	43,736	70,376	22,073	773,153
	July	33,684	70,278	20,895	804,401
	August	38,984	46,460	17,064	745,559
	September	47,873	60,388	21,833	829,930
	October	47,232	74,082	19,690	824,474
	November	49,053		20,589	821,768
	December	57,312			774,124

Source: Kenya National Bureau of Statistics





**Table A19: Tourism arrivals**

Year	Month	JKIA	MIA	TOTAL
2020	January	113,082	12,205	125,287
	February	106,352	11,086	117,438
	March	43,346	3,950	47,296
	April	9	-	9
	May	94	-	94
	June	422	2	424
	July	475	1	476
	August	16,091	671	16,762
	September	18,979	761	19,740
	October	27,809	1,173	28,982
	November	30,062	1,149	31,211
	December	43,226	3,109	46,335
2021	January	43,234	3,045	46,279
	February	32,047	3,005	35,052
	March	37,214	3,194	40,408
	April	27,850	3,037	30,887
	May	32,153	1,735	33,888
	June	46,494	2,038	48,532
	July	64,493	4,532	69,025
	August	72,291	6,257	78,548
	September	66,667	3,633	70,300
	October	67,608	5,201	72,809
	November	71,271	5,435	76,706
	December	82,867	7,637	90,504
2022	January	63,277	6,655	69,932
	February	67,560	6,390	73,950
	March	76,336	5,073	81,409
	April	77,379	3,949	81,328
	May	87,058	3,429	90,487
	June	103,332	4,834	108,166
	July	118,347	6,580	124,927
	August	103,163	7,892	111,055
	September	100,682	6,240	106,922
	October	105,318	8,663	113,981
	November	96,533	11,321	107,854
	December	113,630	15,086	128,716
2023	January	98,059	15,989	114,048

Source: Kenya National Bureau of Statistics  
Note: JKIA (Jomo Kenyatta International Airport, MIA (Moi International Airport)



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